AN EXPLORATIVE EVALUATION OF FOOD INSECURITY AT HIGHER EDUCATION INSTITUTIONS: THE CASE OF FIRST-YEAR STUDENTS AT THE UNIVERSITY OF THE FREE STATE

by

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DECLARATION

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I, Annelize Visagie, declare that "**An explorative evaluation of food insecurity at higher educations institutions: The case of first-year students at the University of the Free State"** submitted for the Master's degree programme in Development Studies at the Centre for Development Support, University of the Free State:

1. Is my own independent work and has not been submitted for any degree or examination in any other institution; and
2. Does not contain other persons, pictures, graphs, or other information unless specifically acknowledged as being sourced from another person.

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ACRONYMS AND ABBREVIATIONS

BN APPROACH	Basic Needs Approach
DHET	Department of Higher Education and Training
EMS	Faculty of Economic and Management Sciences
FSS	Financial Stress Scale
GDP	Gross Domestic Product
ID	Identity Document
ILO	International Labour Organizations
IIS	Institutional Information Systems
HIV	Human Immunodeficiency Virus
HPI	Human Poverty Index
NCCEH	National Collaborating Centre for Environmental Health
NGO	Non-Governmental Organizations
NMMU	Nelson Mandela Metropolitan University
NSFAS	National Student Financial Aid Scheme
NSH	No Student Hungry
NSNP	National School Nutrition Programme
RDP	Reconstruction and Development Plan
SA	South Africa
SADC	South African Development Community
SAFSAS	Southern African Federation for Student Affairs and Services
SDG	Sustainable Development Goals
SNAP	Student Nutrition Aid Programme

SPSS	Statistical Package for the Social Sciences
UFS	University of the Free State
UJ	University of Johannesburg
UKZN	University of KwaZulu-Natal
UNDP	United Nations Development Programme
US	United States
USDA	United States Department of Agriculture
Wits	University of the Witswatersrand

ABSTRACT

The purpose of this study was to assess and measure the extent of food insecurity at higher education institutions, specifically amongst first-year students at the University of the Free State in South Africa.

To be able to excel academically, students need to be healthy and without major stressors, but the reality is that many South African students face a daily struggle to manage hunger. Higher education students from under-resourced areas often face the dilemma of having to make a choice between using their money to pay for transport to the university campus or to buy something to eat. The study aimed to explore the current situation regarding food insecurity amongst first-year students at the UFS, and based on these findings, possible solutions could be suggested to the challenges experienced by students facing food insecurity in South African higher education institutions and specifically at the University of the Free State.

The research findings provide a general picture of the state of students' food security status from gender, ethnicity, and socioeconomic perspectives. Furthermore, the study provides baseline information from which UFS management, student affairs, and practitioners can assist students in need and contribute to the existing support structures.

A non-experimental, quantitative, cross-sectional design was adopted to obtain and analyse the data. A sample of 269 first-year students was obtained via Blackboard, with all first-year students having been granted the opportunity to complete the questionnaire in this way. Furthermore, data were also obtained through the distribution of a hard-copy survey. The questionnaire used a five-point Likert-type scale and was administered, using EvaSys, an automated survey software system. The Statistical Package for the Social Sciences (SPSS) was used to analyse the data exported from EvaSys.

Keywords: food insecurity; first-year students; ethnicity; socioeconomic background; quantitative design

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CHAPTER 1 :
ORIENTATION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

In recent years, food insecurity has become the 'skeleton in the University closet' (Van Den Berg & Raubenheimer, 2015). This phenomenon has to date been predominantly found within high-income Westernised countries, specifically the United States, Australia, and Canada (Van Den Berg & Raubenheimer, 2015). Universally, education is considered an investment by governments to accelerate economic growth and reduce poverty (Gwacela, 2013). South Africa has come a long way as a result of its democratic transition in 1994, which has paved the way for the community to take advantage of their own education. Within South African institutions of higher education, food insecurity levels are expected to be high due to students' disadvantaged backgrounds, typically characteristic of food insecurity (Gwacela, 2013).

Over the past years, universities in South Africa have experienced considerable increases in student enrolments (Kassier & Veldman, 2013). New levels of socioeconomic disparity have been introduced due to this increase in students from previously disadvantaged communities (Kassier & Veldman, 2013). To combat the issue of food insecurity, many South African higher education institutions have put in place several programmes of assistance to support enrolled students (Meko & Jordaan, 2016).

The University of the Free State (UFS) has implemented several programmes which actively support students who suffer from food insecurity. These programmes receive support from various stakeholders donating money or non-perishables to the food bank of the UFS (Food Parcel Project). One such programme, the No Student Hungry (NSH) programme, focuses its support efforts on assisting students in purchasing food from a vendor of their choice on a weekly basis. NSH recipients are required to be from disadvantaged family background, although a student's academic performance is also taken into account.

