Food practices of young urban black adults residing in the central suburbs of the Tshwane Metropolitan Area

Thamie Dlamini

DISSERTATION

Masters in Consumer Science

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by

Thamie Dlamini

Dissertation submitted in partial fulfilment of the requirement for the degree

Masters in Consumer Science

in the

Department of Consumer Science
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Supervisor: Dr AT Viljoen

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Dedication

This dissertation is dedicated to:

- My beloved mother for my upbringing and the support she showed me throughout my studies

- My brother, Philip Dlamini who paid for my high school education giving me a point to begin my academic journey

- Lastly, the entire family for their support; spiritually and otherwise;

I love you all.

Declaration

I, **Thamie Dlamini**, hereby declare that the **dissertation** which I hereby submit for the degree of a **Master's degree in Consumer Science** at the University of Pretoria, is my own work and has not been submitted by me for a degree at this or any other tertiary institution.

……..……..

Thamie Dlamini

……...

DATE

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My uttermost appreciation and gratitude to my beloved supervisor, Dr Annemarie Viljoen for her supervision and guidance throughout this study. Her assistance has contributed significantly to the completion of this research project.

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- To my brothers, sisters and friends, it is my pleasure to thank you for the love and support you have shown while pursuing my career goals, you made the distance from home unfelt. Thank you, I love you.

- Above all, praise be to the Almighty God who through His grace I have made it up to this far. Thank you Lord, you are worthy to be praised.

Thank you all.

Abstract

Title : **Food practices of young urban black adults residing in the central suburbs of the Tshwane Metropolitan Area**

BY

Thamie Dlamini

Supervisor : **Dr AT Viljoen**
Department : **Consumer Science**
Faculty : **Natural and Agricultural Sciences**
Degree : **Master of Consumer Science (General)**

The current food practices of young urban back adults residing in the central suburbs of the Tshwane Metropolitan Area are explored and described. The study focused on the extent to which these adults consumed traditional and Western-orientated foods and the contribution of selected environmental influences from both the external and internal environments.

Numerous changes in the external environment, due largely to urbanisation and modernisation, have contributed to a change in lifestyle of the black South African population. This trend has resulted in a gradual move from the traditional to a more Western-orientated lifestyle and associated food practices. This study aims to contribute to the knowledge gap on the food practices of young urban black adults residing in the Tshwane Metropolitan Area. The human ecological perspective was used as theoretical perspective and a quantitative research approach was followed for this explorative and descriptive cross-sectional study. A convenience sample of 323 young urban black adults from the central suburbs of Tshwane Metropolitan Area participated in this study. A pretested self-administered questionnaire consisting of both closed and open-ended questions was developed to collect the data. Information gathered focused on their usual eating patterns, the frequency of consumption of traditional and Western-orientated foods and the influence of knowledge, attitudes, beliefs and values on their food choice and practices.

Results confirm the on-going changes in the eating patterns of the study group. The majority (56.04%) of the respondents ate three meals a day. The weekday meal composition consisted mainly of a bread-based breakfast and lunch with some respondents reporting

snacking between meals. The evening meal comprised rice or stiff maize meal porridge served with either chicken or meat. Only 25% ate vegetables as part of this meal.

A similar meal pattern and composition was followed over weekends, although some differences in the types and quantities of both traditional and Western-orientated food items were noted. The identified food practices confirm a more frequent inclusion of Western-orientated foods at most meals, although traditional foods are still consumed on special occasions and whenever they are available.

Furthermore, the study provides valuable insights on how knowledge, attitudes, values and beliefs contribute to food choice behaviour related to healthy eating, traditional and Western-orientated foods. Although the respondents knew about healthy food products, they did not put their knowledge into practice, as was specifically evident in the low consumption of fruit, vegetables and dairy products. This raises concern. Their positive attitude towards traditional food was confirmed as they regarded it as tasty and healthy. The majority of the respondents associated traditional foods with cultural identity and valued it as essential for social and cultural cohesion. In spite of the pertinent adoption and embracing of certain elements of Western-orientated food practices, traditional food still features prominently in the eating patterns of young black adults in Tshwane, and should be encouraged and promoted in consumer facilitation and nutrition education.

Key words:

urban young adults **traditional food** **eating patterns**

food practices **consumption frequency** **food choice**

urban environment

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Chapter 1: The Study in Perspective

1.1 INTRODUCTION AND BACKGROUND

South African society is in the process of accelerated social change subsequent to the dismantling of apartheid in the early to mid-1990s'. This change has been further intensified by migration, urbanisation, modernisation and globalisation. One of the greatest changes noticed is the shift from the traditional to a partially Western-orientated lifestyle of the black population (Mokabane, Mashao, Van Staden & Potgieter, 2014; Viljoen, Botha & Boonzaaier, 2005; Le Grange, Louw, Breen & Katzman, 2004). Inevitably, this would include changes related to this population group's food practices[1], implying that food habits, food choices, acceptability, eating patterns, meal patterns, meal composition, and food-related behaviours are all affected (Popkin, Adair & Ng, 2011; Popkin, 2006; Popkin, 2004). Population groups experience social, economic and, particularly technological changes today as migration, urbanisation and modernisation take place freely. Hence they find many aspects of their daily lives changing. As far as food is concerned they are actually in a time of nutrition transition[2].

Demographic and socio-economic changes influence dietary and activity patterns hence a change in the supply of food takes place. Food supply relates to an agricultural system and agricultural technology, as well as the factors that affect the demand for and use of food (Popkin, 2006). There is a recognisable shift in the food supply which, in turn, is connected to the marketing and sale of food. The fresh produce market is disappearing as a major source of supply for food as multinational, regional and local supermarkets that are part of larger chains have taken over their basic function (Igumbor, Sanders, Puoane, Tsolekile, Schwarz, Purdy, Swart, Durao & Hawkes, 2012; Popkin *et al*., 2011). Hypermarkets too have become influential in the noteworthy change that is taking place in food expenditure patterns.

The pace of dietary change and activity patterns appears to have accelerated to varying degrees in different regions of the world (Mokabane *et al*, 2014; Jung, Bray & Ginis, 2008;

[1] Food practice implies how the chosen food is used and includes the food-related behaviour typical of an individual or group. It is regarded as the manifestation of the culture and the effect of the psychological and cognitive condition of the individual as well as influences from various environments. The food choice process is embedded in food practices and is regarded as an integral part of it (Viljoen, 2009:3).

[2] Steyn & Mchiza (2014) defines the nutrition transition "as a shift from periods of famine, to those of receding famine, to those of nutrition-related chronic diseases of lifestyle resulting from affluence and the changes in diet are toward less refined foods and carbohydrates accompanied by increase in animal protein, saturated fat and sugar." Vorster, Kruger & Margetts (2011) also defines nutrition transition as the changes in dietary patterns and nutrient intakes when populations adopt modern lifestyles during economic and social development, urbanization and acculturation is associated with the documented increases in non-communicable diseases.

Popkin, 2006; Popkin, 2004). The concept of a nutritional transition focuses on large shifts in the structure and composition of a diet. Globally, diets have become more energy dense and higher in fat, sugar and salt. Indigenous or traditional foods that generally contain more higher-fibre foods are being replaced by highly processed foods (Mokabane *et al*, 2014). There is considerable variability in eating patterns globally. Although broad traditional cultural eating patterns remain strong in most countries, currently a transition between traditional and Western-orientated lifestyle is becoming evident (Mokabane *et al*., 2014; Popkin *et al*., 2011; Popkin, 2006).

Numerous studies report a considerable shift in the eating patterns of young adults that are characterised by increased portion sizes, away-from-home food intake and snacking in-between meals (Sharkey, Johnson, Dean & Horel, 2011; Bilman, Trijp & Renes, 2010; Van Zyl, Steyn & Marais, 2010; Creel, Sharkey, McIntosh, Anding & Huber, 2008; Popkin, 2006). Furthermore, these changing patterns are associated with a low intake of fruit and vegetables. This shift in diet and less physical activity results in overweight and obesity. The prevalence of overweight and obesity worldwide has increased significantly in recent decades (Mokabane *et al*., 2014; French, Epstein, Jeffery, Blundell & Wardle, 2012; French, 2003). In South Africa the occurrence of overweight and obesity is a matter of great social concern. This is confirmed by the recent SANHANES-1 study that reported the highest incidence of overweight and obesity in the formal urban areas of Gauteng, South Africa's smallest province with the largest population of 12.27-million (Shisana, Labadarios, Rehele *et al*., 2013, SA Statistics, 2011). SANHANES-1 study confirms that females in urban formal areas are more overweight (24.2%) than males (22.8%). The prevalence of obesity is high amongst females (42.2%) in urban formal areas as compared to males (13.2%) and in the Gauteng province more females are overweight and obese as compared to males (Shisana *et al*, 2013). Urbanisation and Westernisation in South Africa are therefore setting a stage for an increasing prevalence of overweight and obesity.

The current obesity epidemic is seen to be caused by a sedentary environment that promotes excessive food intake and discourages physical activity. Urbanisation, modernisation and globalisation contribute to being the root causes for all the diet and activity-related illnesses (Mokabane *et al*., 2014; MacIntyre, Venter, Kruger & Serfontein, 2012; Popkin *et al*., 2011; Popkin, 2006). Moreover, these shifts in dietary and activity patterns are becoming to happen more rapidly, and could be evidence for the increased mortality rate due to non-communicable diseases (Steyn & Mchiza, 2014; Malhotra, Hoyo, Ostbye, Hughes, Schwartz, Tsolekile, Zulu & Puoane, 2008; Popkin, 2004; Vorster *et al*., 1999). The consumption of processed foods and ready-prepared meals is becoming increasingly common, and eating more food away from home too is a major aspect of

many people's lives, although it is associated with the increasing prevalence of obesity (Mokabane *et al*., 2014; Castro, King, Duarte-Gardea, Gonzalez-Ayala & Kooshian, 2012).

One of the changing food practices observed within the South African black population is a shift from the traditional to a more Western-orientated eating pattern (Steyn & Mchiza, 2014; MacIntyre *et al*., 2012; Viljoen *et al*., 2005) that consists of high kilojoule (kJ) refined foods containing large quantities of saturated fats, sugars, and sodium (MacIntyre *et al*., 2012; Van Zyl *et al*., 2010; Viljoen *et al*., 2005; Malherbe, Walsh & Van der Merwe, 2003). This population group generally relies more on cheaper, more filling foods that are often high in fat and are less nutritious. Moreover, there is more snacking in-between meals. A change in eating patterns is an aspect of urbanisation that negatively affects health (Steyn & Mchiza, 2014; MacIntyre *et al*., 2012; Malhotral *et al*., 2008). Changes in diet and activity patterns lead to the increased emergence of non-communicable diseases and disability problems. Overweight and obesity as risk factors for non-communicable diseases have become a global public health challenge (Mokabane *et al*., 2014; Quick, Wall, Larson, Haines & Neumark-Sztainer, 2013), as they are simultaneously a major cause of hypertension, coronary heart disease, diabetes mellitus type 2 and certain cancers (Feeley & Norris, 2014; Popkin, 2006; Malherbe *et al*., 2003; Senekal, Steyn & Nel, 2003). Overweight and obesity rates in South Africa are alarmingly high (Feeley *et al*., 2014; Mokabane *et al*., 2014; Steyn & Mchiza, 2014; MacIntyre *et al*., 2012; Malhotra *et al*., 2008). Data collected from various recent South studies showed that the prevalence of obesity for women was ≥30% and that for men it was ≥25% (South African Institute of Race Relations, 2013; Shisana *et al*., 2013; Kruger, *et al*., 2006).

1.2 STATEMENT OF THE PROBLEM

Most Southern African countries are facing the double burden of nutrition-related diseases due to the co-existence of both under and over-nutrition occurring in the same household and/or communities (Steyn & Mchiza, 2014; Shisana *et al*., 2013; Faber & Wenhold, 2007; MacKeown, Pedro & Norris, 2007). Numerous changes in the external environment as a result of accelerated urbanisation and modernisation together with technology developments, socio-economic upliftment and education have all contributed to a change in the lifestyle of the black South African population (Ronquest-Ross, Vink & Sigge, 2015; Viljoen *et al*., 2005; Le Grange *et al*., 2004). The black urban South African population has gradually moved from the traditional towards a more Western-orientated lifestyle, and consequently adopted more Western-orientated food practices as well. Unfortunately the negative consequences of embracing Western-orientated food practices, such as overweight and obesity and their associated disease profiles (coronary heart disease, hypertension,

diabetes mellitus type 2 and strokes), are becoming more prominent in urban South African groups at a younger age than was previously the case. This change in their food practices seems to be increasing the incidence of overweight and obesity which is a major cause of hypertension (Mokabane *et al*., 2014; Seedat & Rayner, 2012).

In order to prevent this predicament, nutrition education and consumer facilitation is required, but before this can be done, the gap in knowledge about this connection has to be overcome. Although it is known that young urban black adults have changed to Western-orientated food practices, it is not known for certain what they actually eat and the extent to which a Western eating pattern is followed. This study aimed to explore and describe the food practices of young urban black adults residing in the central suburbs of Tshwane Metropolitan Area as part of a bigger research project on the food practices of adolescents and young adults in the Tshwane Metropolitan Area.

1.3 JUSTIFICATION OF THE STUDY

Most studies in South Africa have been conducted on children's eating patterns (Van Heerdern & Schönfeldt, 2011), but a few tried to find out to what extent Western-orientated diets are followed. Research on food practices of young urban black adults in South Africa is limited except for the recent studies done in Limpopo on physical activity of female adolescents (Mokabane *et al*., 2014), measuring micronutrient intakes at different levels of sugar consumption in a population in transition in North West (Macltyre *et al*., 2012) and a study on the determinants of obesity in Kayelitsha (Malhotra *et al*., 2008), with one on fast food intake of young adult consumers in Johannesburg (Van Zyl *et al*., 2010). As far as the researcher could establish, nothing on the topic of this research has been done in the Tshwane Metropolitan Area. Therefore this study, with the aim to explore and describe the food practices of young urban black adults residing in the central suburbs of Tshwane Metropolitan Area, is timeous. Since many young adults reside in the central suburbs of Tshwane targeting respondents here would yield valuable information for the study (City of Tshwane Metropolitan, 2008). The focus would be on a description of their eating patterns and food choices. The information obtained could be used in nutrition education and consumer facilitation, and contribute to knowledge about the food intake of this sector of the South African population.

Moreover, a better understanding of the factors influencing changing eating patterns of urban young adults in the Tshwane Metropolitan Area could lead to more relevant strategies being put in place to promote healthy eating practice. The results could also provide information for nutrition programmes to promote healthy eating which, in turn, could curb the

rise of non-communicable diseases.

1.4 STUDY AREA

The study was confined to young urban black adults residing in the central suburbs of Tshwane Metropolitan Area situated in South Africa's most urban province, Gauteng. It covers the suburbs of Brooklyn, Hatfield, Arcadia, Sunnyside, Groenkloof, Waterkloof, Pretoria Central and Booysens as indicated in Figure 1.1 and Figure 3.2.

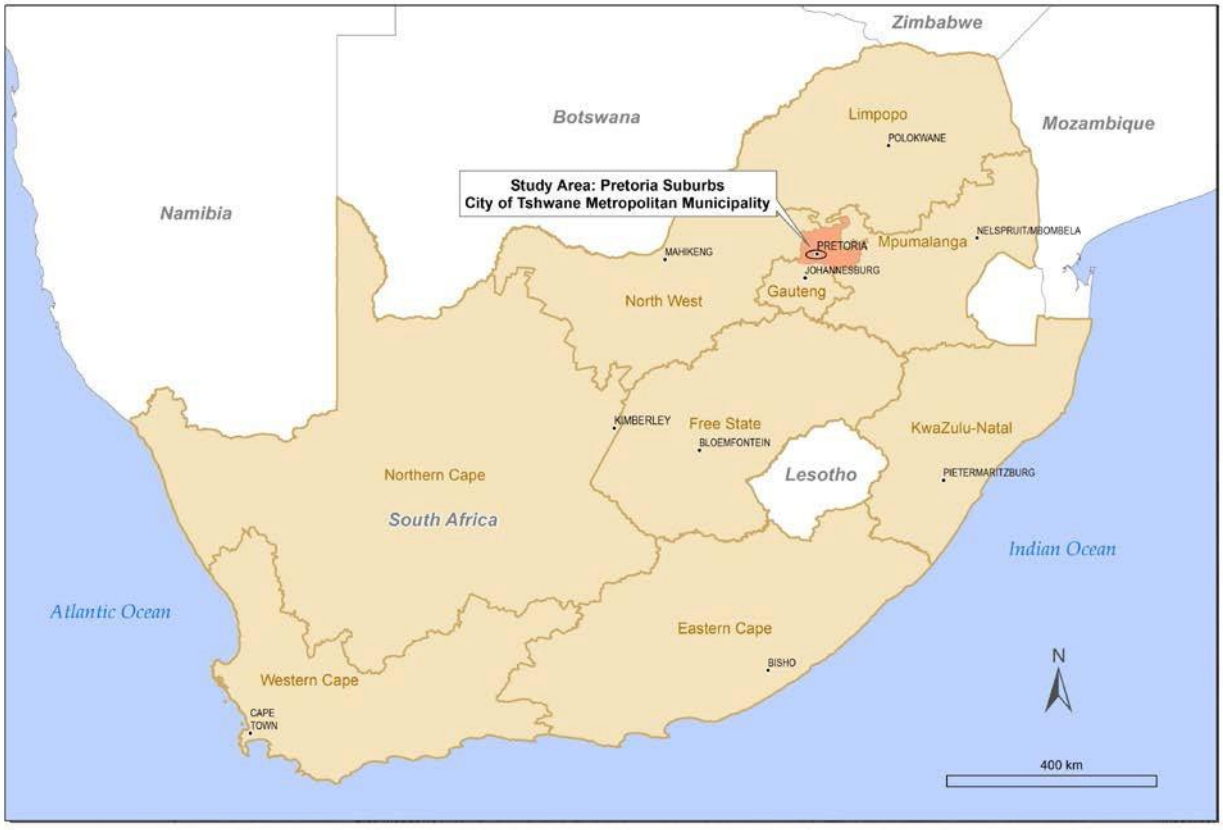

FIGURE 1.1: ORIENTATION MAP: STUDY AREA IN TSHWANE METROPOLITAN AREA, GAUTENG AND SOUTH AFRICA

1.5 RESEARCH AIM AND OBJECTIVES

The aim of the study was to explore, determine and describe the food choice and food practices of young (20-30 years) urban black adults residing in the central suburbs of the Tshwane Metropolitan Area in order to ascertain the extent to which the study group consumes modern, Western-orientated and traditional foods. The contribution of selected environmental influences from both the external and internal environments were also investigated. The objectives used to guide the research were to determine and describe:

1. the food and eating patterns (meal patterns and meal composition) of the study group on weekdays and over weekends.
2. the extent and frequency with which the study group consumed both traditional, indigenous foods and modern, Western-orientated foods.
3. the contribution of the various external and internal environments to the food choices and food practices of the study group.
4. the influences of the study group's knowledge, attitudes, beliefs and values on their food choice and practices of the study group as part of the internal environment.

1.6 RESEARCH DESIGN AND METHODOLOGY

In this explorative, descriptive, cross-sectional study, a quantitative research approach was followed. Data was collected by means of a pretested self-administered questionnaire. A survey questionnaire measured the socio-demographic characteristics, usual eating patterns, consumption and frequency of consumption of traditional foods, snacks and fast foods and the different dimensions of food practices.

1.7 DATA ANALYSIS

The statistical software package, SAS version 9.3, was used to analyse the data by means of descriptive statistics (percentages and frequencies) and to produce tables and graphs as summaries.

1.8 THEORETICAL PERSPECTIVE

The theoretical perspective employed in this study is the human ecological perspective. The capability of the human ecological perspective to offer a holistic approach, and to accommodate the interacting dynamics of all the factors from the different environments that contribute to the food choice process, made it appropriate for this study.

1.9 DELIMITATIONS OF THE STUDY

The study was confined to young urban adults residing in the central suburbs of the Tshwane Metropolitan Area and focuses on adults in the age range of 20-30 years.

1.10 OUTLINE OF THE REPORT

Chapter 1: The study in perspective

The introductory chapter gives the background and introduction of the study, has stated the problem statement and the justification for carrying out the research. The formulated and itemised objectives helped to guide the study. The research design and methodology were also highlighted. A summary of the chapters that reflect the structure of this dissertation follows.

Chapter 2: Literature review

This second chapter provides an overview of the background to the study and the theory in which the human ecological perspective is grounded. The assumptions that helped to guide an understanding of the dynamic relationship between individuals and their environments are stated. The external and internal environmental factors that influence food choice are discussed as is food choice as a concept. An overview of the current food practices of young adults is also given.

Chapter 3: Research methodology

The research methodology is presented and described in this chapter, providing information on the research design, the research aim and objectives. The conceptual framework with the main concepts used in the study and the operationalisation and development of the measuring instrument are explained. The study area and population is described. The sample and sampling method, data collection, data analysis and data quality as means to combating possible errors in this research process are also dealt with in this chapter. Ethical considerations to ensure anonymity and confidentiality are explained.

Chapter 4: Results and discussion

In this results chapter the demographic profile of the sample is presented first, followed by accounts of the study group's current eating patterns, the frequency of consumption of both traditional and Western-orientated foods, the various influences from the external environment and lastly, the influence of the internal environment on the food choices and food practices.

Chapter 5: Conclusions, evaluation and recommendations of the study

This final chapter of this dissertation offers the conclusions drawn from the reported findings of the study on food practices of young urban black adults. The research done is evaluated and the implications of the results found are documented. Recommendations and suggestions for future research are made.

1.11 CHAPTER CONCLUSION

This introductory chapter has presented the research background, the problem statement and justification for the study. It included the research objectives, research methodology followed, delimitations of the study and the outline of the structure of the study. The next chapter will deal with the theoretical perspective of the study and the different environmental factors, both external and internal, that influence the food choice and food practices of young urban black adults.

Chapter 2: Literature Review

This chapter presents the theoretical perspective used for this study on the food practices of young urban black adults. The factors influencing the food choice process and other related concepts are discussed.

2.1 INTRODUCTION

Food choice and food practices are complex processes influenced by different interrelated and interacting internal and external environmental factors (Zagata, 2012; Eertmans, Victoir, Vansant & Van den Bergh, 2005). Human food practices are thus guided by a complex matrix of interrelated and interdependent factors from various environmental levels. The environmental context and circumstances in which people live and make food choices, influence their lifestyle and dietary patterns. The environmental levels are broadly grouped into the external or internal factors (Larson & Story, 2009). The external environment is conceived as a group of factors that influence and are part of the context in which household and individual food decisions are made.

The internal environment refers to individual or personal characteristics that influence food choice and eating practices. It includes psychological factors such as attitudes, beliefs, values, and knowledge, as well as biological and physiological factors from the various environmental levels, yet they are interrelated and interdependent.

Different scholars have taken different theoretical and methodological approaches to the study and understanding of food choice. Some studies are based on a psychological perspective focusing on attitudes and beliefs, and show that food meanings directly influence reasons people give for their food choices (Furst, Connors, Bisogni, Sobal & Falk, 1996; Sobal, Bisogni, Devine & Jastran, 2006:1; Rozin, 2006:27). Other studies have investigated food practices from an anthropological or cultural perspective, an economic perspective, or a biological perspective (Frewer, Risvik & Shifferstein, 2001:4; Rozin, 2006:29; Sobal *et al*., 2006:1). In the case of this study the human ecological perspective will be used as the theoretical foundation as it provides a holistic approach to encompass all contributing factors from both the external and internal environmental levels (Bryant *et al*., 2003:2). Various scholars also justify the ecological perspective as a suitable theoretical point of departure to understand the factors that influence food practices of individuals or groups (Story & Larson, 2009; Story, Neumark-Sztainer & French, 2002:41; Sims & Smiciklas-Wright 1978:173).

The main points about the human ecological perspective and the assumptions derived for this study are given in this next section.

2.2 HUMAN ECOLOGICAL PERSPECTIVE

The human ecological perspective will be employed as the theoretical perspective for the study as it offers a holistic approach and provides the opportunity to describe personal or individual, social, physical and macro-level environmental factors influencing the food choice process. It also accommodates the interacting dynamics of all the factors from the different environments that contribute to the food choice process (Bryant *et al*., 2003:2; Pelto *et al*., 2003:2; Krondl., 1990:9-11; Sims & Smiciklas-Wright, 1978). The ecological approach further acknowledges that humans and their environments co-exist as a unit, and for this reason they should not be studied separately (Larson & Story, 2009; Story, Kaphingst, O'Brien & Glanz, 2009; Sims & Smiciklas-Wright, 1978).

The ecological perspective emphasises the close reciprocal and dynamic relationship between people and their environments. A basic premise of the perspective deals with human interaction with these environments as well as the interdependence between the different parts of the ecosystem as a whole. This approach is relevant as it implies concern for the well-being of humans and upholds the principle of sustainability. Bubolz and Sontag (1993:425-426) list a number of assumptions derived from the ecological perspective and the following apply to this study:

1. *All parts of the environment are interrelated and directly or indirectly influence each other.* The natural physical environment provides the essential resources necessary for human survival. However, the socio-cultural and the technological and physically constructed human environments too affect this process. These in turn all influence, and are influenced by the internal or individual environmental factors.

   Example: The physical and human environments (technological developments for the production, processing, preservation, and distribution of food) determines what food is made available for consumption. Moreover, both these environments interrelate closely with the socio-cultural environment that comprises social organisation and ideology. The socio-cultural environment guides behaviour towards choosing foods, from those available, based on what is regarded as socially and culturally acceptable for consumption by the particular group to which the individual belongs.

2. *Humans interact with multiple environment.* The different external environmental influences with which humans interact, include the natural physical environment, the economic, the political and the socio-cultural environments. The food choice process in the external environment is determined the availability, accessibility, affordability, and acceptability of the food being chosen.

   Example: Consider the case of an individual's consumption of vegetables. Personal factors such as whether the individual likes or dislikes vegetables, social factors such as whether their family or friends eat vegetables, physical environmental factors such as whether vegetables are available in the multiple contexts where that particular person lives and eats as well as the price of vegetables (economic environmental factor), all influence the person's choice of whether to eat vegetables or not.

3. *Humans respond to, change, develop, act on and modify their environment through the process of adaptation*. Adaptation to different environments is a characteristic of human survival, but humans not only adapt to changes in the environment, they also act on or modify the environment in order to obtain the desired outcomes. Failure to adapt leads to human extinction.

   Example: Globalisation, industrialisation and the subsequent large-scale urbanisation influences not only what people eat but also when and where they eat. Technological advancement in transportation, refrigeration, food processing and preservation have all contributed to the range and type of foods individuals can choose. The type of food they eat influences their health. The increased variety of convenience food is an example of how humans adapt to changing circumstances by modifying and developing new food products to suit their present busy lifestyle.

4. *Interaction between humans and the environment is guided by two sets of rules, the physical and biological laws of nature and human-derived rules.*

   Example: The law of nature is that all living organisms require food for survival. This biological law influences the physical (natural and technological) environment to provide sufficient food for human consumption. Human-derived laws relate to the use and allocation of resources, role expectations and distribution of power in a society. In order to ensure that the processed food available for consumption in South Africa is safe and nourishing, food legislation (human derived laws) sets specific

parameters to which the food industry has to adhere. The legislation regarding the labeling information of processed food serves as example.

The next section describes the factors contributing to food choice process and illustrates how influences from each of the various environmental levels contribute to the process.

2.3 FACTORS INFLUENCING FOOD CHOICE

Food choice is influence by various environments. The environments are grouped into two groups namely, the external and internal.

2.3.1 EXTERNAL ENVIRONMENT

The food choice process has various environmental levels and stages (Figure 2.1). The external environment includes the physical, economic and political, as well as the socio-cultural environments. They are briefly discussed.

2.3.1.1 Physical environment

The physical environment refers to the most proximal community settings and includes physical structures within the built environment, infrastructure such as shopping malls and roads and other material objects (Sobal & Bisogni, 2009; Popkin, Duffey & Gordon-Larsen, 2005; Story. Neumark-Sztainer & French, 2002). The physical environment is conceived as the external context in which household and individual food-related decisions are made (Popkin *et al*., 2005:603). The physical environment determines what food is available and accessible for consumption and it either creates opportunities or constraints regarding what people eat. Availability may be described as the array of food options that are present in the food system which are acceptable and affordable to choose from (Story *et al*., 2002; Sims and Smiciklas-Wright, 1978). People develop systems of preferred food and tastes that are reflected in the foods that are available and the methods of preparation used to make those foods edible. For example, the physical environment of urban people provides easy access to food through the high presence of supermarkets, fast food outlets, restaurants, shopping malls and convenience stores, and consequently, this could affect their food choices and preferences.

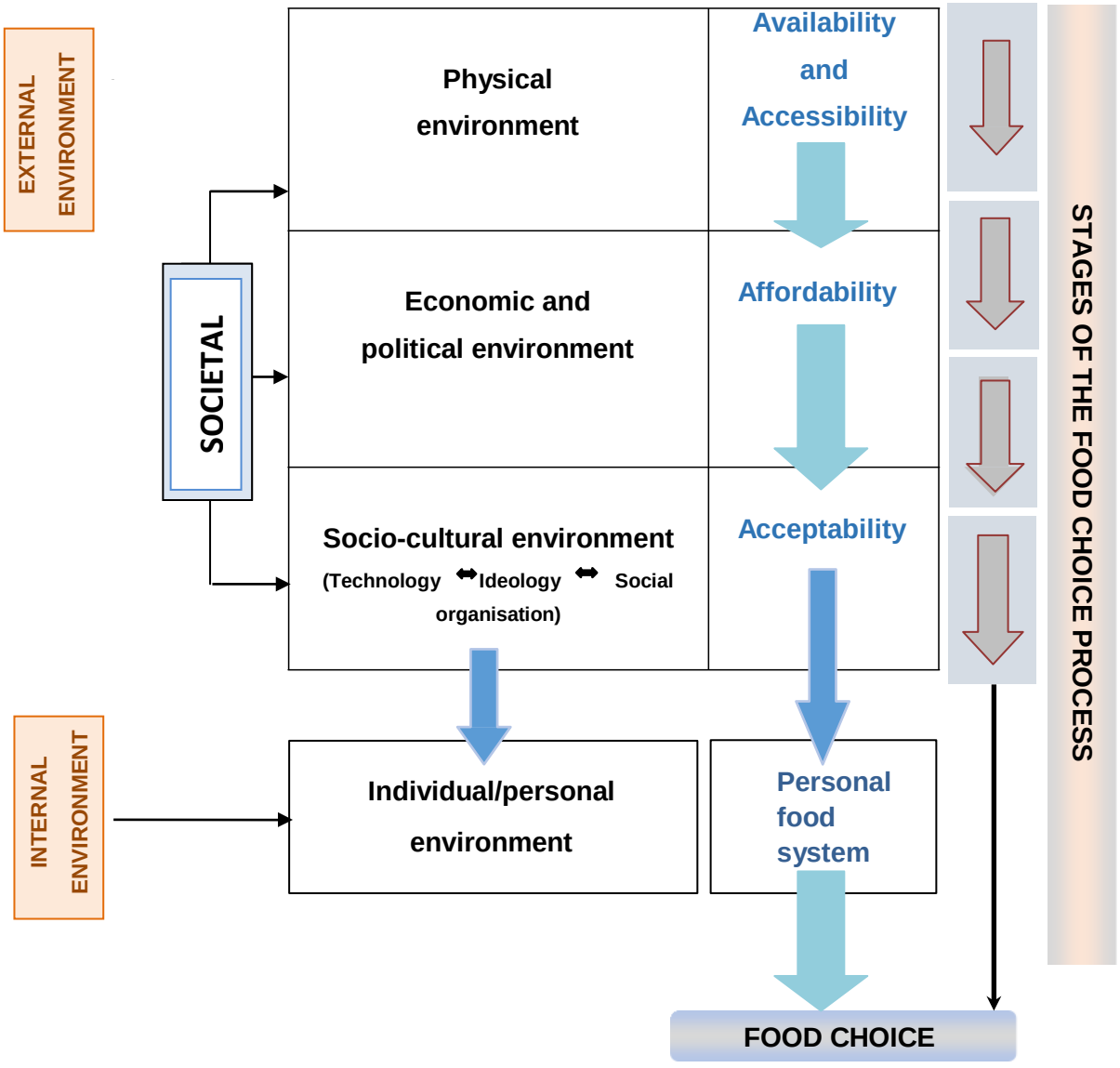

FIGURE 2.1: THE HUMAN ECOLOGICAL ENVIRONMENTAL LEVELS CONTRIBUTING TO THE FOOD CHOICE PROCESS (Adapted from Viljoen, 2009:23).

2.3.1.2 Economic and political environment

The economic and political aspect of the environment refers to the ways humans are organised and stratified within groups and communities (Bryant *et al*., 2003:13). The economic environment encompasses the way in which production, exchange and consumption of all goods, including food, are managed. The economic environmental factors that influence food choice include the price of the food, income, time and formal education (Larson & Story, 2009; Scheibehenne, Miesler & Todd, 2007; Popkin, 2006; Fieldhouse, 1995:26). Processed foods are more expensive due to labour and technology costs involved

during processing. Whether food is expensive or not fundamentally depends on an individual's income. Thus the price of food and the income of an individual are the primary determinants of food choice. Low income groups have limited food choices, consequently they have a lower intake of fresh fruits and vegetables as opposed to people with a higher income who are in a position to afford purchasing fresh fruits and vegetables (Zakowska-Biemans, 2011:122; De Irala-Estevez, Groth, Johanson, Olterdorf, Prattala & Martinez-Gonzalez, 2000).

However, a high income does not automatically mean a quality diet; instead the range of food to choose from increases. For example, the number and type of meals an individual eats per day would be highly dependent on the money available. The economic environment influences people's access to food and other resources, and affords them the capacity to exploit those resources (Bryant *et al*., 2003:13). There seems to be a tendency for higher fruit consumption in the rural areas probably because of increased availability and affordability (Vorster, Kruger & Margetts, 2011; Donkin *et al*., 2000).

The political environment on the other hand affects food consumption in that laws and regulations govern the sale of certain kinds of food. These laws affect food choices and eating habits because people are coerced to make choices based on what is available through food trade. Multinational food companies' marketing strategies and distribution networks influence what is available for purchase, and the price at which these products are offered (Bryant *et al*., 2003:14). Moreover, food laws control food trade between different countries.

2.3.1.3 Socio-cultural environment

The socio-cultural environment encompasses the twin concepts; social and cultural which shows interdependency and inseparability. Social refers to society and is described as a group of people interacting in a common territory and who have shared institutions, characteristic relationships and a common culture (Botha, Le Heron, Penny, Paine, Sheath & Pederson, 2001:24). The social environment refers to the way a social group organises its members into families, social strata, communities and other groupings (Bryant *et al*., 2003:12). Social organisation includes norms that regulate relationships and even how work and food is distributed in a household. The social environment influences food choice in several ways, such as access to acceptable food and the necessary resources (i.e money) needed to obtain and use food. The second concept culture is defined as "…that complex whole which includes knowledge, beliefs, art, law, morals, customs and other capabilities acquired by a person as a member of society" (Taylor 1891 in Ferraro, 2001:22). Bryant *et*

al. (2003:86) in the same vein define culture as "a set of norms, beliefs, values and other conventional understandings shared by a specific identifiable social group such as an ethnic group, class, professional organization, corporation or discipline". This definition implies the shared understandings that characterise groups of people and distinguish them from other groups (Bryant *et al*., 2003:12).

Culture is learned in the early stages of development through the process of socialisation[3] and enculturation[4]. Food behaviours are learned through enculturation, which is described as the process through which culture is transmitted from one generation to the next. Cultural factors influence food and eating behaviours. Culture is a system of shared understanding and inter-action that shape and, in turn, are shaped by experience (Larson & Story, 2009). Shared values and beliefs are core aspects of all cultures and define perceptions of food, health and illness. Cultural behaviours, values and beliefs are learned early in life, and are transmitted from one generation to the next.

The culture in which individuals have been raised has a major and powerful influence on their own food choices and what they eat (Shepherd & Raats, 1996:807). Culture establishes how food is used thereby affecting a person's food intake (Kittler *et al*., 2011:4; Fieldhouse, 1995:1). All the accumulated wisdom on what to eat and what is appropriate to eat are transmitted from one generation to another through culture (Rozin, 2007:12) and influences food choice and acceptability, since people prefer to eat what is culturally acceptable in their families. Food is an expression of cultural identity. Cultural food patterns influence food consumption in several ways. They shape food preferences and perceptions of what kind of foods are healthy and unhealthy and dictate what food is eaten, when it is eaten and how it is prepared (Larson & Story, 2009). Culture dictates food occasions, for example in most households breakfast is a distinct meal with specific foods (Rozin, 2007:13).

Culture is dynamic and cultural change is mostly perpetuated by social structural changes such as migration, urbanisation and modernisation (Kittler *et al*., 2011:11). However, culture is a forceful construct that continues to evolve and change over time (Larson & Story, 2009). Cultural influences are, however, responsive to changing circumstances, for instance, when people migrate to urban areas their food practices tend to change through adopting the particular food habits of the local culture.

[3] Socialisation refers to "more or less direct teachings to which an individual is exposed to" This teaching involves the inculcation of norms and customs by various socialization agents (parents, teachers, elders and others) who are consciously shaping the individual according to the cultural model of a proper member of society (Viljoen, 2009:15).
[4] Enculturation refers the entire incidental learning that occurs through imitation of elders and other members of the society (Viljoen, 2009:15).

Thus, people live in complex environments that include the effects of the physical, economic and political and the socio-cultural structures. Culture is vibrant and influences how a society responds to the opportunities and constraints these environments pose in order to produce, and prepare food needed to sustain growth (Bryant *et al*., 2003:87). In order to respond to the demands of the complex living environment, culture consists of three major components that are interconnected are now discussed independently: technology, ideology and social organisation.

2.3.1.3.1 Technology

Technology refers to the knowledge, practices and tools a group uses to cope with the physical environment and meet the basic biological needs of life (Kittler *et al*., 2011:12; Bryant *et al.,* 2003:87). The technological environment is the human-made environment which develops ways to cope with environmental challenges and also contributes to the availability and accessibility of food for consumption. Technological innovations such as microwave ovens, preservation and storage facilities, such as refrigerators and deep freezers that prolongs the shelf-life of food products, especially seasonal foods, are factors that have opened doors for convenience foods (Brunner, Van der Horst & Siegrist, 2010; Popkin, 2006). Technology plays a role in producing palatable and inexpensive foods such as frozen foods, canned products and complex condiments (Rozin, 2007:8). Food processing is another aspect of technology that has an important effect on dietary intake (Bryant *et al*., 2003:87). Commercially processed foods are in abundance and readily available in the retail sector. The retail food industry is a large provider of processed food that is more refined and often has additives, a high fat content and added sugar (Popkin, 2006; Bryant *et al*.,2003:87; Frewer *et al*., 2001:4).

Transportation too has experienced technological advancement. Modern means of transportation have played a role in the demand for, and access to supermarkets (Popkin, 2006). Consumers nowadays have fresh farm produce available and can purchase food that originates in different parts of the world because of improved transportation and preservation technologies (Rozin, 2007:8; Bryant *et al*., 2003:87; Frewer *et al*., 2001:4). The availability of appliances used for food preparation and storage has also influenced food choice greatly. For example, people with big freezers can buy food that is not locally available in bulk to reduce the cost of transport, and the need to buy such commodities on a daily basis.

Technological developments have also changed work and activity patterns. More females too are being employed outside the home which means they have to accommodate food provision activities in their new daily routines too. Changing commitments in the household

have significant effects on what the food industry makes. The increasing number of hours people today spend away from home and their hectic lifestyles have created a demand for and a reliance on convenience foods that, in turn, influences food practices and food choices (Lhuissier, Tichit, Caillavet, Cardon, Masullo, Martin-Fernandez, Parizot & Chauvin, 2012; Verbeke & Lopez, 2005). Convenience encompasses accommodating various aspects that concern time, place, acquisition and use of a food product, or offering it as food (Verbeke & Lopez, 2005; Marquis, 2005; Krondl, 1990:10). It is not surprising therefore that pre-prepared convenience foods have had to become an increasingly larger part of the meal pattern and within an affordable price range.

2.3.1.3.2 Ideology

Ideology as an integral part of culture also affects human food choices. Bryant *et al*., (2003:221) define food ideology as "the values, preferences, symbolic expressions of meanings and beliefs that groups of people share with respect to food". On the other hand, Fieldhouse (1995:30) defines ideology as "the sum of attitudes, beliefs and customs and taboos affecting the diet of a given group". Ideology also refers to symbolic meanings and associated values that a group of people share with regard to specific foods (Bryant *et al*., 2003:13). It is thus clear that ideology (values, beliefs and attitudes) influences food choices and eating patterns of an individual. Each of these ideologies are briefly explained.

Values. "A value is an enduring belief that a specific code of conduct, or end-state of existence (life goals for living), is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973:5). Values are therefore guiding one to attain life goals for living. Values are also defined as enduring beliefs which guide and motivate behaviour and are important in self-definition and in food choices and provide cognitive scripts for food behaviour (Hauser, Jonas & Riemann, 2011; Botonaki & Mattas, 2010; Connors, Bisogni, Sobal & Devine, 2001). Personal values are the main evaluative or guiding principles in people's lives. Values influence attitude formation, cognition and behaviour and they last through the mediation of attitudes and beliefs. Food values are learned through the process of socialisation (Botonaki & Mattas, 2010; Parraga, 1990), and are imposed on an individual who gradually internalises them. Values determine what is socially desirable or acceptable as food (Parraga, 1990). Prestige and status are valued in many cultures (Bryant *et al*., 2003:92; Fieldhouse, 1995:79; Paraga, 1990). Some food confer high status on the eaters or facilitate movement up the social ladder; other foods assume high status because of the people who habitually eat them. Food can be used to promote interpersonal acceptance, friendship and to display social status.

Beliefs. Beliefs are conceptions of reality and propositions about how the universe works (Bryant *et al*., 2003:93). One possible method for studying factors influencing food choice is to examine beliefs held by individuals and how these relate to choices the person makes. Each society has a set of beliefs about food and has fixed conceptions on how it affects the human body. Beliefs people have about health-related aspects of functional food influence their food choices and their acceptability. In a study of black South African university students, results showed that beliefs were more independent predictors of health behaviours than risk awareness (Dolman, Stonehouse, Van't Riet, Badham & Jerling, 2007).

Attitude. An attitude is "a relatively enduring organisation of beliefs around an object or situation predisposing one to behave in some preferential manner" (Rokeach, 1968 In Shepherd & Raats, 1996). Attitude is related to a person's behaviour (Shepherd & Raats, 1996:112), and it helps to evaluate any concrete object or specific entity positively or negatively (Hauser *et al*., 2011; Bryant *et al*., 2003:347). According to Krech and Crutchfield (1969:810), an attitude is made up of three components, namely the cognitive, affective and conative components. The cognitive component refers to the information or belief a person has about a food. The affective component refers to the feelings of like or dislike towards food while the conative component relates to a certain way of behaviour. A combination of values, beliefs and attitudes guides individual food choice. For example, if a person knows and believes that fruits has desirable characteristics (cognitive part) in that they are healthy, it is likely that that the product will be liked (affective component), and there is a possibility that the product will be purchased (conative component). Most of the factors that influence food choice are the result of a person's attitude towards the specific food. According to Dolman *et al*., (2007), an attitude, in consumer behaviour terms, is a lasting, general evaluation of products and ideas. Attitudes are formed by personal usage or trust in the attitudes of other influential users.