The NSH programme offers support to students from disadvantaged backgrounds to

diminish the phenomenon of food insecurity amongst higher education students. Students receiving NSH allowance receive a weekly amount of R300.00 to support their monthly groceries purchases. This study will attempt to evaluate the current situation of food insecurity and the outcomes of such a programme in addressing the issue of food insecurity of first-year students. Only first year students at UFS participated in the study and not the entire student population, to assure the development of more accurate and better instruments that can lead to a high standard of data. The purpose in selecting the first-year sample is that according to Upcraft and Gardner (1989), the transition process from high school to university can be rough, and the university phase is a crucial time of student development. In their first-year students struggle to adapt to University life, suddenly finding themselves alone and no longer in their caretakers' homes, and confronted with various impediments.

Thus, a focus on research at various institutions, both collectively and individually, is essential to determine prevalence rates. The Southern African Federation for Student Affairs and Services (SAFSAS) survey notes that the need for food is extensive, and that funding and university programme administration appear to be barriers to the wider provision of relief to hungry students.

1.2 PROBLEM STATEMENT

Even though measures have already been implemented to eradicate food insecurity and assist students in need, the majority of university students continue to underperform. The measures in place, such as the NSH programme and the Food Parcel Project, are insufficient for eradicating the need for food experienced by the majority of students registered at the UFS.

In 2017, the South African Government instituted free education to all first-year students, and students receive an allowance of R1500.00 per month. This amount, allocated by the National Student Financial Aid Scheme (NSFAS), is inadequate for a student to buy monthly groceries, toiletries and necessary expenses to have a healthy meal per day. Kassier and Veldman (2013) noted in their study on a random sample of students on academic aid, that almost all students on the NSFAS scheme showed poor academic performance and were food insecure (Kassier & Veldman, 2013). Food insecurity at South African universities and particularly the UFS bears several

consequences and presents many challenges.

To be able to excel in one's academic performance, students need to be healthy and without any stressors impeding them from participating in their studies. Unfortunately, the reality is that many students suffer from hunger daily and have to manage this; a situation that can potentially affect their education. Students are often caught in a quandary; they need to make a choice between spending their money on transport to the University or buying something to eat (University of the Free State, 2016).

1.3 IMPORTANCE OF THE STUDY

The goal and desired outcome of this study was to explore the academic impact of food insecurity on first-year students enrolled at the UFS. In the case of this study, this cohort constituted the 2019 first-year students at the UFS. Students in their first year struggle to adapt to university life: suddenly they are alone and no longer in their caretakers' homes, finding themselves confronted with various impediments.

To establish this overarching goal, the following specific objectives were delineated:

i. To establish the extent to which food insecurity affects the academic performance of first-year UFS students;
ii. To explore the efficacy of existing food security strategies at the UFS in assisting vulnerable first-year students;
iii. To identify how effective the methods of food security at the UFS are; and
iv. To make recommendations concerning other effective measures that can be useful in the quest to eradicate or minimise food insecurity among university students.

1.4 RESEARCH QUESTIONS

To address the above-mentioned goals and objectives, the following research questions were planned for the study:

i. To obtain an accurate picture of food insecurity among first-year students at the UFS;
ii. To determine the severity of food insecurity and the impact on first-year

students at the UFS;

iii. To determine what areas of life in a first-year student's academic year are negatively impacted due to the fact that a person is food insecure; and

iv. To determine what strategic avenues can be instituted to secure a positive impact on first-year students' academic year.

1.5 RESEARCH STRATEGY AND DATA COLLECTION

A non-experimental, quantitative study encompassing a cross-sectional design was conducted. The data collected in this study was from a sample of first-year students enrolled at the UFS in 2019. The data was obtained using a five-point Likert-type questionnaire that was available on an online platform at the UFS.

1.6 PRELIMINARY LITERATURE REVIEW

1.6.1 Definition of food insecurity

Food insecurity is defined as restricted access to nutritious food, through traditional avenues, to support an active and healthy lifestyle (Micevski, Thornton & Brockington, 2014). Furthermore, according to the United States Department of Agriculture (USDA) food insecurity is characterised by inadequate availability of foods that are nutritionally acceptable or safe, over and above limited right to use to suitable foods obtained through communally acceptable means (Van Den Berg & Raubenheimer, 2015).

1.6.2 Food insecurity in the development context

Countries in the developing world face challenges to safeguard secure food status, especially in South Africa (Gwacela, 2013). Eliminating food insecurity and undernourishment constitutes one of the biggest challenges facing the world today. Hunger is a contributor to poor health, and it influences a person's development and employment. Countries all over the world implemented the 17 Global Goals for Sustainable Development in 2015. These goals strive to advance people's survival by 2030 and, more specifically, goal 2 seeks to end hunger by 2030 and to improve the availability of food products (WFP, 2018).

South Africa has come a long way since its democratic transition. One of the objectives formulated in Section 27 (1) of the South African Constitution (1996) states that food security is considered a basic human right (Gwacela, 2013). Section 29 of the constitution stipulates that all citizens have the right to education (including tertiary education).

South Africa is known as a country with one of the world's highest income inequality rates (Altman, Hart & Jacobs, 2009). In the 2009 United Nations Development Report, South Africa was ranked 85th out of 135 countries according to the Human Poverty Index (HPI) (UNDP, 2009). Although South Africa is capable of harvesting adequate food supply nationwide, food insecurity difficulties continue to be a struggle for most people (Altman *et al*., 2009).

1.6.3 Challenges of food insecurity in higher education institutions

The transition from high school to a higher education environment similar to that of a university brings with it stressors and new challenges over and above independence, including the movement toward financial burden (Bruening *et al*., 2016). A study piloted in America found that students suffering from food insecurity face numerous challenges, that is to say, social and economic obstacles related to their well-being.

Research conducted in both the United States and Canada concluded that food insecurity is associated with poor mental and cognitive functioning, average academic achievement, and poor health (Gallegos, Ramsey & Ong, 2014). Food insecurity has a remarkable influence on academic performance as it negatively affects the students' ability to concentrate and goes together with diminished student class attendance (Kassier & Veldman, 2013; Munro *et al*., 2013).

1.6.4 Studies in South Africa

In a study conducted by the UFS Department of Nutrition and Dietetics, it was found that food insecurity was much more severe at the UFS than compared to tertiary institutions in the United States and Australia (Van Den Berg & Raubenheimer, 2015). This study found that 64.4% of students enrolled at the UFS were food insecure (Van

Den Berg & Raubenheimer, 2015). Eighty-seven percent (87%) of students in the sample survey reported that they had asked friends for money to buy food, 50% stated that they had asked someone else for food and 9% that they had needed to sell something to buy food. Two percent (2%) of the mentioned study sample reported having had to steal food to survive the day (Van Den Berg & Raubenheimer, 2015).

However, higher education institutions are required to improve the academic performance of students from formally disadvantaged groups and backgrounds (Ngalo-Morrison, 2017). The government provides bursaries to these students through the NSFAS scheme (Ngalo-Morrison, 2017). NSFAS aims to make a difference in students' lives by providing a financial aid system that pays their class fees and buys their books and meals. In a report by the Department of Higher Education and Training (DHET), chancellors, deputy chancellors and student leaders indicated that the funding provided for accommodation and food is inadequate (Kassier & Veldman, 2013). Furthermore, DHET has documented that students enrolled in South African tertiary education institutions experience great financial difficulty (Kassier & Veldman, 2013).

1.7 RESEARCH CONTRIBUTION

This dissertation will be made available to the UFS management structure and, in particular, to the Vice-Rector of institutional change, student affairs, and community engagement. The results of the study will also be submitted to a journal for consideration.

1.8 CHAPTER OUTLINE

The section outline of the dissertation is as follows: Section 1 presents the background, study rationale and significance, the aim, and argument as well as a preliminary literature review. Section 2 provides the literature review and the conceptual approach as well as the contemporary interactions with food structures. The last section emphasis the research design and methodology, presenting the empirical findings, recommendations and conclusion of this study. The chapters are arranged as follows.

Chapter 1: The orientation and background of this study are discussed, together with a preliminary literature review to support the context of the study as well as the outline of the research design.

Chapter 2: This chapter focuses on the literature review of the challenges and causes of food insecurity and the interactions of humans in the quest to support their need for food security. The relationship between poverty and food insecurity is described in this chapter, and special attention is paid to food insecurity as a basic need in a higher education environment. Several interventions implemented in South African higher education systems are discussed as well as the coping strategies used by students to combat food insecurity.

Chapter 3: This chapter describes in detail the approaches and design adopted in conducting the research and the data collection methods employed for the empirical study. Ethical considerations followed in this study are also provided, together with motivations for why the quantitative approach was followed.

Chapter 4: This chapter presents the biographical data of the participants and reveals their responses to the questionnaire. The inferential statistics used in this study are discussed to incorporate a generalisation of the student population.

Chapter 5: In this chapter, the purpose, importance, and methodology are articulated in the first section. The findings are discussed in alignment with the objectives of the study, and recommendations are given based on the results obtained by the study. The final section discusses the study's limitations and provides a conclusion to the study.