2.3.1.3.3 Social organisation

Social organisation refers to the way in which a social group organises its people into families, social strata, communities and other groupings (Bryant *et al*., 2003:190). Bryant *et al*., further define social organisation as a complex set of norms, beliefs, values and other conventional understandings that regulate relationships and provides templates on how work is organised within households thus influencing how the day is organised. Food practices are tied to social organisation. As people cooperate to produce food or share a meal, the society's social organisation is reinforced (Bryant *et al*., 2003:190). Food practices are tied to social organisation in a way that food brings people together thus building and maintaining human relationships. Parents influence their children's dietary practices through role

modelling and making certain foods readily accessible in the home, selecting places to eat outside the home, transmitting beliefs, norms and values that guide food selection and rewarding desired behaviours and punishing others (Bryant, *et al*., 2003:194).

The external environmental factors as detailed in this section (2.3.1) are interconnected with the internal or personal environmental factors and they both influence food choice. Through the process of enculturation society learns values, preferences, meanings and beliefs which they share as a group with respect to food. The learned ideologies (beliefs, attitudes and values) enable humans to adjust to the supernatural and metaphysical environment. The internal environment is the theme of the next section.

2.3.2 INTERNAL ENVIRONMENT

The second major group of factors that influence food choices are the internal environmental factors also referred to as the individual or personal environment. Humans learn culture through interaction with other members of society through the process of enculturation and socialisation. Food choices are part of culture, meaning that they are also learned in the society through interacting with other members of their social group. People consume food based on what they have learned as being socially and culturally acceptable. Food choice is a complex process guided by cultural, social and psychological factors that varies within groups of individuals (Falk, Bisogni, & Sobal, 1996:257).

The socio-cultural environment represents the complex interrelationships and interactions that exist among individuals, their culture and society (Viljoen, 2009:24). The socio-cultural environment provides a platform for the behaviour of society, and food serves as a cultural as well as a social object. A variety of influences operate to shape particular food choices of individuals (Sobal *et al*., 2006:5). Apart from these influences each person's food choices are further guided by his or her own personal food system where the individuals own food values and preferences are weighted; negotiated or traded off against each other in the last step of the food choice process.

The food choice process model (Figure 2.2) by Sobal *et al*., (2006:5) illustrates the interrelationship of influences within the personal food system that are grouped into five types, namely, ideals, personal factors, resources, social factors and contexts. Each of these types of influences interacts with all of the other influences and they are all embedded in the personal food system of the individual as they engage in eating practices (Sobal *et al*., 2003:5). The following section deals with the impact these five major types of influences have on food choices.

INDIVIDUAL/PERSONAL ENVIRONMENT

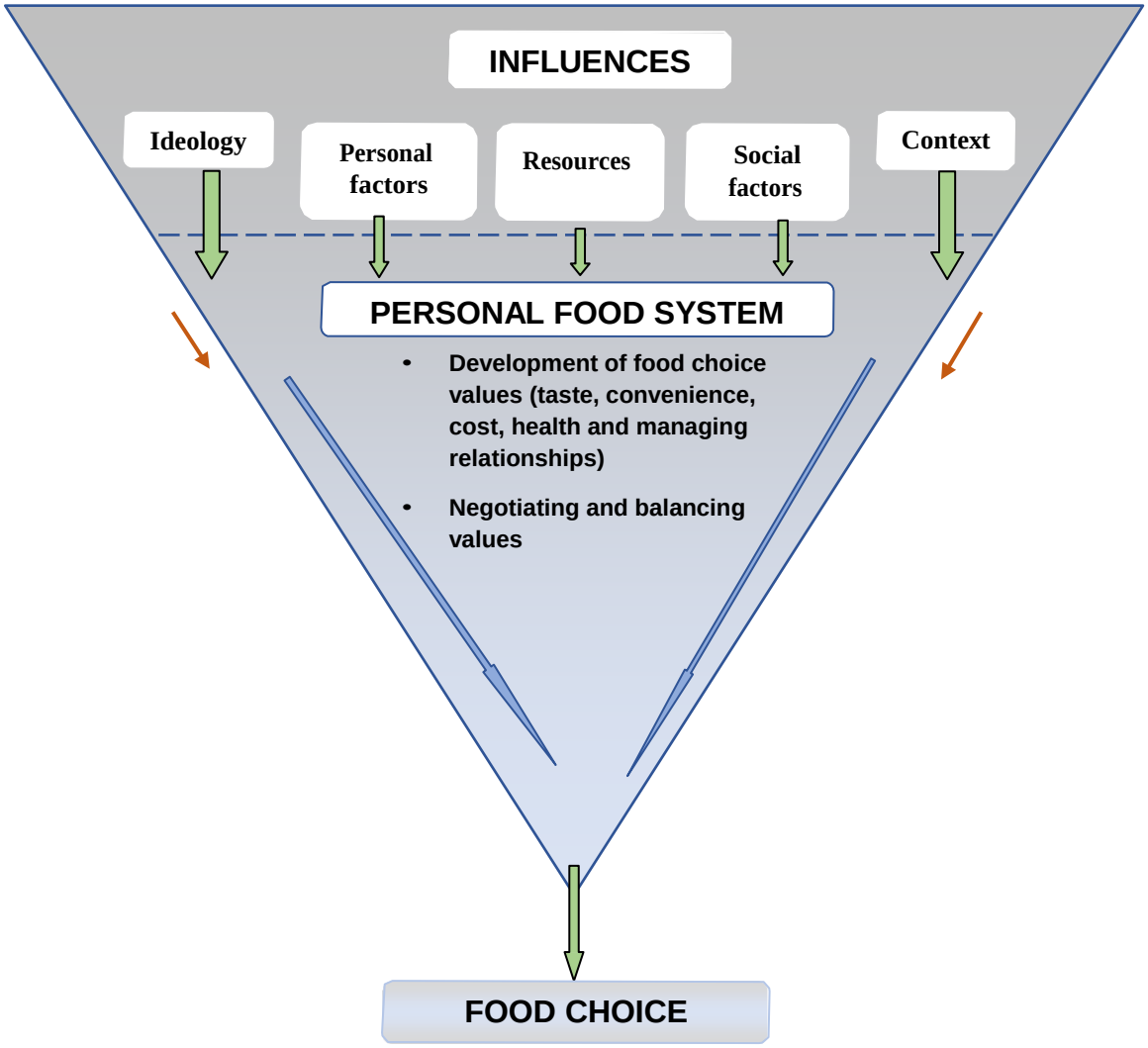

FIGURE 2.2: A FOOD CHOICE PROCESS MODEL ILLUSTRATING THE INTERNAL ENVIRONMENTAL FACTORS (Adapted from Sobal *et al*., 2006:3).

2.3.2.1 Influences

The five types of influences that simultaneously interact with one another and shape a person's own personal construction of food choice decisions (Sobal & Bisogni, 2009; Sobal *et al*., 2006:5) are dealt with independently.

2.3.2.1.1 Ideals

Ideals are the beliefs, expectations and standards people use to evaluate their food choices (Sobal *et al*., 2009; Sobal *et al*., 2006:5). The ideals provide standards that serve as

reference points against which individuals can access and judge their food behaviours as right or wrong, appropriate or inappropriate (Sobal & Bisogni, 2009; Sobal *et al*, 2006; Sobal & Bisogni, 2004:24). Ideals are closely related to the values people learn through socialisation and enculturation about how and what one should eat in a specific context that frame the standards or norms that guide behaviour (Sobal *et al*., 2006:5). In food choice, ideals could include symbolic meanings such as social status or to express friendship. A food item could be refused if it is seen as unacceptable to the eater, and, conversely, if it's meaning suggests positive significance it will be chosen as this would imply that it is acceptable to the eater (Parraga, 1990).

2.3.2.1.2 Personal factors

Personal factors are attributes or characteristics of individuals that influence their food choice decisions and behaviours (Sobal & Bisogni, 2009; Sobal *et al*., 2006:6). Personal factors encompass some of the influences and personal systems which illustrate the interrelatedness or interdependence of the factors that influence food choice. Personal factors include knowledge, physiological and psychological factors. Knowledge includes ideas people have when making food choices which, in turn, reflect their ideals, beliefs, expectations and standards that they use to evaluate their choices (see 2.3.3.2 where knowledge, beliefs, attitudes and values are discussed as part of the socio-cultural environment in the external environment). Physiological factors such as allergic responses and hunger also affect the food choice process (Sobal *&* Bisogni., 2009:42; Furst *et al*., 1996; Sobal *et al*., 2006:6). Personal factors develop and are learned over time and permit individuals to be unique in their food choices (Sobal, *et al*., 2009:42; Sobal *et al*., 2006:6).This, leads to dietary individualism in which one person would eat types of food that are different from the rest of the family. For example, food cravings, preferences or addictions to certain foods are regarded as personal factors in making food choices (Sobal *et al*., 2006:6).

2.3.2.1.3 Resources

When making food choices individuals also consider their resources (Sobal *&* Bisogni, 2009; Sobal *et al*., 2006:6). Resources can be divided into two groups tangible and intangible. Tangible resources are physical capital such as money, equipment, transportation and space to store food, whereas intangible resources represent human capital such as time, skills, knowledge; and social capital, such as help from others, advice and emotional support (Sobal & Bisogni 2009; Sobal *et al*., 2006:6). Resources such as money may facilitate food

choices by providing accessibility to a broad array of foods, contrary to limited money which may restrict food selection to only those foods that are affordable (Sobal & Bisogni, 2009). Individuals thus make food choices based on the resources to which they have access. The major resources that influence people's food choice, apart from income available, relate to time and food preparation skills. Many low income families manage their food choices according to their changing financial situations, and could experience being more or less food insecure at times (Sobal *et al*., 2006:6). Money is a particularly important tangible resource as it, more than any other resource, determines the nature of food choice decisions.

Many people's food choices are mostly determined by the money they have and the time available for preparation, since they often have an eventful and busy lifestyle. Food preparation skills similarly play an important role in food choices as young adults mainly depend on food that requires limited preparation time and skills (Van der Horst, Brunner & Siegrist, 2010). Knowledge is another intangible resource when making food choices as health consequences have to be borne in mind when food choices are made (Sobal & Bisogni, 2009).

2.3.2.1.4 Social factors

Social factors refer to the systems of relationships in which people engage, and these can either restrict or facilitate food choice decisions (Sobal & Bisogni, 2009; Sobal *et al*., 2006:6). People's food choice contexts include their social locations and, behavioural contexts created by personal characteristics such as social class, race or ethnicity and gender. These characteristics provide a social structure of resources, expectations and perceptions about food choice. The social location has an effect on food choice (Devine, 2001). Most eating occurs in the presence of other people (families, network of friends, organisations, communities). In such relationships food choice is a crucial and often contested part of the food choice process. Some relationships provide opportunities for making particular food choice decisions, whereas other relationships constrain them. For example, when young couples eat together, one partner might have to adopt to the food choices made by the other partner (Sobal & Bisogni, 2009; Sobal *et al*., 2006:6) or they might have to make provision for their own food choice and eat independently even when together.

Social organisation influence people's food choices in several ways such as on an occasion in a specific context where a food choice has to be made. Both individual and social factors are involved in food choice (Furst *et al*., 1996). Human beings are social creatures; they live

in a social context and are guided by social norms which could be extraordinary when applied in food choice decisions. People are expected to make food choices that do not contradict with social norms. For example, young adults might feel pressured to eat fast foods in the presence of peers. The social context in which a meal is eaten has a significant effect on food choice. People's choice of what to eat is strongly embedded in their own individual culture. However, at the same time, they also have to consider what is socially acceptable for consumption when in the company of another ethnic or social group to which they would also like to belong (Story & Bisogni, 2009; Sims & Smiciklas-Wright, 1978).

Eating is regarded as a social behaviour; observing the eating behaviour of others could have a positive or negative effect on the other person who emulates it. For example young adults eating patterns can be influenced by the food choices their peers make.

People tend to eat more when in the company of others compared to when eating alone. This may be considered as an example of social facilitation, which is defined as the enhancement of a certain behaviour inspired by the presence of others. The presence of other people during meals has a direct influence on the portion size of the food. For example, during gatherings there is relatively more food available and the subjects have a larger feeling of hunger due to the sociable atmosphere (Sharkey *et al*., 2011; Story & Bisogni, 2009; Feunekes, Graaf, van Staveren, 1995).

2.3.2.1.5 Food context

Contexts are the broader environments influencing food choice decisions (Sobal & Bisogni, 2009). Food context is similarly related to both the physical and social environments where food choice decisions are made (Sobal & Bisogni, 2009; Furst *et al*., 1996; Falk *et al*., 1996). Situational factors such as where, when, and with whom food consumption takes place, might be, at least in part, responsible for choices made. Situational factors such as the presence of other people, time of consumption, the aroma and colour of the food or physical setting might influence food choice. (Stroebele, & De Castro, 2004). The home and the work place are the two key contexts where people make their food choices. These social institutions shape food choice decisions and the social meanings attached to that food (Sharkey *et al*., 2011; Sobal & Bisogni, 2009:42).

The influences described (as Section 2.4.1) change over time and between situations, adding to the dynamic changes and the complexity of food choices (Sobal & Bisogni, 2009), thus shaping and developing an individual's personal food system that is now explained.

2.3.3 PERSONAL FOOD SYSTEMS

The personal food system represents a dynamic set of processes constructed by an individual that ultimately leads to making a food choice. Personal food systems are the cognitive processes that guide people to interpret and negotiate influences when they make their food choices in particular settings (Sobal & Bisogni, 2009; Sobal *et al*., 2006:7; Furst *et al*., 1996). Personal food systems involve the weighing-up and accommodating of food choice values, as well as developing strategies and routines for persistent food choice decisions that are significant for a person in a particular situation (Sobal & Bisogni, 2009). It also involves emotional influences. Food choice values are regarded as the thoughts that people attach to food choice and the particular meaning and feelings that people attach to this considerations (Sobal & Bisogni, 2009:42). Values are dynamic and different values are applied in different situations when making food choice decisions. The five salient food choice values are taste, convenience, cost, health and managing relationships (Figure 2.2 lower half), although the individual or group may include others, such as ethics, environment and religion (Sobal & Bisogni, 2009; Sobal *et al*., 2006:7; Connors, Bisogni, Sobal & Devine, 2001). They are common for most people and are discussed in the sub-sections that follow.

2.3.3.1 Taste

Taste is important in food choices. Taste is a food choice value that represents the considerations that people develop related to their sensory perceptions in eating and drinking (Sobal *et al*., 2006:7). People use the word taste in different contexts; others use the word taste to describe different sensory characteristics of food and beverages that influence their food enjoyment and aversions such as appearance, odour, flavour and texture. Taste preferences may change over time and it is often used as a minimum criterion for whether or not a food or drink will be consumed (Sobal *et al*., 2006:8; Vorster *et al*., 1999). The increase in diet-related diseases is believed to lie, amongst other factors, in the abundant choices of relatively inexpensive kilojoules-dense foods that are convenient, high in fat and taste good (Bauer, Larson, Norris & Neumark-Sztainer, 2008:1767; Creel *et al*., 2008; Popkin, 2006; Popkin, 2004; Puoane, Steyn, Bradshaw, Laubscher, Fourie & Lambert, 2002; Vorster, 2002).

2.3.3.2 Convenience

Convenience is another personal value that influences food choice. Convenience encompasses various utilities such as the time, place, acquisition and use of a product such as food, or its service (Sobal *et al.,* 2006:8; Marquis, 2005). The construct of convenience

has two main dimensions, namely, time and energy. Convenience relates to the actual time, physical ability and the mental or physical involvement it takes for a person to acquire, prepare, consume and clean-up after eating or drinking (Brunner *et al.*, 2010; Marquis, 2005:55). Modern food cultures have seen an increase in the consumption of convenience foods due to the time pressure people generally experience (Brunner *et al*., 2010:498) because of personal or professional activities. As eating patterns change, more people are resorting to eating foods prepared away from home.

Consequently, families rely on snack foods, fast and convenience foods that could results in overweight and obesity (Castro *et al*., 2012; Vorster *et al*., 2011; Fleischhacker, Evenson, Rodriguez & Ammerman, 2010:460; Steyn, Labadarios, Maunder & Lombard, 2005:5; Popkin, 2004; Malherbe *et al*., 2003). This practice is often exacerbated by sedentary activities associated with urban jobs, and increased availability of television sets and computers (Abrahams, De Villers, Steyn, Fourie, Dalais, Hill, Draper & Lambert, 2011). This situation requires reconstructing strategies to limit the time and energy devoted to duties perceived to be time-consuming such as cooking.

2.3.3.3 Cost

Cost is a value representing the monetary considerations that people take into account when making food choices (Sobal *et al.,* 2006:8). Most food in urban societies is purchased rather than self-produced hence price of food bought to eat at home or away from home are judged during the food choice process. The value of cost of a commodity relies on the concept of its worth or value for money (Sobal *et al*., 2006:9). People with unlimited disposable income may still be sensitive to price increases, because they might not feel the product is worth the cost. High sugar and fat foods are often purchased because they often provide dietary energy at a relatively low cost (Drewnowski & Darmon, 2005).

The importance placed on the cost of food also varies from individual to individual. For example, a lower socio-economic status would mean placing greater importance on perceived cost as a value, whereas those who are concerned about health and nutrition may place more value on the nutritional quality of the foods (French, 2003). In general, people with knowledge of healthy food choices may choose the tastier and cheaper but less nutritious food option when purchase is considered in relation with the choice dimensions of price and taste, (Castro *et al*., 2012; Popkin, 2006; French, 2003).

2.3.3.4 Health

Health is a value that broadly represents food choice considerations constructed in relation to physical well-being (Sobal *et al*., 2006:9). Health includes considerations about immediate responses that pertain to food would include issues such as: digestive discomfort; allergic reactions; energy levels; as well as considerations about longer-term consequences of eating certain foods involving growth, weight control, illness management or chronic disease prevention (Story *et al*., 2009; Sobal *et al*., 2006:9). The increasing desire for healthier yet tasty food, is another personal value in the food choice process. Health increases consumers' concerns about some aspects of food consumption, particularly nutrition, food safety and the environment (Verbeke & Lopez, 2005). The public tend to classify food as either good or bad differently, although essentially their opinion is based on the meanings they attach to food in relation to their perception of its contribution to their health and physical well-being.

2.3.3.5 Managing relationships

Managing relationships is a value that broadly represents how a person considers the interest and well-being of other people involved in their social world (Sobal *et al*., 2006:9; Furst *et al*., 1996). This situation applies when food choice decisions have to take other people's preferences and needs into considerations. Normally a food choice is mostly influenced by personal and cultural ideas. Managing relationships confirms that an individual does not live in isolation but as a social being that interacts with other people (Furst *et al*., 1996). This value is concerned with building, maintaining and repairing relationships in households by anticipating, addressing and accommodating conflicts over issues of food choice.

Values are dynamic and are selectively invoked and employed in particular settings or situations (Botonaki & Mattas, 2010; Sobal & Bisogni, 2009). In order to simplify food choice decisions people mindfully consider and weigh the values important to them at the time a food is chosen. The conscious classification of foods and situations in order to determine what is appropriate for the context or situation at hand is called value negotiations. Food classification helps people construct food choice decisions and evaluate different options according to their food choice values (Sobal *et al*., 2006). In the next section (2.4) food choice is a directed process taking place in four stages, namely; availability, accessibility, affordability and acceptability.

2.4 THE FOOD CHOICE PROCESS AS CONCEPT

Eating is a universal activity that relates to food choice decisions necessary for survival and health. However, not all food choice decisions lead to actual eating (Sobal *et al*., 2009:37). People engage in multiple eating and drinking episodes per day and each eating episode requires many types of decisions such as where, when, with whom, how long and how much to eat. Food choice involves the process by which people consider, select, and consume food and beverages. It basically represents a wide scope of activities such as acquisition, preparation and consumption of foods (Engler-Stringer, 2010; Sobal & Bisogni, 2009).

The food choice process is portrayed on the right-hand side of the Figure 2.1. Food choice is the process in which an individual makes decisions about what food will be consumed from the supply of available and accessible food. Food availability and accessibility is either enhanced or restricted by components or systems emanating from the physical, political and economic environments (Story *et al*., 2009:61; Popkin *et al*., 2005; Bryant *et al*., 2003:11). Furthermore, these aspect are particularly determined by the geography, the climate and seasonality experienced in a locality in conjunction with various technology driven influences that determine food transportation and distribution capabilities (Viljoen, 2009:15; Story *et al*., 2009). Government policies and market-related factors also plays a pivotal role in determining the availability and affordability of food (Story *et al*., 2009). Although different environments contribute different foods, not everything that is available is selected for consumption, because human food choice is also significantly guided by what food is regarded as acceptable (Viljoen, 2009:15; Sobal & Bisogni, 2009). Food acceptability is determined by factors that emanate from the socio-cultural environment and the individual's environment. Food acceptability deals with culture and its ideological components of values, beliefs and attitudes (see 2.3.1.3.2) that primarily guide what food is regarded as acceptable (Rozin., 2006:23). Food acceptability defines food as pleasant or unpleasant, which means that food can be chosen from a sensory point of view that relates to liking or disliking a food item because of its appearance, odour, colour, texture or taste. It can be concluded that human food choice takes place within the boundaries of what is available, accessible, affordable and acceptable.

Food choice can be made at the point of purchase for example, at the supermarket, or looking over the menu choices in a restaurant. In both cases the food is not tasted. Food choice can also be made in communal food tastings sessions or at home during meals; in both these cases the food is tasted (Rozin, 2007:1). This implies that the situation, in which an individual is placed, has an effect on the type of food the individual will eat. Food choice leads to long-term food habits. Food choices affect food acquisition, preparation and

consumption in a wide variety of settings, including grocery stores, restaurants, at vending machines, at parties and social events, as well as for meals and snacks at home. The food choice process incorporates not only decisions based on conscious reflection, but also those that are automatic, habitual and subconscious (Furst, *et al*., 1996).

Food choice is an integral part of a group's food practices. However, food practices, as part of culture are not static but are constantly changing. In order to contextualise the food practices of urban black population the social structural changes that guide these changes need to be understood as well as will be demonstrated in the explanation of the developmental model of food culture.

2.5 THE DEVELOPMENTAL MODEL OF FOOD CULTURE

The developmental model of food culture will be used to explain how social structural changes contribute to food culture change (Viljoen, 2009:38). This model is based on the fact that the human societies and their culture are dynamic and susceptible to change. Culture is dynamic and cultural changes are perpetuated by structural changes in society such as migration, urbanisation, modernisation and globalisation (Kittler *et al*., 2011:87; Bryant *et al*., 2003:12). Food practices as an integral part of culture are simultaneously undergoing development and change (Ferraro, 2006:19; Bryant *et al*., 2003). In the process of new developments and change, humans employ various adaptation mechanisms to enable them to meet their basic need for food (Viljoen, 2009:38). Therefore, food choices and food practices are gradually changing and evolving due to the adaptations humans make in response to environmental and social structural changes (Pelto *et al*., 2003).

These structural changes and the corresponding changes in food culture patterns are depicted graphically (Figure 2.3).

Migration refers to the movement of people from their areas of origin to another place where they re-settle in new settings. It could be from rural to urban areas or from one country to another (Kittler *et al*., 2011:12; Viljoen, 2009:41; Sobal, 2000). Migration is not only about adaptation but it also involves the alteration of food preferences and transfer of knowledge if for extended time. In the process of migration the new cultural contacts are created and prolonged contact with other cultures will result in acculturation. Acculturation is a multidimensional process of adaptation of groups and individuals to a new society (Lee, Sobal & Frongillo, 1999). The acculturation of food practices results from being introduced to foods from other cultural groups and accepting them thus moving away from their original or traditional foods to the newly adopted foods (Kittler *et al*., 2011:87; Viljoen, 2009:41; Acher,

2005; Sobal, 2000). The new food items can also be incorporated into the traditional cuisine of the migrants, which results in the development of new culinary traditions and traits (Kittler *et al*., 2011).

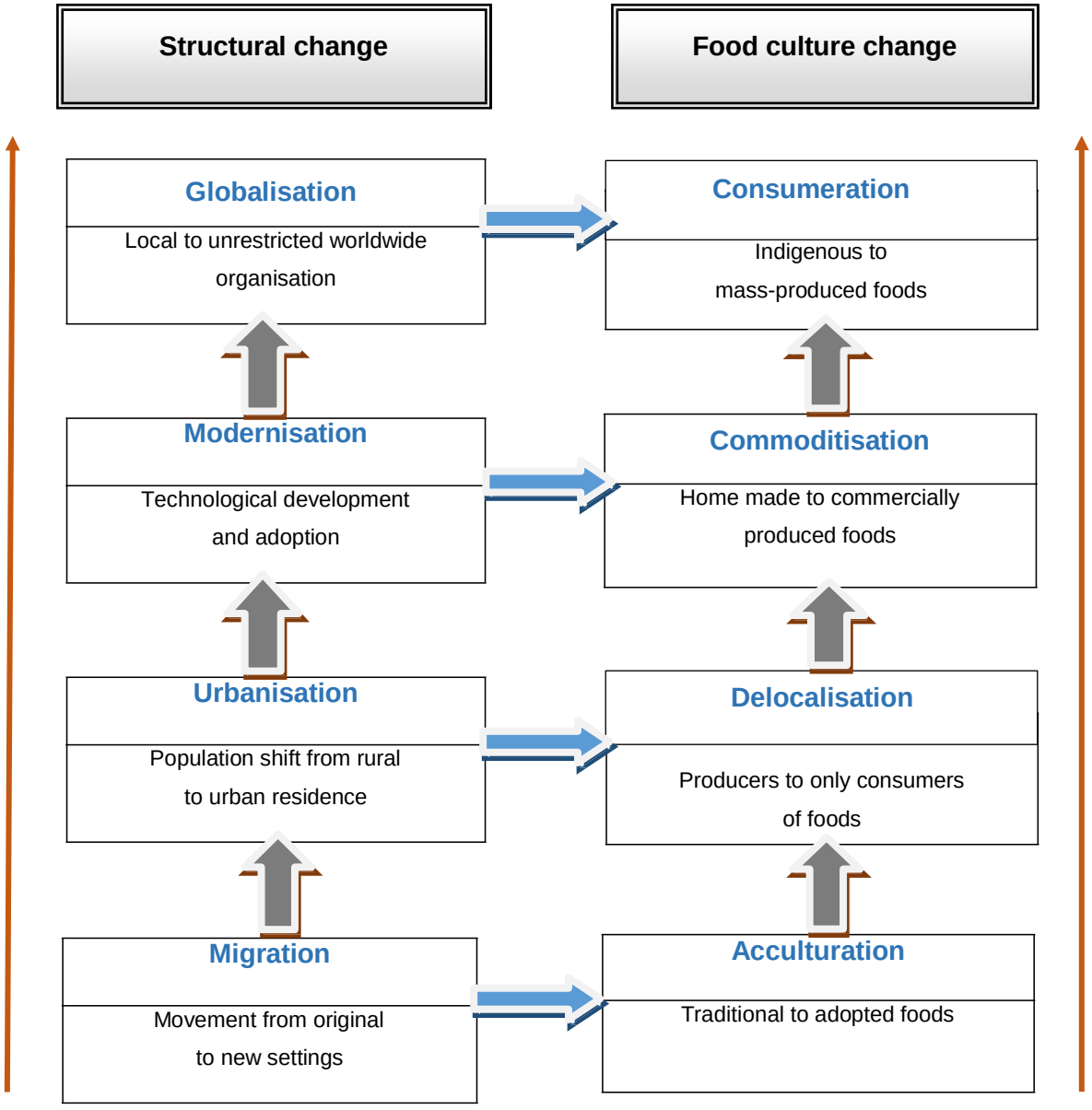

FIGURE 2.3: DEVELOPMENTAL MODEL OF FOOD CULTURE (Viljoen, 2009:39)

Urbanisation is another structural change that can be defined as abandoning low density rural residential areas in favour of living in higher density suburban or urban areas. In urban areas cultivation for subsistence purposes diminishes thus rural migrants become dependent on others for food that they can often only acquire if they have sufficient financial resources. Urbanisation leads to delocalisation. Delocalisation indicates a removal from a person's usual original locality which, in the case of rural migrant, would mean a shift from

subsistence farming to being dependent on commercial food produced and prepared by others in food industries (Kittler *et al*., 2011:12; Viljoen, 2009:41).

Modernisation too is another structural change depicted in the developmental model of food culture. Modernisation leads to the development of new technologies and shifts in the economy which results in changes of cultural beliefs, values and food behaviours. It also contributes to changes in food production, processing, food preparation methods and consumption patterns (Viljoen, 2009:40). Commoditisation is a food culture change that came into existence from the modernisation of the entire food chain from production, processing, marketing to the distribution of food through newly developed technologies (Viljoen, 2009:40). Producers now treat food as an economic object rather than seeing it as a consumption item. In economic terms, it means that an individual's food purchasing power has a major influence on the food choices and food practices of individuals and groups of individuals.

The fourth structural change is globalisation which refers to the wide distribution of products around the world (Bryant *et al*., 2003:3). Globalisation integrates locally produced food with regional and nationally produced food within an unrestricted worldwide network. According to food culture change these changes lead to consumerisation, which is defined as a transition in a society from being producers and consumers of indigenous foods to becoming mainly consumers of mass-produced foods (Kittler *et al*., 2011:11; Sobal, 2000). Consumerisation leads to reliance on multinational corporations and mass production in the food industry that currently dominate the world food market (Stuckler & Nestles, 2012; Igumbor *et al*, 2012; Viljoen, 2009:41; Popkin, 2009; Bryant *et al*., 2003:71).

The changes brought about by globalisation have increased consumer demand for processed and safer foods. Nowadays young urban adults spend many hours away from home in their various jobs. This causes change in consumption patterns because people in this situation rarely have time for cooking or preparing meals for themselves hence reliance on processed and convenience type foods that require less time to prepare follows. The availability, accessibility and affordability of different convenient and processed foods that were not traditionally available in the South African eating patterns have increased (Ronquest-Ross *et al*., 2015; Popkin, 2006). Examples of newly adopted food that were not part of the traditional eating patterns include fast foods and processed foods (MacIntyre, *et al*., 2012).

The different socio-structural changes caused by migration, urbanisation, modernisation and globalisation in different environments leads to food culture changes. Food practices are

thus influenced by these social structural changes. South African society is still in a process of accelerated social change since the dismantling of apartheid in the early 1990's. One of the most noticed changes, is the shift of the back population from their traditional to a partially Western-orientated lifestyle. (Ronquest-Ross *et al*., 2015; Viljoen *et al*., 2005:46; Le Grange, Louw, Breen & Katzman, 2004). Population groups undergoing economic, technological and demographic changes due to migration, urbanisation and modernisation are in the process of a nutrition transition that includes changing their food practices.

The impact of globalisation is profound and changes globally are seen as positive as well as negative. The consequence of food technology developments is that a shift in food practices has taken place simultaneously with social structural changes (Kittler, *et al*., 2011:11). However, the system of structural and cultural changes is complex and interrelated, and a range of factors work together to effectively bring about new developments. The study focuses on the effect these changes have had on the stages of food choice, namely; availability, accessibility, affordability, and acceptability of food, with reference the current eating patterns of the study group comprising young urban black adults, who are no exception, and would also have experienced these changes.

Since globalisation mainly focuses on freer movement of capital, technology, goods, and services, however, it does affect people's lifestyles significantly. It is noted that its effects are linked to dietary patterns, physical activity and subsequent energy imbalance that have led to an obesity epidemic (Popkin, 2006; Popkin, 2004). Other factors that also lead to changes in lifestyle patterns include the worldwide shifts in trade of technology innovations, globalisation of modern food processing, marketing and distribution techniques associated with the Westernisation of the world's diet and the vast expansion of global mass media (Popkin, 2006). In spite of the negative contribution of globalisation worldwide, it has certainly enhanced the interconnectedness of the world in terms of trading goods, technology, services and the spread of modern mass media (Popkin, 2006).

People who migrate from rural areas to cities give rise to urbanisation which, in turn, results in increased numbers of urban dwellers. Urbanisation also provides a greater access to modern mass media, better transportation systems, and to larger, modern supermarkets dominated by multinational corporations. These all promote the transition from a traditional eating pattern to a more Western-orientated diet (Ronquest-Ross *et al*., 2015; Popkin, 2006; Malherbe *et al*., 2003). For the black population in South Africa urbanisation is taking place at an alarmingly fast rate. Migration to cities has negative consequences for food systems as it increases the demand for food in urban areas. Consequently, more food has to be transported to the cities and urban areas to meet the escalating demand for food (Lane,

Hovorka & Legwgoh, 2012). The scarcity of land for cultivation in urban areas increases the dependence on processed commercially available foods for those who have the money to purchase them.

Modernisation has brought about many changes in the food provision system through its interaction with the natural physical and human environments (Lane *et al*., 2012). Convenience foods and processed foods have become more available and cheaper than fresh goods (Sobal, 2006). The consumption of these food types is facilitated by consumer acceptance and preferences. Diets nowadays include excessive consumption of processed, mass-produced foods and drinks with high fat and sugar content, processed meats, packaged snacks, cookies, artificially sweetened drinks but the intake of fresh fruits and vegetables is relatively low. Refined carbohydrates such as white bread, rice and pasta have substituted for complex carbohydrates sources such as whole grains and legumes (Hansford, 2010).

Another channel that drives changes in food practices is the advertising done by the food industry, which is widely transmitted through modern mass media especially television. Moreover, the rise of supermarkets has created extensive transportation and distribution channels for processed food (Hansford, 2010). These changes are perpetuated by regular supply of and accompanying demand for goods. Income also plays a powerful role in food consumption decisions, particularly in relation to the increased consumption and range of a variety of processed foods.

Economic, biological and cultural factors are also determinants of changes in the dietary patterns of individuals. Economic factors include an individual's increased income, which in the case of urban dwellers, leads to greater reliance on commercially produced foods as urban families do not cultivate food for home consumption. From a sensory point of view, foods with a high fat and sugar content are more palatable than carbohydrate-based diets. As a result of urbanisation, modernisation and changing family roles, the food practices of young urban black adults South Africa too are in the process of change. Attention now turns to young adulthood as a life stage.

2.6 YOUNG ADULTHOOD AS A LIFESTAGE

Early adulthood is typically the life stage of people in their twenties (Brown, 2011:406; Larson, Neumark-Sztainer, Peter, & Story, 2007). During their early twenties, adults still have the strong, healthy appearance of youth. Their bodies are straight and muscular and their movements are flexible showing that they are full of energy (Van der Spuy, 2012:71).

Men in early adulthood are usually at their physically peak and in many other aspects of their intellectual development. At this point the young man's physical functioning is at its best, and so are their muscular strength and their manual and motor skills; hence they are stronger, faster, have better coordination and have greater stamina when compared to older people; and they have the capacity to excel in sporting activities (Van der Spuy, 2012:71). Males possess greater and strong body muscles. Physical activity has a significant impact on body composition and bone density. Other growth processes, including muscle and fat deposition, continue until the mid-twenties (Brown, 2011:406). Adolescent females acquire what is often called "baby fat" which gives them a more rounded belly. This fat is later distributed to the hips and breasts to give more feminine body form. At the age of eighteen and over, females also complete the process of physical maturation, usually attaining full height and sexual characteristics such as broader hips and an increase in breast size (Brown, 2011:407).

Young people now move into adult roles and responsibilities, and fully understand abstract concepts and personal limitations. Beyond this developmental stage, the only physiological changes noticed is the development of bone density up to the age of 30. By middle adulthood, physical changes become more apparent with a decline in the size and mass of muscles and an increase in body fat. During adulthood, for the majority of young adults', nutritional emphasis changes as means to avoid the deposition of extra fat deposition especially around the belly.

The period of transition from adolescence to adulthood, is often characterised by exploration and marked by broad shifts in their lifestyle patterns (Larson *et al*., 2007). The twenties generally involves becoming independent, leaving the parental home, finishing formal schooling, entering regular employment and starting a career as well as, developing relationships and choosing a life time partner. Although these are not the only changes young adults go through, these lifestyle changes do prepare young adults to be independent and responsible for their own food practices. Planning, buying and preparing food are newly developing skills for many of them (Brown, 2011:406; Larson *et al*., 2007). Towards their thirties, young adults develop a sense of responsibility, which is characterised by increasing responsibilities to and for others, including having children, providing for and caring for their family, building a career and involvement in community and civic affairs (Pelletier & Laska, 2012; Larson *et al*., 2007). Once people are married and have children they usually develop a new interest in nutrition for the sake of their children. As young adults work on fulltime basis (longer hours), managing schedules and meals might become a challenge (Pelletier & Laska, 2012; Brown, 2011:406). Some young adults, especially college students, reported that having so much restricted time makes it difficult to plan time for exercise and healthy eating behaviours because of other daily commitments (Pelletier & Laska, 2012). Against

this background, the particular situation of urban black adults and their food practices are highlighted as the focus of this study.

2.7 FOOD PRACTICES OF URBAN BLACK ADULTS

The black population in South Africa represents the largest population group and is the most impoverished of all the groups (Vorster *et al*., 2011; Bourne, Lambert & Steyn, 2002). The black South African population has two distinct types of eating patterns. The rural population still follow a very traditional eating pattern of eating two meals a day. Their meals are mostly composed of high complex carbohydrates, low in sugar and moderately high fibre foods (Van Zyl *et al*., 2010; Steyn, Bradshaw, Norman, Joubert, Schneider & Steyn, 2006:7). Upon urban exposure, the black South African population tend to abandon the traditional diet and indigenous way of eating for a Western-orientated diet (MacIntyre *et al*., 2012; Bourne *et al*., 2002).

The lifestyle of most urban citizen's encompasses snacking between main meals, buying street food or processed foods, and eating outside the home; moreover consumption of meat, fat, salt and sweetened products is common amongst urban blacks (Macintyre *et al*., 2012; Dunn, Mohr, Wilson & Wittert, 2011; Sharkey *et al*., 2011; Bilman *et al*., 2010; Van Zyl *et al*., 2010:124; Creel *et al*., 2008; Popkin, 2006). Their food intake nowadays includes excessive consumption of processed, mass-produced foods and drinks with a high fat and sugar content, processed meats, packaged snacks, cookies, artificially sweetened drinks with a relatively low intake of fruit and vegetables (Ronquest-Ross *et al*., 2015; Macintyre *et al*., 2012; Popkin, 2006). Complex carbohydrates have been substituted with refined ones such as white bread, rice and pasta (Hansford, 2010). Fast foods outlets account for the highest spending on these convenience foods, with urban consumers looking for a quick bite to eat.

Food habits of young adults are amongst the poorest of all age groups, with high rates of fast food and soft drinks consumption and low rates of adherence to the food-based dietary guidelines that recommends a high consumption of fruit and vegetables (Pelletier & Laska, 2012). The minority of young adults engage in taking sufficient time to prepare and eat regular meals therefore they rely on processed foods, which is associated with a lower dietary quality, thus resulting in weight gain. The majority of young adults usually report inadequate time as the barrier to healthy eating and physical activity (Pelletier *et al.,* 2012; Marquis, 2005). Young adults experiencing time constraints consume more fast food and convenience food and usually multitask as means to comply with time pressure. This is linked to less healthful dietary intake and excess weight gain (Laska, Graham, Lytle &

Fulkerson, 2011; Marquis, 2005). The majority of young adults face time constraints because of their personal and professional activities, and are known to develop strategies to limit time and energy directed to duties like cooking, which is indeed time-consuming. These practices are more common amongst young adults since most of them are single. Young adults are more convenience-orientated than people living in multi-person households (Marquis, 2005).

Due to urbanisation being a fast expanding phenomenon in most developing countries, urban residents have access to a wider range of food products, many of which are high in fat and sugar (Abrahams, Mchiza & Steyn, 2011:3; Popkin, 2006). Processed and preserved foods have become cheaper and are more readily available than fresh produce. The trend promotes the transition from the consumption of traditional foods to Western-orientated diets (Hasford, 2010:441; Popkin, 2006:293). There is a major concern about this shift in diet and low activity patterns, which is associated with a change in body composition and disease patterns that are bound to result in increased obesity and non-communicable diseases as leading causes of death globally (MacIntyre *et al*., 2012; WHO, 2015; Feeley, Kahn, Twine & Norris, 2011; Popkin, 2006; Malherbe *et al*., 2003; Vorster, 2002).

2.8 CONCLUDING SUMMARY

In this chapter the human ecological perspective that embodies a holistic approach was explained as the theoretical perspective for this study. The selected model linked food culture to the effects of current global development trends. The external and internal environments provided factors that influenced the food choice process. Young adulthood as a life stage was described as the research focused on the food practices of young urban black adults. The next chapter addresses the methodology followed to collect data for the study.

Chapter 3: Research Methodology

3.1 INTRODUCTION

Chapter 3 outlines the research design and methodology for the research, which enabled the researcher to explore, determine and describe the food choice and food practices of young urban black adults residing in Tshwane Metropolitan Area. The research objectives, conceptual framework, conceptualisation and operationalisation are presented. The study population, unit of analysis, sampling, data collection and analysis are explained, as are measures to combat errors and the adherence to an ethical code of conduct.

3.2 RESEARCH DESIGN

It is imperative for researchers to have a plan when doing research. The research design guides how the research process was conducted in order to solve the research problem that directs the researcher's activities. The research goal of the study was to explore and describe the food practices of young urban black adults. In this explorative and descriptive cross-sectional study, a quantitative research approach was followed as it involved quantitative measurements as numbers were allocated to measured characteristics to describe them.

- Explorative research can provide insight into a situation, a community or an individual when investigating a relatively unknown area of research. It helps the researcher to gather that lead to an appreciation of the situation at hand (De Vos, Strydom, Fouche & Delport, 2011:95; Blanche, Durrheim & Painter, 2008:44; Salkind, 2009:193). In the case of this study the researcher wanted to gain an in-depth understanding of the food choices and food practices of young urban black adults to reveal the extent to which traditional and Western-orientated foods were consumed, and to relate the study group's current knowledge, attitudes, beliefs and values to certain foods.

- Descriptive research describes the characteristics of an existing phenomenon and is applicable when a researcher is trying to understand events occurring at present and their relationship to other factors (De Vos *et al*., 20011:96; Blanche *et al*., 2008:44; Salkind, 2009:193). It emphasises the current state of affairs at the time of the study. In the case of this study the aim was to explore, determine and describe the food

practices of young urban black adults, the extent they consumed Western-orientated food and their knowledge, attitudes, beliefs and values concerning selected foods.

The following aim and objectives guided this study.

3.3 RESEARCH AIM AND OBJECTIVES

The aim of the study was to explore, determine and describe the food choice and food practices of young (between 20-30 years old) urban black adults residing in the central suburbs of the Tshwane Metropolitan Area in order to describe the extent to which the study group consumed Western-orientated foods. The contribution of selected environmental influences from both the external and internal environments was also investigated.

The objectives of the study are:

1. To determine and describe the food and eating patterns (meal patterns and meal composition) of the study group on weekdays and over weekends.

2. To determine and describe the extent and frequency the study group consumed both traditional, indigenous foods and Western-orientated foods.

3. To explore and describe the contribution of the various external environments to the food choices and food practices of the study group with reference to:

    a. the physical environment.

    b. the economic environment

    c. the home-food environment as part of the socio-cultural environment of the study group.

4. To determine and describe the influence of the study group's knowledge, attitudes, beliefs and values as part of the internal environment, on their food choice and practices.

3.4 CONCEPTUAL FRAMEWORK

Food choice is a complex process influenced by many interrelated and interacting external and internal environmental influences. In Figure 3.1, the conceptual framework for the study is presented. The two types of environments (external and internal) are clearly depicted in the figure and the interrelatedness between the different environments is outlined by the arrow that shows the link from the external environment to the internal/personal environment. External environmental factors that have an influence on food choice relate to physical, economic and political and socio-cultural influences and are indicated in the upper section of Figure 3.1. The internal environmental factors are indicated at the bottom section of Figure 3.1.