CHAPTER 2 :
LITERATURE REVIEW

2.1 INTRODUCTION

In different forms, malnutrition occurs all over the world. The global nutrition situation indicates that undernutrition, obesity, and micronutrient deficiencies are widespread and have cultural, social, and economic implications (United Nations, 2016). Malnutrition and food insecurity are linked to economic indicators of poverty and the well-being of the populations (Manyamba *et al*., 2012). In as much as South Africa is one of the richest countries in Africa, the inequality rate among its citizens is very high. This places poor people, the unemployed, the elderly and those who are HIV-infected in a vulnerable group (Dominguez-Whitehead, 2015).

Although South Africa is a food-secure country, half of the population at the household and individual level is food insecure (Meko & Jordaan, 2016). Most households in South Africa experience shocks and stresses on household food security due to the negative impacts of rapid population growth. As such, in as much as the South African Gross Domestic Product (GDP) is by far the highest in the Southern African Development Community (SADC) region, surveys indicate that chronic household food insecurity exists at a high level (Manyamba *et al*., 2012). Another reason why food insecurity levels are high is the large variance between the rich and the poor, with numerous people trapped in the destructive cycle of poverty which hinders their prospects of developing or reaching their full potential (Oxford, 2018).

Kofi Anan, former United Nations secretary-general, once said: “A hungry mind is not free if we we’re going to make a difference and fight poverty we should at least start with the ability to feed ourselves and the millions of Africans who don’t have it” (Adeniyi, 2018). Higher Education in South Africa is not excluded from the reality of poverty and the circumstances it brings to university residence halls and their students.

2.2 CONTEMPORARY INTERACTIONS: A FOOD STRUCTURES FRAMEWORK

Various actions of humans influences of how humans interact and manage to support their need for food security. The Government Gazette stated the following: “The right to have access to sufficient food is embedded in Section 26 and 27 of the South African Constitutional Law of 1996. The Bill of Rights enshrined in the constitution states that “every citizen has a right to have access to sufficient food, water, and social security and that the State must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of this right”.

In the 21st century humans interact in various ways with the challenges of modern food systems. “A food system incorporates all the components involved in providing food to a population this include the production, processing, distribuition, marketing and consumption of food and within each phase are multiple layers of complexity” (MacDonald & Reitmeier, 2017). Several interactions influence humans in the way they manage to feed themselves. The most commonly used frameworks are discussed below. These factors describe a complex food system whose parts are interrelated, and all these frameworks are important to the food system.

2.2.1 Food security

The notion of food security originated in the 1970s when the world was in a food crisis due to food supply complications. Since then the definition has been reformulated to the existing definition: “a state when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preference for a healthy and active lifestyle” (Food and Agricultural Organization of the United Nations, 2019)”.

Fundamentally, Food Insecurity is one of the indicators of the factors that drive the nutritional status of a population.

2.2.2 Food insecurity

Food insecurity is defined as restricted access to nutritious food, through traditional avenues, to support an active and healthy lifestyle (Micevski *et al*., 2014). The United

States Department of Agriculture (USDA) defines food insecurity as a lack of consistent access to enough food for an active, healthy life (Hunger and Health and Feeding America, 2020). Furthermore, according to USDA hunger refers to a personal, physical sensation of discomfort, while food insecurity refers to a lack of available financial resources for food at the household level (Hunger and Health and Feeding America, 2020).

2.2.3 Food environment

In article study by Meko and Jordaan (2016), a food environment is defined as the spatial, social, and policy dynamics that influence access to food types that are acceptable to individuals. Food environments can be defined as follow: "Food environment is the interface that mediates people's food acquisition and consumption within the wider food system. It encompasses external dimensions such as the availability, prices, vendor and product properties, and promotional information; and personal dimensions such as the accessibility, affordability, convenience and desirability of food sources and products" (Turner, *et al*., 2018). Food environments can affect the types of food that individuals (students) buy and consume. Food environment composition regulates the quality and diversity of food available and is an indicator of the diet-related health outcomes (Rideout, Mah & Minaker, 2015).

2.2.4 Food sovereignty

Patel and Patel (2009) stated that food sovereignty is the right of people to define their food and agriculture; to protect and regulate domestic agricultural production and trade to achieve sustainable development.

In recent literature, the concept of food sovereignty has emerged to address global concern regarding food insecurity. Food sovereignty is a social movement growing from the bottom up. This movement was framed by the international peasant movement "La Via Campesina' at the World Food summit in 1996. Food sovereignty is rooted in the ongoing global struggle over control of food, land, water, and livelihoods (Cidro *et al*., 2015).

Food sovereignty places producers, distributors, and consumers in conflict with the demands of corporations and the markets when debating and discussing food distribution and policies. This offers an opportunity to change and undo the current food trade system. Food sovereignty emphasises relationships without domination and discrimination between people, racial groups, social classes, and generations (Patel & Patel, 2009).

2.3 POVERTY AND FOOD INSECURITY

Eliminating food insecurity is one of the biggest challenges facing the world today (Turner *et al*., 2018). Hunger is a contributor to poor health and influences a person's development and employability. In response to this, among many other world challenges and the call to transform our world by the year 2030, 193 countries have committed to the United Nation's Sustainable Development Goals (SDG). The SDGs address the socioeconomic challenges facing global citizens, such as inequality, poverty, health, climate and environmental degradation, prosperity, peace, and justice (United Nations, 2019). These consist of 17 developmental goals and are based on the values of advancing equity and leaving no one behind (Hosseinpoor, *et al*., 2018). As mentioned above, the SDGs were formulated to bring development to the economic, social and environmental spheres (Kuruvila *et al*., 2018).

The ambition to end hunger (SDG 2) is an important goal since at least 12 of the 17 Development Goals contain indicators that are related to nutrition. Bun Ki-moon, United Nations Secretary-General, stated the following: "Nutrition is both a maker and a marker of development. Improved nutrition is the platform for progress in health, educations, employment, empowerment of women and the reduction of poverty and inequality, and can lay the foundation for peaceful, secure and stable societies" (The SUN Movement Strategy and Roadmap, n.d.).

Countries in the developing world face challenges to obtaining secure food status, and South Africa is no exception, especially given the high levels of poverty in the country (Labadarios *et al*., 2008). Notwithstanding the economic growth, South Africa has experienced since 1994 and South Africa is still confronted with challenges related to unemployment and poverty. The post-apartheid South African government continues to fight the legacy of poverty and underdevelopment through several initiatives. For

instance, the Reconstruction and Development Plan (RDP) was implemented in 1994 to reduce poverty and stimulate development, and in 2011 the recapped National Development Plan was published (Stats South Africa, 2018).

South Africa has come a long way in improving human well-being and human development since its democratic transition in 1994. The South African Constitution (1996) states in Section 27 (1) that food security is considered a basic human right (Government of South Africa, 1996). In the same document, Section 29, the constitution stipulates that all citizens have the right to education (including tertiary education) (Government of South Africa, 1996). Koch (2011) further posits that the constitution ought to protect South Africans' right to physical well-being, health, and food. As mentioned above, in as much as South Africa has shown political and economic improvements since 1994, the nation still experiences major challenges of poverty, unemployment, and severe increases in food and fuel prices, energy tariffs, and interest rates (Koch, 2011).

2.4 CAUSES OF STUDENTS' FOOD INSECURITY

As mentioned above, even though South Africa is a middle-income and a food secure country, a large number of households are food insecure due to various poverty-related factors (Manyamba *et al*., 2012). The fact that South Africa is a food-secure country means that food insecurity in the country is not due to a shortage of food but rather due to structural poverty, unemployment and inequality (Manyamba *et al*., 2012).

In 2015 Statistics South Africa stated that black people in South Africa are most vulnerable to poverty; with nine out of ten poor people being black (Wilkinson, 2018). There is a strong relationship between poverty and education as indicated by Wilkinson (2018) in a 2015 study; 79% of adults with no education lived in poverty, 35.2% with matric qualifications lived in poverty, and only 8.4% of adults with higher education degrees found themselves living in poverty.

2.5 CHALLENGES OF FOOD INSECURITY IN HIGHER EDUCATION

Limited or uncertain availability of nutritional, adequate, and safe food or limited or uncertain ability acquire acceptable food in a socially acceptable way is the cornerstone of food insecurity (Chaparro *et al*.). Looking at this definition, the factors influencing food insecurity results from financial difficulties, poverty, and a lack of skills in managing money and food (Chaparro *et al*., 2009). This is particularly true in higher education institutions where students neither have the money to purchase nutritious food nor the knowledge to manage their food and resources efficiently (Chaparro, Zaghlouol, Holck, & Dobbs, 2009).

2.5.1 International studies on food security

One of the main challenges in the higher education system today is to improve the academic success of students from economically disadvantaged backgrounds. With the growing numbers of students enrolled in universities, a new level of socioeconomic inequality is introduced within student communities. Previously, access to higher education studies was associated with only the higher socioeconomic groups. However, higher education has now become more accessible to low-income households (Bruening *et al*., 2016).

A study piloted in America found that students suffering from food insecurity face numerous challenges, that is to say, social and economic obstacles related to their well-being.

Research-based in both the United States and Canada, concludes that food insecurity is associated with poor mental and cognitive functioning, average academic achievement, and poor health (Gallegos *et al*., 2014). Food insecurity has a renowned influence on academic performance as it negatively affects the student's ability to concentrate along with moderated student class attendance (Kassier & Veldman, 2013; Munro *et al*., 2013).