The influences from both the external and internal factors combine to result in the food choice process and food practices. The next section describes the main concepts of the study.

3.5 CONCEPTUALISATION

The conceptualised concepts are defined in the manner they are applicable to the study.

Eating patterns refer to the continuing pattern in which an individual chooses, prepares and consumes food from what has been made available and acceptable as food choices for a specific meal or snack. Eating patterns involves both foods that are used as a meal or a snack as well as the pattern of the distribution of meals and snacks through the day. Eating patterns describe two concepts: the composition of the meal and meal patterns. These are either for the individual or the group. The continuous repetition of eating patterns forms a habit (Viljoen & Gericke, 1998).

Frequency of consumption refers to the number of times an individual consumes or intends to consume a selected food item during a specific period of time that could be a day, week, month, season or a year (Viljoen & Gericke, 1998). The number of meals per day differ from one person to another.

Meal patterns result from the regular organisation of meals that gives the total number of meals consumed per day (Meiselman, 2008; Viljoen *et al*., 2005).

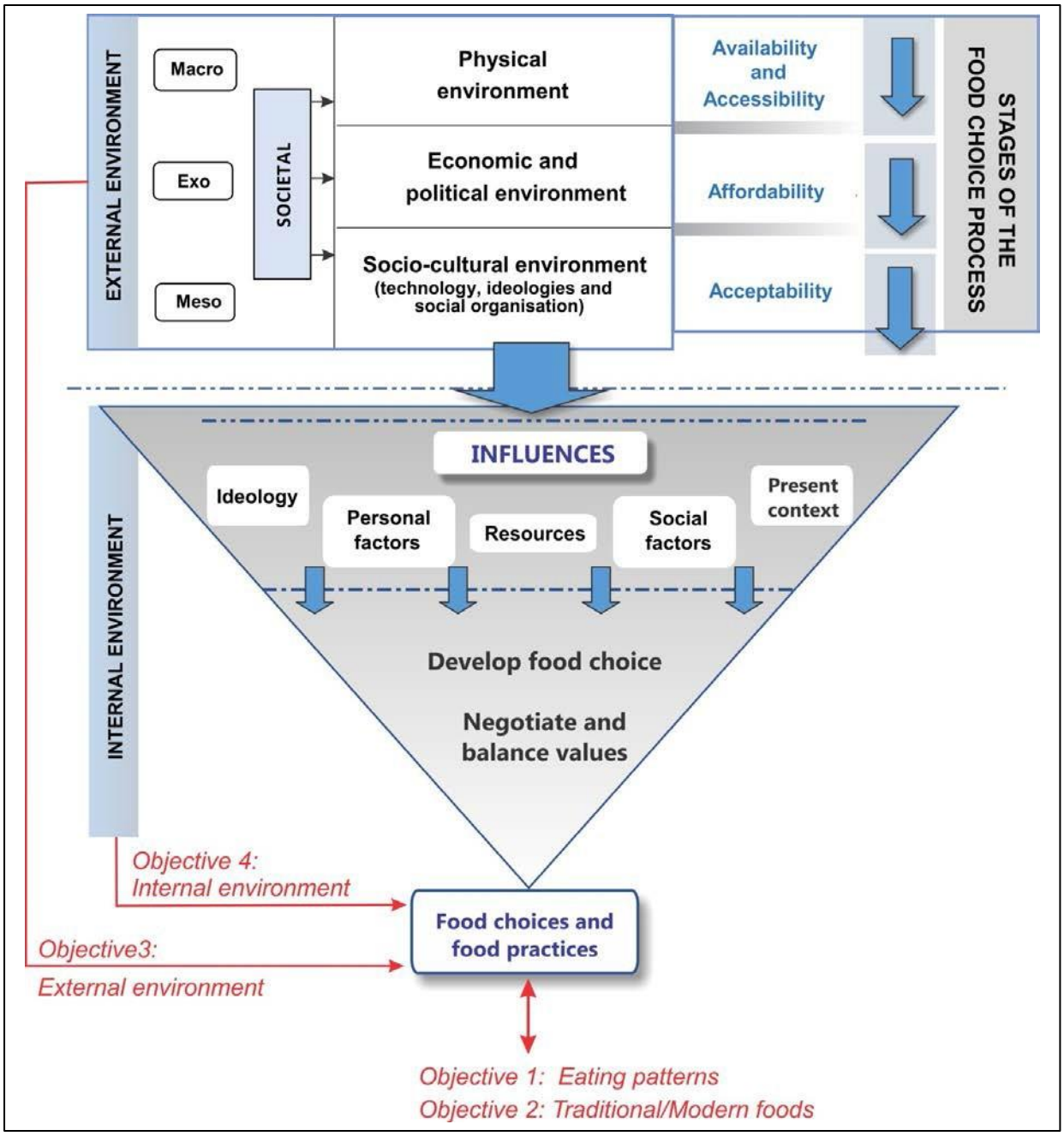

FIGURE 3.1: THE DIFFERENT COMPONENTS IN THE FOOD CHOICE PROCESS (Adapted from Sobal, 2006; Viljoen, 2009:23)

Traditional food refers to "a food product frequently consumed or associated with specific celebrations and/or seasons within a certain local area, region or country. It ia a representation of a group, it belongs to a defined space, and its part of a culture that implies the cooperation of the individuals operating in that territory and must be part of a set of traditions which will ensure continuity over time (Guerrero, Claret, Verbeke, Enderli, Zakowska-Biemans, Vanhonacker, Issanchou, Sajdakowska, Granli, Scalvedi, Contel & Hersleth, 2010; Guerrero *et al*., 2009; Pieniak *et al*., 2009).

Western-orientated food refers to processed, mass-produced foods usually containing high fat and sugar content. Examples include processed meats, snacks, cookies and artificially sweetened drinks. (Hansford, 2010).

Food practices imply how the chosen food is used and has embedded food-related behaviour that is typical of an individual or a group (Viljoen, 2009:15). It determines what food will be consumed from the available, accessible and acceptable food.

The physical environment is the most proximal community setting and includes physical structures such as the built environment, infrastructure and other material objects such as roads and malls (Sobal & Bisogni, 2009; Popkin *et al*., 2005; Story *et al*., 2002). The physical environment is also conceived as the external context in which household and individual food-related decisions are made (Popkin *et al*., 2005). Although the physical environment makes certain food available and accessible, not everything is selected for consumption. Only culturally acceptable food is selected for consumption.

Economic and political environments determine the way in which production, distribution, exchange and consumption of good and food products are managed (Bryant *et al*., 2003:13). In the context of this study, the economic environment includes features such as household income. The political environment on the other hand refers to governmental laws and policies that have an impact on production, processing, distribution and sale of certain food (Bryant *et al*., 2003; Pelto *et al*., 2000:2).

Food availability refers to the actual food that is likely to be selected or chosen since it is obtainable in an individual's neighbourhood, for example, fresh fruit and vegetables (Holster *et al*., 2012; Faber, Laurie, Calitz, Mooelich, Muller & Labuschagne, 2013; Bryant *et al*., 2003:14).

Food affordability refers to a person's capacity to obtain food according to the amount of money that a person has to purchase the food required within a defined area. It is simultaneously governed by the time, skills and facilities the consumer has for preparation and storage of the particular food (Larson, Story & Nelson, 2009; Bryant *et al*., 2003:14).

The internal environment refers to individual or personal characteristics that influence food choice and eating patterns. It encompasses psychological, biological and physiological characteristics of an individual (Messer, 2007; Rozin, 2006:25; Bryant *et al*., 2003:13).

Knowledge is the conception of reality and propositions about how the universe works. One particular aspect of knowledge is that it primarily directs what food is regarded as acceptable in a cultural group (Rozin, 2006:24; Bryant *et al*., 2003:93). Knowledge functions as a tool for an individual to make changes, and would therefore also serve as a predictor of food consumption (Lally, Bartle & Wardle, 2011; Story *et al*., 2002).

Attitudes reflect a relatively enduring organisation of beliefs around an object or situation predisposing one to behave in some preferential manner (Botonaki & Mattas, 2010; Shepherd & Raats, 1996:112). Attitudes are important in understanding dietary behaviour because they mediate from the acquisition of new information and behaviour change. It is the new knowledge that people acquire that produces new attitude, thus motivating people to change, thus giving value to a certain item like food (Hauser *et al*., 2011).

Values are enduring beliefs that a specific code of conduct or end-state of existence is personally or socially preferable to an opposite or converse code of conduct end-state of existence (Botonaki & Mattas, 2010; Rockeach, 1975:5). Values guide and motivate behaviour and are important in self-definition in food choices. A value system helps people to evaluate any concrete objects or specific entity positively or negatively (Hauser *et al*., 2011:329).

Food choice implies the process in which the individual makes decisions about what foods would be selected and consumed (Sobal & Bisogni, 2009). Food choice is directed by four dimensions, namely, the availability, accessibility and affordability of the food item (Story *et al*., 2008). Out of all the food that is available, affordable and accessible, people still have to choose what is culturally acceptable. Acceptability is driven by cultural attitudes, beliefs and values about the food from which adherents are able to choose.

3.6 OPERATIONALISATION

Operationalisation describes the measurements used. The objectives and sub-objectives, including the concepts, their dimensions and indicators and how these were measured in the study is given in Table 3.1.

TABLE 3.1: OPERATIONALISATION

OBJECTIVES / SUB-OBJECTIVES	CONCEPTS	DIMENSIONS	INDICATORS	MEASURING INSTRUMENT (Questionnaire)
1. To determine and describe the food and eating patterns (meal patterns and meal composition of the study group as followed on weekdays and weekends)				
	Eating pattern	Meal patterns	Number of meals and In-between meal snacks	Section B B1-B3
		Meal composition	Food items consumed during breakfast, lunch, super, snacks	Section B B9
	Weekdays	Meals composition	Food items consumed (Monday-Friday)	Section B B9
	Weekend days	Meal composition	Differences in eating patterns (Saturday-Sunday)	Section B B13, B10, B11, B12 & B13
2. To determine and describe the frequency of consumption of both traditional, indigenous foods and Western-orientated foods by the study group.				
	Frequency of consumption	How often certain food is consumed during a specific period	Daily, weekly, monthly, special occasions or never	Section C C4

	Traditional/indigenous foods	Bread and bread-like products, cereals, traditional/ indigenous vegetables and legumes, fruit, meat and meat products, offal cuts, other proteins, dairy and dairy products, beverages	Daily, weekly, monthly, special occasions or never	Section C C1, C2 C3 & C4
	Modern/Western-orientated foods	Bread and bread-like products, spreads or accompaniments to bread, cereals, vegetables, fruit, meat and meat products, offal cuts, fish and sea food, other proteins, dairy and dairy products, beverages, sweets and confectionery, savoury snacks, fast foods	Daily, weekly, monthly, special occasions or never	Section C C4 (FFQ)
3. To explore and describe how the various external environments contribute to the food choices and food practices of the study group				
3.1 To explore and describe the contribution of the physical environment on the food practices of the study group	External Environment	Physical / Natural environment	Infrastructure	Section A A1, A2, A4, Observation Secondary data
3.2 To explore and describe the contribution of the economic environment on the food practices of the study group		Economic and political environments		Section A A7, A8, A12, A13, A14 Observation, employment Secondary data

3.3 To explore and describe the contribution of the home-food environment as part of the socio-cultural environment on the food practices of the study group		Home-food environment		Section A A4, A5, A6, A8, A7, A9, A10, & A11, A12, A13 Secondary data
4. To determine and describe the influences of knowledge, attitudes, beliefs and values as part of the internal environment on the food choices and food practices of the study group				
	Individual / Internal environment	Knowledge,		Section D D1.1, D1.2, D1.3, D1.4, D1.6, D1.7, D1.8, D1.9, D1.14
		Attitudes,		Section D D1.9, D1.10, D1.11, D1.12, D1.13, D1.14, D1.17, D1.20, D1.22, D1.23, D1.25
		Beliefs		Section D D1.2, D1.15, D1.16, D1.17, D1.18, D1.19, D1.20, D1.21
		Values		D1.9, D1.11, D1.13, D1.21, D1.23, D1.24, D1.25, 1.26

3.7 MEASURING INSTRUMENT

The survey questionnaire used as data collection tool in this study contained four sections that measured different aspects of food practices. (See Addendum A for the questionnaire). The outline of the questionnaire is shown below.

Section A:	Socio-demographic information
Section B:	Usual eating patterns
Section C:	Consumption and frequency of consumption of traditional foods, snacks and fast foods
Section D:	Food knowledge, attitudes, beliefs and values

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Closed and open-ended questions were used to collect information on the demographic profile of the respondents. Respondents were asked their age, gender, the location where they lived, their home language, ethnic group and the religious group to which they belonged. In order to gain insight into the socio-economic status of the household, respondents recorded who the breadwinner or provider was and their occupation or work. Respondents were also asked to specify the household structure, household size and the meal preparer in their households. The household affluence scale was used to measure ownership of household appliances in order to get an indication of the household's socio-economic status.

SECTION B: USUAL EATING PATTERNS

In this section of the questionnaire information was gathered on the number of meals and what was consumed during meals as well as in-between meals. Questions were asked in order to determine the frequency of consumption and meal composition and snacks on weekdays and weekend days. Open-ended questions were asked in order to identify if the respondents usually consumed breakfast, and to give a reason why they did or did not do so. How weekday eating patterns differed from weekend meals was also determined. A 24-hour dietary recall was also used to characterise the eating patterns and meal composition of the study group. The 24-hour dietary recall was self-reported, and it involved compiling a list of all the food and beverages consumed during the previous 24 hours. Respondents indicated the quantities and type of food and beverages consumed during specific given times, for example, breakfast or the first meal of the day was between 06:00-9:00. Questions regarding the home environment and its contribution to the respondents' eating patterns were also

included in the questionnaire. In order to gain insight into whether the food context affected their food choice, respondents had to indicate the frequency of eating meals together as a family, and the frequency of eating meals in places other than at home.

SECTION C: CONSUMPTION AND FREQUENCY OF CONSUMPTION OF TRADITIONAL FOODS, SNACK AND FAST FOODS

In this section of the investigation, questions focused on the consumption and frequency of the consumption of traditional food and Western-orientated foods. Respondents had to state whether they consumed traditional food of their cultural or ethnic group, and they had to state how frequently they ate specified traditional foods. Open-ended questions were used to determine the respondents' feelings towards these traditional foods to find out how frequently certain foods (traditional, snack and fast foods) were consumed. A non-quantitative food frequency questionnaire was used. The following time intervals were given: daily, 3-4 times per week, once or twice per week, three or more times per month, on special occasions and was never used.

SECTION D: FOOD KNOWLEDGE, BELIEFS, ATTITUDES AND VALUES

In the last section of the questionnaire, questions were asked to determine each respondent's knowledge, attitude, beliefs and values towards traditional and other foods. A 4-point Likert-type sale was used to determine the degree of agreement or disagreement on certain statements given. The 4-point Likert-type scale had the following categories, namely; strongly disagree, disagree, agree and strongly agree.

3.8 PILOT TESTING OF QUESTIONNAIRE

Pilot testing of the questionnaire was done before the actual data collection commenced. The questionnaire was pilot tested as it served to test the questionnaire for readability and comprehension (Cresswell, 2013; De Vos *et al*., 2005:206). Ten willing respondents who were not part of the study group agreed to participate in the pilot testing of the questionnaire. They had characteristics similar to the respondents who did participate in the study. Minor changes as recommended were made to avoid ambiguous questioning. It took the respondents a maximum of 15 minutes to complete the entire questionnaire.
To secure reliability, the researcher adhered to the following procedures regarding the implementation of the questionnaire used for data collection:

i. Ensured that the question wording was factual and produced the required responses

ii. Pilot tested to ascertain the required length of time taken to complete the questions and to assess the level of difficulty. Any difficulties encountered when pilot testing were adjusted according to the results of the pilot test.

3.9 STUDY AREA AND POPULATION

The study was conducted in the Tshwane metropolitan area. The city of Tshwane is the administrative capital of South Africa and is the largest municipality, as measured by land mass. Tshwane is amongst the six largest municipalities in South Africa and the second largest in Gauteng, as measured by Gross Domestic Product (GDP). The Tshwane region covers 6 368 km^2 of Gauteng's 19 055 km^2, and houses approximately 2.9 million residents. The total population of Tshwane is 2-921-4888 and has 911 536 total number of households. Female headed households constitute 35.8 percent of these. The city of Tshwane has 23.4% of people above the age of 20 who are educated (Statistics, South Africa, 2013). The city has a diverse economy, which enables it to contribute at least 26.8% of Gauteng Province's GDP and 9.4 percent of the GDP of the national country (Statistic, South Africa, 2013). As the administrative capital of South Africa it is home to the Union Buildings with government-related business playing an important role in the local economy. The municipality's main economic sectors are community services and government followed by finance and manufacturing. Metal products, machinery and household products are the largest sub-sectors within the manufacturing sector.

The area that developed between the old city centre and the younger developments towards the eastern side of the city is known as the Central Suburbs and the city continues to grow (Van Eeden, 2013:135). Small businesses available in this informal sector area include spaza shops and street vendors that are found everywhere along the streets. Many people decided to start informal business because of their unemployment status and having no alternative source of income.

The study was part of a larger research project that aimed to determine the food practices of young urban black adults in all seven regions of the Tshwane Metropolitan Area. This particular study only included young urban black adults residing in the central suburbs of the Tshwane Metropolitan Area. The study focused on the following suburbs: Brooklyn, Hatfield, Arcadia, Sunnyside, Groenkloof, Waterkloof, Pretoria Central and Booysens (see Figure 3.2). This sample was chosen because previous research indicated that the majority of young urban black adults reside in the central suburbs of Tshwane (City of Tshwane Metropolitan Household Survey, 2008; Stats SA, 2013).

3.10 THE SAMPLE AND SAMPLING PROCEDURE

Young urban black adults from the central suburbs of the Tshwane Metropolitan Area (Figure 3.2) were the unit of analysis for the study. Young urban blacks (both genders) between the ages of 20-30 years who were willing to participate were eligible to participate in the study. The sample consisted of 110 males and 213 females.

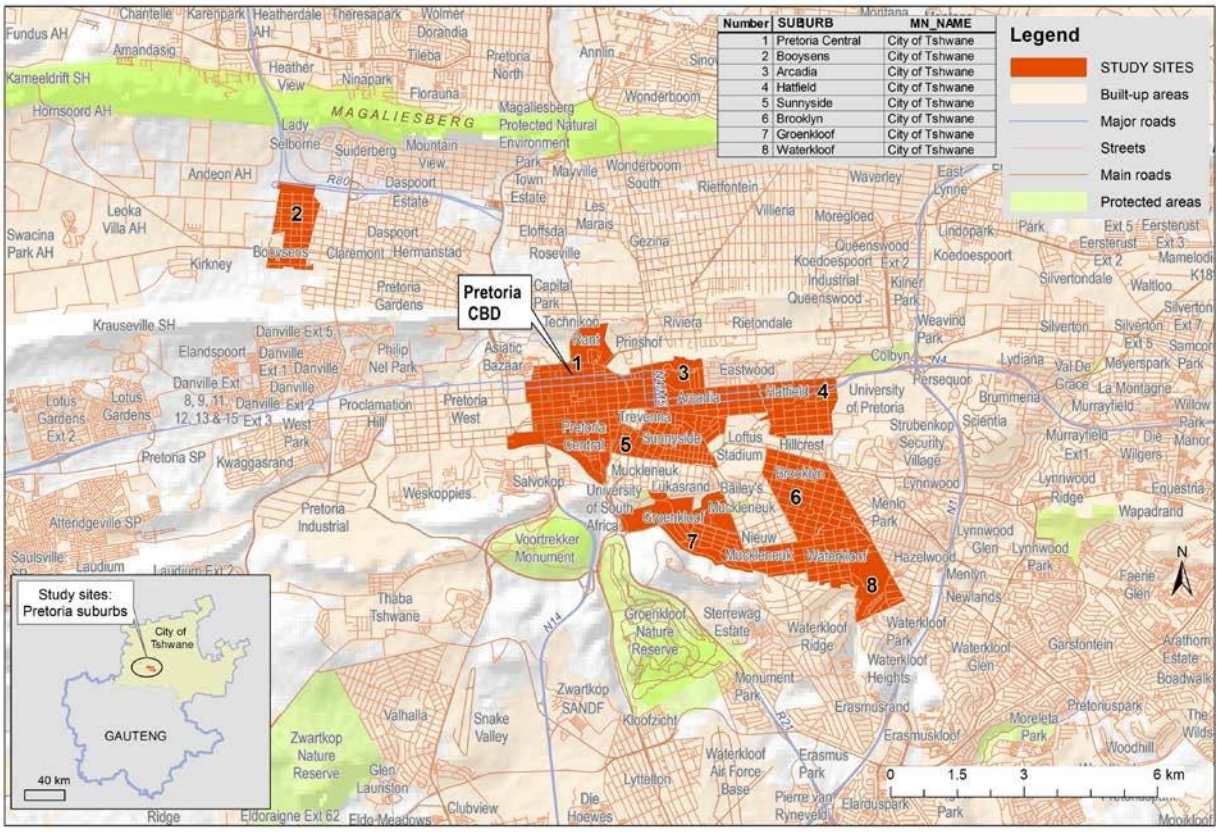

FIGURE 3.2: A MAP OF PRETORIA ILLUSTRATING THE STUDY AREA

To reduce the cost of collecting data convenience sampling was used. Respondents who gave their informed consent and complied with other criteria such as age and area of residence were included in the study.

3.11 DATA COLLECTION

Data was collected between October 2012 and January 2013. The pretested self-administered questionnaire was used to collect primary quantitative data. Respondents were approached with a paper-based questionnaire and were requested to complete the questionnaire. The researcher opted to use the drop-off, collect later method to allow respondents to complete the questionnaire in their own time without any direct assistance or intervention from the researcher as Salkind (2009:142) recommends. All respondents had an option to participate in the study or not. Attached to each questionnaire was a cover letter

that informed participants about the study by giving the purpose of the study in order to obtain consent and interest (See Addendum C). Confidentiality and anonymity was ensured.

3.12 DATA ANALYSIS

Data obtained was coded and entered in a Microsoft Excel spreadsheet and thereafter screened to ensure that the correct information had been captured. Identified errors were corrected. The statistical software package (SAS) Version 9.3, was used to analyse the data. The data was analysed by means of descriptive statistics (percentages and frequencies) and summarised as tables and graphs.

3.13 DATA QUALITY

In order to obtain good results in research it is important that valid and reliable data is obtained when conducting a study (Blanche *et al*., 2008:90; De Vos *et al*, 2005:160; Babbie and Mouton, 2001:277) This research adhered to the measures of reliability and validity to combated possible errors.

3.13.1 Reliability

Reliability is defined as the stability or consistency of the obtained values (Blanche *et al*., 2008:92; Salkind, 2009:110; De Vos *et al*., 2005:162; Babbie & Mouton, 2001:157). It is the degree to which a test yields the same results when given on two occasions or by two different researchers to the same group of individuals. In order to increase reliability of the study, the number of respondents was high because the larger the sample being investigated, the more likely that the sample will be representative to ensure reliable results. Instructions on how to complete the questionnaire were included in the cover page and at the beginning of each section of the questionnaire. To further ensure reliability the questionnaire was pilot tested before the actual data collection took place (see 3.8). It also helped to determine the time required to complete the questionnaire and to check that the statements and instructions were clear.

3.13.2 Validity

Validity is defined as the extent to which an instrument measure what it is intended to measure about certain variables in a manner that reliable results are yielded (Blanche *et al*., 2008:91; Salkind, 2009; De Vos *et al*., 2005:160). The instrument was developed by experts in the Consumer Science department at the University of Pretoria. The three categories

underlying validity of measurement, namely: the construct, the content and the face validity and how these were ensured are explained.

- ***Construct validity*** is the measure of how well a measure assesses some underlying constructs (Salkind, 2009:120; De Vos *et al*., 2005:161). Construct validity was further accomplished through compiling an extensive review of literature on the topic of food practices. To ensure construct validity, operationalisation and conceptualisation of constructs were clearly outlined. Scientifically proven scales (household affluence scale) and a 4 point Likert-type scale to measure knowledge, attitudes, beliefs and values were used to ensure construct validity.

- ***Content validity*** indicates the extent to which a measure represents the universe of items from which it is drawn (Neuman, 2011:212; Salkind, 2009:118; De Vos *et al*; 2005:161). A pretested existing questionnaire, developed by experts in Consumer Science was used in order to eliminate any uncertainties of the data.

- ***Face validity*** indicates the extent to which the questionnaire appears to measure or appears relevant to the target population to whom it will be administered for completion (De Vos *et al*., 2005:161). It has to ensure that the respondent complete the questions recognises the type of information to which they have to respond. The questionnaire was pilot tested in order to ensure face validity. Moreover, a panel of Consumer Science experts evaluated the questionnaire for content, structure and face value.

3.14 ETHICS

The study adhered to the guidelines for ethical conduct as it engaged with human subjects as a source of data. The respondents were given the freedom of choice to participate in the study. They were also given a consent form which clearly explained the aim of the study, the expected duration of the respondent's involvement, the procedures that were to be followed during the investigation, noticing advantages and disadvantages and dangers to which respondents might be exposed. Respondents signed the consent form before participating in the study. Respondents were reminded prior that participation that it was voluntary and that the data would be handled in a confidential and anonymous manner. Instructions on how to complete the questionnaire were given on the cover page of the questionnaire and the researcher clarified certain issues that arose. Respondents had a right to withdraw from the project any time they felt like it. The research proposal of the project was submitted to the Ethics Committee of the Faculty of Natural and Agricultural Sciences before data collection

began and ethical approval was granted. The ethics reference number for the study was EC120516-058.

3.15 CHAPTER SUMMARY

This chapter presented the research methodology this research followed to achieve the aim and objectives of the study. The chapter included the research design, the research aim and objectives, conceptual framework, conceptualisation, operationalisation of the main concepts, sampling, data collection and data analysis. All the appropriate methods and techniques to obtain the research goal were explained. Measures to combat error and ethics were also addressed. In the next chapter the results of the study are presented and discussed according to the research aim and objectives of the study.

Chapter 4: Results and Discussion

4.1 INTRODUCTION

In this chapter the results of the study are presented, and discussed according to the research aim and objectives of the study presented in the previous chapter.

4.2 SAMPLE AND DEMOGRAPHIC PROFILE

4.2.1 Sample

The results of the study are based on the responses of a sample of 323 young urban black adults aged 20-30 years residing the central suburbs of Tshwane Metropolitan Area.

4.2.2 Demographic profile of the respondents

Information about the respondents was obtained from both closed and open-ended questions. The demographic profile results are presented in Table 4.1.

The age of the majority (33.44% n=108) of the respondents was 20 years. This group was followed by the age group of 21 years (21.36%, n=69), and the age group of 22 years (13.62%, n=44). The 23 year old group constituted 10.84% (n=35) of the study group, followed by the 24 years old who constituted 6.5% (n=21). The respondents ≥25-30 year old group were 14.26%, (n=46). The genders were represented by 65.9%, (n=213) females and 34.1% (n=110) males. These results confirm that females are usually more inclined to participate in surveys as compared to males.

Most of the respondents indicated Sepedi/Sotho/Northern Sotho[5] (23.84%, n=77) and Setswana (11.46%, n=37) as their home languages. This is expected as the majority of residents in Tshwane are either Tswana's or Sotho's (SA Statistics, 2014). IsiZulu (15.48%, n=50) was the second most spoken language. The second least marked home language was Tshivenda as only 4.33%, (n=14) of the respondents spoke it. Afrikaans recorded the lowest number of respondents with (0.31%, n=1).

[5] Sepedi, Sotho and Northern Sotho are alternatives that have a similar meaning thus were categorised under one group in the study.

TABLE 4.1: DEMOGRAPHIC PROFILE OF RESPONDENTS (N=323)

Characteristics		n	%
Age	20 years old	108	33.44
	21 years old	69	21.36
	22 years old	44	13.62
	23 years old	35	10.84
	24 years old	21	6.5
	≥25-30 years old	46	14.26
Gender	Female	213	65.94
	Male	110	34.06
Home language	Sepedi/Sotho/N. Sotho	77	23.84
	IsiZulu	50	15.48
	IsiXhosa	39	12.07
	Setswana	37	11.46
	SiSwati	29	8.98
	Foreign languages (i.e. French, German, Congolese, Shangaan)	27	8.36
	Ndebele		
	Tsonga	18	5.57
	English	16	4.95
	Tshivenda	15	4.64
	Afrikaans	14	4.33
		1	0.31
Ethnic group	Nguni	136	42.11
	Sotho	98	30.34
	Tsonga	22	6.81
	Venda	14	4.33
	Other	53	16.41
Religious group	Christian	309	95.67
	Muslim	1	0.31
	Other	13	4.02

The sample was ethnically heterogeneous as the majority were Nguni[6] (42.11%, n=136) and Sotho (30.34%, n=98). The Tsonga comprised 6.81%, (n=98) and the Venda were 4.33%, (n=14). The remainder of the respondents who participated in the study (16.41%, n=53) were from other ethnic groups such as the Shona cultural group. The majority of the respondents (95.67%, n=309) belong to the Christian faith which is the religion of the majority in South Africa.

[6] Nguni refers to the group related to Bantu languages including Xhosa, Zulu, Swazi and Ndebele.

Household structure is part of the social environment and data for this sample is presented in Table 4.2.

TABLE 4.2: HOUSEHOLD STRUCTURE (N=323)

Household structure	N	(%)
Nuclear family	146	45.20
Single parent family	54	16.72
Extended family	40	12.38
Living with friends	44	13.62
Living on their own	27	8.36
Child headed household	6	1.86
Not indicated	6	1.86

The majority of the respondents came from nuclear families (45.2%, n=146). The term nuclear family or elementary family is used to define a family group consisting of a pair of adults and their children (Bryant *et al*., 2003:191). Nuclear families are typically married couples in contrast to single parent and extended families (Utter, Denny, Robinson, Fleming, Ameratunga & Grant, 2013:3). In this study the prominence of single parent families (16.72%, n=54) as the second largest group needs to be noted. Some respondents 13.62%, (n=44) lived with friends while 12.38%, (n=40) were from extended families. Extended family include members outside of the nuclear unit, such as uncles, aunts and grandparents (Bryant *et al*., 2003:192). There were 8.36%, (n=27) respondents who indicated that they lived alone and only (1.86%, n=6) respondents from child-headed families. The rest of the respondents 1.86%, (n=6) did not indicate their family structure. The household size and family structure of the respondents of this sample concur with other South African studies on family structure and size (Wittenberg & Collinson, 2007).

The majority of the respondents (81.74%, n=264) (Table 4.3) were from families where either one or both parents were in full-time employment and indicated as breadwinners of the household. Quite a number of the respondents (22.6%, n=73) and 19.2% n=62) came from households consisting of four or five people, respectively. The rest came from either smaller (1 person, 6.19%, n=20; 2 people, 9.29%, n=30; 3 people, 14.24, n=46) or larger households (≥7 people, 17.35%, n=56).

About half of the respondents (45.82%, n=148) mentioned that the persons responsible for preparing meals in the household were either mothers, their wives or other senior females, which confirms that the cultural tradition of females being responsible for food preparation still exists (Bryant *et al*., 2003:194). Another 26.63% (n=82) said that they prepared their own meals themselves. Only a few respondents had domestic workers or helpers who were

responsible for preparing meals (5.55%, n=18) in their various households. Only one respondent (0.31%, n=1) indicated that the father was responsible for preparing meals in the household.

TABLE 4.3: HOUSEHOLD BREADWINNER, SIZE & MEAL PREPARER (N=323)

		N	%
Household breadwinner	Mother	101	31.27
	Father	107	33.13
	Mother & father	56	17.34
	Other	59	18.27
Household size	1	20	6.19
	2	30	9.29
	3	46	14.24
	4	73	22.60
	5	62	19.20
	6	36	11.15
	≥7	56	17.35
Meal preparer	Mother/wife/other senior female	148	45.82
	Children	23	7.12
	Grandmother	3	0.93
	Self	82	26.63
	Domestic worker/helper	18	5.57
	Mother + children	35	10.84
	Father	1	0.31
	No response	9	2.79

The following section presents the results of the study according to the objectives set for the study. The first objective on the current food practices of the study group was to determine and describe the food and eating patterns (meal patterns and meal composition) of the study group on weekdays and weekend days.

4.3 CURRENT EATING PATTERNS OF THE RESPONDENTS

Information was collected about the respondent's current food and eating patterns (See Addendum D for questionnaire). Current eating patterns refer to the meal patterns and meal composition during the week and over weekends. The respondents were asked to indicate the number of meals consumed a day and the reasons for eating breakfast. Questions were asked on what food they usually consumed on weekdays and weekend days. They were to list the food items and beverages according to various meal times, namely breakfast, in-between breakfast and lunch, lunch, in-between lunch and supper, supper and after supper to gather information on the type of food eaten by the respondents.

4.3.1 MEAL PATTERNS

Respondents were asked how meals they consumed each day on weekdays and whether they ate breakfast. In addition they were also requested to state the reasons for eating or not eating breakfast. The results on meal patterns are shown in Table 4.4.

TABLE 4.4: MEAL PATTERNS DURING WEEKDAYS

Meal patterns	Frequency	Percentage (%)
Number of meals eaten a day		
1	9	2.79
2	88	27.24
3	181	56.04
≥4	45	13.94
Usually eat breakfast		
Yes	223	69.04
No	100	30.96

The majority (56.04%, n=181) of the respondents ate three meals a day whereas 13.94%, (n=45) indicated that they ate four or more meals a day. A large number of the respondents (27.24%, n=88) said they consumed two meals a day. This illustrate that they still followed the traditional eating patterns of two meals a day, the first meal consumed at noon and the second meal in the evening (Dolman *et al*., 2007; Vorster, 2002; Labadarios, Walker, Blaauw & Walker, 1996). Only 2.79% (n=9) reported that they had only one meal a day. From these results it appears that the majority (69.98%, n=226) of respondents follow a Western-orientated meal pattern of having more than two meals a day. The respondents' shift towards the Western-orientated meal patterns concurs with other studies conducted on black population groups in South Africa (Temple, Steyn, Myburgh & Nel, 2006; Labadarios *et al*., 2005; Viljoen *et al*., 2005; Van Eeden & Gericke, 1996).

Breakfast consumption has been shown to be an important indicator of a healthy life style. A healthy breakfast is associated with a reduced risk of being overweight and improves mental health, moreover, breakfast eaters are less depressed and show a better cognitive performance than people who skip breakfast (Reeves, Halsey, McMeel & Huber, 2013; Hallstrom, Vereecken, Ruiz, Patterson, Gilbert, Catasta, Diaz, Gomez-Martinez, Gross, Gottrand, Hegyi, Leroux, Mouratidou, Widham, Astrom, Moremo and Sjostrom, 2011; Sjöberg, Hallberg, Hoglund & Hulthen, 2003). Having breakfast regularly was common among the majority 69.04%, (n=223) of the respondents. Despite all the benefits of breakfast consumption, breakfast skipping is common among young adults and in this study almost a

third 30.96%, (n=100) did so. These results concur with those of a Canadian study that suggests that college students living in residence halls skip meals due to time constraints associated with personal and social activities (Pelletier & Laska, 2012; Marquis, 2005). The findings of this study are also similar to South African studies that contend that irregular consumption of breakfast is common among young adults (Temple *et al*., 2006; Labadarios *et al*., 2005). Breakfast skipping can be attributed to limited time to prepare it. Time-pressured young adults' meal patterns are lined to continuous snacking and eating small portions of food instead of proper meals (Lhuissier, Tichit, Caillavet, Cardon, Masullo, Martin-Fernandez, Parizot & Chauvin, 2012; Marquis, 2005). Other studies found that young adults from low socio-economic groups tend to skip breakfast (Hallstrom *et al*., 2011).

People perceive the importance of breakfast differently. In order to investigate this point of view among young urban black adults, they were asked to state the reasons why they consumed breakfast. They gave the following reasons for eating or not eating breakfast (Table 4.5) in response to an open question. "Please give reasons for your answer to Question B2".

TABLE 4.5: REASONS FOR EATING OR NOT EATING BREAKFAST

	Frequency	Percentage (%)
Reason for eating breakfast		
Gives energy	99	30.65
Important meal of the day	73	22.60
Starving/hungry	23	7.122
To get metabolism going	19	5.88
Reasons for not eating breakfast		
Not served	70	21.67
Not hungry	23	7.12
Waste of time	3	0.93
Unhealthy	3	0.93
No response	10	3.10

The majority of respondents (30.65%, n=99) ate breakfast because it provides energy for the day, and of the 22.6%, (n=73) regarded breakfast as an important meal. Only a few respondents (7.12%, n=23) stated that they ate breakfast because they were *"starving or hungry"* in the morning, others (5.88%, n=19) revealed that they ate it because *"…it keeps their metabolism going"*. The respondents who did not eat breakfast indicated the following **negative reasons** as the major cause. They did not eat breakfast because it was not served (21.67%, n=70), they were *"not hungry in the morning"* (7.12%, n=23), or regard it as *"…a waste of time"* (0.93%, n=3), and others (0.93%, n=3) see breakfast as "*unhealthy*" or that they could *"not eat in the early hours of the day"*.

4.3.2 MEAL COMPOSITION

As part of the eating patterns, data on the weekday meal composition was gathered. Respondents were requested to list the foods and beverages they consumed per day on weekdays (Monday to Friday). They placed food items and beverages according to the following time slots: breakfast (06:00-09:00), in-between meals (09:00-12:00), lunch (12:00-15:00), in-between meals (15:00-17:00), supper (17:00-20:00) and after supper. Figure 4.1 portrays the meal composition on weekdays.

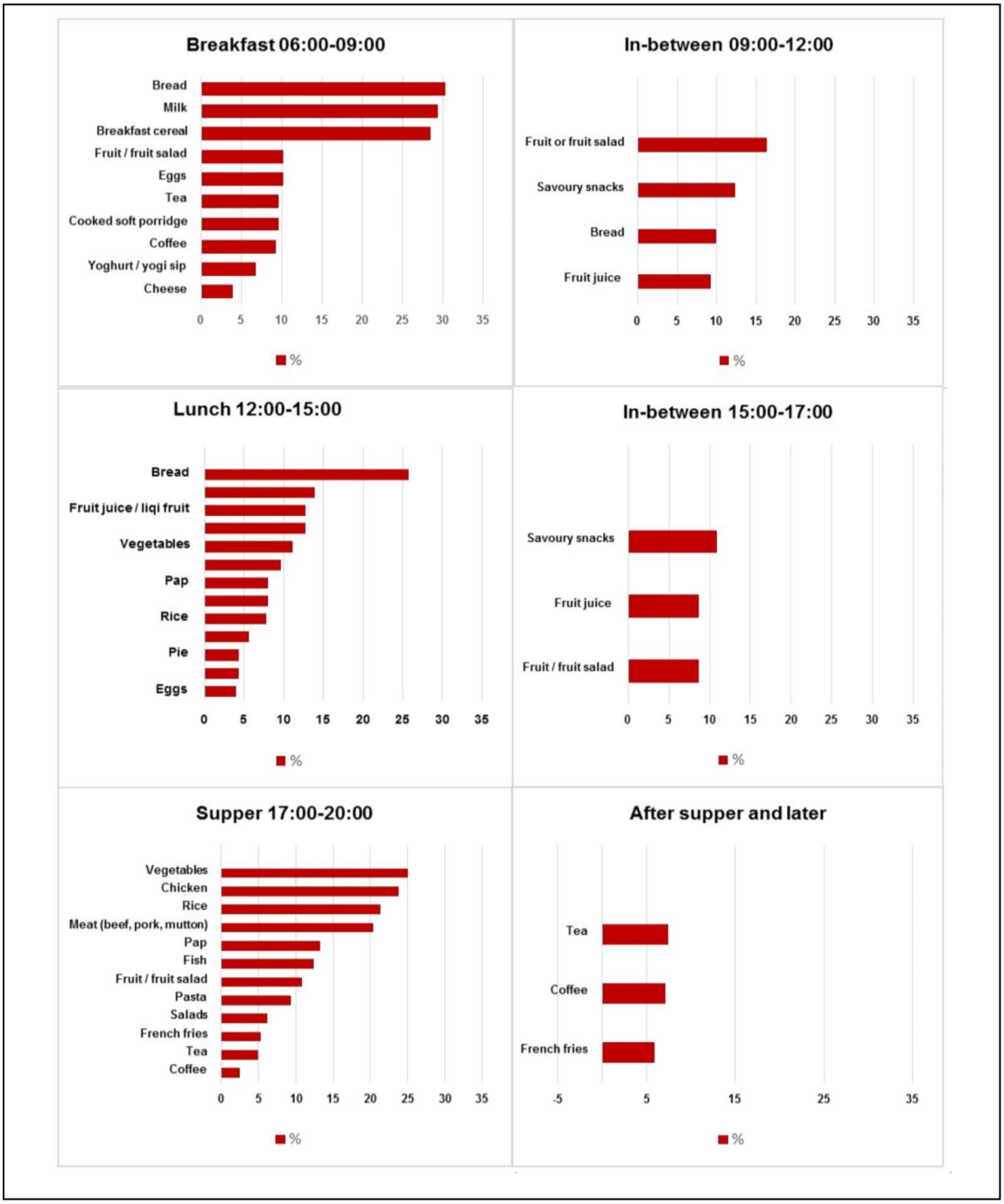

FIGURE 4.1: WEEKDAY MEAL PATTERNS (N=323)

Breakfast. On weekdays bread was consumed by 30.34% (n=98) of respondents during breakfast, followed by 28.48%, (n=92) who ate breakfast cereals. These findings concur with other studies conducted in South Africa which reported that a bread-based breakfast and lunch in South Africa is common practice (Faber *et al*., 2013; Viljoen *et al*., 2005; MacIntyre *et al*., 2002; Viljoen & Gericke, 1998). The majority of the respondents (29.41, n=95) reported that they included milk for breakfast. These results also reflect that fruits or fruit salad and eggs were consumed by 10.22% (n=33) and 10.22% (n=33) of the respondents, respectively. About ten percent of the respondents drank tea (9.6%, n=31) and coffee (9.29%, n=30) at breakfast time. Cooked soft maize meal porridge, a traditional food was consumed by only 9.6% (n=31) of the respondents. Some respondents (9%, n=29) maintained the traditional practice of including cooked soft maize meal porridge as the first meal of the day. Consumption of yoghurt/Yogi Sip and cheese for breakfast was a habit of a few respondents (6.81%, n=22) and (4.02%, n=13), respectively reported. The findings of this study depict a similar trend to other South African studies that breakfast usually included bread and breakfast cereals (Faber *et al*., 2013; Viljoen 2009; Matla, 2008:81; MacIntyre, Kruger, Venter & Vorster, 2002).

In-between meals. Respondents were requested to indicate what they consumed in-between the three meals (breakfast, lunch and after supper). For the morning in-between meal, most of the respondents (16.41%, n=53) had fruits or fruit salad, followed by 12.38% (n=40) who ate savoury snack food and 9.91% (n=32) had bread. Fruit juice was often enjoyed by 9.29% (n=30) of the respondents and fruit was a popular in-between meal snack.

Lunch. The most eaten food items for lunch were bread (25.70%, n=83) and chicken (13.93%, n=45) for lunch and fruit juice (12.69%, n=41) and soft drinks (12.69%, n=41) were equally important as the main beverages. Not many respondents had vegetables (11.15% (n=36) or meat such as beef, pork, and mutton for lunch. Some had pap (stiff maize meal porridge) and rice and even cheese (8.05%, n=26). Least popular were salads (5.57%, n=36), pies (4.33%, n=26) and pasta (4.33%, n=23), the latter two requiring less preparation. Only a few respondents (4.02%, n=13) included eggs in their lunch-time meal. These results confirm that many people have a bread-based lunch as it is convenient for people at work or at school or university.

For the afternoon in-between meals on weekdays most 8.67% (n=28) of respondents indicated that they ate similar food items to those consumed in-between meals in the morning, although the number of respondents varied. Savoury snack food (i.e. chips / doritas / Nik Naks / cheese puffs) was consumed by 10.84% (n=35) of the respondents, followed by

8.67% (n=28) drinking fruit juice or enjoying fruit or fruit salad (8.67%, n=28) for in-between meals.

Supper. For supper most of the respondents are usually at home with the rest of the family. A quarter of the respondents (25.08%, n=81) consumed vegetables for supper, followed by 23.84% (n=77) who enjoyed chicken for supper. Some respondents (20.43%, n=65) indicated that they consumed other meat which included beef, pork and mutton. The more frequent consumption of chicken can be attributed to the fact that it has become more available and accessible in comparison to other meats. Rice was consumed by the most of the respondents (21.36%, n=68) as compared to pap (stiff maize meal porridge) which was consumed by 13.31% (n=42) of the respondents for supper. Fish (12.38%, n=40) and fruit/fruit salad (10.84%, n=35) were also among the foods consumed for supper. Pasta was enjoyed by 9.29% (n=30) of the respondents, this can be attributed to it being easy to prepare and convenient to serve. Several others had salads (6.19%, n=20) and chips (French fries) (5.26%, n=17) for supper. Coffee (2.48%, n=8) was less popular than tea (4.95%, n=16) as something to drink with their supper. Coffee was consumed by the minority of the respondents as compared to tea.

After supper. Only a few respondents consumed food after supper. Most of the respondents who indicated that they consumed food after supper, enjoyed beverages, either tea (7.43%, n=24) or coffee (7.12%, n=23). Another food item often eaten after supper was chips (French fries), as 5.88% (n=19) of the respondents did.

The majority of respondents had bread and breakfast cereals for breakfast and bread and chicken were often included for lunch. During supper a cooked meal with vegetables and chicken was frequently served. The consumption of fruit and vegetables (25.08%, n=81) was low although they were part of the three main meals and in-between meals on weekdays. A study conducted in the United States on fresh fruits and vegetables purchased in an urban supermarket reported that fruit and vegetables consumption for both adults and children was low (Phipps, Stittes, Wallace & Braitman, 2013; Dickson-Spillmann & Siegrist, 2010). Snacking in-between meals was also noted among the respondents. In Switzerland a study conducted on consumers' knowledge of healthy diets, it was reported that although consumers knew about the benefits of healthy eating the consumption of fruits and vegetables was low (Dickson-Spillmann & Siegrist, 2010).

Respondents were asked to record what they recall what they had eaten during the previous 24 hour period and to confirm this would be a good reflection of what they usually ate and drank three to four times a week. The majority of the respondents (59.13%, n=191) indicated

that the reported food intake represented what they usually ate on weekdays. However, some (37.46%, n=121) said it did not and they had to explain how it differed.

However, only 30.65% (n=99) of the respondents indicated that the information on the self-reported 24 hour recall was not a good representation of the type of food and beverages they usually consumed. The reasons how it differed from what they usually eat are shown in Figure 4.2 below.

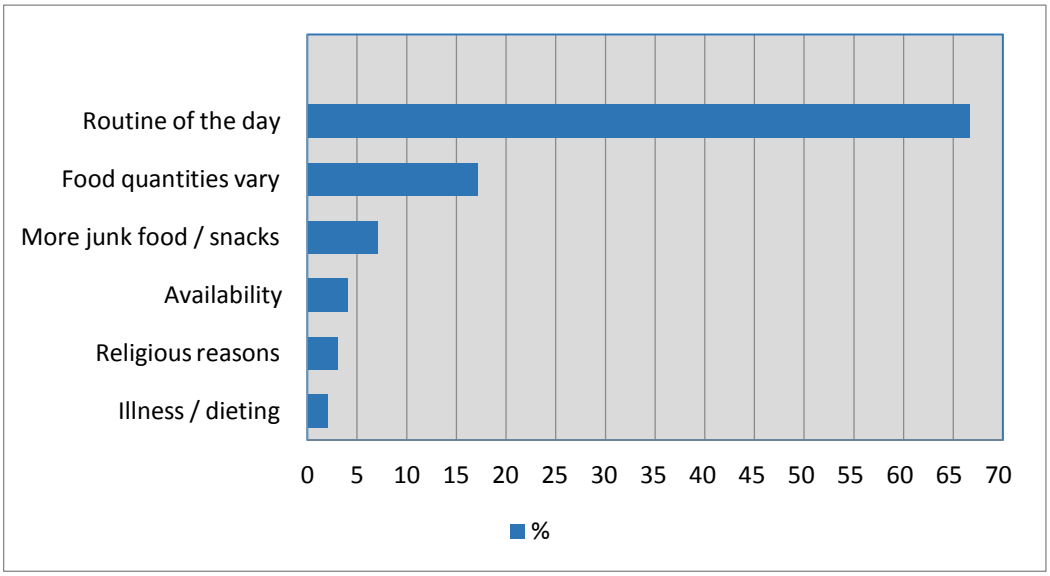

FIGURE 4.2: DIFFERENCES IN MEALS CONSUMED ON WEEKDAYS (N=323)

The majority of the respondents (66.67%, n=66) indicated that varying daily routines of the day prevented them from having proper meals or a regular eating pattern and type of food. Other respondents (17.17%, n=17) stated that the quantity of food varied and this made it different. Only 7.07% (n=7) of the respondents reported that they consumed more junk food or snacks than they usually do. In this study availability as a determinant of food choice influenced the respondents eating patterns as evidenced by 4.04% (n=4) of the respondents who reported that they consumed what was readily available at home. Three respondents' (3.03%) said their eating patterns differed because of their religious practices such as fasting.

In the next section, the meal composition on weekend days is presented and discussed.

4.3.3 MEAL COMPOSITION ON WEEKEND DAYS

The respondents were asked to indicate if there was a difference in their eating patterns on weekend days. The majority (59.13%, n=191) of the respondents reported that there was no

difference in their eating patterns on weekend days (Saturday and Sunday). Only 35.91% (n=116) of the respondents indicated that the weekend's eating patterns differed from weekdays and the other respondents (4.95%, n=16) did not respond to the question. As part of the eating patterns on weekend days, respondents had to explain the difference in their eating patterns for each meal and in-between meal event on Saturdays and Sundays. Out of the 35.91% (n=116) who stated that eating patterns differed, some gave reasons how their eating patterns differed.

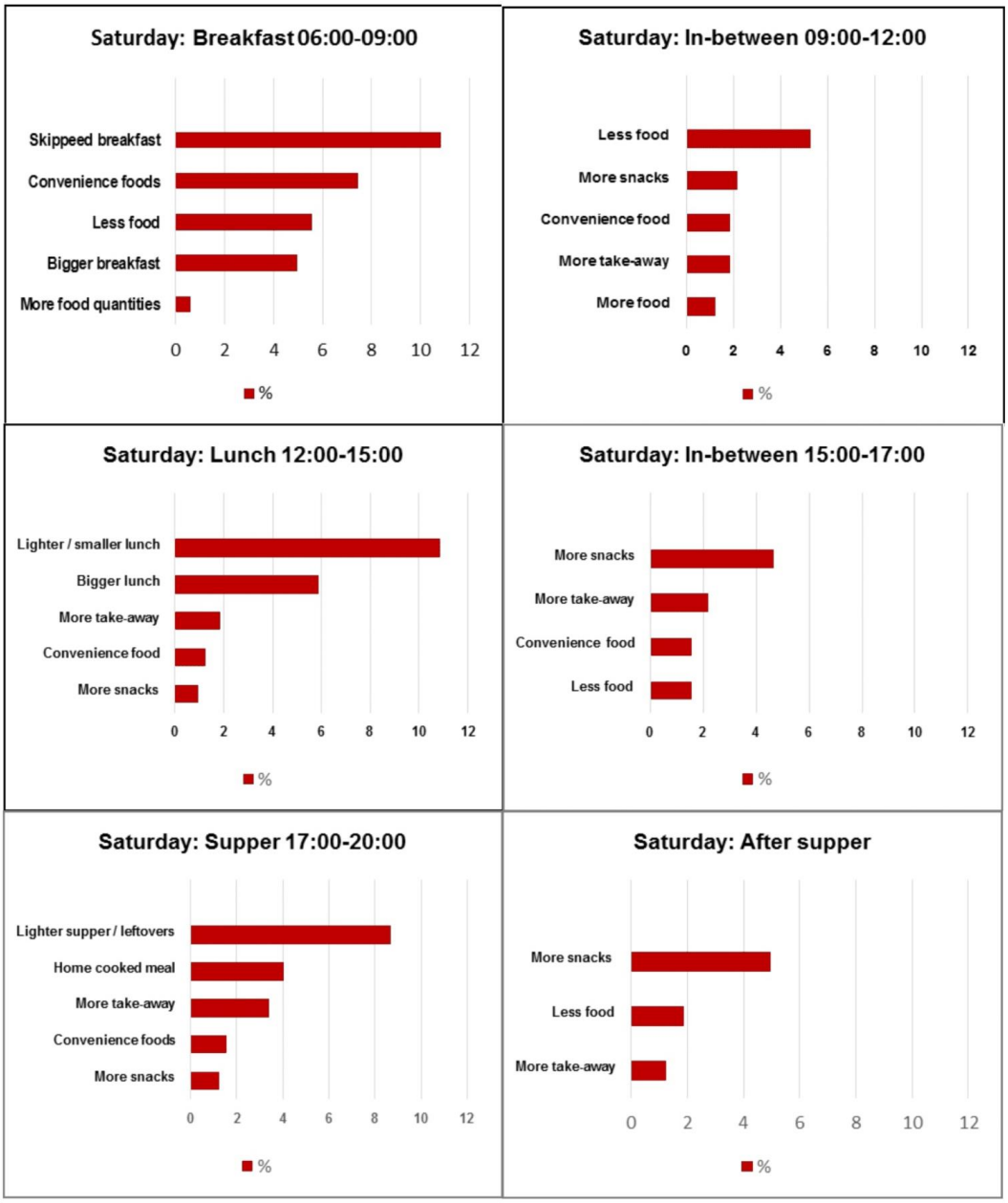

FIGURE 4.3: SATURDAY MEAL PATTERNS (N=116)

The results of the nearly 36% (n=116) who reported a different weekend meal pattern are given first for Saturdays followed by Sundays. The results for Saturdays are presented in Figure 4.3.

Breakfast. Only 10.84% (n=35) indicated that they skipped breakfast while 4.95% (n=16) had a bigger breakfast on Saturdays than on weekdays. It was mostly more convenience foods that were consumed for breakfast on Saturday as reported by 7.43% (n=24). Others (5.57%, n=18) said that they consumed less food for breakfast. Only two of the respondents consumed more food quantities on Saturdays than on weekdays.

In-between meals. A small number respondents (5.26%, n=17) indicated that they consumed less food in-between meals on Saturdays, others indicated that snacks (2.17%, n=7) and convenience foods (1.86%, n=6) were consumed more often in the morning in-between meals. Another 1.86%, (n=6) indicated that they consumed more take-away / take-out meals. A smaller number of respondents (1.24%, n=4) reported that they ate more snack food in-between meals.

Lunch. For lunch 10.84% (n=35) had a smaller lunch on Saturdays than they usually had on weekday at lunch-time whereas 5.88% (n=19) had a bigger lunch on Saturday. Another difference the respondents mentioned was the consumption of more take-away foods (1.86%, n=6) and convenience foods (1.24%, n=4). A small number (0.93%, n=3) consumed more snack foods for lunch.

In-between meals. Between meals in the afternoon, nearly five percent of the respondents (4.64%, n=15) consumed snacks and a few (2.17%, n=7) mentioned that they ate more take-away foods in comparison to weekdays. The consumption of convenience foods was similar to the morning in-between meal snack as it was consumed by 1.55% (n=5) of the respondents. A few respondents (1.55%, n=5) ate less food in-between meals.

Supper. For supper some respondents (8.67%, n=28) consumed a lighter supper or leftovers from lunch and a small number (3.41%, n=11) consumed more take-away or snack food for supper. A home cooked meal was consumed by some (4.02%, n=13) for supper and others (1.55%, n=5) included more convenience foods. Only 1.24% (n=4) of the respondents included more snacks for supper.

After supper. A number of respondents (4.95%, n=16) ate more snacks after supper. Only 1.86% (n=6) of the respondents ate less food after supper whereas a few reported (1.24%, n=4) that they consumed more take-away foods after supper.

The results reveal a similar meal pattern to weekdays as most of the respondents reported that they also enjoyed three meals on Saturdays. The major difference noted was that many of respondents skipped breakfast while others indicated that they consumed a bigger breakfast on weekend days than on weekdays. A smaller number of respondents (5.88%, n=19) ate a bigger lunch on Saturdays than on weekdays. Another difference worth noting was that fewer respondents consumed food in-between meals and those who did, enjoyed more snacks in-between meals.

The differences in meal composition for Sunday as reported by ≤10% of the respondents is presented (Figure 4.4) and discussed next.

Breakfast. Nearly 10% (n=32) of the respondents reported a similar pattern to Saturday of skipping breakfast and this was closely followed by 8.05% (n=26) of the respondents who ate more convenience food for breakfast. Few respondents (6.19%, n=20) mentioned that they consumed less food for breakfast on Sundays. A smaller number of respondents (3.41%, n=11) ate a bigger breakfast on Sundays. Only two respondents mentioned that they ate more food for breakfast.

In-between meals. Respondents also had to mention how their meal composition on Sunday mid-mornings differed from their weekday meal composition. A number of the respondents (4.02%, n=13) mentioned that they ate less food in-between meals whereas 1.24% (n=4) mentioned that they ate more food. A smaller number of respondents (1.24%, n=4) consumed more take-away or junk foods.

Lunch. The lunch pattern on Sunday was similar to that of Saturday. Only 8.67%, (n=28) of the respondents consumed a lighter lunch and were closely followed by 7.74% (n=25) who ate a bigger lunch. Convenience foods (1.24% (n=4) and snacks (1.24%, n=4), respectively, were amongst the foods that were consumed more often by the respondents during lunch on Sunday. A smaller number of the respondents (0.93%, n=3) reported that they consumed more home cooked meals, followed by other 0.93% (n=3) who consumed more take-away for Sunday's lunch.

Afternoon in-between meals. Similar food items to those eaten for morning snacks were reported. A small number of the respondents (2.48%, n=8) consumed more snacks in

the afternoons. Both convenience foods (1.24%, n=4) and home cooked meals (1.24%, n=4) were eaten by some respondents in the afternoons. Take-away food was consumed by 0.93% (n=3) of the respondents, followed by 0.93% (n=3) who consumed more alcoholic beverages.

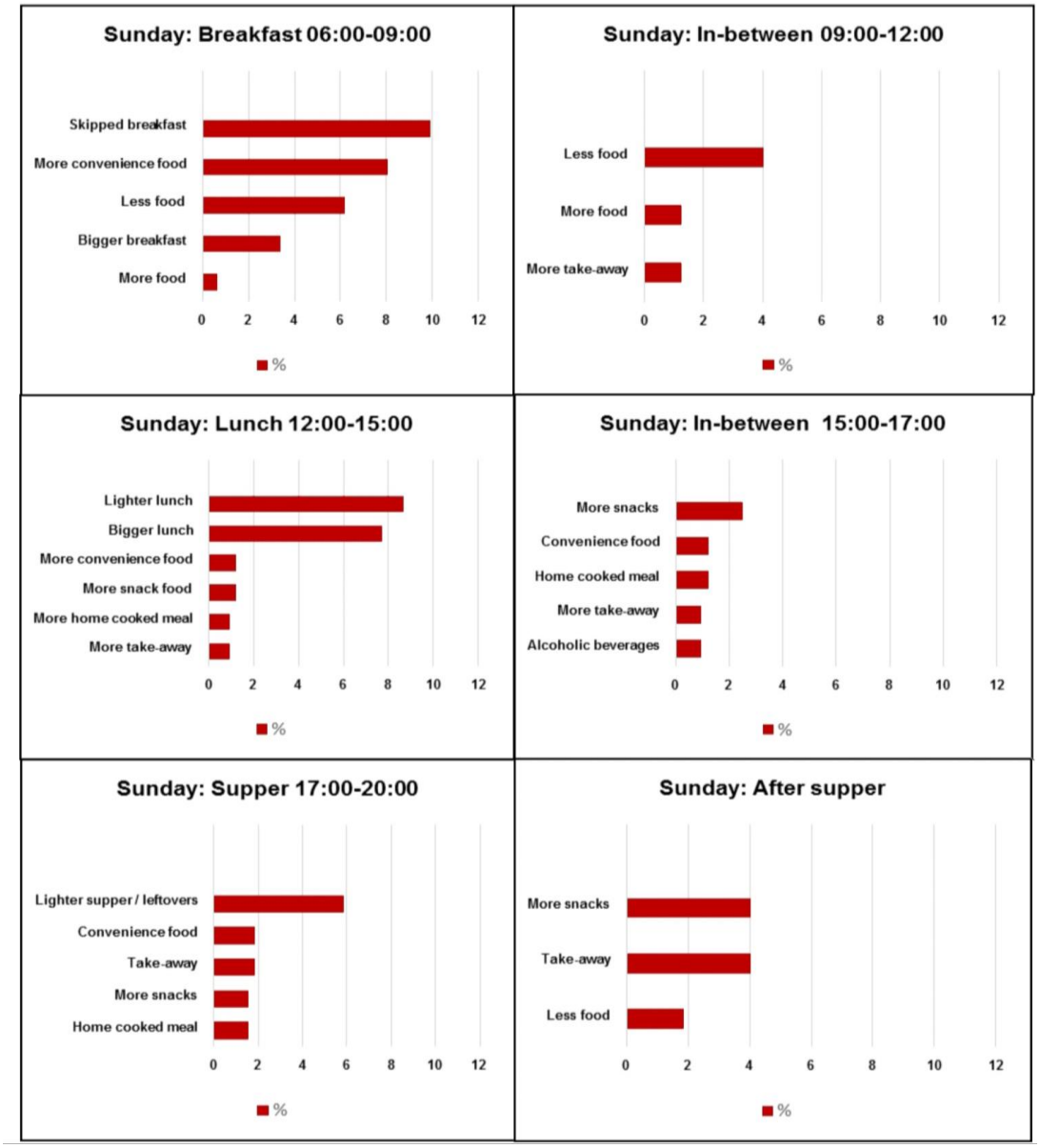

FIGURE 4.4: SUNDAY MEAL PATTERNS (N=116)

Supper. Some of the respondents (5.87%, n=18) consumed a lighter supper or left-overs from lunch which shows a similar trend to the supper eating pattern on Saturday. This

was followed by (5.26%, n=17) who consumed cooked Sunday meal. Some of the respondents (1.86%, n=6), also consumed more convenience food followed by 1.86% (n=6) who ate more take-away foods and 1.55% (n=5) who ate more snack food. Only 1.55% (n=5) respondents ate home cooked meals for supper.

After supper. The Sunday after supper meal pattern was similar to that of Saturday. Some of the respondents (4.02%, n=13) ate more snacks and (1.86%, n=6) respondents ate less food after supper. Only 4.02% (n=13) respondents consumed take-away food after supper.

This section presented and discussed the study group's current eating patterns on weekdays and weekend days. It also focused on the differences in meals consumed on weekdays. It can be concluded that many respondents skipped breakfast on Saturdays and Sundays. Other respondents ate more convenience food on weekend days as compared to weekdays. Snacking in-between meals contributes considerably to the total daily food intake of the respondents. This finding endorses the results of other South African studies that reported an increase of snacking between meals (Temple *et al*., 2006; Bourne, Langenhoven, Steyn, Jooste, Nesamvuni & Laubscher, 1994). A study conducted in the Netherlands on consumer perceptions of satiety-related snack food decision making reported that snack food products contribute to approximately 40% of a person's daily energy intake (Bilman *et al*., 2010). Many people's lifestyles today have led to an increasing significant demand for convenience food products. Due to their characteristic lifestyle, young adults are no exception and they too tend to rely heavily on convenience food (Brunner *et al*., 2010). Convenience food and take-away food was particularly popular for lunch, supper and in-between times.

The next section presents and discusses the results on the second objective on the consumption of traditional and Western-oriented foods.

4.4 CONSUMPTION OF TRADITIONAL AND WESTERN-ORIENTATED FOODS

Respondents were asked in closed questions about their frequency of consumption of indigenous, traditional foods and Western-orientated foods. This was measured because the extant literature reports that urbanisation is a growing phenomenon in South Africa as people settle in urban areas in search of better work and income-generating opportunities. This tends to cause lifestyle changes including food choice patterns (Schönfeldt, Pretorius & Hall, 2013; Bourne, Langenhoven, Steyn, Jooste, Nesamvuni & Laubscher, 1994). Respondents were asked to indicate whether they consumed traditional foods or not. In addition, open-ended questions were used to gather additional information on the respondent's opinions on how they felt about the traditional foods of their own cultural or ethnic group in order to

measure their attitudes towards traditional foods. The majority of respondents (81.11%, n=262) ate traditional foods with only 14.24% (n=46) who did not consume the traditional foods of their cultural or ethnic group. Respondents also had to indicate when they usually consumed their group's traditional foods.

These results on when they consumed traditional foods are presented (Figure 4.5) and discussed.

Nearly half of the respondents (48.61%, n=157) indicated that they consumed traditional food whenever it was available in the household. The results also highlight that 19.20%, (n=62) of the respondents mentioned that they ate traditional foods only on special occasions. A small percentage 11.15%, (n=36) and 3.10%, (n=10) of the respondents ate traditional foods either on weekdays and weekend days, respectively.

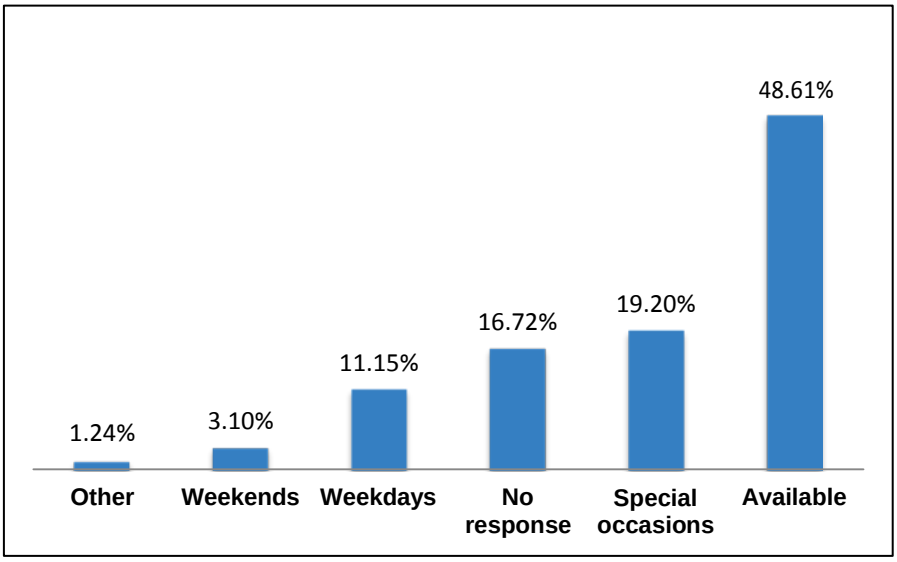

FIGURE 4.5: CONSUMPTION OF TRADITIONAL FOODS (N=262)

In order to gain a clear insight on the frequency of consumption of traditional foods, respondents were asked to indicate the reasons why they ate traditional food. Both positive and negative responses were given. Table 4.6 summarises the responses.

The results confirm a positive attitude towards the consumption of traditional food. Just more than half of the respondents (52.94%, n=171) consumed traditional foods because of its positive sensory attributes (tastes good). Moreover, nearly a third (31.58%, n=102) of the respondents stated that they perceived traditional foods as healthy. Cultural identity also played a role as a motive for the consumption of traditional foods as 16.1%, (n=52) of the respondents ate traditional food because it reveals one's cultural identity. However, not all respondents had positive feelings about traditional foods. Some respondents (8.36%, n=27)

indicated that they dislike the taste of traditional foods. Others (4.33%, n=14) stated that they did not know anything about the traditional foods of their culture. A small number of respondents (6.5%, n=21) mentioned that traditional food takes a long time to prepare and two (0.62%, n=2) said it has low status. The findings of this study indicate a positive perception of traditional food which is consistent with findings from other studies that report that traditional foods are associated with healthy benefits, cultural identity and its contribution to social cohesion (Guerrero *et al*., 2009; Raschke & Cheema, 2007; Bryant *et al*., 2003:200; Grivetti & Ogle, 2000).

TABLE 4.6: REASONS FOR CONSUMING TRADITIONAL FOOD (N=323)

Variable measured	n	%
POSITIVE REASONS		
Taste good (delicious)	171	52.94
Healthy	102	31.58
Cultural identity	52	16.10
Social cohesion	10	3.10
NEGATIVE REASONS		
Dislike the taste	27	8.36
No idea	14	4.33
Unhealthy	19	5.88
Preparation time is long	21	6.50
Low status	2	0.62

4.4.1 The frequency of consumption of selected foods

A non-quantitative food frequency questionnaire was used to measure the frequency of consumption of certain selected Western-orientated and traditional foods. In the food frequency questionnaire food items were grouped into fifteen sub-groups comprising both traditional and Western-orientated food items. The sub-groups were; bread and bread-like products, spreads or accompaniments to bread, cereals, vegetables, traditional or indigenous vegetables and legumes, fruit, meat and meat products, offal cuts, fish and sea fish, other proteins, dairy and dairy products, beverages, sweets and confectionary, savoury snacks and fast foods. Respondents had to indicate how often they consumed each food item according to the following scale; daily, 3-4 times per week, 1-2 times per week, <3 times per month, special occasions and never. The non-quantitative food frequency questionnaire served as a check and triangulation of the reported current eating practices and provided a meaningful overview of the eating patterns of respondents. The results of the non-quantitative food frequency are presented and discussed in order of their appearance in the questionnaire.

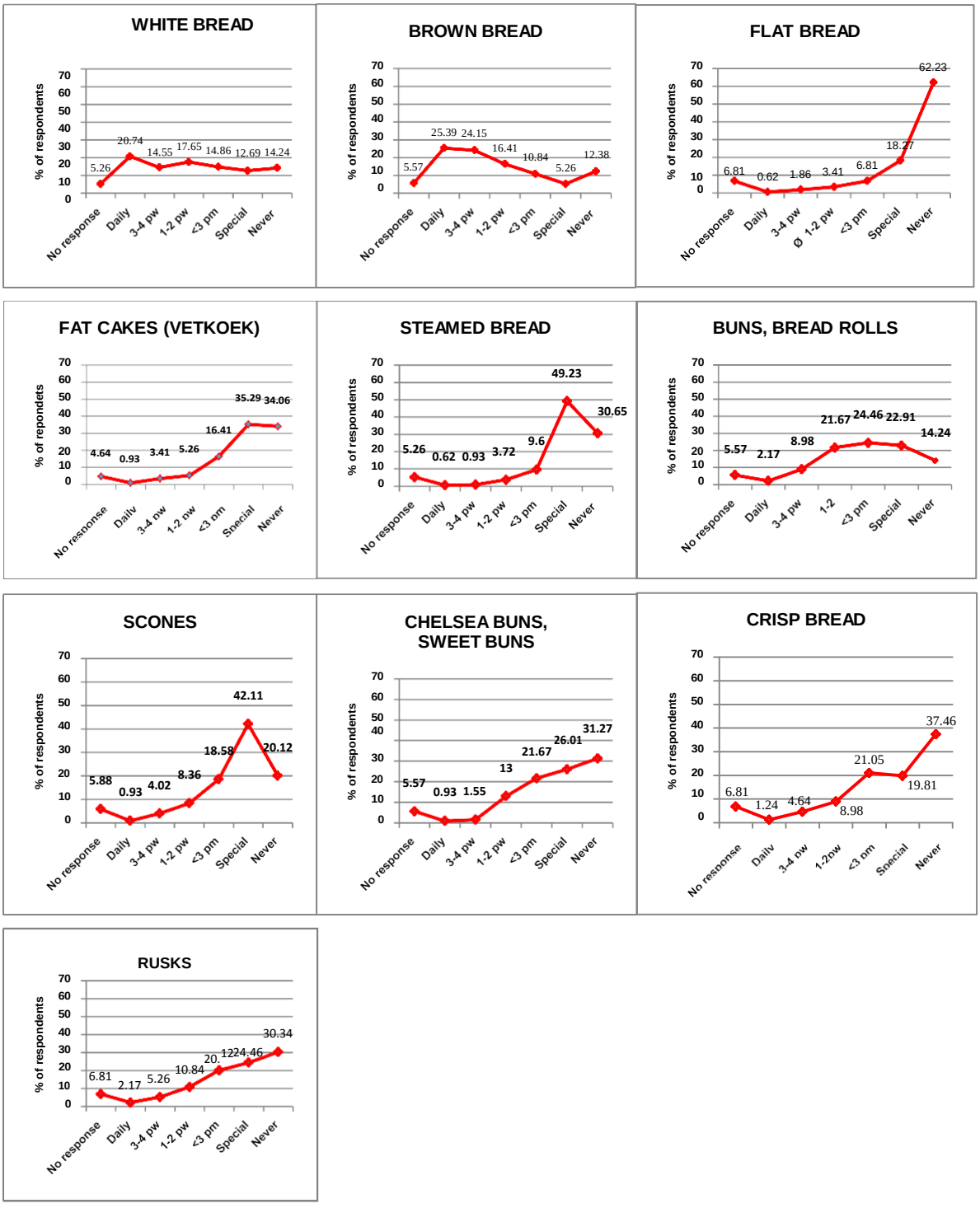

FIGURE 4.6: FREQUENCY OF CONSUMPTION OF BREAD AND BREAD-LIKE PRODUCTS (N=323)

Many respondents consumed brown bread (25.39%, n=82) and white bread (20.74%, n=66) on a daily basis in comparison to other bread-like items. The results clearly show that brown bread is consumed more often in comparison to white bread and 24.15% (n=78) indicated that they consumed it 3-4 times per week. Brown bread is cheaper and tastier in comparison

to white bread (Labadarios *et al*., 2005; Manning, Mann, Sophangisa & Truswell, 1974:49). The consumption frequency of brown bread is similar to the patterns reported in other South African studies (Tshiwanambi, 2006; Viljoen *et al*., 2005; Manning *et al*., 1974).

Traditional bread-like products such as flat bread, fat cakes (vetkoek) and steamed bread were not consumed daily by the majority of respondents. Most respondents indicated that they consumed traditional bread-like products such as fat cakes (35.29%, n=113) and steamed bread (49.23%, n=159) on special occasions. The traditional flat bread was consumed by only 18.22% (n=58) of the respondents on special occasions with the majority (63.23%, n=204) indicating that they never ate it. Other baked products such as rusks, crisp bread and Chelsea buns or sweet buns were never consumed by most of the respondents. Scones were only consumed by 5.88% (n=18) of the respondents daily, but many (42.11%, n=136) ate it on special occasions. The low consumption of rusks, crisp bread, bread rolls and Chelsea buns can be attributed to the fact that they are not traditional foods and that they are expensive.

Many respondents (29.1%, n=93) used margarine daily on bread, followed by 20.74% (n=66) who used it 3-4 times per week. Although the other spreads were used by some respondents, it was not used more frequently when compared to the use of margarine. Spreads included jam, honey, marmalade, peanut butter, and cheese or processed cheese and they were mostly consumed less than 3 times per month. The majority of respondents (69.66%, n=225) never used Marmite, Bovril, Oxo as bread spreads. The findings of this study indicate a more frequent consumption of margarine and peanut butter. Other South African studies also reported a similar trend whereby margarine and peanut butter were mostly used as accompaniments to bread (Van Zyl *et al*., 2010; Steyn *et al*., 2005: 11; Labadarios *et al*., 2005; Viljoen & Gericke, 2001).

Respondents were also asked to indicate the frequency of consumption of spreads or accompaniments to bread. The results are depicted in Figure 4.7.

The cereals included breakfast cereals, soft cooked porridge, samp, rice, stiff mealie-meal porridge, *ting mabele* (sour soft sorghum porridge), fresh mealies (boiled maize cobs) and samp and beans.

The results are shown in Figure 4.8.

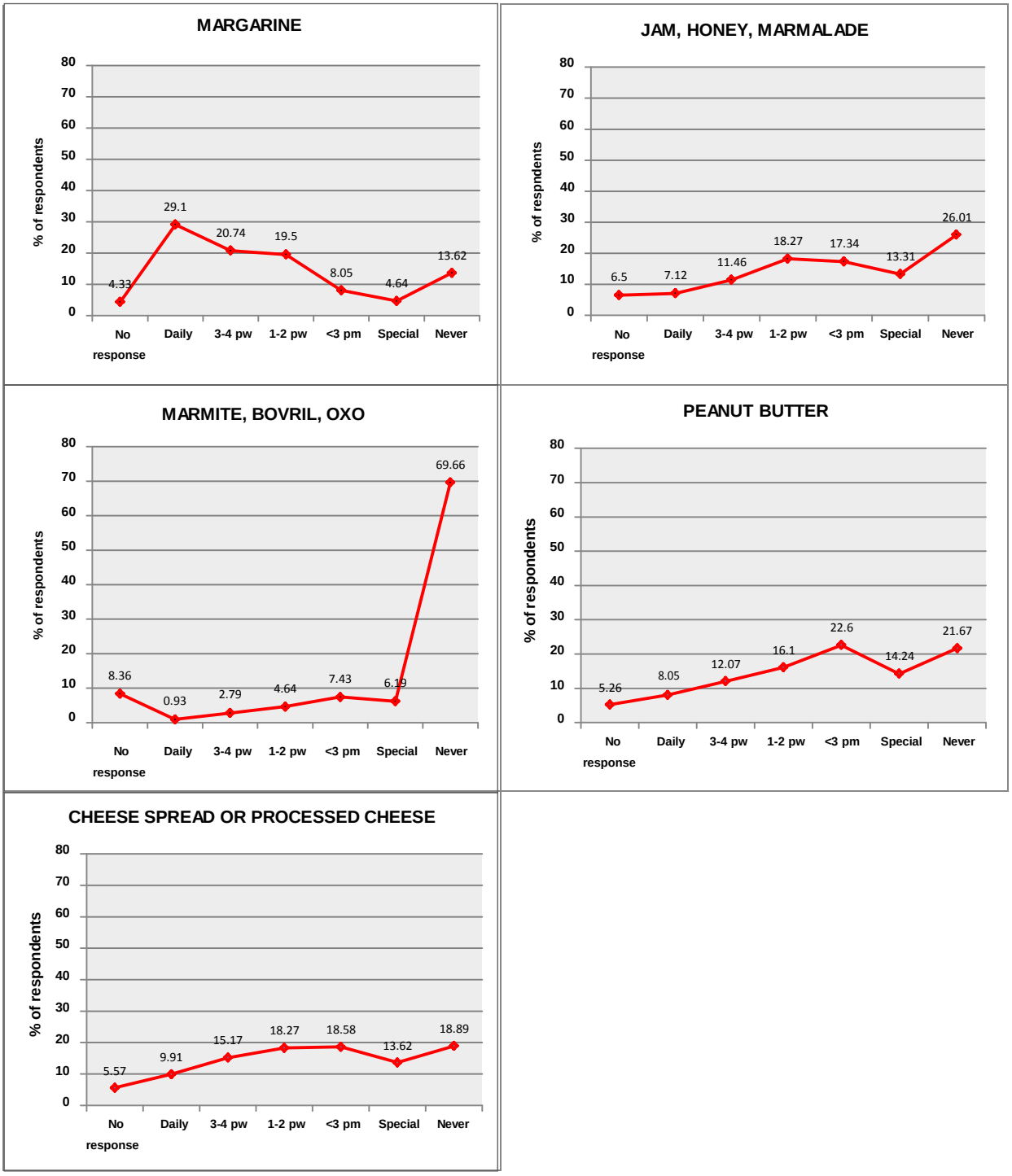

FIGURE 4.7: FREQUENCY OF CONSUMPTION OF SPREADS AND BREAD ACCOMPANIMENTS (N=323)

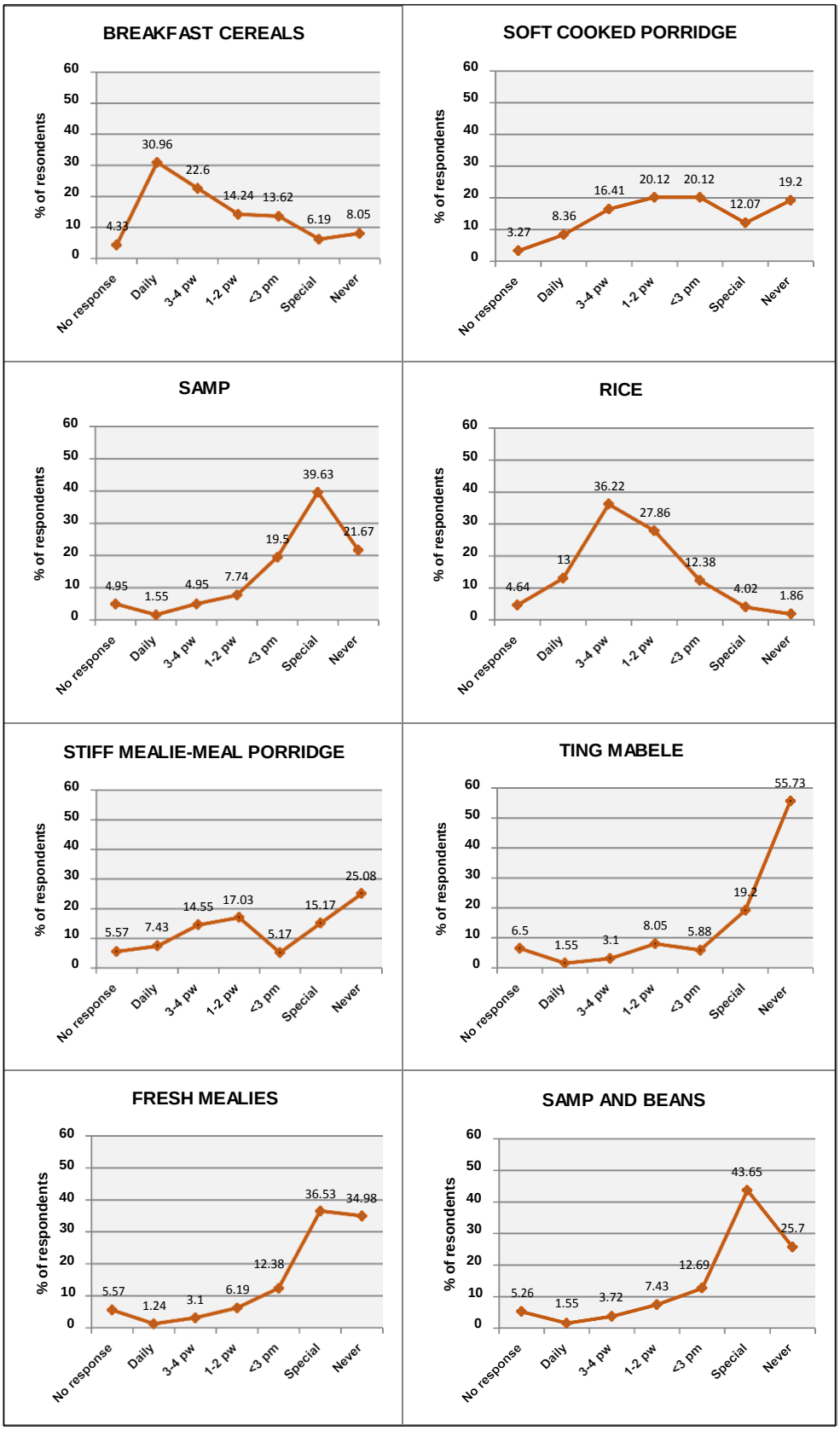

FIGURE 4.8: CEREALS FREQUENCY OF CONSUMPTION (N=323)

Breakfast cereals were food items frequently consumed for breakfast. Breakfast cereals were consumed daily by 30.96% (n=100) of the respondents, followed by 22.6% (n=72) who

consumed it 3-4 times a week and 14.24% (n=45) of the respondents who ate it 1-2 times per week. The high intake of breakfast cereals may be attributed to the fact that they are more convenient in terms of time required for preparation. Soft cooked porridge was consumed by 20.1% (n=64) of the respondents 1-2 times per week and less than three times a month. Most of the respondents (39.63% n=116) consumed samp *(stampa)* on special occasions followed by 19.5% (n=62) who ate it less than 3 times per month. Most of the respondents (36.22%, n=116) consumed rice 3-4 times per week and 27.86% (n=89) indicated that they ate it 1-2 times per week. An increased consumption of rice is evident in this study as it has become more popular in many households. This observation concurs with other studies conducted in South Africa that also report that rice is gradually assuming greater prominence in the urban blacks' food practices because it has a fairly short cooking time in comparison to maize staples which require a longer cooking period (Viljoen, 2005; Viljoen & Gericke, 2001; Manning *et al*., 1974; Labadarious *et al*., 1996; Bourne *et al*., 1994). Samp, as a staple cereal product, is currently consumed on special occasions because it takes more time to cook (Manning *et al*., 19744).

Although 25.08% (n=81) of the respondents indicated that they never consumed stiff maize meal porridge, 17.03% (n=55) ate it 1-2 times per week, 14.55% (n=46) consumed it 3-4 times per week and 7.43% (n=23) consumed stiff maize meal porridge daily. *Ting mabele* (sour soft sorghum porridge) was consumed by only 19.2% (n=62) on special occasions and 55.73% (n=180) indicated that they never ate it. Fresh mealies (boiled maize cobs) were consumed by most of the respondents (36.53%, n=117) on special occasions and another 34.98% (n=112) indicated that they never consumed it. Samp and beans was consumed on special occasions by most (43.65%, n=140) of the respondents, followed by 12.69% (n=40) who ate it less than 3 times per month. The frequent consumption of stiff maize meal porridge in comparison to *ting mabele* concurs with another South African study by Bichard, Dury, Schönfeldt, Moroka, Motau & Fabricas, (2011) which state that sorghum is an indigenous African cereal but it has been replaced by maize which produces a better yield (Labadarious *et al*., 1996). Samp and beans were not frequently consumed because they take a long time to be prepared.

Respondents had to indicate the frequency of consumption of different types of vegetables. Figure 4.9 shows the frequencies of consumption of vegetables. Vegetables were grouped into green vegetables (spinach, cabbage, broccoli, greens beans, peas), yellow vegetables (butternut, pumpkin, carrots), salads (lettuce, tomato, green pepper, cucumber), potatoes, sweet potatoes, beetroot, onions and tomatoes. Other vegetables included cauliflower, mushroom and asparagus.