In an article by Brooke Evans, a disabled student at the University of Wisconsin-Madison and a researcher at Wisconsin HOPE Laboratory, confirmed that food insecurity is not a new phenomenon in higher education institutions, but is a growing demographic. Brooke challenged institutions to encourage students to come forward

and receive assistance (Evans, 2017).

2.5.2 Food security in South African universities

Although food insecurity at higher education institutions is not a new phenomenon, the subject of student hunger on South African university campuses has garnered attention in the recent past with movements like *#feesmustfall*. The *#feesmustfall* movement was driven by students in 2105; the goal was to stop increases in student fees and to increase government funding of universities (University of the Free State, 2016).

In reaction to the *#feesmustfall* campaign driven by students and their respective structures, the student engagement group developed a Financial Stress Scale (FSS) (UFS, 2016). This research aimed to explore the financial need of students and the pressures they experience. This report highlighted the impact of financial need and the basic needs that students experience on their success at university (UFS, 2016). Some of the findings from the FSS include:

I. When students enrol at universities, they do not leave their socioeconomic inequalities at home (UFS, 2016).
II. In general, first-generation students, notably black and coloured students, are the most vulnerable group to financial stress (UFS, 2016).
III. Twenty-nine percent (29%) of first-generation students run out of food and cannot afford to buy food on most days (UFS, 2016).
IV. Sixty-nine percent (69%) of students ran out of food, and 23% indicated that this happens almost every day (UFS, 2016).
V. Students who take care of others or work to generate income, experience the most stress (UFS, 2016).

These findings paint a picture of the current situation at South African universities where students' success is greatly impacted by these socioeconomic inequalities.

In the study done by the UFS Department of Nutrition & Dietetics, it was stated that food insecurity was much more severe at the UFS than compared to tertiary institutions in the United States and Australia (Van Den Berg & Raubenheimer, 2015). In this study, it was found that 64.4% of students enrolled at the UFS were food

insecure (Van den Berg & Raubenheimer, 2015). Eighty-seven percent (87%) of student's in the sample survey reported that they asked for money from friends to buy food, 50% stated that they asked someone else for food and 9% needed to sell something to buy food. Two percent (2%) of the mentioned study steal food to survive the day (Van Den Berg & Raubenheimer, 2015).

Consequent studies done at other universities in South Africa confirm these results. For example, at the University of KwaZulu Natal and the North-West University respectively, 34.4% and 31.9% of students were found to be food insecure (Rudolph *et al*., 2018).

Meko and Jordaan (2016) conducted a study concerning the food environment at UFS, that food insecurity typically affects students depending on student aid (e.g. NSFAS), and typically students who are male and African (Meko & Jordaan, 2016). In this study, it was found that the food environment at the UFS was not favourable for making healthy food decisions (Meko & Jordaan, 2016).

A study conducted at Nelson Mandela Metropolitan University (NMMU) confirmed that the students' financial situation plays a significant role in their unhealthy eating habits such as skipping meals (Gresse, Steenkamp, & Pietersen, 2015).

2.6 CONTINUUM OF FOOD INSECURITY

Food insecurity forms the knowing that it is the failure of a person to access and produce nutritionally acceptable food to support an individual active and healthy lifestyle (Micevski *et al*., 2014). Food security, on the other hand, exists when individuals show no evidence of food insecurity and their dietary needs are regularly met (Micevski *et al*., 2014). Food insecurity without hunger occurs when regular meals are consumed but there is uncertainty or anxiety about sufficient quality or quantity (Micevski *et al*., 2014). When meals are neglected or insufficient with consequences of hunger and possible undernourishment, it is then a condition called food insecurity with hunger (Micevski *et al*., 2014).

Food insecurity among university students has been linked to inadequate sleep, poor social and emotional well-being, physical health, and poor academic performance (Davidson, 2018). The United States Department of Agriculture (USDA) defines food

insecurity as a “limited or uncertain availability of nutritionally adequate and safe food or limited or uncertain ability to acceptable foods in socially acceptable ways”. The USDA states that food-insecure households report the following conditions: worrying whether their food will run out before they are able to buy more, and that they cannot afford a balanced nutritional meal. Hunger differs from this since hunger can be a consequence of food insecurity and refers to the physical feeling, whereas food insecurity refers to the economic and social context. Hunger can also occur when missing a meal or meals due to reasons other than food insecurity (Platkin, 2019).