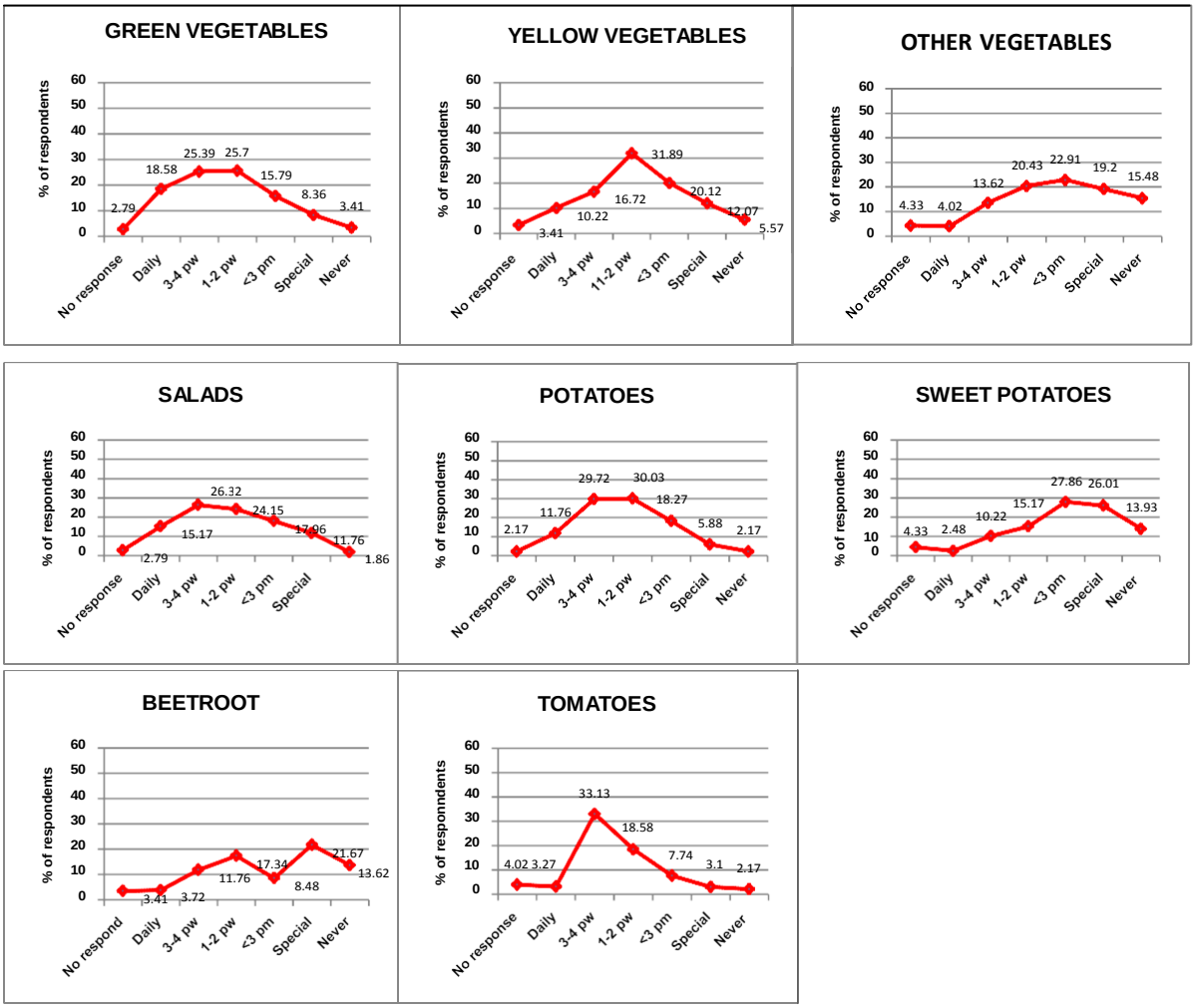

FIGURE 4.9: CONSUMPTION FREQUENCY OF DIFFERENT TYPES OF VEGETABLES (N=323)

An extensive body of research indicates that there is an association between vegetables and fruit intake and reduced disease risk (Naude, 2013). The South African Food Based Dietary Guidelines recommended daily consumption of at least five portions of vegetables and fruit per day (Naude, 2013). From results portrayed it is clear that the majority of respondents did not adhere to these guidelines as fewer than 18% mentioned a daily consumption of vegetables. Other South African studies reported a similar low consumption of fruit and vegetables (MacIntyre *et al*., 2012; Louwrens, Rautenbach & Venter, 2009). The low intake of vegetables can be attributed to poor household food security resulting from poverty (Shisana *et al*., 2013). Most of respondents (25.7%, n=83) reported that they consumed green vegetables once or twice a week, followed by 25.39% (n=82) who ate them 3-4 times a week whereas 18.58% (n=60) ate vegetables daily. Yellow vegetables were consumed 1-2 times a week by 31.89% (n=103) of the respondents, followed by 20.12% (n=64) who ate them less than 3 times a month and 10.22% (n=33) who indated that they ate yellow vegetables 3-4 times a week. Other vegetables such as cauliflower, mushroom and

asparagus were consumed less than 3 times per month by 22.91% (n=73) of the respondents and 20.43% (n=65) indicated that they consumed other vegetables 1-2 times a week. Salads were consumed by 26.32% (n=85) of the respondents 3-4 times a week, followed by 24.15% (n=78) who indicated that they ate it 1-2 times a week. Only 17.96% (n=58) respondents consumed salads less than 3 times a month. Potatoes were eaten by 29.72% (n=95) of the respondents 3-4 times a week with 30.03% (n=96) who indicated that they ate it 1-2 times a week. Most of the respondents (27.86%, n=89) consumed sweet potatoes less than 3 times per month and 26.01% (n=84) reported that they ate it only on special occasions. Beetroot was consumed by 21.67% (n=69) of the respondents on special occasions and 1-2 times a week and 13.62% (n=43) respondents indicated that they never consumed beetroot.

These results concur with findings from a study conducted on global and regional food consumption patterns as it also reports low consumption of fruits and vegetables that indicates that the study group do not take the food based dietary guidelines into account when making food choices. According to the food based-dietary guidelines, an intake of five portions (400g) of fruits and vegetables per day is recommended as they work towards protection against non-communicable diseases (NCD) such as cancer, type 2 diabetes and other related risk factors (Naude, 2013; Shisana *et al*., 2013, Dickson-Spillman & Siegrist, 2010; Franz, 1971). It is estimated that approximately 2.8% of deaths worldwide are attributable to low fruit and vegetable consumption (Vasileska & Rechkoska, 2012).

Respondents also reported on the frequency of consumption of selected traditional, indigenous vegetables and legumes. The results are given in Figure 4.10. Traditional/indigenous vegetables and legumes included *moroho*[7] (*thepe*, *delele*, *rothwe*, *lephutsi*), melon dishes (*legapu*), *maraka*[8], *lerotse* (pumpkin), legumes such as *ditloo* (jugo beans), *dinawa* (cow peas), sugar beans or kidney beans and peanuts. Achaar[9] was also listed within the vegetable group although the vegatable is spiced and prickled.

The frequency of consumption pattern for this group, with the exception of peanuts, followed the same trend as they were mainly consumed on special occasion, with ≥ 28% of the respondents who indicated that they never consumed them. *Moroho* was enjoyed by 26.93% (n=87) of the respondents on special occassions and 32.2% (n=104) mentioned that they

[7] *Moroho* is a collective name for indigenous leafy vegetables (Viljoen, 2009:128)

[8] *Maraka* is an indigenous summer squash (Viljoen, 2009:128)

[9] *Achaar* is a hot prickle or relish probably introduced to South Africa by the Malays and is basically made from sliced green fruit and/or vegetables preserved in vegetables oil with chillies and other curry spices (Viljoen, 2009:110).

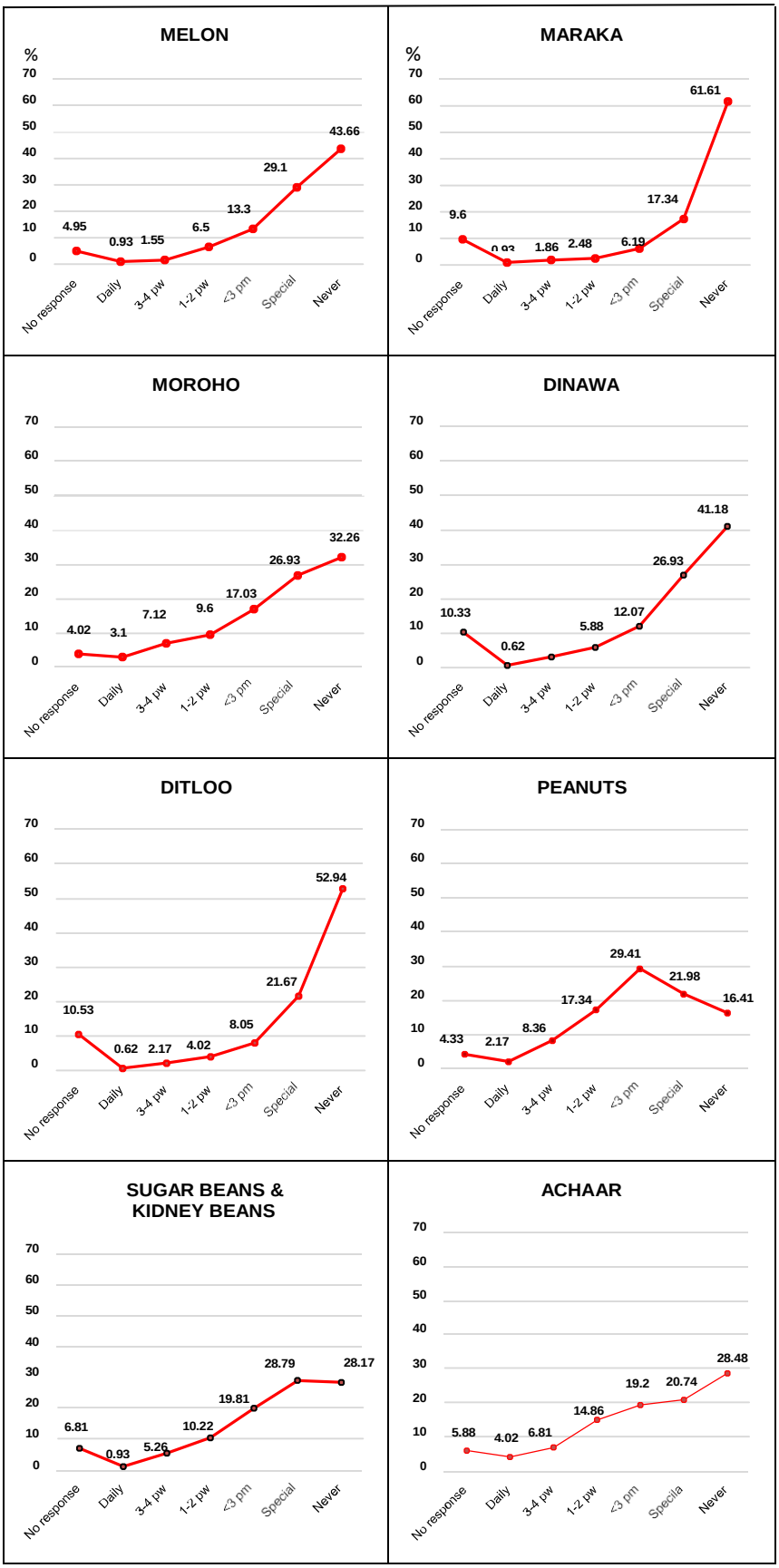

FIGURE 4.10: FREQUENCY OF CONSUMPTION OF TRADITIONAL FOOD ITEMS (N=323)

had never eaten it. Melon was mostly consumed by 29.1% (n=93) of the respondents on special occasions and 43.65% (n=140) of the respondents reported that they never ate melon. *Maraka* was consumed by only 17.34% (n=56) on special occasions and 61.61% (n=199) had never consumed it. Because they are seasonal *moroho*, melon and maraka are seen as being frequently consumed by the majority of the respondents. Although 52.94% (n=170) of the respondents mentioned that they never ate *ditloo*, 21.67% (n=69) reported that they ate it at special events. *Dinawa* was consumed by only 26.93% (n=86) of the respondents and 41.18% (n=133) indicated that they never consumed it. Although 28.17% (n=90) reported that they never consumed sugar beans and kidney beans, 28.79% (n=92) consumed it on special occasions but 19.89% (n=64) consumed them less than 3 times a month. Most of the respondents (29.41%, n=94) ate peanuts less than 3 times per month, followed by 21.98% (n=70) who ate them at special occasions and 17.34% (n=56) consumed them 1-2 times a week. Sugar beans and peanuts were consumed more often in comparison to the traditional vegetables and legumes because they are more common. Achaar was eaten daily only 19.2% (n=62) of the repondents less than 3 times per month, 20.74% (n=66) consumed them on special occasions and 28.48% (n=91) reported that they never consumed achaar. The different graphs depict a similar pattern which shows that traditional vegetables are not frequently consumed by the majority of the respondents. Literature indicates that traditional food is consumed less nowadays in comparison to what previous generations consumed.

The frequency of consumption of fruits is shown in Figure 4.11. Fruits were grouped as citrus fruits (oranges, naartjies (South African mandarin), lemons) vitamin A rich (yellow peaches, mangoes, paw-paw, pineapple, plums), and other fruits (grapes, bananas, apples, pears, litchis), as well as tinned or canned fruit, dried fruit.

Most of the respondents (27.86%, n=89) consumed citrus fruits 1-2 times per week followed by 21.05% (n=67) who consumed them 3-4 times per week and 22.29% (n=71) consumed citrus fruits on special occasions. Vitamin A rich fruits was consumed by 28.48% (n=91) of the respondents less than three times a month and 21.05% (n=67) consumed them 1-2 times per week. Although 5.26% (n=16) of the respondents reported that they never consumed Vitamin A rich fruits, 21.36% (n=68) ate them on special occasions. Other fruits such as grapes, bananas, apples, pears and litchis were more frequently consumed as 28.48% (n=91) of the respondents consumed them 3-4 times a week and 19.2% (n=62) consumed them daily with 26.32% (n=85) who consumed them 1-2 times a week. This can be attributable to that these fruits are readily available and affordable in the market. Tinned fruits was consumed by most of the respondents (33.13%, n=107) on special occasions with 21.67% (n=69) who consumed them less than 3 times per month and 26.63% (n=86) of the

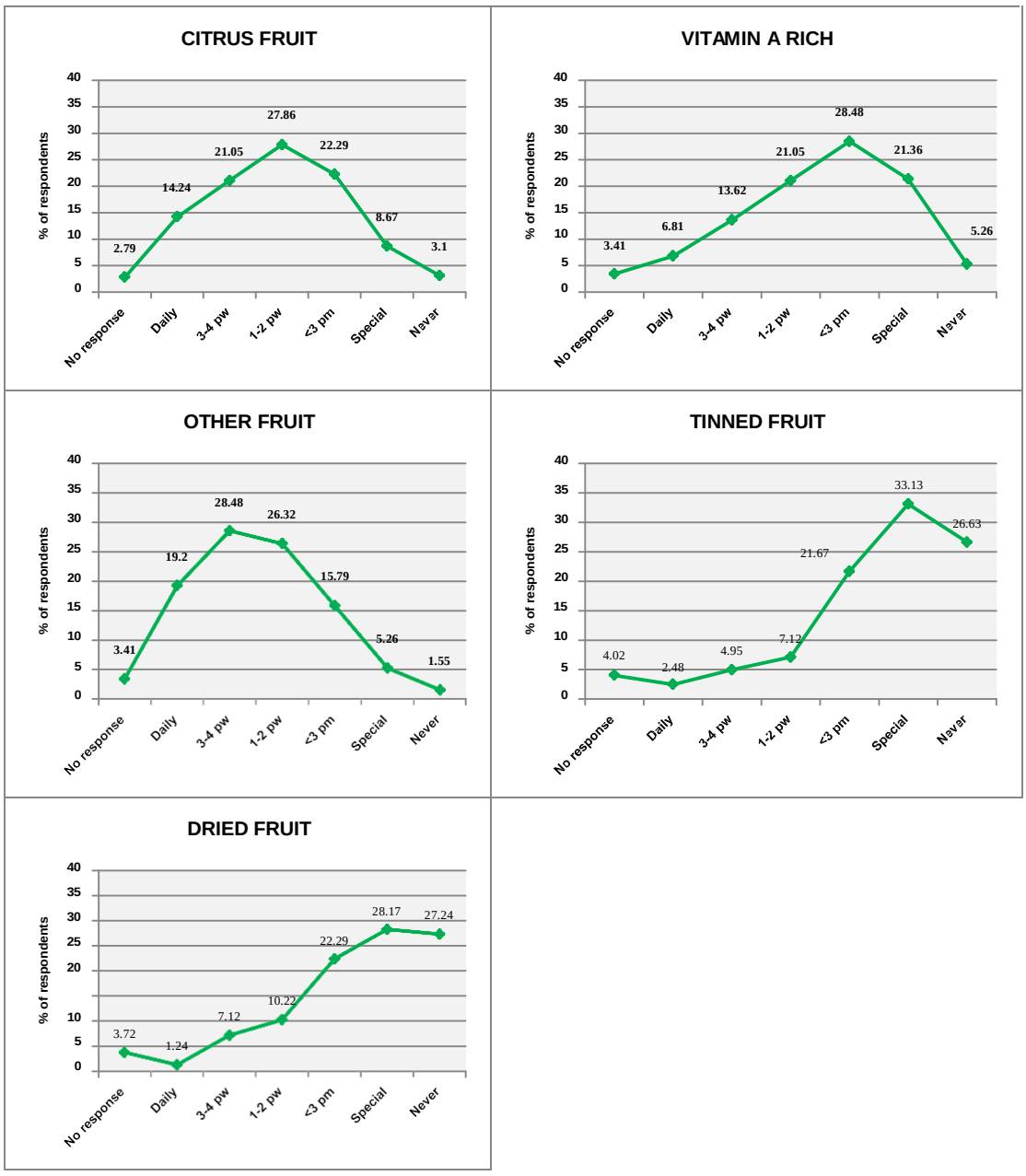

FIGURE 4.11: FREQUENCY OF CONSUMPTION OF FRUITS (N=323)

respondents who reported that they never consumed tinned fruits. Most of the respondents (28.17% (n=90) consumed dried fruit at special occasions and 22.29% (n=71) consumed it less than 3 times per month. Only 27.24% (n=87) of the respondents indicated that they never consumed dried fruit. The results indicate a low consumption of fruits which supports the results on the meal composition on weekdays and on weekend days (See 4.3.2). Other studies conducted in South Africa report that vegetables and fruit intake is below the recommendations for South Africans (Naude, 2013). Studies done in New York and Switzerland also report a decline in consumers' consumption of fruits (Jack, Neckerman,

Schwartz-Soicher, Lovasi, Quinn, Richards, Bader, Weiss, Konty, Arno, Viola, Kerker & Rundle, 2013; Dickson-Spillmann & Siegrist, 2010).

Respondents were also asked about their frequency of consumption of meat and meat products. The meat and meat products included beef, mutton or lamb, goat meat, chicken, pork, bacon, ham, boerewors (special South African sausage), Russian sausages, Vienna sausages, polony, cold cuts and biltong (*mogwapa*). The results are depicted in Figure 4.12.

Beef was not consumed on a daily basis by the majority as only a smaller number of respondents (7.12%, n=22) did so. Just over a third of the respondents (34.37%, n=111) consumed beef 1-2 times a week followed by 25.08% (n=81) who consumed it 3-4 times per week and 20.74% (n=66) of the respondents who consumed it less than 3 times a month. Lamb was consumed by 28.17% (n=90) of the respondents on special occasions followed by 21.98% (n=70) who ate it 1-2 times per week and 21.67% (n=69) consumed it less than 3 times per month. The number of respondents who never consumed goat meat and those who consumed it on special occasions were at a tie of 34.98% (n=112) and 14.24% (n=45) consumed it less than 3 times a month. Nearly half (47.99%, n=155) of the respondents mentioned that they consumed chicken 3-4 times per week followed by 21.36% (n=68) who ate it daily and 20.12% (n=64) consumed it 1-2 times per week. Currently, poultry is the leading meat products consumed in South Africa (Schönfeldt *et al*., 2013). These findings on the frequent consumption of chicken concur with other studies in South Africa that chicken was a popular item of choice in the South African population (Schönfeldt *et al*., 2013; Van Zyl *et al*., 2012). Pork was consumed less than 3 times per month by 22.29% (n=71) of the respondents followed by 21.67% (n=69) who enjoyed it 1-2 times per week and 18.27% (n=59) ate it on special occasions. The low consumption frequency of pork can be attributed to religious beliefs. Some church groups in South Africa forbid the consumption of pork such as ZCC and Zionists (Viljoen, 2009:87; Manning *et al*., 1978).

The processed meats bacon, ham, Russian and Vienna sausages were mostly consumed less than 3 times per month. Polony was eaten daily by only 8.36%, (n=27) of the respondents in contrast to 24.15%, (n=78) who consumed polony less than 3 times per month. More than a third (35.6%, n=114) of the respondents reported that they consumed South African boerewors 1-2 times a week, followed by 24.77% (n=80) who ate it less than 3 times per month and 16.41% (n=53) enjoyed it 3-4 times per week. Vienna sausages were mostly consumed by 30.34% (n=97) of the respondents less than 3 times per month.

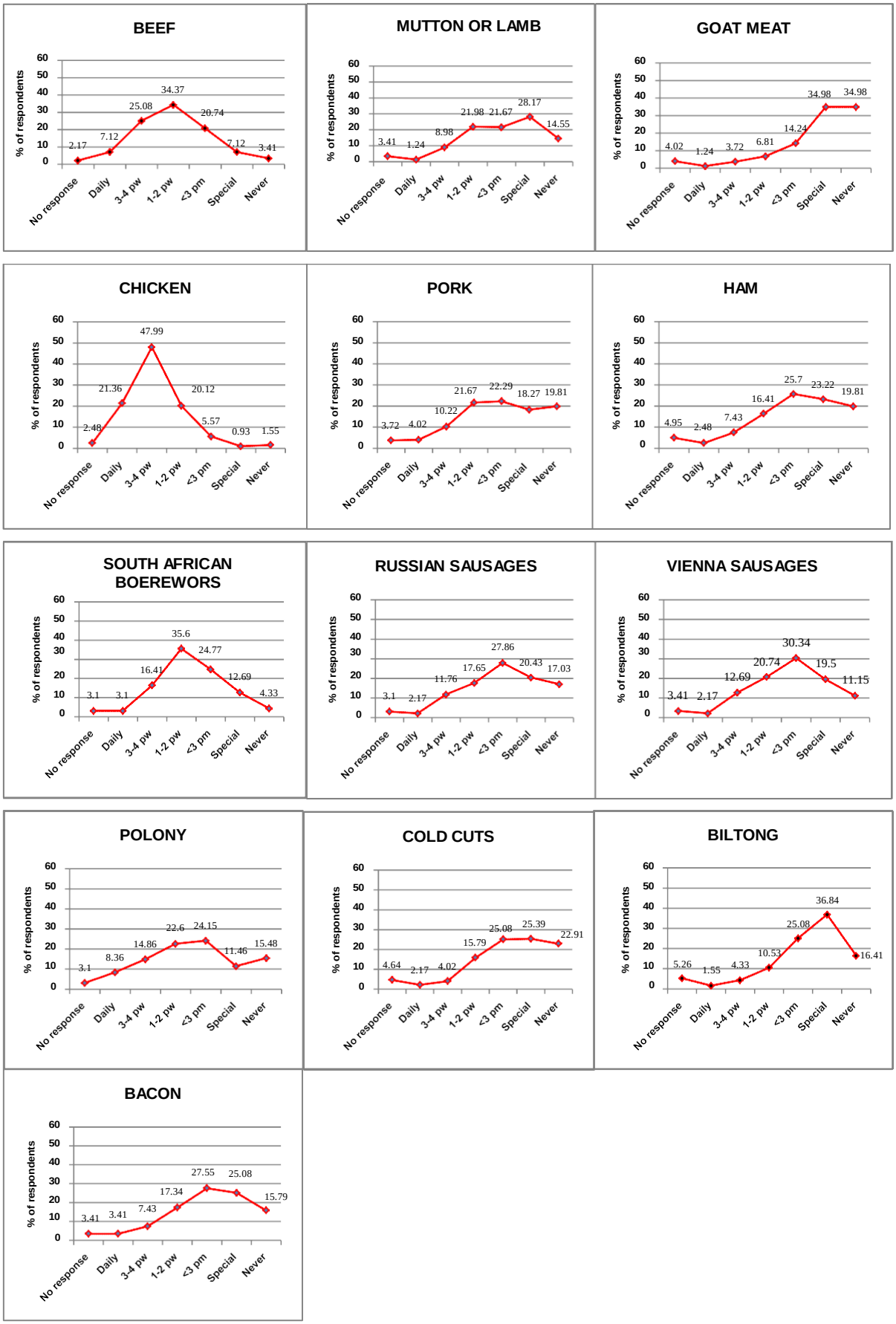

FIGURE 4.12: FREQUENCY OF CONSUMPTION OF MEAT AND MEAT PRODUCTS (N=323)

Processed meat was consumed by only 2.17% (n=7) of the respondents daily whereas 25.39% (n=82) consumed it on special occasions. A smaller number of respondents (1.55%, n=5) consumed biltong daily, whereas more than a third (36.84%, n =118) enjoyed it on special occasions only and 25.08% (n=81) ate it less than 3 times per month. Generally, the results indicate a low frequency of consumption of processed meat products. This could be attributed to the fact that these meat products are more expensive than fresh meat because they undergo different methods of preservation such as salting, smoking, marinating, air drying or heating (Schönfeldt *et al*., 2013).

The respondents also reported on the frequency of consumption of offal meat cuts. This included beef tripe, chicken heads, sheep head, pork head, beef cheek, sheep trotters and pork legs. Figure 4.13 shows the results.

The results reveal that offal meat cuts were not frequently consumed by the majority of respondents. A small number of respondents (1.86%, n=6) consumed beef tribe daily and most of the respondents (44.58%, n=143) indicated that they enjoyed beef tripe on special occasions. Although most of the respondents (27.24%, n=87) reported that they never consumed chicken heads and feet, 27.24% (n=87) consumed them on special occasions and 21.67% (n=69) ate them less than 3 times per month. More than half (57.89%, n=186) of the respondents never consumed cow cheek and only 26.95% (n=87) ate it on special occasions. The rest of the offal meat cuts namely, sheep head, pork head, cow heel, sheep trotters and pork legs followed a similar pattern as the graphs illustrate that offal meat cuts were mostly consumed on special occasions or never by the majority.

Figure 4.14 illustrates the respondents' responses on the frequency of consumption of fish and seafood. This group included fried fish, canned or tinned fish, tuna and sea food (calamari, prawns).

Over half the respondents (52.63%, n=169) consumed fried fish either 1-2 times per week or less than 3 times per month and 19.2% (n=62) enjoyed it on special occasions. Canned or tinned fish was consumed less than 3 times a month by 27.55% (n=89), of respondents, although 21.36% (n=68) consumed it 1-2 times per week. The majority of the respondents (26.32%, n=85) ate tuna less than 3 times a month followed by 23.53% (n=76) who enjoyed it on special occasions only. Seafood (calamari, prawns) was consumed by roughly a third (33.75%, n=109) of the respondents on special occasions and 34.37% (n=111) mentioned that they never consumed seafood. Only two (0.62%) respondents consumed seafood (calamari and prawns) daily. Nevertheless, the broader pattern shows that fish is not

consumed frequently. This can be attributed to the Pedi tradition of forbidding the eating of fish as food but they gradually accepted canned fish in tomato sauce (Labadarios, *et al*., 1996).

The respondents reported on the frequency of consumption of other protein-rich foods such as eggs, cooked cheese dishes (macaroni cheese), pizza and *sphatlo*[10] (kwota). The results are presented graphically in Figure 4.13.

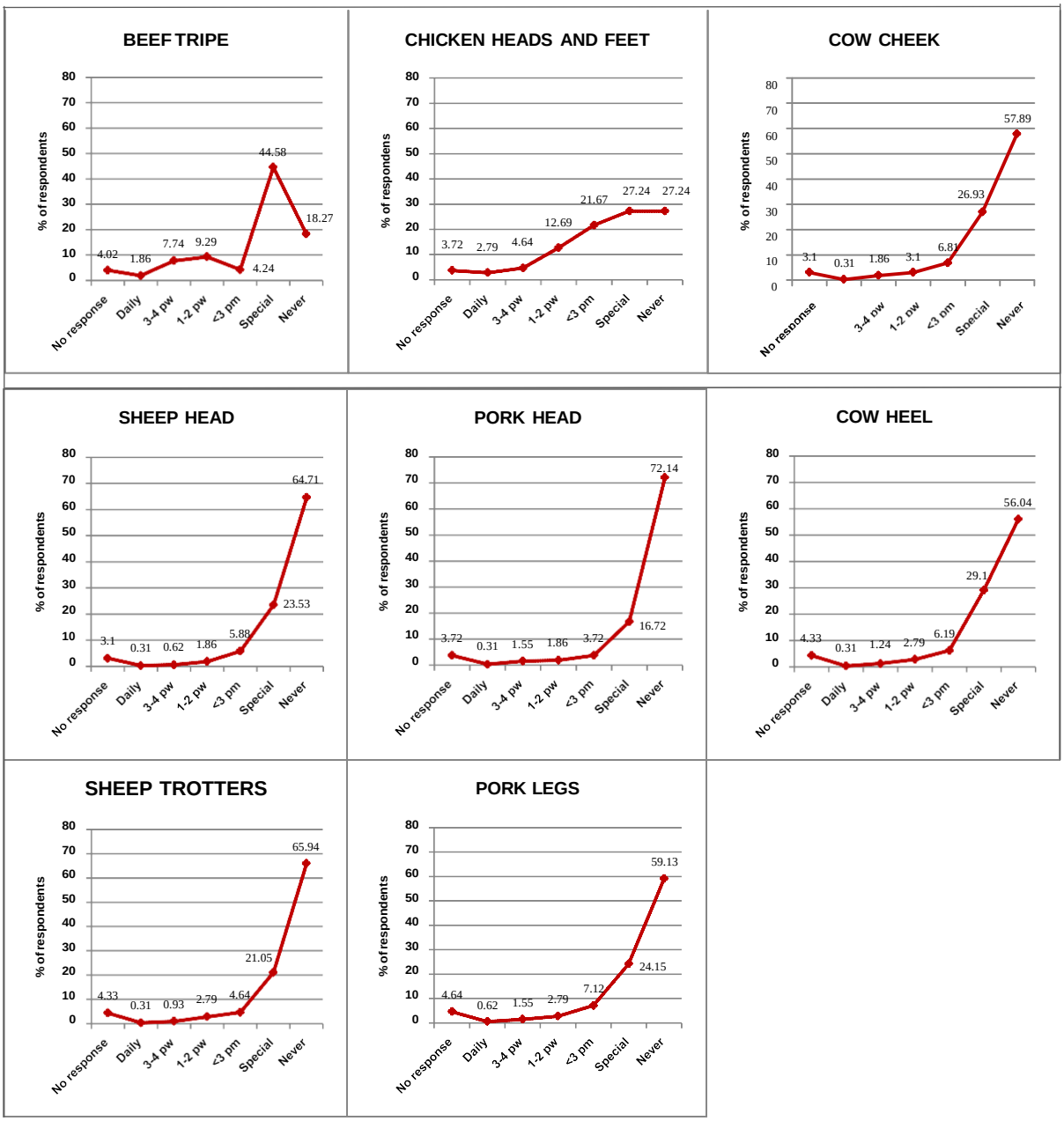

FIGURE 4.13: CONSUMPTION FREQUENCY OF OFFAL CUTS (N=323)

[10] Sphatlo is a popular bread item for lunch, consisting of a quarter loaf of brown bread, cheese, French polony and achaar (Viljoen, 2009:128).

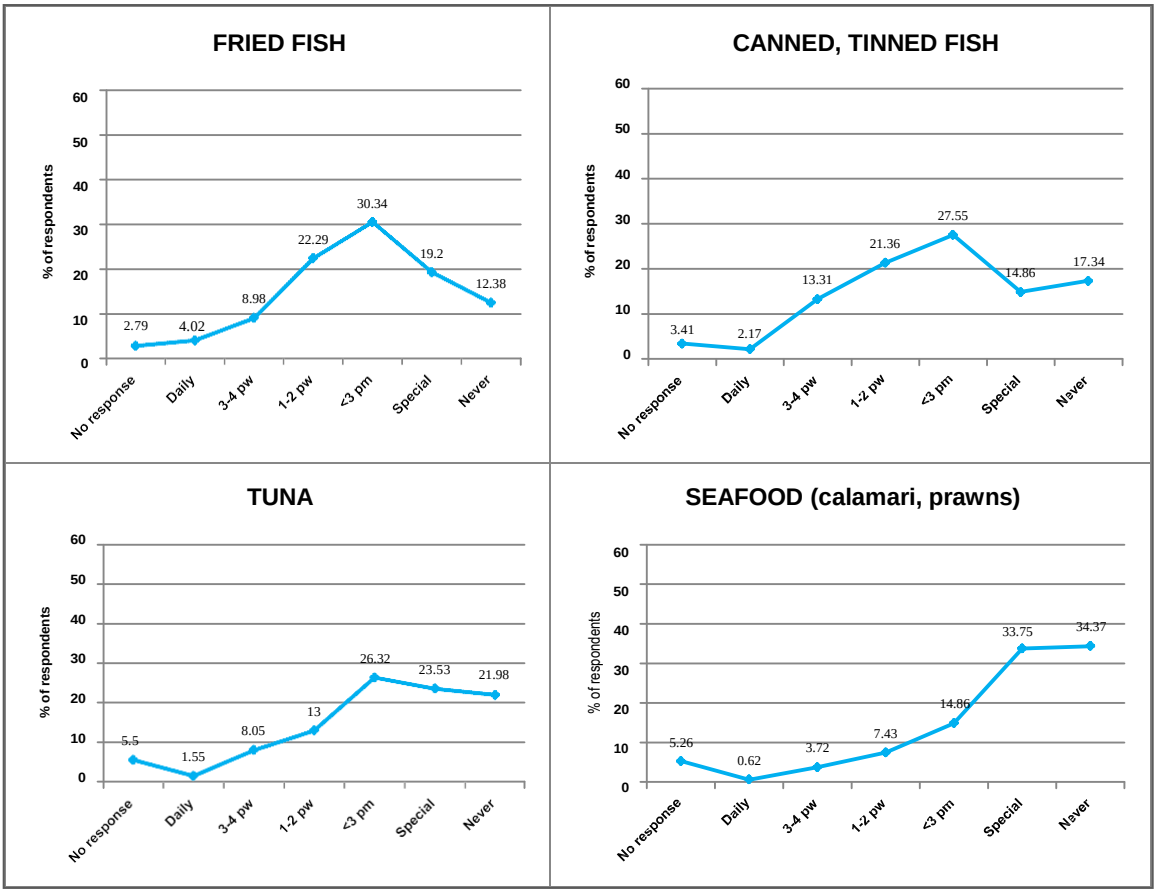

FIGURE 4.14: FISH AND SEA-FOOD: FREQUENCY OF CONSUMPTION (N=323)

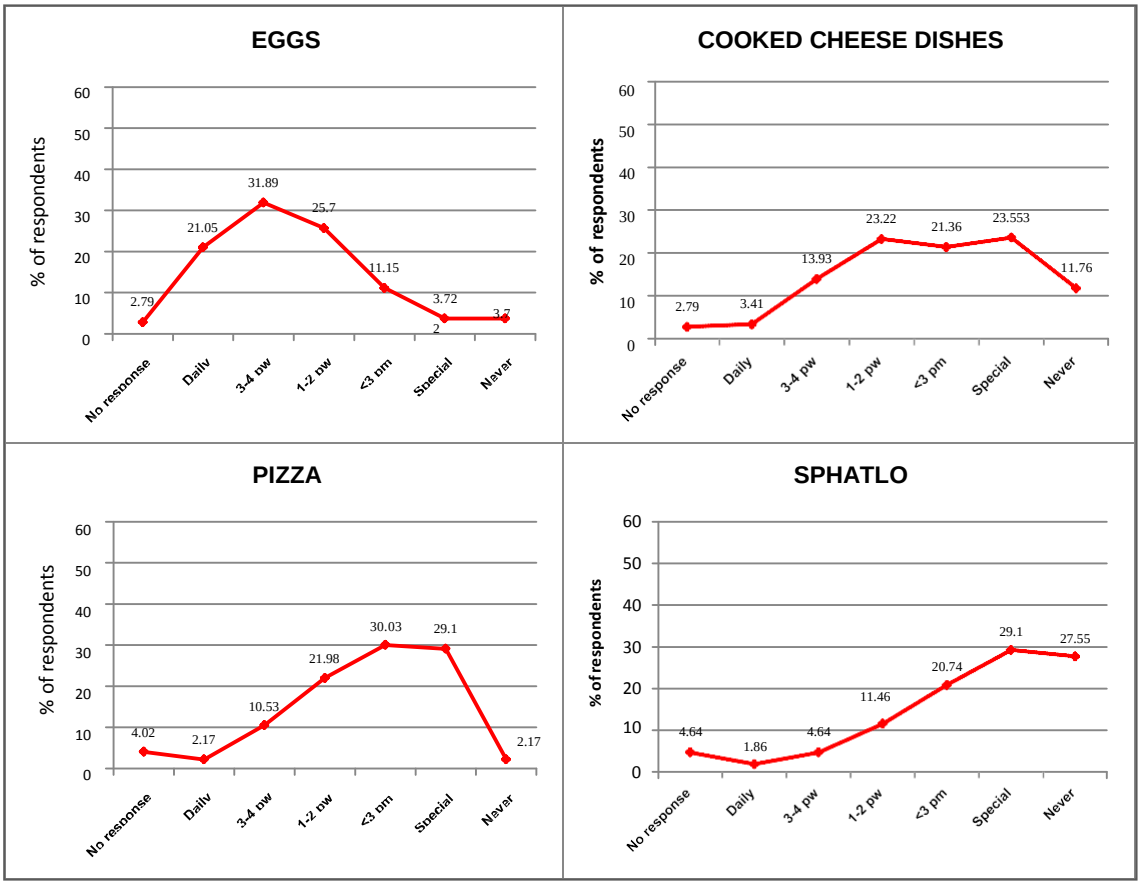

FIGURE 4.15: CONSUMPTION FREQUENCY OF OTHER PROTEIN-RICH FOODS (N=323)

Eggs were consumed regularly. Most of the respondents 31.89%, (n=103) consumed eggs 3-4 times per week followed by 21.05% (n=67) who ate eggs daily and 25.7% (n=83) mentioned that they consumed eggs 1-2 times per week. The low consumption of eggs on a daily basis can be attributed to that in some ethnic groups such as Zulu and Pedi, strictly prohibited females to consume eggs as it is a taboo (Labadarios *et al*., 1996; Manning *et al*., 1974; Franz, 1971). Cooked cheese dishes were consumed by 23.22% (n=75) of the respondents 1-2 times a week but 23.53% (n=76) who had cooked cheese dishes on special occasions only. Nearly a third (30.03%, n=96) of the respondents ate pizza less than 3 times a month or on special occasions whereas 29.1% (n=93) and 21.98% (n=70) ate it 1-2 times per month. Most of the respondents (29.1%, n=93) ate *sphatlo* on special occasions only, although, 20.74% (n=66) enjoyed it less than 3 times per month, a large number (27.55%, n=88) never ate it.

The frequency of consumption of milk and dairy products is reflected in Figure 4.16 and are fresh milk, sour milk, cheese, cottage cheese, yoghurt, Yogi Sip, dairy fruit beverages and milkshakes.

Fresh milk was frequently consumed by about a third (34.67%, n=111) of respondents daily, followed by 21.77% (n=70) who consumed milk 3-4 times per week and 17.03% (n=55) enjoyed it 1-2 times per week. Sour milk which is a traditional beverage was consumed by only 1.86% (n=6) daily and 5.26% (n=16) of the respondents consumed sour milk 3-4 times per week. Most of the respondents (28.75%, n=92) marked that they never consume sour milk. The results indicate that fresh milk in comparison to sour milk is consumed by a relatively larger number of respondents, although sour milk requires less refrigerated storage than fresh milk and is part of the traditional eating patterns of some African population. The inadequate sour milk consumption found in this study thus represents a shift from tradition.

The majority of the respondents (26.32%, n=85) ate cheese 3-4 times per week followed by 25.39% (n=85) of the respondents who ate it 1-2 times and less than 3 times per by 20.12% (n=64). These results show an increase in the consumption of cheese. Cottage cheese was less frequently consumed. This could be attributed to the fact that it is not a familiar product for this particular group of people. Although 34.37% (n=111) of the respondents had never consumed cottage cheese, 22.91% (n=73) enjoyed it on special occasions and 20.12% (n=64) ate it less than 3 times per month.

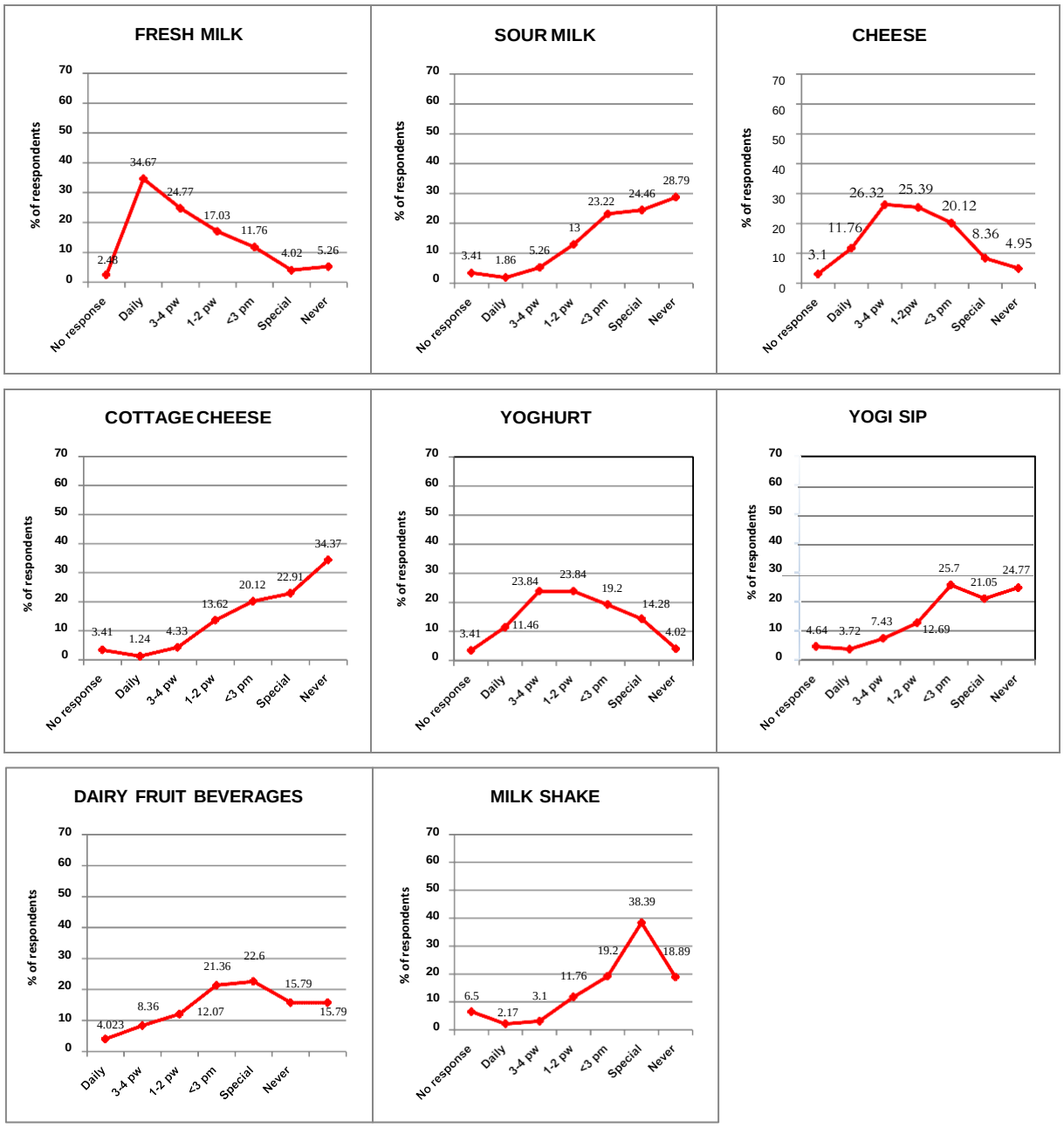

FIGURE 4.16: DAIRY AND DAIRY PRODUCTS: CONSUMPTION FREQUENCY (N=323)

Yoghurt was consumed by 23.84% (n=77) of the respondents 3-4 times per week followed by 23.84% (n=77) who ate it 1-2 times per week and 19.2% (n=62) who consumed it less than 3 times per month. A quarter (25.7%, n=83) of the respondents consumed Yogi Sip less than 3 times per month and 21.05% (n=67) enjoyed it on special occasions and 24.77% (n=80) reported that they had never consumed Yogi Sip. Some respondents 22.6% (n=72) consumed dairy fruit beverages less than 3 times per month followed by 21.36% (n=68) who consumed it 1-2 times per week. Although 18.89% (n=61) had never consumed a milkshake, some of the respondents (38.39%, n=123) enjoyed it on special occasions. The results clearly indicate that milk was consumed more often in comparison to other dairy products. This could be attributed to the fact that other dairy products are comparatively far more expensive.

The respondents were requested to indicate the frequency of consumption of the different kinds of beverages. The beverages included tea (Joko, Five Roses), rooibos tea, milk as beverage, *mageu* (fermented maize meal beverage), fruit juice (i.e. mango juice, apple juice), soft drinks (i.e. Coca-Cola, Sprite, Fanta), ginger beer (*gemmerbier* in Afrikaans, a traditional South African drink), commercial beers (i.e. Castle, Black Label, etc.), traditional beer (*bjala basesotho*), wine, spirits (i.e. brandy, whisky), Energade and similar products and bottled water. The results are presented in Figure 4.17.

Although some of the respondents 29.41%, (n=94) never drank tea, 19.81%, (n=63) did so daily and 13.93% (n=44) consumed it 3-4 times per week. Rooibos tea was consumed by some respondents 25.39%, (n=82) on a daily basis and 17.96%, (n=58) drank it 3-4 times per week. Although some (25.08%, n=81) of the respondents never drank milk as a beverage, 21.05% (n=67) drank it less than 3 times per month and 17.34% (n=56) consumed it 1-2 times per week. *Mageu* as a traditional beverage was not consumed daily but 27.86% (n=89) of the respondents enjoyed it on special occasions followed by 16.72% (n=54) who consumed it less than 3 times per month, and 37.77% (n=121) had never consumed *mageu*. Some of the respondents (22.91%, n=73) drank fruit juice 1-2 times per week followed by 21.36% (n=68) who drank it daily and 20.12% (n=64) reported that they drank fruit juice 3-4 times per week.

A daily fluid intake of two litres is recommended, this can be taken in the form of tap water, coffee, tea or any other water-based beverage (Louwrens *et al*., 2009). The choice of beverage consumed by the study group was consistent with the findings of other previous South African studies, which reported that tea is replacing *mageu*, a non-alcoholic maize drink, as tea is considered to be more sophisticated and can be prepared in minutes, whereas *mageu* takes hours before it is ready (Van Zyl *et al*., 2010:129; Labadarious *et al*., 1996; Manning *et al*., 1974). Soft drinks were the most frequent beverage consumed by almost half of the respondents in a week. Soft drinks were consumed by the most of the respondents (25.39%, n=82) 1-2 times a week and 21.05% (n=67) indicated that they drank soft drinks 3-4 times per week. Notably, another South African study (Audain, Kassier & Veldman, 2014) also report a high consumption of fizzy drinks amongst young adults. Although the majority of the respondents (78.02%, n=252) mentioned that they never consumed traditional beer, 12.38% (n=39) enjoyed traditional beer on special occasions and 2.17% (n=7) drank it less than 3 times per month. Ginger beer was never consumed by nearly half (45.2%, n=145) of the respondents and 26.93% (n=86) enjoyed it on special occasions. The majority (71.52%, n=231) of the respondents reported that they never drank commercial beer, but a small number of respondents 8.67% (n=28) enjoyed it 1-2 times per week and 6.19% (n=19) enjoyed it on special occasions. Although 41.18% (n=133) of the

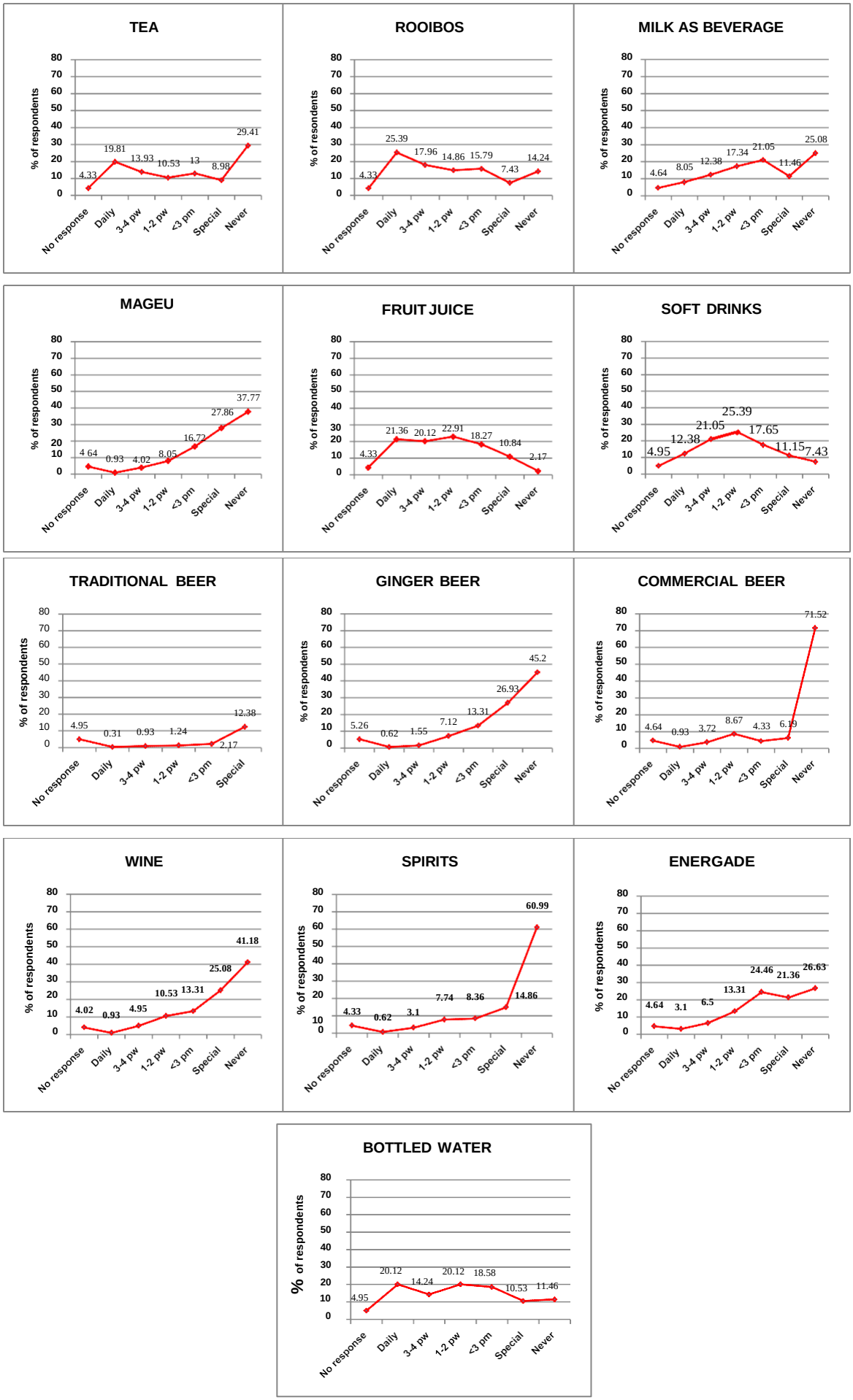

FIGURE 4.17: CONSUMPTION OF BEVERAGES: CONSUMPTION FREQUENCY (N=323)

respondents never drank wine, 25.08% (n=81) enjoyed it on special occasions followed by 13.31% (n=42) who drank it less than 3 times per month and 10.53% (n=34) who enjoyed it 1-2 times per week. Spirits were consumed by only 14.86% (n=47) on special occasions and the majority (60.99%, n=196) indicated that they never drank spirits.

Although most of the respondents (26.63%, n=86) never drank Energade, 21.36% (n=68) enjoyed it on special occasions and 24.46% (n=79) drank it less than 3 times per month. Bottled water was consumed by 20.12% (n=64) of the respondents daily, followed by another 20.12% (n=64) who drank it 1-2 times per week and 14.24% (n=45) drank it 3-4 times per week. The results also indicate that the consumption of tea, rooibos tea and soft drinks tends to reduce milk consumption as a beverage.

The respondents were further asked to indicate the frequency of consumption of sweets and confectionery. This included ice cream, jelly, cream buns, cake and cupcakes (*dikhekhe le dikuku)*, baked puddings, muffins, biscuits and chocolates. Figure 4.20 shows the results.

Baked products and biscuits follow similar trends as depicted on the graphs (Figure 4.18) and were mostly consumed less than 3 times per month and on special occasions. This trend is more common in the Western–orientated eating patterns where sweets and confectionary foods are served on special occasions. A number of respondents (2.48%, n=8) consumed ice cream daily while most of them (34.37%, n=111) ate ice cream less than 3 times per month. Jelly was enjoyed by most (41.8%, n=135) on special occasions followed by 17.03% (n=55) who ate it less than 3 times per month and 20.12% (n=64) who reported that they never consumed jelly. Most respondents (35.6%, n=114) enjoyed cream buns on special occasions and 23.53% (n=76) ate it less than 3 times per month. Cake was consumed by more than a third of the respondents (39.01%, n=126) on special occasions followed by 28.17% (n=90) who ate it less than 3 times per month and 13.31% (n=42) who consumed it 1-2 times per week. More than half of the respondents (50.46%, n=162) indicated that they consumed baked puddings on special occasions, another 17.01% (n=54) consumed it less than 3 times per month and 16.41% (n=53) never consumed baked puddings. Muffins were consumed by 35.6% (n=114) less than 3 times per month followed by 26.01% (n=84) who enjoyed it on special occasions and 15.17% (n=48) who ate it 1-2 times per week. Most of the respondents (29.1%, n=93) ate biscuits less than 3 times per month and 23.22% (n=75) reported that they ate them 1-2 times per week. Chocolates were consumed more frequently 1-2 times a week as indicated by 25.08% (n=81) of the respondents followed by 24.15% (n=78) who ate it less than 3 times per month and 21.65% (n=69) of the respondents who enjoyed it on special occasions. The results indicate that sweets and confectionary are frequently consumed on special occasions or less than 3 times a month.

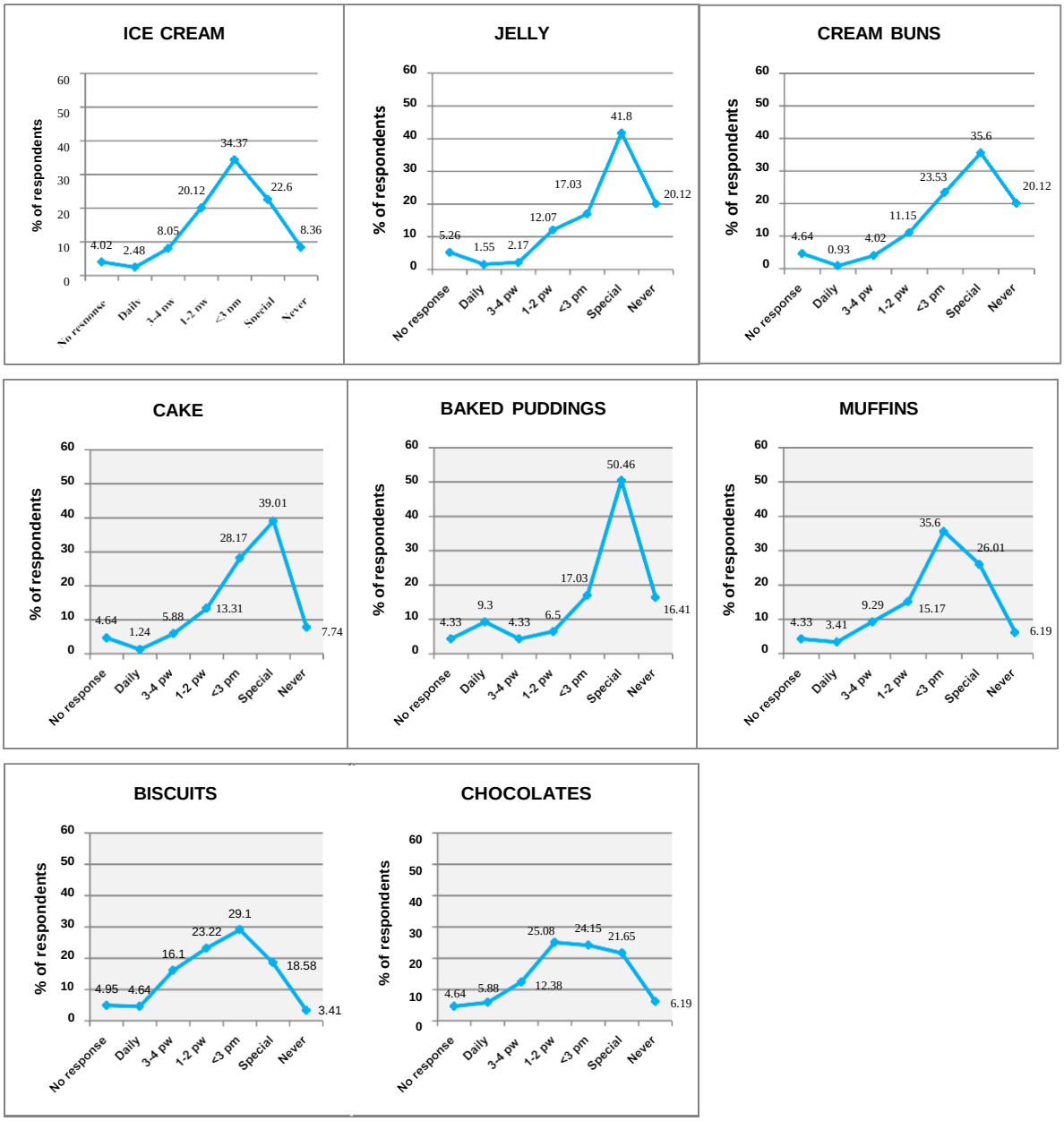

FIGURE 4.18: SWEETS AND CONFECTIONARY: CONSUMPTION FREQUENCY (N=323)

The frequencies of consumption of savoury snacks are portrayed in Figure 4.19. Savoury snacks are represented by nuts, potato chips or crisp, popcorn, savoury biscuits, and cheese puffs or cheese curls.

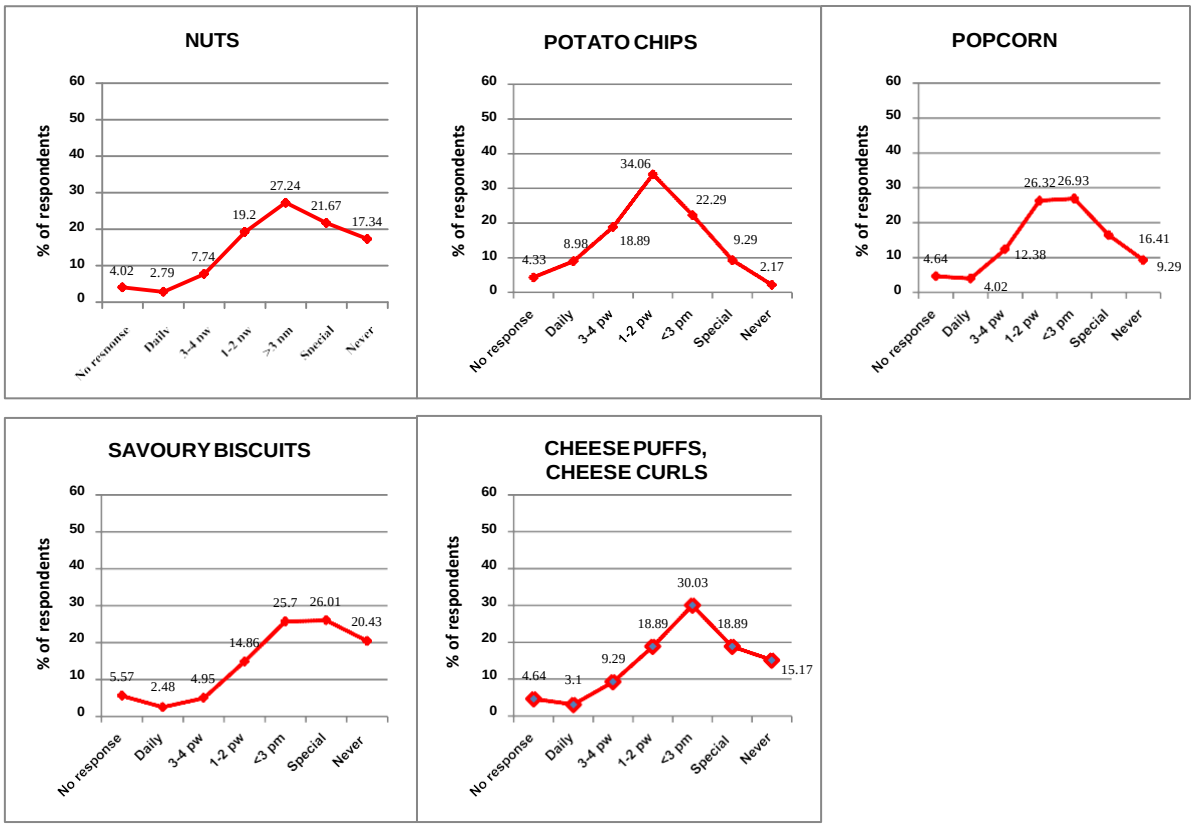

FIGURE 4:19: SAVOURY SNACKS: FREQUENCY OF CONSUMPTION (N=323)

Some of the respondents (27.24%, n=87) consumed nuts less than 3 times per month followed by 21.6% (n=69) who enjoyed it on special occasions and 19.2% (n=62) ate it 1-2 times per week. Potato chips were frequently consumed by 34.06% (n=110) of the respondents 1-2 times per week followed by 22.29% (n=71) who ate them less than 3 times per month and only 18.89% (n=61) consumed it 3-4 times per week. This could be attributed to the fact that chips are mostly consumed in-between meals as snacks and are relatively cheap. Most of the respondents (26.93%, n=86) consumed popcorn less than 3 times per month and 26.32% (n=85) enjoyed it 1-2 times per week. A quarter of the respondents (25.7%, n=83) and 30.03% (n=96) consumed savoury biscuits and Cheese Puffs or Cheese Curls less than 3 times per month, respectively. These results indicate a similar pattern that savoury snacks are mostly consumed less than 3 times per week or on special occasions.

The respondents were also asked to indicate the frequency of consumption of fast foods. The fast foods include meat pie, hamburger, fried chips and hot dog. The results are shown in Figure 4.20.

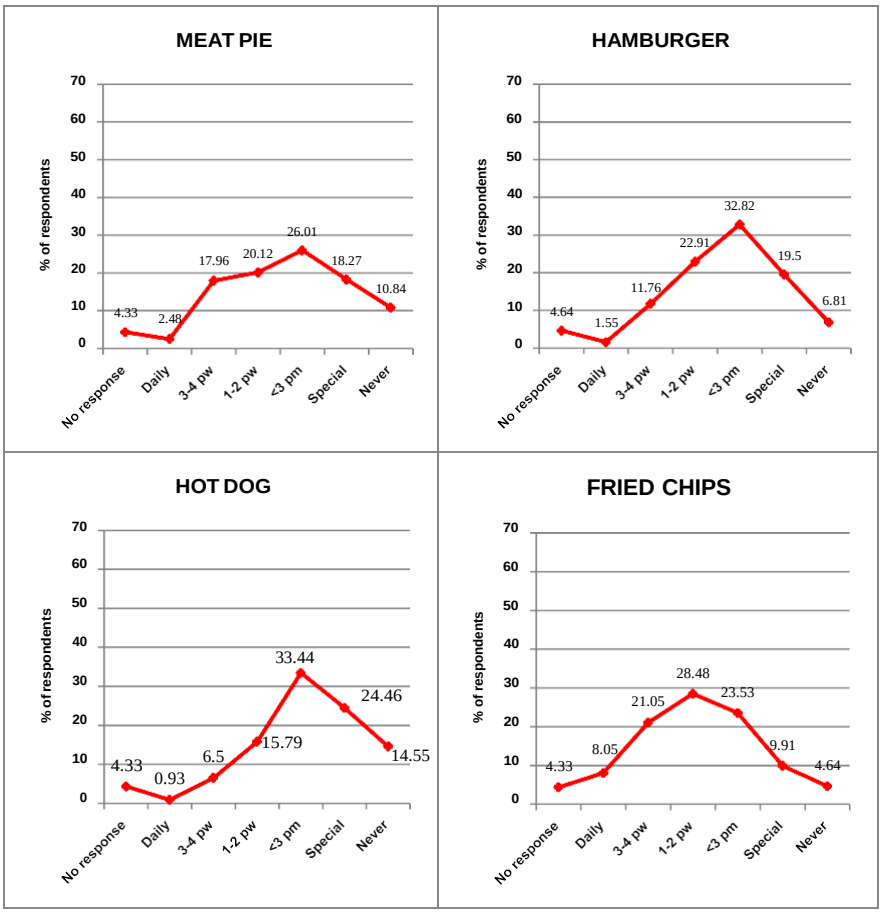

FIGURE 4.20: FAST FOODS: CONSUMPTION FREQUENCY (N=323)

Some of the respondents (26.01%, n=84) consumed meat pie less than 3 times per month, another 20.12% (n=64) ate it 1-2 times per week and 17.96% (n=58) consumed meat pie 3-4 times per week. Meat pie was not frequently consumed on a daily basis because it is relatively more expensive. The results depict a similar trend for hamburger and hot dog, they were frequently consumed less than 3 times per month. Hamburgers were mostly consumed less than 3 times per month by 32.82% (n=106) of the respondents and followed by 22.91% (n=73) who ate it 1-2 times per week and 19.5%, (n=62) indicated that they never consumed hamburgers. A third (33.44%, n=108) consumed hot dog less than 3 times per month and 24.46% (n=79) reported that they enjoyed hot dog as a special occasions event.

Fried chips or French fries were consumed more frequently 1-2 times per week most (28.48%, n=91) of respondents followed by 21.05% (n=67) who ate them 3-4 times per week and 23.53% (n=76) who enjoyed fried chips less than 3 times per month. The widespread availability of energy snack food such as potato chips and soft drinks may have a negative effect on the nutritional quality of people's daily food consumption. The key negative features of such foods are their high fats and/or sugar content and kilojoule values, with a relatively low vitamin content (Temple *et al*., 2006). In this study, it was found that the majority of

respondents consumed fast foods frequently. Consistent with the trend of fast food consumption, there is a possibility of rising tide of obesity (Temple *et al*., 2006).

Results from this study reveal that the respondents' actual food intake reflects a diet that is refined cereal-based, low in dairy products as well as fruits and vegetables. Available data indicates that at national, household and individual levels in South Africa, the quantities of available and consumed vegetables and fruit are much lower than the amount recommended by the food-based dietary guidelines (Naudé, 2013). The primary barriers to an adequate intake of fruits and vegetables are affordability and availability. The results of this study concurs with reports from previous studies as it shows that a semi-Westernised eating pattern is emerging among the young black adults.

There was a notable increase in the consumption of Western-orientated foods such as breakfast cereals, rice in comparison to traditional foods such as *moroho*. Traditionally, the consumption of eggs and milk was forbidden but the results show an increase in consumption of such food items, which supports the notion that young adults have abandoned traditional lifestyles. Moreover, urban blacks have recently become great bread-eaters. Moreover, the results of this study indicate that with greater urbanisation in South Africa, fast foods, sugar-sweetened beverages and salty snacks are widely consumed and more often as they are more available, accessible and affordable.

The third objective of the study deals with exploring and describing how the various external environments contribute to the food choices and food practices of the study group.

4.5 CONTRIBUTION OF VARIOUS EXTERNAL ENVIRONMENTS ON THE FOOD CHOICES AND FOOD PRACTICES OF THE STUDY GROUP

Human food choice is always influenced by what food is available, accessible, affordable and acceptable to an individual and is primarily determined by the external environment in which they live in and to some extent the internal environment as described in Chapter 2 (see 2.3.1). Each of these environments, namely the physical, economic, political and socio-cultural environments either provide opportunities or constraints for human food consumption (Bryant *et al*., 2003:10). Objectives 1 and 2 give a detailed account of the food consumed by the study group as a result of the external environments they live in. The contribution of the physical and economic environments and home food environment including aspects that relate to social organisation as part of the socio-cultural environment on the food practices of the study group are explored in this third objective.

4.5.1 The physical environment

The physical environment as described in Chapter 2 (see 2.3.1), consists of the natural and physical structures such as the built environment and infrastructure, such as roads, water, sanitation, electricity, homes, schools, shopping malls and retail food stores, supermarkets and other stores found in it (Story *et al*., 2008). The physical environment primarily determines what food is available and accessible for consumption. This environment could either positively or negatively impact what people eat. Once the food is available in the broader physical environment, people choose food they find acceptable and affordable. Access to various types of retail food stores and the physical availability of food products in local stores affects food choices. Food is also obtained from hypermarkets and supermarkets, fast food outlets, "*spaza* shop[11]", malls and street vendors. The urban infrastructure increases the availability and accessibility of food as there are many opportunities or places from which to purchase food items. Food can be bought at large chain super-and hypermarkets such as Pick n Pay, Checkers, Spar, Woolworth, Makro, and fast food outlets such as Kentucky Fried Chicken (KFC), Nandos, MacDonald, many different stalls or eating places selling chips. Food can also be purchased at butcheries and filling stations. Basically, street vendors sell a wide range of street foods[12] such as sweets, potato crisps, snack bars, meat pies and fat cakes. Some even sell meals consisting of stiff maize meal porridge served with either meat or a relish. The physical environment of urban people provides easy access to different types of food through the presence of hyper-and supermarkets, street vendors and fast food outlets.

Tarred roads that lead to Tshwane make it easily accessible from other neighbouring towns and cities located on East and West Rand and Johannesburg. The study area can be reached in less than an hour from the Johannesburg city centre. The easy transportation system plays a vital role as far as transportation of fruit and vegetables to Tshwane is concerned. The predominant modes of transport in Tshwane are traveling in motor cars and making use of private minibus services (City of Tshwane Metropolitan Municipality, 2008:49). Other modes of transport include bus service, minibus, taxi service, Metrorail train and the Gautrain. Various airports, like, OR Tambo, Waterkloof, Wonderboom national airport are easily reached. The urban infrastructure increases availability and accessibility of food as there are a lot of opportunities or places to purchase from. Food can be purchased from

[11] A "spaza shop" is a small, convenience store with limited space where a few basic food items such as bread, coffee, tea, sugar, condiments, toiletries and cleaning aids may be purchased, and is usually operated in a suburb, sometimes in the yard of the owner (Viljoen *et al*., 2005).

[12] Street food is defined as ready-to-eat foods and beverages prepared and/or sold by vendors and hawkers especially in streets or similar places (Steyn, Mchiza, Hill Davids, Venter, Hinrichsen, Opperman, Rumbelow & Jacobs, 2013:1363)

large chain supermarkets such as Pick n Pay, Checkers, Spar, Woolworths, hypermarkets, makro and fast food outlets such as KFC, Nandos, MacDonald, Fish and Chips.

The City of Tshwane has seven regions. The central region, in which the study area is located includes the old Pretoria Central Business District, residential areas of Arcadia, Sunnyside, Hatfield, Brooklyn, Groenkloof, Waterkloof and Booysens. This study area is densely populated and has a high concentration of young adults due to its proximity to educational institutions such as University of South Africa (Unisa), University of Pretoria (UP), Tshwane University of Technology (TUT) and other colleges and schools. Tshwane has adequate medical services located in this study area or nearby. Examples are Steve Biko and Heart Hospital, Medical Clinic, Louis Pasteur Hospital.

The socio-economic status and disposable income of an individual plays a fundamental role on their current eating practices as people could only access what they can afford from what has been made available by the economic environment in the context of its physical structure in the external environment.

4.5.2 The economic environment

The City of Tshwane, as the administrative capital of the Republic of South Africa plays an important role nationally and internationally through the provision of employment through educational institutions, government departments, diplomatic services, commerce and businesses. The most prominent factors from the physical environment that influences the current food practices are the availability and accessibility of food (Viljoen *et al*., 2005). Availability plays a major role in the type of food to be purchased and this has a direct influence on food that could be chosen for consumption. Food availability in an urban area is largely determined by food supply to cities which include a complex distribution chain that involves wholesalers, distributors and street vendors. Such a distribution chain has the potential of increasing the price of food, and this has a negative consequence as price increases can deprive the vulnerable urban poor of necessary basic food needs. Notably, food accessibility goes hand-in-hand with income availability. Food prices represent a critical dimension of fast food, other restaurant and large grocery stores option that must be considered to separate price from proximity effects (Popkin *et al*., 2005).

Although food is available in supermarkets and *spaza* shops people still have to pay for it at market prices. It is clear that the cost of food plays a significant role in food choice and eating patterns. People need money to purchase the highly priced food in the market. Food expenditure on fast food significantly reduces the number of servings of fruits, vegetables

and dairy products. Thus affordability of food contributes significantly to the current food practices of young urban black adults.

Although food can be available, accessible and affordable in both the physical and the economic environments, the socio-cultural environment also influences the type of food to be consumed as it determines what members of the household find as acceptable for preparation and eating. It encompasses food ideology which is represented by the values, preferences, symbolic expressions of the meanings and beliefs that a group of people share with respect to food (Bryant *et al*., 2003:221). Social organisation and technology, as part of culture also influences food practices and eating patterns.

Access to electricity leads to ownership of electrical household appliances such as stoves, refrigerators, microwave, ovens, deep freezers etc. (see Table 4.7). Ownership of these facilities can contribute to changes in food practices with regard to food preservation, storage and the preparation methods employed in the household. For example, certain seasonal perishable food can be purchased in bulk, be preserved and stored in refrigerators or deep freezers. Moreover, the ownership of these appliances gives an indication of the socio-economic status of the household. Since the presence of household appliances in a home can imply affluence, data from households participating in this study was collected from a group of respondents living in an area classified as representing medium to high socio-economic status. The ownership of appliances is also an indication of modernisation and technological advancement. The family affluence scale of Boyce, Torsheim, Currie and Zambon (2006) was used to measure household appliances and other technological devices available in the households. Most of the respondents' households were in possession of almost all the listed appliances showing that their socio-economic status was such that they could afford these items.

TABLE 4.7: APPLIANCES AVAILABLE IN THE HOUSEHOLDS

Appliance	N	%
Stove	317	98.14
Refrigerator	316	97.83
Cellphone	314	97.21
Television	295	91.33
Microwave oven	289	89.47
Radio	267	82.66
Computer	260	80.50
Washing machine	193	59.75
Deep freezer	183	56.66
Internet connection	128	39.63

A total of ≥91.33% of the household had appliances such as stoves, refrigerators, television and cell phones. The stove was the most mentioned appliance. Deep freezers (56.66%, n=183) and washing machines (59.75% (n=193) were less common among the respondents. Only 39.63% (n=128) of the households had access to the internet via a home connection.

Apart from factors such as what is readily available, accessible and affordable, the acceptability of the chosen food in the home food environment also needs to be considered.

4.5.3 Home food environment as part of the socio-cultural environment

In the socio-cultural environment current food practices are influenced by the home food environment, education and social aspects. Family members and the home food environment are important influences on the type of food consumed. The parents and the meal preparers play a significant role in shaping the food habits of household members. The food preparers determine what food is available in the household and how it is prepared whereas parents can promote the development of healthful eating behaviours through modelling the consumption of nutritious food, transmit positive attitudes towards healthy eating and determine the structure of the shared meals (Sedibe, Feeley, Voorend, Griffits, Doak & Norris, 2014). A variety of factors within the home food environment have been associated with healthful dietary behaviours. Among the strongest factors are availability and accessibility of healthy foods, the frequency of family meals and parenting practices (Story *et al*., 2008).

The respondents were also asked to indicate their level of agreement to given statements on the availability of certain foods in their homes or households. The results are presented in Table 4.8.

Most of the respondents (46.75%, n=151) agreed that fruit and vegetables are always available in their households, followed by 32.2% (n=104) who strongly agreed to the statement. Only 4.64% (n=15) of the respondents strongly disagreed that they always have fruit and vegetables in their household. Vegetables were served in most of the households as indicated by 47.99% (n=155) who reported that vegetables are served in their households and 32.2% (n=104) of the respondents strongly agreed. Fruit juice is always available in most households as indicated by 67.18% (n=217) of the respondents who responded positively to the statement, only 23.22% (n=75) of the respondents disagreed that they have fruit juice at home. Most of the respondents (37.77%, n=122) disagreed that milk is served at meals in their homes, followed by 17.96% (n=58) who strongly disagreed to the statement. The majority of homes (64.4%, n=208) have “junk food” available. Although most of the respon-

TABLE 4.8: AVAILABILITY OF CERTAIN FOODS IN THE HOUSEHOLD

	Strongly disagree		Disagree		Agree		Strongly agree	
	n	%	n	%	n	%	n	%
Fruits and vegetables are always available in my home	15	4.64	50	15.48	151	46.75	104	32.2
Vegetables are served at supper in my house	11	3.41	41	12.69	155	47.99	112	34.67
We have fruit juice in my home	24	7.43	75	23.22	130	40.25	87	26.93
Milk is served at meals in my home	58	17.96	122	37.77	85	26.32	44	13.62
We have “junk food” in my home	31	9.6	74	22.91	151	46.75	57	17.65
Potato chips or other salty snacks area available in my home	30	9.29	77	23.84	157	48.61	55	17.03
Chocolates or other sweets are available in my home	41	12.69	130	40.25	109	33.75	38	11.76
Soft / Fizzy drinks (eg. Coke, Fanta, Sprite) are available in my home	24	7.43	71	21.98	152	47.06	73	22.6

dents (48.61%, n=151) reported that they have potato chips or other salty snacks at home, 23.84% (n=77) disagreed to that. Chocolates or other sweets were not readily available in most of the respondents homes as indicated by 40.25% (n=130) who disagreed with the statement. Most of the respondents (47.06%, n=152) had access to soft or fizzy drinks in their homes. Only 7.43% (n=24) of the respondents strongly disagreed that soft or fizzy drinks are always available in their homes. The availability of soft drinks in the household is strongly associated with soft drink consumption (Story *et al*., 2008:255). The high popularity, accessibility and availability of potato chips, chocolates, soft or fizzy drinks is highly associated with increased consumption of these food items (Audain *et al*., 2014).

As part of their home food environment, the respondents were asked to indicate how often they consumed selected foods. This question was used as a cross-check of their current eating patterns reported in section 4.3. The results are shown in Table 4.9.

Most of the respondents (40.87%, n=132) ate home cooked food 5-7 times per week, followed by 32.82% (n=106) who consumed home cooked food 3-4 times per week and 18.58% (n=60) of the respondents ate it 1-2 times per week. Consumption of take-away or fast food was more common 1-2 times per week as indicated by the majority (65.02%, n=210) of the respondents. Similarly, a study conducted in South Africa on factors influencing the fast food intake of young adults also reports a high consumption of fast foods amongst young adults (Van Zyl *et al*., 2010). In this study snack food, fresh fruit and soft drinks were consumed by the most of the respondents 1-2 times per week. Fruit juice was consumed by the most (32.2%, n=104) 1-2 times per week, followed by 29.72% (n=96) who consumed it 3-4 times per week and 26.32% (n=85) drank it 5-7 times per week. Most of the respondents (34.98%, n=113) consumed milk and other dairy products 3-4 times per week.

On the other hand, vegetables and salads were eaten by some of the respondents (33.75%, n=109) 1-2 times per week. Although 33.75% (n=109) of the respondents drank alcoholic beverages 1-2 times per week, the majority of the respondents (53.87%, n=174) indicated that they never drank alcoholic beverages. However, it is common knowledge that respondents may be inclined to under report on their alcoholic beverage consumption. The results of this study reveal that the home food environment is associated with greater availability of fresh fruits, milk and vegetables and salads (see Table 4.9). In another study Van Zyl *et al*., (2010) conducted on fast food intake of young adults, 22.2% (n=40) females and 14.3% (n=23) males were influenced by family to purchase fast foods.

TABLE 4.9: SELECTED FOODS AND BEVERAGES; FREQUENCY OF CONSUMPTION

	5-7 x per week		3-4 x per week		1-2 x per week		Never	
	N	%	N	%	N	%	N	%
Home cooked food	132	40.87	106	32.82	60	18.58	22	6.81
Take away or fast food (eg. KFC, Nandos)	18	5.57	58	17.96	210	65.02	34	10.53
Snack foods (eg. chips, chocolate, sweets, popcorn)	74	22.91	91	28.17	134	41.49	18	5.57
Fresh fruits (eg. oranges, bananas, apples, guava, grapes)	82	25.39	101	31.27	110	34.06	27	8.36
Soft drinks (eg. Coke, Sprite, Fanta)	56	17.34	77	23.84	134	41.49	52	16.1
Fruit juice (eg. orange, mango, apple juice)	85	26.32	96	29.72	104	32.2	31	9.6
Milk and other dairy products (eg. cheese, yoghurt, Yogi Sip)	90	27.86	113	34.98	92	28.48	24	7.43
Vegetables and salads	78	24.15	108	33.44	109	33.75	23	7.12
Alcoholic beverages (eg. beer, wine)	19	5.88	15	4.64	109	33.75	174	53.87

The respondents were asked to indicate whether their parents or guardians cared and encouraged them to eat healthily. The results are shown in Table 4.10.

Most of the respondents (42.72%, n=138) indicated that their parents or guardians cared a great deal about healthy eating, followed by 34.67% (n=112) whose parents or guardians cared to some extent about healthy eating. Only 5.88% (n=19) parents or guardians did not care at all about healthy eating. Almost half (46.44%, n=150) of the respondent's parents or guardians encouraged them to eat healthily. Another 28.48% (n= 92) of the respondent's parents or guardians somewhat encouraged them (respondents) to eat healthily. These results indicate that most of parents or guardians are well informed about healthy eating and

they passed their knowledge to their dependents. According to Story *et al*., (2008) social influences within the home such as parents and siblings both modelling healthful eating practices and having more frequent family meals might promote healthy food consumption.

TABLE 4.10: CONCERNS ABOUT HEALTHY EATING

Parents/Guardian cares about healthy eating	**N**	**%**
Not at all	19	5.88
A little bit	54	16.72
Somewhat	112	34.67
Very much	138	42.72
Parents/Guardian encourages me to eat healthy		
Not at all	30	9.29
A little bit	50	15.48
Some what	92	28.48
Very much	150	46.44
Friends care about healthy eating		
Not at all	35	10.84
A little bit	83	25.70
Somewhat	123	38.08
Very much	54	16.72
I don't know	27	8.36

The food choices of individuals are additionally influenced by interaction with others beyond the family unit, including close friends. Friends, peers and the context where social eating occurs may influence choice of certain foods over other foods (Larson & Story, 2009:58). In the current study friends were not very influential regarding their friends' healthy eating practices as indicated in the results (Table 4.10). Only 16.72% (n=54) of the respondents friends cared about healthy eating a great deal. Some of the respondents' friends (10.84%, n=35) did not care about healthy eating at all. A review of internal environmental influences on food choices reported that the attitudes, encouragement and behaviours of friends and peers influence their food choices (Larson *et al*., 2009).

Family meals play an important role in creating and maintaining family ties (Bryant *et al*., 2003:196). Young adults who eat with their families tend to be at decreased risk for poor adjustment. Mealtimes can also tie families to the outside world that shows the linkages between the nuclear family unit, extended family members and friends. When young adults leave home to pursue their higher education or start careers of their own, some of them stick

to home cooking, and having family meals if feasible, whereas others welcome the autonomy to make their own food choices and adopt lasting health behaviour patterns of a different kind (Nelson, Story, Larson, Neumark-Sztainer & Lytle, 2008; Bryant *et al*., 2003:196).

The respondents were asked to indicate how often household members ate meals together and the regularity of eating meals away from home. The results are shown in Figure 4.21.

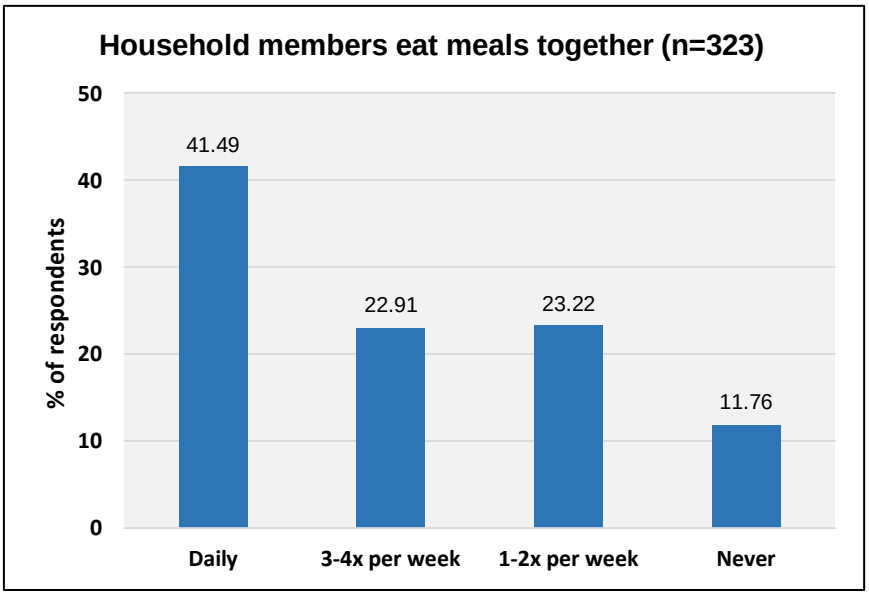

FIGURE 4.21: FREQUENCY OF EATING MEALS TOGETHER AS A FAMILY OR HOUSEHOLD

Eating together is a frequent and important activity for families and how often a family has a meal together has a positive effect on healthy food consumption. Most of the household members (41.49%, n=134) ate meals together on a daily basis, followed by 23.22% (n=75) who ate meals together 1-2 times per week and 22.91% (n=74) indicated that they ate meals together 3-4 times per week. Having regular family meals help to ensure that household members consume a nutritious diet and develop healthy eating patterns (Larson & Story, 2009:56). Having more family meals is positively associated with higher intake of fruit, vegetables and protein foods (Utter et al., 2013:8).

The respondents had to indicate how the household members usually had their meals. The results are shown in Figure 4.22.