In recent years, more students from low-income economic groups and a more diverse group of first-year students are enrolled in higher education systems. The transitioning from high school to higher education comes with various stressors. For many first-year students, it is their first time from home and they are confronted with making choices and solving problems on their own. Not only do they have new concerns about studies, but also a financial burden that can result in higher rates of food insecurity (Bruening *et al*., 2016). A study by Breuening *et al*. (2016) showed that students who reported food insecurity, had considerably higher probabilities of reporting anxiety and depression compared to students who did not.

2.7 DIALECT APPLICABLE TO STUDENT COMMUNITIES

Universities constitute educational settings and should educate students on the effect of food environments on student food choices (Tseng *et al*., 2016). An article written in the National Collaborating Centre for Environmental Health states, “Food environments are created by the human-built and social environments.” Thus, food environments can influence the availability of food in a community in this case, the student community (Rideout *et al*., 2015). This can also influence the type of food that students buy, the importance of their diets, and their health-related outcomes (Rideout *et al*., 2015).

2.7.1 Healthy food environments

Healthy food environments provide variation in the healthy options for students, such as fresh vegetables and fruits. It is important that there must be more than one outlet

or retail store to choose from. Another important factor for student communities is that healthy food environments should be a platform for student community programmes to produce food and established distribution networks to encourage healthier options (Rideout *et al*., 2015).

To secure a healthy food environment, three types of environments are related to the student's choices from the available food.

2.7.2 Food desert

The food desert metaphor highlights the fact that residence in this area depends on small stores or no stores, with a scarcity of fresh and nutritional food. Students within a food desert area struggle and must travel further to have access to quality and nutritional food. A food desert is very likely to be found in a low-income region with a lack of quality food choices, and associated obesity and poor nutrition (Frndak, 2014). Besides the lack of quality food, food deserts lack produce variety and this is linked to lower fruit and vegetable intake (Frndak, 2014). The food desert metaphor highlights the fact that residence in this area depends on small stores or no stores, with a scarcity of fresh and nutritional food.

One of the factors that impact on students' choices of food is that some universities are situated in regions where there is limited to no access to food rendering these locations food deserts. This results in limited access to supermarkets and a limitation of choices of healthy food (Cidro *et al*., 2015).

2.7.3 Food swamps

A food swamp constitutes an area situated in a low-income region but which has high access to unhealthy food outlets such as fast food outlets, convenience stores, etc. This term is nearly the same as a food desert in the sense that there is no or almost no access to healthy foods (Rideout *et al*., 2015).

2.7.4 Obesogenic environment

The obesogenic environment is typically an area where no healthy food choices are available (which include the so-called food swamps). This means that fresh fruit or vegetables and other healthy foods are not available buy. In these areas it is common to find high rates of obesity (Rideout *et al*., 2015).

2.8 INTERVENTIONS

As higher education systems become more diverse and open to disadvantaged groups that never had the opportunity to study, institutions are confronted with a dilemma regarding students' basic needs to be met, such as accommodation, study material, and food products (Meko & Jordaan, 2016).

Numerous students attending higher institutions in South Africa come from food-insecure backgrounds, and it is thus expected that levels of food insecurity should be high. This issue was highlighted at a recent colloquium held by the Dullah Omar Institute at the University of the Western Cape (Dullah Omar Institute, 2019).

Apart from the National Student Financial Aid Scheme (NSFAS) that is available to students from formally disadvantaged backgrounds, various higher education institutions have introduced interventions to assist students who are food insecure.

2.8.1 National Student Financial Aid Scheme (NSFAS)

The South African government provides financial aid to students from formally disadvantaged backgrounds by means of the NSFAS. NSFAS' aim is to make a difference in students' lives by providing a financial aid system that pays their class fees, books, and meals. Through NSFAS the South African Government therefore envisions to help students to complete their undergraduate studies so that they may enter the workforce to improve their socio economic position.

Despite the NSFAS intervention, students still experience financial difficulties; a fact that has also been documented by the DHET (Kaiser *et al*., 2015). One of the financial difficulties still plaguing students is food insecurity.

In a Government Gazette dated 21 August 2014, it is stated that public colleges and universities must ensure that no students are hungry and that initiatives must be developed to address food insecurity (Republic of South Africa, 2014). Since then, various tertiary education institutions have introduced intervention programmes to assist students in need.

2.8.2 University of the Free State (UFS)

The UFS started its NSH bursary programme in 2011 as a primary intervention to address student hunger. The NSH bursary supports students who are academically deserving and offers a small allowance for food on a weekly basis. With the continually growing number of food-insecure students, the UFS intervenes with a secondary plan by providing food parcels on a bi-weekly basis.

2.8.3 University of Johannesburg (UJ)

The University of Johannesburg (UJ) started a food programme in 2010 when they realised that students go to class hungry. Mr Godfrey Helani, UJ's director of student life and governance, pointed out that the university has seen many positive effects since the inception of the Meal Support Programme, these include improvement of students' self-esteem, academic performance and general outlook on life. UJ has a dedicated kitchen run by Gift of the Givers a South African Non-Governmental Organisation (NGO) that operates in line with Humanitarian Aid.