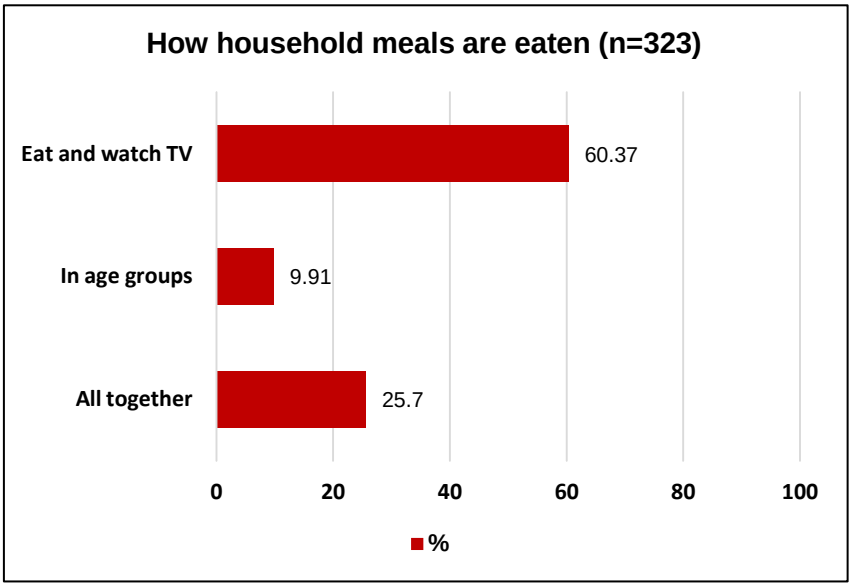

FIGURE 4.22: HOW HOUSEHOLD MEALS ARE EATEN

The traditional pattern of eating meals together is falling away, modern families often eat in front of the television set. The results in this study portray that these respondents have similar pattern (60.37% (n=195), a significantly dominant majority indicate that they eat while watching television and, at the same tendency all members of the household eating meals together 25.7% (n=83) is clear and encouraging. Only 9.91% (32) of the respondents still followed the traditional method of serving and eating meals in different age groups. These results concur with another South African study that found that most households eat dinner together while watching television (Sedibe *et al*., 2014).

As part of the family meals respondents were asked to indicate how often they ate meals away from home (see Figure 4.23).

Two thirds (67.49%, n=218) of the respondents ate meals away from home 1-2 times per month and 13.62% (n=44) reported that they never ate meals away from home. The results of this study differ from other studies in the United States of America and that report a daily intake of food away from home 3-4 times per week. The regular consumption of meals away from (see Figure 4.23) is very low as indicated by 8.36% (n=27). The results of this study differ from other European studies which report a high daily consumption of meals away from home (Story *et al*., 2008).

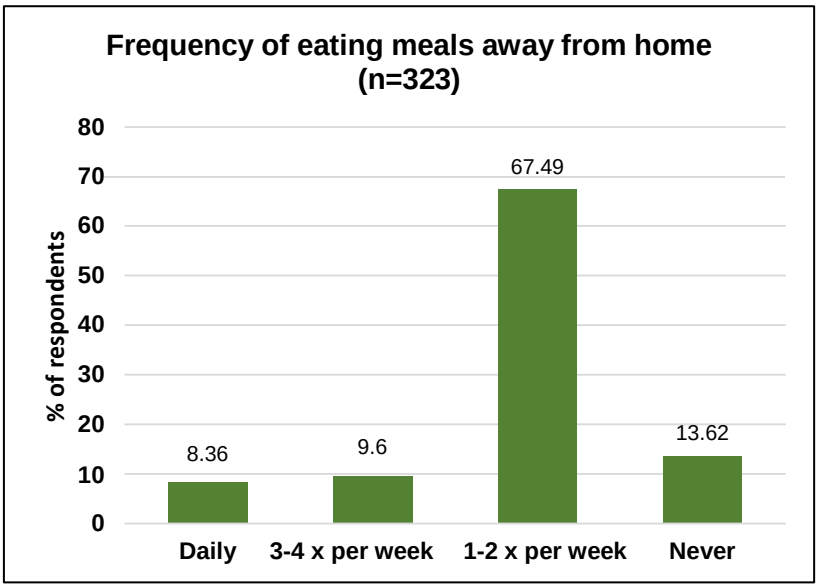

FIGURE 4.23: EATING MEALS AWAY FROM HOME

The respondents were asked to indicate the location where they usually ate meals away from home. The results are presented in Figure 4.24.

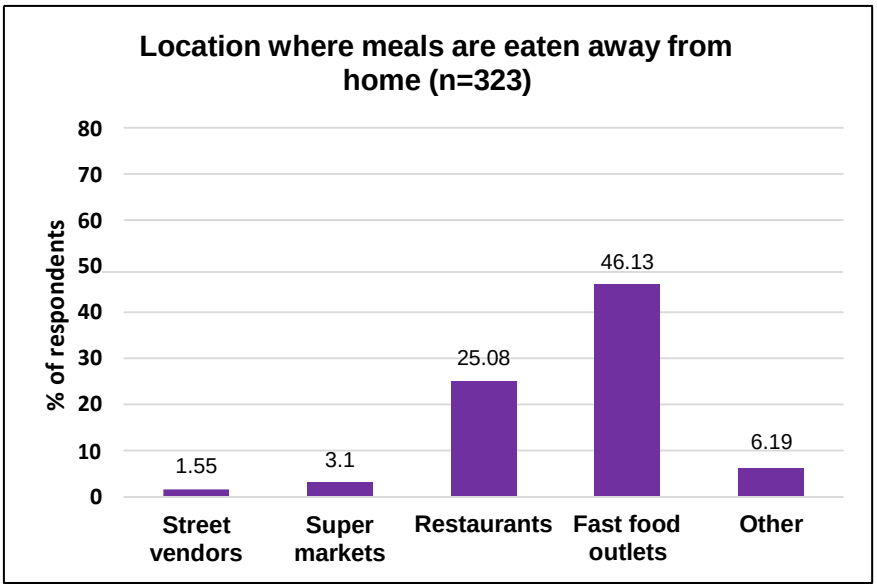

FIGURE 4.24: LOCATION WHERE MEALS ARE EATEN AWAY FROM HOME

Most of the respondents (46.13%, n=149) ate meals at fast food outlets such as KFC, Nandos, McDonalds and Debonairs, followed by 25.08% (n=81) who ate meals in restaurants and 3.1% (n=10) of the respondents who obtained food for meals in super-markets. Only 1.55% (n=5) of the respondents bought meals from street vendors. This results clearly indicate that respondents living in a typical South African urban area do have the option of purchasing fast foods that is available in the environment where they reside.

The respondents were also asked to indicate when they usual ate out away from their homes. The result is illustrated in Figure 4.25. Most of the respondents (35.91, n=116) eat away from home on weekend days only. Although 15.79% (n=51) of the respondents ate away from home only on special occasions, 6.19% (n=20) of the respondents ate meals away from home during weekdays.

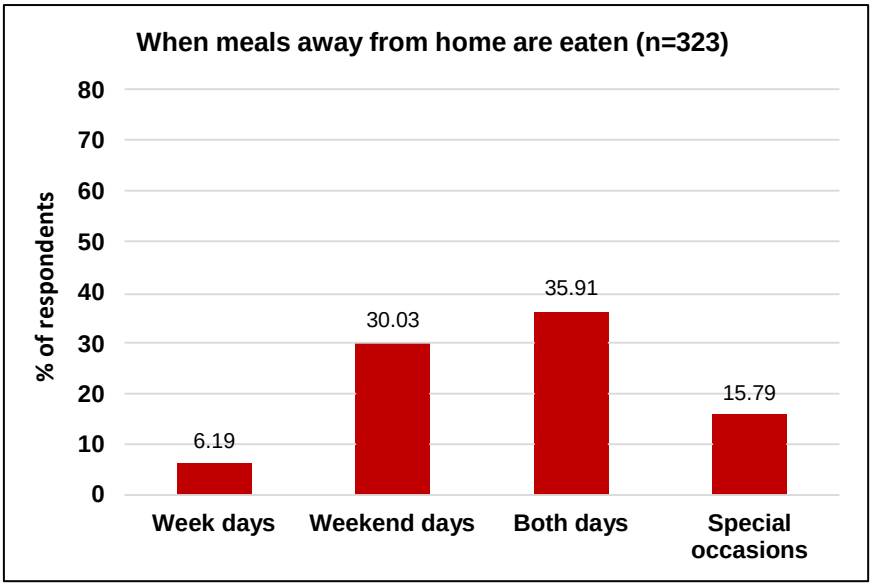

FIGURE 4.25: WHEN MEALS AWAY FROM HOME ARE EATEN

The respondents were also asked to mention when they usually ate out away from their homes. The results are illustrated in Figure 4.25. Most of the respondents (35.91%, n=116) eat away from home both on either weekdays or weekend days or both this time and 30.03% (96) ate away from home on weekend days only. Although 15.79% (n=51) of the respondents ate away from home only on special occasions, 6.19% (n=20) of the respondents ate meals away from home during weekdays.

The respondents who indicated that they ate meals away from home were asked to indicate with whom they ate these meals. As illustrated in Figure 4.26 most of the respondents (37.77%, n=122) ate meals with friends when eating away from home and 25.08% (n=81) indicated that they ate meals with both friends and family when eating away from home. Only 17.96% (n=58) of the respondents ate meals together with families whereas, 6.5% (n=21) enjoyed meals alone. The results of this study indicate that meals can be used for social cohesion as indicated by the majority of respondents who enjoyed meals with both their friends and their family members.

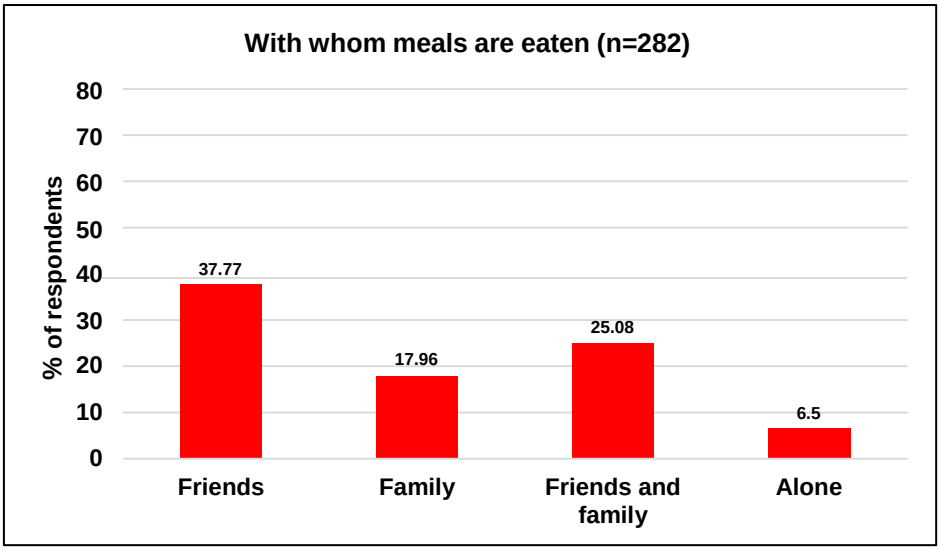

FIGURE 4.26 WITH WHOM MEALS AWAY FROM HOME ARE EATEN

As part of the internal environment, the next section presents and discusses the influence of knowledge, attitudes, beliefs and values on the food choice and practices of the study group.

4.6 THE INTERNAL ENVIRONMENT, FOOD CHOICE AND FOOD PRACTICE

In order to address objective 4 of the study, the respondents were asked to indicate their level of agreement or disagreement with each statement regarding their food practices. (See Addendum, Section D of questionnaire). This was used as a cross-check to determine if the responses concur with the responses given in Section C on the consumption and frequency of consumption of traditional foods, snack and fast foods. The results of the information obtained about each respondent's internal environment with reference to their level of knowledge, attitudes, beliefs and values about the food they eat are given and discussed.
To measure the respondent's knowledge about food, a four point Likert-type scale was used. The scale had four options namely, 1 strongly disagree and 4 strongly agree. The respondents marked their level of agreement or disagreement with the statement listed in the questionnaire.

There were nine statements that related to the respondent's knowledge of their food choice and practices (Table 4.11). The majority of the respondents (70%, n=242) generally agreed or strongly agreed with the first nine listed knowledge statements. This shows that the respondents are knowledgeable about healthy food choices and are aware of what constitutes healthy eating, including the consequences of an excessive intake of food high in salt, sugar, fat and oils. This refutes what they reported about their own food choices and

current eating patterns. They have the knowledge of the recommended daily intake of fruit and vegetables but hardly follow the advice.

TABLE 4.11: RESPONDENTS' KNOWLEDGE, THEIR FOOD CHOICES AND PRACTICES

	STATEMENT	STRONGLY DISAGREE (%)	DISAGREE (%)	AGREE (%)	STRONGLY AGREE (%)
D1.1	It is important to eat five (5) portions of fruits and vegetables every day.	4.02	13.93	**44.58**	**34.67**
D1.2	Most traditional foods are healthier than fast, snack or junk food.	3.10	8.05	**40.87**	**45.2**
D1.4	Fast/junk food is low in vitamins.	4.33	11.15	**48.92**	**32.82**
D1.5	A controlled energy intake is the best method of weight maintenance and health.	2.18	13.93	**47.68**	**33.13**
D1.6	A variety of foods should be included in one's daily diet.	2.17	4.64	**38.7**	**51.7**
D1.7	Fast foods contain a lot of fat.	4.95	7.43	**34.37**	**49.54**
D1.8	Foods high in salt, fat and sugar should be limited in your eating pattern.	4.02	5.26	**32.51**	**54.8**
D1.9	Fast foods and snacks should only be eaten as a treat.	4.02	11.46	**47.37**	**33.75**

Most of the respondents (44.58%, n=143) know that it is important to eat five portions of fruits and vegetables every day, followed by another 34.67% (n=111) who strongly agreed to this statement. Most of the respondents (40.87%, n=132 and 45.2%, n=145), respectively agreed and strongly agreed that most traditional foods are healthier than fast, snack or junk food. More than a third (48.92% (n=158) agreed that fast/junk food is low in vitamins, followed by 32.82% (n=106) who strongly agreed that junk food contains less vitamins. Although only 2.18% (n=7) strongly disagreed that a controlled energy intake is the best method of weight maintenance and health, 47.68% (n=154) agreed and 33.13% (n=107) strongly agreed. Although more than a third (38.7%, n=125) agreed that a variety of food should be included in one's daily diet, the majority (51.7%, n=166) strongly agreed to this statement.

Almost half of the respondents (49.54%, n=160) strongly agreed that fast foods contain a great deal of fat followed by 34.37% (n=111) who also reported that the fat content is high in fast foods. Foods high in salt, fat and sugar should be limited in one's eating patterns. Evidence that is known information comes from the fact that almost a third 32.51% (n=105) of the respondents agreed and more than half 54.8% (n=177) strongly agreed. It is noted

encouragingly that so many of the respondents agreed (47.37%, n=153) with another 33.75% (n=109) strongly agreeing that fast foods and snacks should be eaten only as a treat. Although knowledge alone is not the only determinant of maintaining a healthy diet, it can positively influence beliefs and facilitate healthier food choices and practices (Shisana *et al*, 2013). The results of this study concur with the results of the SANHANES-1 study (Shisana *et al*., 2013) that investigated how knowledge can lead to healthy food choices. Although this study's respondents know the food based dietary guidelines that recommend having five portions of fruits and vegetables every day, they are not inclined to always put this knowledge into practice when selecting food (see Figure 4.9 and Figure 4.11).

Using a similar method, data was gathered on the respondent's attitude to how they choose for daily consumption to create their food practice patterns. Respondents were asked to indicate their level of agreement or disagreement with various statements. The results are depicted in Table 4.12.

The first five statements were used to measure the respondent's attitude to traditional foods and the results show they are generally positive. Most of the respondents (41.8%, n=135) agreed and 32.51% (n=105) strongly agreed that most traditional foods are tasty. A majority of the respondents (57.89%, n=186) strongly disagreed, another 29.41% (n=94) disagreed that they do not want their friends or colleagues to know that they ate traditional foods. This reflects a positive post attitude implying that they are proud of traditional foods of their culture.

TABLE 4.12: INFLUENCE OF ATTITUDES ON FOOD CHOICE AND FOOD PRACTICES

	STATEMENT	STRONGLY DISAGREE (%)	DISAGREE (%)	AGREE (%)	STRONGLY AGREE (%)
D1.10	Most traditional foods are tasty.	6.19	16.1	**41.8**	**32.51**
D1.11	I do not like others (e.g. friends or colleagues) to know that I eat traditional foods.	**57.89**	**29.41**	4.95	3.72
D1.13	It is important to follow traditional food patterns.	12.38	**37.46**	**35.29**	11.46
D1.25	Traditional foods are suitable to serve to guest.	3.41	13.31	**53.87**	**26.63**
D1.12	I am afraid to eat things I have never eaten before.	**16.72**	**36.22**	3.58	11.46
D1.14	Media (radio, television, posters and maga-zines) influences my food choice / what I eat.	14.24	**37.77**	**33.75**	11.46
D1.17	Junk food is generally convenient (easy) to eat.	**37.77**	**43.03**	7.74	8.36
D1.22	I like trying new foods.	6.5	**24.46**	**43.34**	21.67
D1.23	Even when I am busy or have limited time, I try to eat healthy food.	8.67	**27.55**	**44.58**	16.1

Although 37.46% (n=120) of the respondents disagreed that it is important to follow traditional food patterns, 35.29% (n=113) agreed and another 11.46% (n=37) strongly agreed that it is important to follow traditional food patterns. The respondents had a positive attitude on traditional foods as was evident in the statement where the majority (53.87%, n=174) who agreed and 26.63% (n=86) strongly agreed that it is appropriate to serve traditional foods to guests. Most of the respondents (47.37%, n=153) agreed and 33.75% (n=109) strongly agreed that high fat food such as fast foods, junk and snacks should only be eaten as a treat.

More than a third (36.22%, n=116) disagreed that they are afraid of eating things they have never eaten before, whereas another 16.72% (n=54) also strongly disagreed. Media does not seem to have much influence on the food choices of young urban black adults as most (37.77%, n=121) of the respondents disagreed that media (radio, television, posters and magazines) influences their food choice or what they eat whereas 33.75% (n=109) agreed that their eating patterns are influenced by the media. Similarly another South African study (Van Zyl *et al*., 2010:129) reports that media messages never or only sometimes influence fast food purchases. Only 37.77% (n=121) of the respondents strongly disagreed and 43.03% (n=138) disagreed with the statement that junk[13] food is generally convenient (easy) to eat. Although 43.34% (n=139) of the respondents agreed that they like trying new things, 24.46% (n=79) disagreed with the statement. Almost half of the respondents (44.58%, n=143) agree that, even if they are busy or have limited time, they try to eat healthy food. The results show that the respondents do have a positive attitude to healthy eating.

Statements (see Table 4.13) and their analysis concern the influence of beliefs on food choice and food practices.

Respondents were asked to indicate what they believed about traditional foods. The majority (86.07%, n=278) of the respondents thought that traditional foods are healthier than fast, snack and junk food. The respondents had a positive attitude towards traditional foods, as most of them (43.03%, n=138) disagreed that people consuming traditional foods are old-fashioned as well as believing that traditional foods are healthy. Although the majority (46.44%, n=150) agreed and 22.6% (n=72) strongly agreed that it is time consuming to cook traditional foods and that traditional food is not always available. Most of the respondents (48.61%, n=157) further indicated that their religion did allow them to use or eat traditional foods. The majority of the respondents also believed that one's social status is not determined by the type of food eaten. In this respect 34.06% (n=110) of the respondents strongly disagreed and another 34.06% (n=110) disagreed with this statement. Although half

[13] Junk food refers to industrially processed foods that contains high levels of fat, sugar and salt to increase palatability and sales, although they are dense in energy they have less nutritional value (Bayol, Simbi, Bertrand & Stickland, 2008).

the respondents (50.7%, n=163) believed that junk food is generally convenient to eat, the majority (51.39%, n=165) also believed that home cooked food is proper food.

TABLE 4.13: INFLUENCE OF BELIEFS ON FOOD CHOICES AND FOOD PRACTICES

	STATEMENT	STRONGLY DISAGREE (%)	DISAGREE (%)	AGREE (%)	STRONGLY AGREE (%)
D1.2	Most traditional foods are healthier than fast, snack or junk food.	3.10	8.05	**40.87**	**45.2**
D1.15	Most people who consume traditional food are old fashioned.	**37.77**	**43.03**	7.74	8.36
D1.16	Traditional foods are time consuming (takes long time) to cook.	7.43	20.43	**46.44**	**22.6**
D1.20	My religion allows me to use and eat traditional foods.	3.41	5.26	**37.77**	**48.61**
D1.21	Your social status is determined by the type of food you eat.	**34.06**	**34.06**	20.12	8.98
D1.17	Junk food is generally convenient (easy) to eat.	1.86	8.67	**50.7**	**34.98**
D1.18	Traditional food is not always available / cannot be found easily.	5.26	19.5	**42.41**	**29.41**
D1.19	Home cooked food is proper food.	1.24	6.81	**36.84**	**51.39**

The influence of values on the food choice and practices is given in Table 4.14 and then discussed.

TABLE 4.14: INFLUENCE OF VALUES ON FOOD CHOICES AND PRACTICES

	STATEMENT	STRONGLY DISAGREE (%)	DISAGREE (%)	AGREE (%)	STRONGLY AGREE (%)
D1.9	Fast foods and snacks should only be eaten as a treat	4.02	11.46	**47.37**	**33.75**
D1.11	I do not like others (e.g. friends or colleagues) to know that I eat traditional foods.	**57.59**	**29.41**	4.95	3.72
D1.13	It is important to me to follow traditional eating patterns.	12.38	**37.46**	**35.29**	11.46
D1.24	Traditional foods are part of our cultural heritage and should be preserved.	2.48	7.74	**45.82**	**40.25**
D1.25	Traditional foods are suitable to serve to guests.	3.41	13.3	**53.87**	**26.63**
D1.26	Only healthy food should be available at school tuck-shops.	6.81	29.1	**28.79**	**32.51**
D1.9	Fast food and snack should only be eaten as a treat.	4.02	11.46	**47.37**	**33.75**
D1.14	Media (radio, television, posters and magazines) influences my food choice or what I eat	14.28	**37.77**	**33.75**	11.46
D1.21	Your social status is determined by the type of food you eat.	**34.06**	**34.06**	20.12	8.98
D1.23	Even if I am busy or have limited time, I try to eat healthy food.	8.67	**27.55**	**44.58**	16.1

The majority (57.59%, n=186) strongly disagreed and 29.41% (n=94) agreed that they do not like friends or colleagues to know that they eat traditional foods. This is an indication that they value their traditional eating patterns. Although 37.46% (n=120) of the respondents disagreed it is important for them to follow traditional eating patterns, 35.29% (n=113) agreed. The majority (45.82% (n=147) agree and 40.25% (n=130) strongly agree) of the respondents value traditional foods as part of their cultural heritage and fell that it be preserved. As noted in Table 4.6, the majority of the respondents (53.87%, n=174) agreed with the statement that traditional foods can be served to guests and 26.63% (n=86) strongly agreed with this view point. Many agreed that only healthy food should be available at school tuck shops. Nearly a third 32.51% (n=105) of the respondents strongly agreed and 28.79% (n=92) agreed with this statement. Media does not have much influence on the choice of food or food practices according to questionnaire respondents. The results related to values concur with the attitude statement that fast food and snack food should be eaten as a treat. Most (44.58%, n=143) of respondents emphasised that, even if they are busy or have limited time, they do try to eat healthily.

The overall result of the analysis of the data collected is that urban black young adults from the Tshwane Metropolitan area in South Africa have a relatively sound knowledge of their own food choices and eating practices. The respondents were aware that most traditional foods are healthier than fast, snack or junk food and that traditional foods do not contain unnecessary additives. With regard to their own diets, almost three-quarters (80%) of the respondents specifically mentioned that a controlled energy intake is the best method of weight maintenance and good health. More respondents marked that it is important to eat five portions of fruit and vegetables every day. However, this was not the case in practice. Although the media is perceived as the source of nutrition information (Charlton, Brewitt & Bourne, 2004), the results of this study indicates that 37.77% (n=121) of the respondents reported that their food choices and practices are not influenced by the media. Nevertheless, there are many other factors that influence consumers' food choices and practices such as standards or values that are the basis of attitudes towards food and eating, which in turn, contribute to eating behaviour patterns. It appears that the majority of the respondents in this study had a positive attitude towards traditional foods and values for traditional food because it denote cultural identity and social cohesion (Table 4.7). However, it appears that the consumption of traditional food is generally reserved for special occasions. This is in line with some extant literature (Faber *et al*., 2013) that reports on a decline in the consumption of traditional foods, especially traditional or indigenous vegetables and legumes (see Figure 4.9). Regarding the knowledge and perception of the role of sugar in a person's diet, the respondents did not really consume an excessive quantity of sweets and confectionary which indicates healthy food choices and practices.

4.7 CHAPTER SUMMARY

A demographic profile of the respondents was presented at the beginning of this chapter. Most of the respondents were 20 year olds and mainly females. The current eating patterns of the sampled participants were outlined based on the different times food was consumed on a daily basis, differentiating patterns over weekdays and over weekends and on special occasions. The majority of the respondents indicated that they had moved away from the traditional two meals a day and had adopted the pattern of three meals, with some food being eaten mid-morning and mid-afternoon which suggest a transition from a traditional food pattern to that of a Western-oriented lifestyle. The frequency of the consumption of traditional and Western-orientated food in this study concurs with extant literature that reports on lifestyle changes, including food choice patterns, as a result of urbanisation. The contribution of both the external and internal environments to the final choices of food and eating practices was discussed. They are seen to have had a major positive influence on this study group's food choices and food practices. The easy availability and accessibility to different types of food through the presence of hyper-and supermarkets, street vendors and fast food outlets further influenced food choices. Based on the results of this study it can be concluded that the respondents are knowledgeable about healthy food choices and are aware of what constitutes healthy eating. However, the respondents themselves do not seems to convincingly follow the recommended food based dietary guidelines when making their food choices.

Chapter 5: Conclusion and Recommendations

5.1 INTRODUCTION

This chapter presents the conclusions derived from this research study. The objectives of the study were formulated to achieve the aim of the study which was to explore, determine and describe the food choice and food practices of young urban black adults (between 20-30 years old) residing in the central suburbs of the Tshwane Metropolitan Area. The significance of the study and its limitations, recommendations from the findings and suggestions for future research are given.

Changes in the external environment, due to accelerated urbanisation and modernisation together with technology and economic development all contribute to change in the lifestyle of the black South African population (Steyn & Mchiza, 2014; Viljoen *et al*., 2005; Le Grange *et al*., 2004). These changes are also witnessed in the central suburbs of Tshwane Metropolitan Area with its modern urban infrastructure like the presence of large chain super- and hypermarkets. The stores readily supply food at affordable prices a service that contributes to the availability and accessibility of commercially produced food. These facilities and the shift in the black population's eating patterns from a traditional to a more Western-orientated pattern that is taking place, account for this trend. Food choices, as part of a person's lifestyle, are no exception and also respond to these changes. A Western-orientated diet consists mostly of high kilojoule (kJ) refined foods containing large quantities of fats, sugars and sodium. This, together with a low consumption of fruit and vegetables are leading causes of diet-related illnesses such as hypertension, diabetes mellitus type 2, a stroke and certain cancers. These diseases are becoming more prominent in adults at a younger age (Steyn & Mchiza, 2014; Shisana *et al*., 2013; Seedat & Rayner, 2012; MacIntyre *et al*., 2012:123; Van Zyl *et al*., 2010:122; Malhotra *et al*., 2008). The current food choices and practices of the urban black population in South Africa are therefore a matter of concern that needs to be addressed promptly.

Currently there is limited research in South Africa on the food practices of young urban black adults with the exception of a few studies. One was conducted in North West province (MacIntyre *et al*., 2012), another in Kayelitsha (Malhotra *et al*., 2008) and one on the intake of fast food of young adult consumers in Johannesburg (Van Zyl *et al*., 2010). No recent study on the food practices of young urban black adults in the Tshwane Metropolitan Area could be found, therefore this study on food practices of young urban black adults (between 20-30 years old) is timeous.

The purpose of this study was thus to explore, determine and describe the food choices and food practices of young urban black adults (between 20-30 years old) residing in the central suburbs of Tshwane Metropolitan Area, in order to describe to the extent to which modern, Western-orientated foods are consumed by the study group. The contribution of selected environmental influences from both internal and external environments was also interrogated. The objectives of the study were successfully met and the main conclusions drawn from each of the formulated objectives for this study are presented.

5.2 CONCLUSIONS ON THE OBJECTIVES OF THE STUDY

5.2.1 Conclusions on the current eating patterns of young urban black adults (between 20-30 years) residing in Tshwane Metropolitan Area (Objective 1)

This objective dealt with determining and describing the study group's eating patterns and specifically their meal patterns and meal composition on weekdays and weekend days. The number of meals consumed a day and the reason for eating breakfast was also measured. Additional information related to meals on weekdays and weekend days was noted. Respondents were asked to recall what food items and beverages they usually consumed over 24-hours on weekdays and weekend days and a list was compiled.

Weekday eating patterns

On weekdays most of the respondents (56.04%, n=181) consumed three meals a day with in-between snacking which indicates a Western-orientated meal pattern of having more than two meals a day. Nearly a quarter of the respondents (27.24%, n=88) still followed the traditional eating pattern of two meals a day. These results are in accord with findings of other South African studies that reported the trend to consume three meals a day (Temple *et al*., 2006; Labadarios *et al*., 2005; Viljoen *et al*., 2005; Van Eeden & Gericke, 1996:90).

The results revealed that the majority (69.04%, n=223) of the respondents consume breakfast regularly and reported positive reasons for consuming breakfast such as "…*it gives energy, it is an important meal for the day, I am hungry or starving"* although there were different opinions about the importance of breakfast.

Meal composition on weekdays comprised of a bread-based breakfast as the inclusion of bread was mentioned by many of the respondents (30.34%, n=98), with milk (29.41%, n=95)

and breakfast cereals (28.48%, n=92) as part of the food consumed for breakfast. These results concur with other South African studies that a bread-based breakfast is common practice among the South African people (Faber *et al*., 2013; Viljoen *et al*., 2005; MacIntyre *et al*., 2002; Viljoen & Gerricke, 1998). Only 9% (n=29) of the respondents still followed the tradition of including soft maize meal porridge as part of their breakfast meal.

The following food items were most popular among the respondents for lunch: bread, chicken, fruit juice, soft drinks, vegetables, meat, pap, cheese and rice. Most of the respondents (25.70%, n=83) had a bread-based lunch as it is convenient for people at work or studying. The staple food, stiff maize meal porridge, was included by fewer respondents. The consumption of vegetables was low, as only 11.15% (n=36) of the respondents had vegetables for lunch. Although other meats such as beef, pork and mutton were also eaten at lunch-time, they were not consumed by the majority.

For supper, more respondents (25.08%, n=81) mentioned that they ate vegetables in comparison to lunch (11.15%, n=36). A relatively frequent consumption of chicken (23.84%, n=77), rice, and stiff maize meal porridge for supper was noted. The frequent consumption of chicken can be attributed to the fact that it has become more available and accessible compared to other meats such as beef, pork, and mutton that was also given as meat for supper (Schönfeldt *et al*., 2013). Although the staple food maize meal porridge was still included for supper, rice is gaining popularity and is frequently becoming part of the meal composition of this study group. Vegetables were consumed more often for supper: approximately 65% of the respondents did not consume vegetables daily as recommended by the South African food based dietary guidelines. The consumption of fruit was also low.

Snacking in-between meals was not a common practice among these respondents. Fewer than 17% indicated that they had something to eat or drink between breakfast and lunch and mentioned the following food items; fruit or fruit salad, savoury snacks, bread and fruit juice. A similar trend was followed between lunch and supper with fewer than 10% who included fruit juice and fruit or fruit salad as snack. Only 7% of the respondents indicated that they enjoyed a beverage such as tea or coffee after supper.

Weekend eating patterns

The respondents indicated how their meal composition on weekend days differed from weekdays. Almost two thirds (59.13%, n=191) of the respondents reported no difference in their eating patterns on weekend days. For those 35.91% (n=116) of the respondents who mentioned that there was a difference in their eating patterns the following was stated. Ten

per cent of those who had a different eating pattern skipped breakfast on Saturdays and Sundays. Other differences related to the type of food and the size of the meal on weekend days. Some of the respondents had a bigger lunch and/or supper, yet others had a smaller lunch. Regarding the types of food, some included either more convenience food or take-away food and others snacked more between meals. Interestingly, some respondents mentioned the inclusion of home-cooked meals and alcoholic beverages especially on Sundays.

From the results of this study, it is evident that the study group's eating patterns on weekdays and weekend days continues to change. These changes in the meal patterns and meal composition confirm a more frequent inclusion of Western-orientated foods at most meals. The majority of the respondents eat three meals a day and do not snack often between meals.

5.2.2 The extent and frequency of consumption of traditional, indigenous and Western-orientated foods (Objective *2*).

The second objective of the study dealt with the extent and frequency with which the study group consumed selected traditional foods and Western-orientated foods. Respondents were asked to indicate whether they consumed traditional foods or not. Open-ended questions gathered additional information on the respondent's opinions on how they felt about the traditional foods of their cultural or ethnic group, in order to measure their attitude towards traditional foods. The respondents also had to indicate when they usually consumed their ethnic group's traditional foods.

The majority of respondents (81.11%, n=262) ate the traditional food of their culture. The results further indicate that nearly half of the respondents (48.61%, n=157) consumed traditional food whenever it was available in their household's while some of the respondents (19.20%, n=62) consumed it only on special occasions. It can be concluded that the results confirmed a positive attitude towards the consumption of traditional food since 52.94%, (n=171) of the respondents who consumed traditional foods responded positively to assessing the sensory attribute of taste. Moreover, almost a third (31.58%, n=102) perceived traditional food as healthy.

A non-quantitative food frequency questionnaire served as a cross-check of the foods respondents consumed in their current eating patterns as triangulation of the reported results was applied. In the food frequency questionnaire food items were grouped in fifteen sub-groups, and both traditional and Western-orientated food items were listed. The sub-groups

were: bread and bread-like products, spreads or accompaniments to bread, cereals, vegetables, traditional and indigenous vegetables, legumes, fruit, meat and meat products, offal cuts, fish and seafood, other proteins, dairy and dairy products, beverages, sweets and confectionary, savoury snacks and fast foods.

A noteworthy result was the preference the respondents who consumed bread and bread-like products daily (25.39%, n=82) had for brown bread. Their consumption of brown bread in comparison to white bread (20.74%, n=66) had a markedly higher frequency. A similar tendency is reported in other previous South African studies (Tshiwanambi, 2006; Viljoen *et al*., 2005; Manning *et al*., 1974). The study group really enjoyed white bread and other bread-like products such as buns, bread rolls, Chelsea buns or sweet buns, crisp bread and rusks. These were, however, consumed more frequently on special occasions. The lower frequency of consumption of these baked products is attributed to the fact that they are more expensive. Traditional bread and bread-like products such as flat bread, fat cakes (vetkoek), steamed bread and scones, (although the majority of the respondents did not consumed them daily) were eaten mainly on special occasions.

For the spreads and accompaniments to bread, margarine was the most commonly used (29.1%, n=93) on a daily basis and 20.74% used it 3-4 times per week. The rest of the spreads such as jam, honey, marmalade, marmite, Bovril, Oxo and cheese were used less than three times per month.

Data about the cereal group confirms regular consumption of breakfast cereals, (30.96%, n=100) and rice (36.22%, n=116) daily and at least three -four times per week. As reported in the 24-hour recall method (see Figure 4.1). Other traditional cereal dishes that were frequently consumed included soft cooked porridge and stiff mealie meal porridge. The respondents also frequently consumed samp, *ting mabele*, fresh mealies, samp and beans on special occasions. This indicates that the study group still include the traditional staple cereals in their eating patterns.
Vegetables were grouped as green vegetables (spinach, cabbage, broccoli, green beans and peas), yellow vegetables (butternuts, pumpkins and carrots), salads (lettuce tomato, green pepper and cucumber), potatoes, sweet potatoes, beetroot, onions and tomatoes.

Respondents reported that green and yellow vegetables were consumed once or twice a week. The majority of the respondents included tomatoes and potatoes at least once a week. These results confirm the 24-hour recall results where the inclusion of vegetables in the meal composition was lower than the recommended daily guidelines. Most of the respondents ate salads, potatoes, sweet potatoes and tomatoes only 3-4 times and 1-2 times a week. Other

vegetables such as cauliflower, mushrooms and asparagus were not eaten very often, less than three times per month.

Traditional or indigenous vegetables such as *moroho*, melon and maraka were not generally eaten but some of the respondents consumed it on special occasions. Legumes such as *ditloo* (cow peas) and *dinawa* (jugo beans) also followed a trend similar to the indigenous vegetables as they were mainly consumed on special occasions. The low consumption of these traditional vegetables can be attributed to the fact that they are seasonal and, therefore they are not readily available in urban areas. Sugar beans and peanuts were more popular than traditional vegetables and legumes because they are common and readily accessible in urban areas. The respondents ate peanuts less than three times a month as reported by 29.41% of the respondents.

Although fruit is consumed, only a small percentage of the respondents do so daily. Citrus fruit (oranges, lemons and naartjies), Vitamin A rich fruit (yellow peaches, mangoes, paw paws, pineapples and plums) and other fruit (grapes, bananas, apples, pears and litchis) were indicated to be consumed fairly often. Fruit in the other fruit group were more often consumed. Many of the respondents (28.48%, n=91) consumed them 3-4 times per week and 19.2% (n=62) consumed them daily, followed by 26.32% (n=85) who consumed them once or twice a week. This can be attributed to the fact that these fruit are readily available and affordable in the market. Tinned or canned fruit was an item reserved for special occasions for most of the respondents (33.13%, n=107) and a similar pattern was reported with dried fruit like raisins.

Respondents reported frequent consumption of chicken. Nearly half (47.9%, n=155) of the respondents indicated that they consumed chicken 3-4 times per week followed by 21.36% (n=68) who ate it daily and 20.12% (n=64) consumed it 1-2 times per week. These results on the frequent consumption of chicken concur with other studies in South Africa that reported chicken as a popular item of choice in South African households (Schönfeldt *et al*., 2013; Van Zyl *et al*., 2010). Beef was the most frequently consumed of the red meats, consumed by 34.37% (n=111) at least 1-2 times per week. Pork and mutton, although consumed regularly, it was not as frequent. This can be attributed to price, as they are expensive. Goat meat was consumed frequently on special occasions. This can be attributed to goat meat not being readily available in urban areas. More than a third (35.6%, n=114) of the respondents had South African boerewors at least once or twice a week and 24.77% (n=80) consumed it less than three times per month. This is because boerewors is not as expensive in comparison to other meat and is quick to prepare, making it convenient and easily accessible to many households. Russian sausages were not often consumed, although the respondents

consumed it few times per month. The respondents occasionally ate processed meats such as ham, Vienna sausages, polony, cold cuts and bacon. Those who did so indicated a frequency of consumption of less than three times per month. Biltong was not frequently consumed by the majority of the respondents. Most of the respondents (36.84%, n=118) mentioned that they consumed biltong on special occasions.

Offal cuts were not part of the eating patterns of the respondents. Results of the food frequency questionnaire confirm this, as the majority mentioned that they never consumed offal cuts. Although some respondents (26.95%, n=87) mentioned that they eat cow head on special occasions, a similar pattern was given for the other offal cuts such as sheep head, pork head, cow heel, sheep trotters and pork legs portray. Beef tripe was consumed by most of the respondents (44.58%, n=143) on special occasions and chicken heads and feet fewer than three times per month.

Fish and seafood was not frequently consumed by the majority the respondents. This is attributed to the fact that certain ethnic groups forbid the consumption of fish because to them it resembles a snake (Manning *et al*., 1974). Moreover, fresh fish is not readily available in urban areas because it is located away from the sea. With the exception of fried white fish, seafood was not consumed frequently. More than a third of the respondents (30.34%, n=97) consumed fried fish less than three times per month and 22.29% (n=71) enjoyed it at least 1-2 times per week. Canned or tinned fish was consumed less than 3 times per month by 27.55% (n=89) of the respondents. Most of the respondents (26.32%, n=85) ate tuna less than 3 times per month and some (23.53%, n=76) enjoyed it only on special occasions. Seafood (calamari and prawns) was consumed by a third (33.75%, n=109) of the respondents on special occasions.

Eggs were consumed frequently (3-4 times per week) as indicated by 31.89% (n=103) of the respondents. Zulu and Pedi females are traditionally not allowed to eat eggs as their cultural group prohibits this practice (Manning *et al*., 1974; Franz, 1971). However; this prohibition seems to have fallen away in recent years. Generally, this restriction on the consumption of eggs is no longer strictly enforced and more than half of the respondents consumed eggs at least once a week. Cooked cheese dishes (macaroni cheese) were not frequently consumed because they are prepared from expensive ingredients and did not form part of the traditional food practices of the black population. There was a noticeable increase in the consumption of cooked cheese dishes. The majority would include it at least 1-2 times per week. Other dishes containing cheese, such as pizza and *sphatlo,* were eaten less than three times per month and on special occasions.

In the dairy and dairy product group, fresh milk was consumed daily by 34.67% (n=111), followed by 24.77% (n=80) of the respondents doing so at least 3-4 times per week and 17.03% (n=55) 1-2 times per week. Notable was the low consumption of the traditional beverage sour milk. Only 1.86% (n=6) of the respondents consumed sour milk daily and 5.26% (n=16) consumed it 3-4 times per week. Most the respondents (28.75%, n=92) mentioned that they never consumed sour milk. This indicates that sour milk as a traditional beverage is no longer consumed frequently. Cheese (26.32%, n=85) and yoghurt (23.84%, n=77) were consumed as often as 3-4 times per week. Cottage cheese was less frequently consumed. This could be attributed to the fact that it is expensive and not a familiar product for this particular group of people, although 22.91% (n=73) enjoyed cottage cheese at special events. A quarter (25.7%, n=83) consumed Yogi Sip less than 3 times per month. Some respondents (22.6%, n=72) consumed dairy fruit beverages less than 3 times per month. Most of the respondents (38.39%. n=123) enjoyed a milkshake on special occasions.

In the beverage group Ceylon tea (19.81%, n=63) and rooibos tea (25.39%, n=82) as beverages were consumed daily. Interestingly 25.08% (n=81) of the respondents never drank milk as a beverage. *Mageu* was not consumed daily by most of the respondents but 27.86% (n=98) of the respondents enjoyed it on special occasions, followed by 16.72% (n=54) who consumed it less than three times per month and 37.77% (n=121) never consumed it. Tea replaced *mageu* as a traditional beverage in that it is more convenient in terms of time, to prepare in comparison to *mageu* which takes hours to prepare (Manning *et al*., 1974). Results of this study confirm this trend. The majority of the respondents reported that they never consume alcohol and other beverages such as traditional-beer, ginger beer, commercial beer, wine, spirits and Energade, a South African branded sports energy drink. However, it should be kept in mind that respondents are inclined to under report on the consumption of alcoholic beverages (Boniface & Shelton, 2013; Stockwell, Donath, Cooper-Stanbury, Chikritzhs, Catalano & Mateo, 2004). Bottled water was consumed by most of the respondents on a weekly basis. Soft drinks were the most frequently consumed beverage as more than half of the respondents indicated than they consumed it often. A daily consumption was indicated 12.38% (n=39) with 25.39% (n=82) of the respondents who consumed it 1-2 times per week, followed by 21.05% (n=67) who drank it at least 3-4 times per week. These results concur with South African studies that reported a frequent consumption of soft drinks among young adults (Myers, Fig, Tugendhaft, Mandle, Myers & Hofman, 2015; Audain *et al*., 2014). Although soft drinks are frequently consumed by the majority, other beverages such as ginger beer and Energade were reported to be never consumed by most of the respondents.

The items listed in the sweets and confectionary group (ice cream, jelly, cream buns, cake, baked puddings, muffins and biscuits) followed a similar trend as the majority indicated that they consumed these items less than 3 times per month or only on special occasions. Biscuits and chocolates were frequently consumed 1-2 times per week as indicated by 25.08% (n=81) of the respondents.

The frequency of consumption of savoury snacks varied. Savoury snacks were not consumed on a daily basis. The majority of the respondents (27.24%, n=87) ate nuts less than three times per month and 21.67% (n=69) only on special occasions. Potato chips (crisp) and popcorn were consumed at least once or twice a week as well as on special occasions. Savoury biscuits and cheese puffs (cheese curls) were frequently consumed less than three times per month and on special occasions.

Although fast food (a meat pie, hamburger, hot dog and fried chips) was not eaten daily, many respondents enjoyed it less than three times per month. Fried chips was an exception, as most of the respondents (28.48%, n=91) consumed it at least 1-2 times per week, followed by 23.53% (n=76) of the respondents doing so less than three times a month and 21.05% (n=67) at least 3-4 times a week. This can be because fried chips are readily available in urban areas and it is affordable.

The overall conclusion about the frequency of consumption of the listed foods is the noticeable frequent consumption of processed and Western-orientated foods. However, traditional foods such as traditional breads, cereals, vegetables and legumes as well as meat, offal cuts and traditional beverages are still included in the diet of the study group when available and on special occasions. This confirms the value the study group places on the traditional food of their ethnic group regardless of exposure to Western-orientated foods.

5.2.3 The contribution of various external environments to the food choices and food practices of the study group (Objective 3).

This objective dealt with the contribution of various external environments to the food choices and food practices of the study group. The sub-objectives focused on how each of the external environments, the physical, economic, political and socio-cultural, influenced the food practices of the study group. The contribution of the food environment in the home as part of the socio-cultural environment is highlighted.

Contribution of the physical environment The physical environment refers to the built environment and infrastructure such as roads, water and electricity supply, homes,

shopping malls and retail food stores (Story *et al.*, 2008). It primarily determines what food is available and accessible for consumption. This environment influences what people eat either positively or negatively. The ease of access to various types of retail food stores and the physical availability of food products in these stores affects food choices. The urban infrastructure of Tshwane increases the availability and accessibility of food, was there are many opportunities or places from which to purchase food items. Food can be bought at large chain super- and hypermarkets such as Pick n Pay, Checkers, Spar, Woolworths, Makro and fast food outlets such as Kentucky Fried Chicken (KFC), Nandos, MacDonald's and many different stalls or eating places selling fish and chips. In the urban environment food is readily available as it can also be bought at spaza shops, cafe's and convenience stores at filling stations. Street vendors also contributed to food choices of the study group as they sell a wide range of street foods such as prepared meals (mostly pap and relish) sweets, potato crisps, snack bars, meat pies and fat cakes.

Contribution of the economic environment Even though food is readily available in supermarkets, other stores and *spaza* shops as a result of the established infrastructure in the physical environment, the disposable income of people determines what can be purchased, in other words, people can only buy what they can afford. It is clear that the cost of food plays a significant role in food choice and eating patterns. People need money to purchase food. From certain demographic characteristics as measured in the survey questionnaire (Section A), and the affluence scale that measured the ownership of household appliances, it can be deduced that the majority of the respondents are from a higher socio-economic status household. It can thus be assumed that the economic environment had a positive influence on the study group's accessibility to and the affordability of food they were able to purchase.

Contribution of the home-food environment Apart from the influence of the economic environment on the food practices of the study group the contributions of the food environment in the home are part of the socio-cultural environment was also determined. The home food environment contributes to what foods are regarded as acceptable to purchase, prepare and consume in the household (Bryant *et al*., 2003:221). This in turn determines how nutritious and healthy the food practices of the members of the household are. Within the home's food environment a number of factors have been associated with eating healthily or not. Among the strongest factors are the availability and accessibility of healthy foods in the home, the frequency of family meals and the attitudes of parents and/or significant others to healthy eating. Respondents were asked to indicate how often they consumed selected foods in their households and healthy foods were among the selection.

Similar to other studies the preparation of meals including the decisions on what is available for preparation, and when it is prepared, is the responsibility of a senior female in the household. Significant others (parents or guardians and friends) were reported to have positive values and attitudes towards healthy eating. The social context where eating occurs, influences the choice of certain foods over other foods (Utter *et al*., 2013; Larson & Story, 2009). The availability of certain healthy and unhealthy food items in the household was measured in the study. Nearly half the respondents (46.75%, n=151) revealed that fruit and vegetables were always available and were served at supper in their households. Milk was not generally served at meals in the majority of the households as indicated by 37.77% (n=122) of the respondents. Other healthy food items included fruit juice. Most of the respondents confirmed that unhealthy food options such as potato chips or salty snacks, chocolate, other sweets and soft or fizzy drinks were always available in their households. These results are in agreement with a recent South African study that reported similar findings on the increased accessibility and availability of potato chips, chocolates, soft or fizzy drinks and how this leads to an increased consumption of these food item (Audain *et al*., 2014). These results confirm that the usual eating patterns of the study group represent the current situation concerning ready access to and indulgence in non-healthy food items.

The results of the frequency of consumption of home-cooked food, fresh fruits, fruit juice, milk and other dairy products and vegetables and salads indicate that this study group consumed them frequently, 5-7 or 3-4 times per week. Other unhealthy food items such as take-away or fast food (65.02%, n210), soft drinks (41.49%, n=134) and alcoholic beverages (33.75%, n=109) were frequently consumed once or twice a week. The majority (53.87%, n=174) of the respondents never consumed alcoholic beverages. However, they could be a case of under-reporting of their alcoholic beverage consumption. These results on frequency of consumption of specific groups and items concur with the non-quantitative food frequency questionnaire that also reported a low consumption of alcoholic beverages. The results on the home food environment confirms that the vast variety of processed foods, ready prepared convenience foods and fresh products were available and accessible as it was also reported on the 24-hour recall and the frequency of consumption of selected food in the non-quantitative food frequency questionnaire.

The extant literature confirms that family meals are associated with healthier food choices and that the presence of parents and/or significant others during meal times tends to promote healthier eating practices (Larson *et al.*, 2009). From the results of this study eating family meals together was still valued by the study group. Most of the families (41.4%, n=134) ate meals together daily. However, the majority of the respondents (60.37%, n=195) ate meals while watching television, which is an indication that the traditional pattern of

eating meals all together is falling away. Another South African study confirmed that many households eat dinner together while watching television (Sedibe *et al*., 2014). Eating meals away from home as take-away happens at least once or twice a week. It seems to have become a common practice for most of the respondents who usually eat these meals at fast food outlets and restaurants. From the results of this study it is apparent that this practice was common for most of the respondents over weekends they usually enjoyed the company of their friends and families on these occasions.

In conclusion healthy and unhealthy food is readily available and accessible in the home-environment of the study group as a result of the nature of the external urban environment. The majority of the respondents seemed to come from affluent households and their economic environment had a positive influence on the accessibility and affordability of food.

5.2.4 Conclusions on the influences of the internal environment (knowledge, attitudes, beliefs and values) on the food choices and food practices of the study group (Objective 4)

The fourth objective of the study was to determine and describe the influences of the internal environment as guided by the individual's knowledge, attitudes, beliefs and values concerning food choices and food practices. The study group's respondents were asked to indicate their level of agreement or disagreement with each statement regarding their food practices. A four point Likert-type scale was used as measurement scale. The scale had four options with, 1 strongly disagree and 4 strongly agree as anchor points.

Influence of knowledge The respondent's knowledge about healthy food was measured through different statements. Nearly half of the respondents knew that it is important to eat five portions of fruit and vegetables every day. Although the majority of the respondents had a sound knowledge on healthy eating, their knowledge was not put into practice. This is reflected by the study groups' low consumption of fruit, vegetables and dairy products. This study confirms that the respondents are knowledgeable about healthy food choices and are aware of what constitutes healthy eating as well as the consequences of an excessive intake of food high in salt, sugar, fat and oils. However, as reported in the literature, their knowledge of healthy eating is not wisely used (MacIntyre *et al*., 2012; Louwrens *et al*., 2009).

Influence of attitudes The attitude statements confirmed that the study group had a positive attitude towards traditional and other food as well as healthy eating. The majority of the respondents (41.8%, n=135) reported that most traditional foods are tasty. The respondents had a positive attitude on traditional food as was evident in the statement where

the majority (53.87%, n=174) agreed that traditional foods are suitable for serving to guests. The majority of the respondents (57.89%, n=186) strongly disagreed that they do not want their friends or colleagues to know that they eat traditional food. This indicates the respondents' positive attitudes towards traditional food meaning that they are proud of the traditional foods of their culture. Media did not influence the respondent's food choices either as almost half (52.01%, n=167) and the other 47.99% (n=155) disagreed that media influenced their food choices. Similar results were reported in a recent study (Van Zyl *et al*., 2010) that involved a group of young adults in Johannesburg concerning the influence of media messages on food choice.

With regard to healthy eating, the respondents revealed that they valued the importance of eating healthy food even when they are experiencing time constraints. Fast foods and snacks on the other hand were considered as food that should only be eaten as a treat.

Influence of beliefs Belief statements confirmed the positive attitudes to traditional foods and healthy eating. Although some respondents believed that the preparation of traditional food is time consuming and the ingredients are not always available, they still nevertheless believe that it is healthier to eat than fast, snack and junk food. The majority of the respondents believed that home cooked food was proper food, although they also believed that junk foods are generally more convenient to eat than traditional food.

Influence of values Values determine what is socially desirable or acceptable as food and they guide behaviour and are important in self-definition. In food choices they provide cognitive scripts for food behaviour (Hauser *et al*., 2011; Botonaki & Mattas, 2010; Parraga, 1990). Attitudes and beliefs formation are influenced by values. From the results it is clear that the respondents valued traditional foods. This was confirmed by the statements that they did not mind others knowing they eat traditional foods and regard it as suitable to serve to guest. Moreover, they felt that traditional food, as part of their cultural heritage should be preserved. Furthermore, the respondents further valued health as 44.58% (n=143) indicated that even if they are busy, or have limited time, they still try to eat healthily. They were of the opinion that fast foods and snacks should only be eaten as a treat, and that only healthy food should be available at tuck-shops.

The next section addresses the overall significance of the study.

5.3 SIGNIFICANCE OF THE STUDY

This study on the food choice and food practices of young (20-30 years) urban black adults residing in the central suburbs of the Tshwane Metropolitan Area has filled a gap in the knowledge of the current food choices and practices of young urban black adults. The contributions of selected environmental influences from both the external and internal environments were investigated. The results confirm the continual shift in the meal patterns and meal composition of the study group, and the inclusion of more Western-orientated foods that are more energy-dense, high in fat, salt and sugar. The composition of meals was confirmed as being more Western-orientated with frequent inclusion of these types of foods. Snacking in-between meals did not seem to be common practice within this study group. Fewer than 10% of those respondents who mentioned that they consumed snack foods did so during mid-mornings and the afternoons.

From a health perspective, the low consumption of fruit, vegetables and dairy products is a matter of concern. These foods should be eaten daily. Fruit and vegetables are important in a daily diet as they provide essential micronutrients, while milk and dairy products are a major source of calcium. The food consumption data further reveals an increase in the consumption of Western-orientated foods that are unrefined, such as breakfast cereals, commercially baked bread and rice. Moreover, the results of this study confirm that, with urbanisation, fast foods, sugar-sweetened beverages and salty snacks are consumed more often as they are readily available, accessible and affordable. A need for consumer facilitation and nutrition education to promote the consumption of unrefined cereals, fruit, vegetables and dairy products is thus evident from the results.

From the non-quantitative food frequency questions, interesting trends in the consumption patterns of both traditional and Western-orientated food items emerged. Noteworthy is that traditional food is still regarded as being important. Dishes prepared from maize, the traditional staple food, are still frequently included. Interestingly, the consumption of rice is gaining prominence in meal composition as the majority indicated a frequency consumption of at least five times a week. The majority consumed traditional vegetables and legumes when available or on special occasions. This is understandable as many of these food products are seasonal and not readily available in urban areas. Commercially baked bread was consumed on a daily basis by the majority of the respondents as opposed to traditional bread-like products such as flat bread, fat cakes and steamed bread that were consumed either once a week or only on special occasions. Nearly half of the respondents (47.99%) consumed chicken at least 3-4 times a week,

From the measurement of the respondents' knowledge, attitude, values and beliefs about traditional food, a positive attitude was portrayed and confirmed by the majority (52.94%, n=170) reporting that they consumed traditional food. Traditional food is regarded as healthy, delicious (tastes good), associated with cultural identity and viewed as essential for social and cultural cohesion.

It can be concluded that traditional food still features prominently in the eating patterns of young black adults in Tshwane in spite of the pertinent adoption and embracing of certain elements of Western-orientated food practices. The study group still valued traditional food and regarded it as important.

The next section deals with the limitations of the study.

5.4 LIMITATIONS OF THE STUDY

When conducting a study, limitations are often present. This study is no exception.

5.4.1 Information on household income and food budget

Although great caution was taken when developing the survey questionnaire, it would have been valuable to have obtained information on the amount of money households had available to spend on food. Including a question on the household's main breadwinner's income would have been informative and enabled determining the extent to which the amount of money available and spent on food per month influenced the eating pattern of the study group.

5.4.2 Age distribution

Although the study focused on young urban black adults between 20-30 years old, the age distribution of the respondents was not even. The majority of the respondents were between 20-21 years old. Consequently, the results do not give a clear picture of the eating patterns of young adults in their late twenties.

5.5 RECOMMENDATIONS

Based on the results of this study, the following recommendations to improve the eating practices of the study group are made.

- Aim consumer facilitation and nutrition education to strengthen good eating practices such as the consumption of traditional foods that are healthy; conveying the idea to increase healthy food choices through the consumption of fruit, vegetables, dairy and unrefined cereal products.

- Promote the development of interesting recipe booklets or pamphlets to include modern methods for preparing traditional and indigenous food.

5.6 SUGGESTIONS FOR FUTURE RESEARCH

Suggestions for future research on the topic of food practices of young urban black adults (between 20-30 years old) in Tshwane Metropolitan Area, as based on the results of this study include:

- In order to gain a better understanding of the escalating obesity pandemic in the South African context the contribution of the various external and internal environments as well as the influence of modernisation and urbanisation should be investigated.

- To execute a study using mixed method research: the combination of quantitative and qualitative data collection techniques can be useful to gain an in-depth understanding of the food choice and practices of the young black people and the influence of various environments especially the retail and home food environments.

- Replicating the study in the other regions where young urban black adults reside in the Tshwane Metropolitan Area, for example Soshanguve, Mamelodi and Atteridgeville, to see if similar food practices are followed as the assumed dimensions could differ.

- The study should be replicated in rural areas to investigate if there are any differences or similarities in the food practices of young adults.

5.7 CONCLUDING REMARKS

Although little has been published recently on food choice and food practices of the black South African population in general, especially on young urban black adults, this study offers insight into the current eating patterns and food choices of young urban black adults in the Tshwane Metropolitan Area.

The findings of the study reveal that the food practices of the black South African population continue to shift from traditional to Western eating patterns and also highlights that, although there is an increase in the consumption of Western-orientated foods, a positive attitude towards traditional food prevails. The traditional staple foods like stiff maize meal porridge have not been abandoned and are often still consumed. However, many other traditional foods are mainly eaten only on special occasions or whenever available. The frequent inclusion of modern Western-orientated foods such as rice, bread and breakfast cereals is also noticeable in the study group's eating patterns.

The various external and internal environments contribute to the current eating pattern of the study group. The influence of modernisation and urbanisation was noted in the type of food included in the meal patterns on week days and over weekends. The urban environment makes access to large chain stores and *spaza* shops that sell fast foods easy. The amount of money people have influences their food choices. The economic environment had a positive influence on the accessibility and affordability of food in this study. The parents and/or significant others in the lives of these respondents ensured healthy eating practices of members of the household. Although the respondents are knowledgeable about healthy eating, they did not put their knowledge into practice. Therefore, there is a need to use the home food environment more constructively and creatively to encourage health eating practices.

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ADDENDUM A: INFORMATION SHEET AND CONSENT FORM FOR RESPONDENTS

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
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Faculty Natural & Agricultural Sciences
Department of Consumer Science

INFORMATION SHEET AND CONSENT FORM FOR RESPONDENTS

RESEARCH PROJECT ON THE FOOD PRACTICES OF ADOLESCENTS AND YOUNG ADULTS IN THE TSHWANE METROPOLE AREA

INTRODUCTION

Your are invited to **volunteer as respondent** for a research project on the food practices of adolescents and young adults in the Tshwane Metropole Area. The part on adolescents' food practices will be conducted at Secondary Schools in the area. This information sheet is to help you decide if you would like to participate in this study.

The purpose of this part of the study is to investigate the current food practices / food habits of adolescents aged 16 to 20 years in the Tshwane Metropole Area.

The current knowledge on the food practices of the South African population as a whole, and specifically for your age group, is limited. To be able to plan and give meaningful nutrition information and education to adolescents and young adults on healthy eating requires that information be collected first, on the **type**, **quantity** and **how often or frequently** certain foods are eaten by your age group.

The information obtained through this study will enable us to:

- Learn more about adolescents' eating patterns that contribute to their food habits. This includes information on **what** is eaten, **when** it is eaten and **how much** is eaten.
- Determine the frequency of consumption of certain foods in the eating pattern of the study group (i.e. how often traditional and modern / Western-oriented food is eaten).

This leaflet is to help you decide if you would be interested to participate in the study. Before you agree to take part in this study, you should fully understand what is involved. If you have any questions, please do not hesitate to ask me. You should not agree to participate unless you are completely happy about what the study involves.

PLEASE NOTE THE FOLLOWING:

- The study deals with what young people usually eat, you will be required to give information on **what, when, how much** and **how often** you eat certain foods.
- There are no correct or incorrect answers. You give information on your **own** eating habits and other questions related to it.
- The questionnaire will take **approximately 30 minutes** to complete.
- Your parent or guardian must **first give permission** for you to participate in this study
- You will **not be identified** in the questionnaire. I will only use a number on the questionnaire for office use. The information obtained from the questionnaires will be **anonymous**.
- There is no risk involved in participating in this study. All information obtained from you will be regarded as **confidential.**

The research protocol of this study was submitted to the Ethics Committee of the Faculty of Natural and Agricultural Sciences of the University of Pretoria for approval. Permission to do the study was

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also granted by the Gauteng Department of Education, your school Principal and the School Governing Body of your school.

The results of this study will be written in a report to the University of Pretoria and the Gauteng Department of Education and will also be published in scientific Journals. You will not be identified in any way in the written report or other publications.

Your participation is entirely **voluntary** and you may withdraw / stop participation at any stage if you wish during the data collection.

I UNDERSTAND WHAT THE STUDY IS ABOUT AND I AM PREPARED TO PARTICIPATE IN THIS PROJECT ON THE FOOD PRACTICES OF YOUNG PEOPLE IN THE TSHWANE METROPOLE AREA

_____ _____

Signature of respondent **Date**

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ADDENDUM B: COVER LETTER FOR YOUNG ADULTS

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty Natural & Agricultural Sciences
Department of Consumer Science

Dear respondent,

QUESTIONNAIRE ON FOOD HABITS

Thank you for your willingness to participate in the study by answering this questionnaire.

The purpose of this study is to investigate the current food practices / food habits of adolescents and young adults aged 20 - 30 years in the Tshwane Metropole Area.

The information obtained through this study will enable us to:

- Learn more about young adults' eating patterns and how it contributes to their food habits. This includes information on **what** is eaten, **when** it is eaten and **how much** is eaten.
- Determine the frequency of consumption of certain foods in the eating pattern of the study group (i.e. how often traditional and modern / Western-oriented food is eaten).

PLEASE NOTE THE FOLLOWING:

- There are no **correct** or **incorrect** answers.
- Simply give your **own** eating patterns regarding **what** you eat, **when** you eat it and the **how much** (quantities) you eat. Also indicate **how often** (frequently) you eat certain listed foods.
- This is an **anonymous** survey. Your name will not appear on the questionnaire and the information obtained from it will be treated as **confidential**.

This questionnaire is divided in the following four sections

A: Demographic information (information about yourself and your home environment)
B: Usual eating patterns
C: Frequency of consumption of traditional foods, snack food and fast foods
D: Food practices

Please answer **all** the questions. **Circle** or **mark** with an **X** in the **shaded box** or by writing your answer in the **shaded space** provided.

The questionnaire will take approximately 25 – 30 minutes to complete.

Thank you for your esteemed co-operation. It is highly appreciated.

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ADDENDUM C: SURVEY QUESTIONNAIRE ON FOOD PRACTICES

For official use only

Respondent Number | | | | V1 | | |

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Please answer **all** the questions. **Circle** or mark with an **X** in the **shaded box** or by **writing your answer** in the **shaded space** provided.

A1 What is your age?

A1 | | |

A2 What is your gender?

Male	1	Female	2

A2 |

A3 In which area of Pretoria / the Tshwane Metropole do you live?

A3 | | |

A4 What is your home language?

A4 | | |

A5 To which ethnic group do you belong?

Asian	1
Coloured	2
Indian	3
Nguni	4
Sotho	5
Tsonga	6
Venda	7
White	8
Other (specify)	9

A5 |

A6 To which religious group do you belong?

Christian	1
Hindu	2
Muslim	3
Judaism	4
Other (please specify)	5

A6 |

A7 Who is **the breadwinner or provider** in your household?

A7 |

A8 What is the **occupation / work** of the breadwinner or provider in your household?

A8 |

A9 How many people live in your household?

A9 ☐☐

A10 Indicate which of the following **best** describe your household structure. **Mark only one**.

Nuclear family (parents and children)	1
Extended family (parents, children and other family members)	2
Single parent family (father or mother and children)	3
Child headed family (no parents only children)	4
Living on my own	5
Living with friends / partner or others (eg. flat or commune)	6
Other (please specify)	7

A10 ☐

A11 Who is mainly responsible for preparing meals in your household?

A11 ☐

A12 Indicate which of the following **best** describes your mother's educational level. ***Mark only one***.

University/College	1
High school/Secondary school	2
Primary school	3
Not gone to school	4

A12 ☐

A13 Indicate which of the following **best** describes your father's educational level. ***Mark only one***.

University/College	1
High school/Secondary school	2
Primary school	3
Not gone to school	4

A13 ☐

A14 Please indicate which of the following items you have in your household. ***You may mark more than one***.

Stove	1
Refrigerator	2
Deep freezer	3
Microwave oven	4
Washing machine	5
Television	6
Radio	7
Computer	8
Cell Phone	9
Internet connection	10

A14 ☐☐

A15 What is your weight and height?

Weight

Height

A15.1

A15.2

A15.3

A16 How often do you participate in sport of physical activity?

Daily	1
3-4 x per week	2
1 x per week	3
2-3 x per month	4
Never	5

A16

SECTION B: USUAL EATING PATTERNS

In this section information is needed on how you usually eat at **home** during **weekdays**. Questions regarding your home environment and how it contributes to your eating pattern are also included.

B1 How many meals do you eat a day?

B1

B2 Do you usually eat breakfast?

Yes	1	No	2

B2

B3 Please give the main reason for your answer to Question B2.

B3

Please indicate to what extent the following statements apply to your parents / guardian and friends regarding **healthy** eating.

B4 My mother/father/guardian **cares** about eating healthy food.

Not at all	1
A little bit	2
Somewhat	3
Very much	4

B4

B5 My mother/father/guardian **encourages me** to eat healthy food.

Not at all	1
A little bit	2
Somewhat	3
Very much	4

B5

B6 Many of my **friends** care about healthy eating.

Not at all	1
A little bit	2
Somewhat	3
Very much	4
I don't know	5

B6 ☐

B7 Please indicate to what extent the following statements apply to the food in your home / household.

	Strongly disagree	*Disagree*	*Agree*	*Strongly agree*	
Fruits and vegetables are always available in my home	1	2	3	4	B7.1 ☐
Vegetables are served at supper in my home	1	2	3	4	B7.2 ☐
We have fruit juice in my home	1	2	3	4	B7.3 ☐
Milk is served at meals in my home	1	2	3	4	B7.4 ☐
We have "junk food" in my home	1	2	3	4	B7.5 ☐
Potato chips or other salty snacks are available in my home	1	2	3	4	B7.6 ☐
Chocolates or other sweets are available in my home	1	2	3	4	B7.7 ☐
Soft / Fizzy drinks (eg. Coke, Fanta, Sprite) are available in my home	1	2	3	4	B7.8 ☐

B8 Please indicate how **many portions** of the following foods you **usually eat or drink a day**. Please indicate the number of portions in the space provided.

Foods	*No of Portions*	
Meat, chicken or fish		B8.1 ☐
Milk and other dairy products (eg. cheese, yoghurt, cottage cheese)		B8.2 ☐
Whole grain products (eg. brown, whole bread)		B8.3 ☐
Fruit and vegetables		B8.4 ☐
Fruit juice		B8.5 ☐
Soft / Fizzy drinks (eg. Coke, Fanta, Sprite)		B8.6 ☐
Chocolates and Sweets		B8.7 ☐
Savoury Snacks		B8.8 ☐
Cups of coffee		B8.9 ☐
Cups of tea		B8.10 ☐
Teaspoons of sugar in coffee		B8.11 ☐
Teaspoons of sugar in tea		B8.12 ☐
Glasses of water		B8.13 ☐

B9 Please indicate **what** and **how** much you have eaten or drunk **yesterday** during the following times given in the table below. Please be **very specific** and indicate the **quantities** and type of food and beverages clearly as explained in the example.

EXAMPLE		
Time	***Quantity***	***Description of food eaten***
Breakfast	1 cup	Soft mealie-meal porridge with
	½ cup	Full cream milk
	3 t	Sugar
	4 slices	Brown bread with margarine* & apricot jam
In-between	1 pckt	Simba chips
	1 med	Apple
	340 ml	Fruit juice

*Please indicate bread spreads & sandwich fillings clearly.

Time	***Quantity***	***Description of food eaten***	
Breakfast (6-9am)			B9.1 B9.2 B9.3 B9.4 B9.5
In-between (9-12 noon)			B9.6 B9.7 B9.8 B9.9
Lunch (12-3pm)			B9.10 B9.11 B9.12 B9.13 B9.14 B9.15
In-between (3-5pm)			B9.16 B9.17 B9.18 B9.19
Supper (5-8pm)			B9.20 B9.21 B9.22 B9.23 B9.24
After supper (8+pm)			B9.25 B9.26 B9.27 B9.28

B10 Is this a good representation of what you **usually** (3-4x per week) eat and drink on weekdays?

Yes	1	No	2

B10 ☐

B11 If your answer to question **B10 is NO**, please explain how it differs.

B11 ☐

B12 Is there a **difference** in your eating pattern on **weekend days** (Saturdays and Sundays)?

Yes	1	No	2

B12 ☐

B13 If your answer to question **B12 is YES**, please indicate how your eating pattern differs on **weekend days**. If your answer is **NO**, continue with question **B14**.

Weekend Days		
Time	*Saturday*	*Sunday*
Breakfast (6-9am)		
In-between (9-12 noon)		
Lunch (12-3pm)		
In-between (3-5pm)		
Supper (5-8pm)		
After supper (8+pm)		

Saturdays (B13)			*Sundays (B13U)*		
B13.1			B13U.1		
B13.2			B13U.2		
B13.3			B13U.3		
B13.4			B13U.4		
B13.5			B13U.5		
B13.6			B13U.6		
B13.7			B13U.7		
B13.8			B13U.8		
B13.9			B13U.9		
B13.10			B13U.10		
B13.11			B13U.11		
B13.12			B13U.12		
B13.13			B13U.13		
B13.14			B13U.14		
B13.15			B13U.15		
B13.16			B13U.16		
B13.17			B13U.17		
B13.18			B13U.18		
B13.19			B13U.19		
B13.20			B13U.20		
B13.21			B13U.21		
B13.22			B13U.22		
B13.23			B13U.23		
B13.24			B13U.24		
B13.25			B13U.25		
B13.26			B13U.26		
B13.27			B13U.27		
B13.28			B13U.28		

B14 Please indicate how **often** you consume / use the following types of food and beverages. **Circle** the number in the shaded box next to each food item that **best represents** how **often** you eat each item.

	5-7 x per week	*3-4 x per week*	*1-2 x per week*	*Never*	
Home cooked food	1	2	3	4	B14.1
Take away or fast food (eg. KFC, Nandos)	1	2	3	4	B14.2
Snack foods (eg. chips, chocolate, sweets, popcorn)	1	2	3	4	B14.3
Fresh fruits (eg.oranges, bananas, apples, guava, grapes)	1	2	3	4	B14.4
Soft drinks (eg. Coke, Sprite, Fanta)	1	2	3	4	B14.5
Fruit juice (eg. Orange, mango, apple juice)	1	2	3	4	B14.6
Milk and other dairy products (eg. cheese, joghurt, yogi sip)	1	2	3	4	B14.7
Vegetables and salads	1	2	3	4	B14.8
Alcoholic beverages (eg. beer, wine)	1	2	3	4	B14.9

B15 How **often** do you and your family/household members **eat a meal together?**

Daily	1	
3-4 x per week	2	
1-2 x per month	3	
Never	4	B15

B16 When eating with family members please indicate how the meals are eaten. **Mark the option** which **best** describes how most the meals are eaten in your family/household.

All members of the household eat together at the table	1	
Different age groups are formed and eat separately	2	
We often watch television while eating	3	B16

B17 How **often** do you eat meals in **other places than your home**?

Daily	1	
3-4 x per week	2	
1-2 x per month	3	
Never	4	B17

If your answer is **never** to question **B17**, continue with **SECTION C**.

B18 If you eat **away** from home **where** do you eat **most often**? **Mark only** the food outlet where you eat **most often**.

Street vendors	1	
Supermarkets	2	
Restaurants	3	
Fast food outlets (i.e. KFC, Nandos, McDonalds, Debonairs)	4	
Other (please specify)	5	B18

B19 When eating **out**, **when** do you eat these meals?

Weekdays	1
Weekend days	2
Both Weekdays & Weekend days	3
Special occasions	4

B19 ☐

B20 With whom do you eat these meals?

B20 ☐

SECTION C: CONSUMPTION AND FREQUENCY OF CONSUMPTION OF TRADITIONAL FOODS, SNACK AND FAST FOODS

In this section information is needed on how frequently you eat traditional and other foods.

TRADITIONAL FOODS

C1 Do you eat the traditional food of your cultural / ethnic group?

Yes	1	No	2

C1 ☐

If you do **not** eat the traditional food of your cultural/ethnic group, please continue with question **C3**.

C2 Please indicate when you usually eat your group's traditional food.

Weekdays	1
Weekend days	2
Special occasions only	3
When available	4
Other (please specify)	5

C2 ☐

C3 How do you feel about the traditional foods of your cultural / ethnic group? Please give your **personal opinion** in 4 to 5 lines.

C3.1 ☐
C3.2 ☐
C3.3 ☐
C3.4 ☐
C3.5 ☐

NON QUANTITATIVE FOOD FREQUENCY QUESTIONNAIRE

This section determines **how often / frequently** you eat certain foods.

C4 **Circle or mark** the appropriate number in the shaded box next to each food item, to indicate how **often** you eat that particular food item.

	Daily	*3-4 X per week*	*1-2 X per week*	*<3 X per month*	*Special occasions*	*Never*		
BREAD AND BREAD-LIKE PRODUCTS								
White bread	1	2	3	4	5	6	C4.1	
Brown bread	1	2	3	4	5	6	C4.2	
Buns, bread rolls	1	2	3	4	5	6	C4.3	
Fat cakes (*vetkoek*)	1	2	3	4	5	6	C4.4	
Flat bread (*Sephaphati)*	1	2	3	4	5	6	C4.5	
Steamed bread (*Dombolo/ ledombolo*)	1	2	3	4	5	6	C4.6	
Scones	1	2	3	4	5	6	C4.7	
Chelsea buns	1	2	3	4	5	6	C4.8	
Crisp breads / crackers (i.e. Provita, Ryvita)	1	2	3	4	5	6	C4.9	
Rusks (*Beskuit*)	1	2	3	4	5	6	C4.10	
SPREADS OR ACCOMPANIMENTS TO BREAD								
Margarine	1	2	3	4	5	6	C4.11	
Jam / honey / marmalade	1	2	3	4	5	6	C4.12	
Marmite / Bovril / Oxo	1	2	3	4	5	6	C4.13	
Peanut butter	1	2	3	4	5	6	C4.14	
Cheese spread / processed cheese	1	2	3	4	5	6	C4.15	
Other (please specify)	1	2	3	4	5	6	C4.16	
CEREALS								
Breakfast cereals (Corn flakes, All bran, Rice Crispies, Weet bix)	1	2	3	4	5	6	C4.17	
Soft cooked porridge (Oats, mealie-meal, sorghum/ mabêla)	1	2	3	4	5	6	C4.18	
Samp (*stampa*)	1	2	3	4	5	6	C4.19	
Rice	1	2	3	4	5	6	C4.20	
Pasta (macaroni, spaghetti, noodles)	1	2	3	4	5	6	C4.21	
Stiff mealie-meal porridge	1	2	3	4	5	6	C4.22	
Ting mabele	1	2	3	4	5	6	C4.23	
Fresh mealies boiled / fried (*mmidi wa apeiwa/ besiwa)*	1	2	3	4	5	6	C4.24	
Samp and beans *umngqushu*	1	2	3	4	5	6	C4.25	
Other (please specify)	1	2	3	4	5	6	C4.26	

	Daily	*3-4 X per week*	*1-2 X per week*	*<3 X per month*	*Special occasions*	*Never*	
VEGETABLES							
Green vegetables (spinach, cabbage, broccoli, green beans, peas)	1	2	3	4	5	6	C4.27
Yellow vegetables (butternut, pumpkin, carrots)	1	2	3	4	5	6	C4.28
Other vegetables (cauliflower, mushroom, asparagus)	1	2	3	4	5	6	C4.29
Salads (lettuce, tomato, green pepper, cucumber)	1	2	3	4	5	6	C4.30
Potatoes	1	2	3	4	5	6	C4.30
Sweet potatoes	1	2	3	4	5	6	C4.32
Beetroot	1	2	3	4	5	6	C4.33
Onions	1	2	3	4	5	6	C4.34
Tomatoes	1	2	3	4	5	6	C4.35
Other (please specify)	1	2	3	4	5	6	C4.36
TRADITIONAL / INDIGENOUS VEGETABLES & LEGUMES							
Moroho (*i.e. thepe, delele, rothwe,lephutsi*)	1	2	3	4	5	6	C4.37
Melon dishes (*legapu*)	1	2	3	4	5	6	C4.38
Maraka	1	2	3	4	5	6	C4.39
Lerotse	1	2	3	4	5	6	C4.40
Ditloo	1	2	3	4	5	6	C4.41
Dinawa	1	2	3	4	5	6	C4.42
Sugar beans, kidney beans	1	2	3	4	5	6	C4.43
Peanuts	1	2	3	4	5	6	C4.44
Achaar	1	2	3	4	5	6	C4.45
Other (please specify)	1	2	3	4	5	6	C4.46
FRUIT							
Citrus fruits (oranges, lemons, naartjies)	1	2	3	4	5	6	C4.47
Vitamin A rich (yellow peaches, mangoes, paw paw, pineapple, plums)	1	2	3	4	5	6	C4.48
Other fruits (grapes, bananas, apples, pears, litchis)	1	2	3	4	5	6	C4.49
Tinned fruit / canned fruit	1	2	3	4	5	6	C4.50
Dried fruits (raisins)	1	2	3	4	5	6	C4.51
Other (please specify)	1	2	3	4	5	6	C4.52

	Daily	*3-4 X per week*	*1-2 X per week*	*<3 X per month*	*Special occasions*	*Never*	
MEAT AND MEAT PRODUCTS							
Beef (*nama ya kgomo*)	1	2	3	4	5	6	C4.53
Mutton/lamb (*nama ya nku)*	1	2	3	4	5	6	C4.54
Goat meat (*nama ya podi*)	1	2	3	4	5	6	C4.55
Chicken *(nama ya kgogo*)	1	2	3	4	5	6	C4.56
Pork (*nama ya kolobe*)	1	2	3	4	5	6	C4.57
Bacon	1	2	3	4	5	6	C4.58
Ham	1	2	3	4	5	6	C4.59
Boerewors	1	2	3	4	5	6	C4.60
Russian sausages	1	2	3	4	5	6	C4.61
Vienna sausages	1	2	3	4	5	6	C4.62
Polony	1	2	3	4	5	6	C4.63
Processed meat / cold cuts	1	2	3	4	5	6	C4.64
Biltong (*mogwapa*)	1	2	3	4	5	6	C4.65
Other (please specify)	1	2	3	4	5	6	C4.66
OFFAL CUTS							
Beef tripe, intestines, liver, pancreas / *Mohodu, mala, sebete, lebete tsa kgomo*	1	2	3	4	5	6	C4.67
Chicken heads, feet, intestines, liver / *Hlogo, molala, maotwana, malana, sebete tsa kgogo*	1	2	3	4	5	6	C4.68
Cow head (*hlogo ya kgomo*)	1	2	3	4	5	6	C4.69
Sheep head *(hlogo ya nku*)	1	2	3	4	5	6	C4.70
Pork head (*hlogo ya kolobe*)	1	2	3	4	5	6	C4.71
Cow heel (*dihlakwana kgomo*)	1	2	3	4	5	6	C4.72
Sheep trotters (*dihlakwana tsa nku*)	1	2	3	4	5	6	C4.73
Pork legs (*dihlakwana tsa kolobe*)	1	2	3	4	5	6	C4.74
FISH & SEAFOOD							
Fried fish	1	2	3	4	5	6	C4.75
Canned / tinned fish (sardines, pilchards)	1	2	3	4	5	6	
Tuna	1	2	3	4	5	6	C4.76
Seafood (calamari, prawns)	1	2	3	4	5	6	C4.77
OTHER PROTEINS							
Eggs	1	2	3	4	5	6	C4.78
Cooked cheese dishes (macaroni cheese)	1	2	3	4	5	6	C4.79
Pizza	1	2	3	4	5	6	C4.80
Sphatlo	1	2	3	4	5	6	C4.81
DAIRY AND DAIRY PRODUCTS							
Fresh milk	1	2	3	4	5	6	C4.82
Sour milk	1	2	3	4	5	6	C4.83
Cheese	1	2	3	4	5	6	C4.84
Cottage cheese	1	2	3	4	5	6	C4.85
Yoghurt	1	2	3	4	5	6	C4.86
Yogi sip	1	2	3	4	5	6	C4.87
Dairy fruit beverages (Tropica, Krush, Cabana)	1	2	3	4	5	6	C4.88
Milk shake	1	2	3	4	5	6	C4.89

	Daily	*3-4 X per week*	*1-2 X per week*	*<3 X per month*	*Special occasions*	*Never*		
BEVERAGES								
Tea (Joko, Five Roses)	1	2	3	4	5	6	C4.90	
Rooibos tea	1	2	3	4	5	6	C4.91	
Milk as beverage	1	2	3	4	5	6	C4.92	
Mageu	1	2	3	4	5	6	C4.93	
Fruit juices (mango juice, apple juice)	1	2	3	4	5	6	C4.94	
Soft drinks (i.e. Coke, Sprite, Fanta)	1	2	3	4	5	6	C4.95	
Ginger beer (gemere)	1	2	3	4	5	6	C4.96	
Commercial beer (i.e. Castle, Black Label)	1	2	3	4	5	6	C4.97	
Traditional beer(*bjala basesotho*)	1	2	3	4	5	6	C4.98	
Wine	1	2	3	4	5	6	C4.99	
Spirits “hard liquor” (brandy, whisky)	1	2	3	4	5	6	C4.100	
Energade	1	2	3	4	5	6	C4.101	
Bottled water	1	2	3	4	5	6	C4.102	
SWEETS AND CONFECTIONERY								
Ice cream	1	2	3	4	5	6	C4.103	
Jelly	1	2	3	4	5	6	C4.104	
Custard sauce	1	2	3	4	5	6	C4.105	
Cream buns / doughnuts	1	2	3	4	5	6	C4.106	
Cake & cup cakes (*dikhekhe le dikuku*)	1	2	3	4	5	6	C4.107	
Baked puddings	1	2	3	4	5	6	C4.108	
Muffins	1	2	3	4	5	6	C4.109	
Biscuits, cookies	1	2	3	4	5	6	C4.110	
Chocolates, chocolate bars	1	2	3	4	5	6	C4.111	
Other sweets (candy type)	1	2	3	4	5	6	C4.112	
SAVOURY SNACKS								
Nuts	1	2	3	4	5	6	C4.113	
Potato chips, crisps (Simba, Willards)	1	2	3	4	5	6	C4.114	
Popcorn	1	2	3	4	5	6	C4.115	
Savoury biscuits (Tuc, Cheddars)	1	2	3	4	5	6	C4.116	
Cheese puffs, cheese curls	1	2	3	4	5	6	C4.117	
FAST FOODS								
Meat pie	1	2	3	4	5	6	C4.118	
Hamburger	1	2	3	4	5	6	C4.119	
Hot Dog	1	2	3	4	5	6	C4.120	
Fried chips (French fries)	1	2	3	4	5	6	C4.121	

SECTION D: FOOD PRACTICES

D1 Please indicate your level of **agreement** or **disagreement** with each of the following statements regarding food. **Circle or mark** the appropriate number in the shaded box next to each statement.

	Strongly disagree	*Disagree*	*Agree*	*Strongly agree*	
It is important to eat five (5) portions of fruits and vegetables every day.	1	2	3	4	D1.1
Most traditional foods are healthier than fast, snack or junk food.	1	2	3	4	D1.2
I eat traditional foods because it has no additives, colourings or preservatives.	1	2	3	4	D1.3
Fast / junk food is low in vitamins and minerals.	1	2	3	4	D1.4
A controlled energy intake is the best method for weight maintenance and health.	1	2	3	4	D1.5
A variety of food should be included in one's daily diet.	1	2	3	4	D1.6
Fast foods contain a lot of fat.	1	2	3	4	D1.7
Foods high in fat, salt and sugar should be limited in your eating pattern	1	2	3	4	D1.8
Fast food and snacks should only be eaten as a treat.	1	2	3	4	D1.9
Most traditional foods are tasty.	1	2	3	4	D1.10
I do not like others (eg. my friends or colleagues) to know that I eat traditional food.	1	2	3	4	D1.11
I am afraid to eat things I have never eaten before.	1	2	3	4	D1.12
It is important to me to follow traditional food patterns.	1	2	3	4	D1.13
Media (radio, television, posters and magazines) influences my food choice / what I eat.	1	2	3	4	D1.14
Most people who consume traditional food are old fashioned.	1	2	3	4	D1.15
Traditional foods are time consuming (takes a long time) to cook.	1	2	3	4	D1.16
Junk food is generally convenient (easy) to eat.	1	2	3	4	D1.17
Traditional food is not always available/ cannot be found easily.	1	2	3	4	D1.18
Home cooked food is proper food.	1	2	3	4	D1.19
My religion allows me to use and eat traditional foods.	1	2	3	4	D1.20
Your social status is determined by the type of food you eat.	1	2	3	4	D1.21
I like trying new foods.	1	2	3	4	D1.22
Even when I am busy or have limited time, I try to eat healthy food.	1	2	3	4	D1.23
Traditional foods are part of our cultural heritage and should be preserved.	1	2	3	4	D1.24
Traditional foods are suitable to serve to guests.	1	2	3	4	D1.25
Only healthy food should be available at school tuck-shops.	1	2	3	4	D1.26

ADDENDUM D: ETHICS APPROVAL

Annemarie Viljoen - Re: Ethics approval AT Viljoen Addenda D&E

From: Adri Oneill
To: Annemarie Viljoen
Date: 5/16/2012 09:54 AM
Subject: Re: Ethics approval AT Viljoen Addenda D&E

Good day
Your reference number is EC120516-058
Kindest regards
Adri

>>> "Annemarie Viljoen" <Annemarie.Viljoen@up.ac.za> 2012/05/14 02:39 PM >>>
The Administrator

Please find the remainder of the attachments to my ethics application - addenda D & E as the size of the attachments of my previous e-mail to you exceeded the allowed size.

Kind regards

Annemarie Viljoen
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0001

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