2.8.4 University of Pretoria (UP)

The Student Nutrition Aid Programme (SNAP) at UP provides an allowance of R65.00 per day to successful applicants based on good academic performance. This amounts to approximately R8 000.00 per student per annum. Currently, this programme supports 180 students on all three campuses, while an additional 80 students receive a weekly food parcel of non-perishable items.

2.8.5 University of the Witwatersrand (Wits)

The Masidleni Daily Meal Project is sponsored by Gift of the Givers, and was initiated amidst the *#feesmustfall* campaign during which time the organisation supported students involved in the protest. Produce from the Wits Food Garden is added to the food parcel when available**.**

2.8.6 University of KwaZulu-Natal (UKZN)

In 2012 UKZN introduced a food support programme to support the growing number of students who reported a need for food at the institution. The primary objective is to provide counselling and support to students by providing them with vouchers and food hampers. The food support programme advocates for and creates awareness about food insecurity and the implications of this for a student academic performance (Sabi *et al*., 2018).

2.9 CONCERNS REGARDING THE NUTRIONAL QUALITY OF FOOD AID TO STUDENTS

Although food banks and coupons assist the students in their need, studies suggest that food environments at these universities do not always address the requirement of a healthy diet. A study conducted in 2013 amongst NSH recipients at the UFS revealed that the food environment does not provide healthier choices (Meko & Jordaan, 2016). Meko and Jordaan concluded that if food environments do not provide healthier food, it is a challenge for students to make informed choices regarding their nourishment. Universities should consider the diversity and quality of food available at higher institutions (Meko & Jordaan, 2016).

A study conducted in Canada, assessed the content of food hampers distributed at the University of Alberta campus food bank. The study highlighted several concerns regarding the nutritional value of these parcels/hampers. One of the concerns was that the food parcels do not provide a healthy diet, especially with regard to the absence of micronutrients, fresh fruit, and vegetables (Jessri *et al*., 2014). Jessri *et al* (2014) also concluded that although food banks are on the increase in Canadian universities,

this initiative may be considered a “Band-Aid” to food insecurity amongst students as previous studies suggest that food bank beneficiaries still experience hunger due to infrequent amounts of some food groups and nutrients, primarily due to the restricted supply of unpreserved food (Jessri *et al*., 2014).

2.10 CONCEPTUAL FRAMEWORK

The previous segment introduced the notions of “food insecurity” and provided a literature review on the notion of “food insecurity” in higher education institutions. The next section will source literature regarding the basic needs approach to development adopted to contextualise the study.

In mid-1970, the International Labour Organization (ILO) recommended a new model to develop the basic needs approach (Burchi & De Muro, 2012). The basic needs (BN) approach to development was recommended to incorporate the non-economic dimension of development. The primary purpose of this policy shift was to address the growing worldwide problems of poverty and unemployment. The economists Streeten and Steward observed development as the gratifications of basic needs for all individuals (Streeten, 1981). The BN approach is very practical, and to apply this approach, a narrow list of basic needs should be defined. Numerous authors have presented a list of basic needs and the list differs slightly between them. These lists mostly make mention of shelter, clothes and food. Authors such as Maslow, and other authors in the human rights literature, agree with Magrabi that “food is a basic need – probably the most basic need of all” (Burchi & De Muro, 2012).

The essential concept of the BN approach is fundamentally about commodities (Wong, 2012). The motivation of the BN approach is to mobilise particular resources to a specific group. These groups could be malnourished or rural communities where crops are unreliable (Streeten, 1981).

2.11 STUDENTS’ COPING STRATEGIES

In a study conducted at a university in California, more than half of the sample indicated that they attend functions and events to obtain free meals. Students also

swipe their ID cards (student cards) for each other at dining halls (Watson *et al*., 2017).

In a study at the University of Alberta in Canada, it was found that food banks are only one coping strategy used by food-insecure students, but there are also extreme means such as stealing food and pawning valuables (Farahbakhsh *et al*., 2017).

In an article concerning South African universities and the crisis they face due to food insecurity, it was stated that students find different ways to cope with food insecurity and hunger such as eating with friends, roommates or relatives. Students also ration their food use by drinking fluids, fasting, or eating cheaper, less nutritional foods (Devereux, 2018).

2.12 CONCLUSION

With South Africa's high unemployment rate of 29% and the youth trapped in poverty from an early age, 43.5% of youth under the age of 17 live in poverty, meaning that the median income per household is R797.00 per month (Trading Economics, 2019). There is thus a need to look at the supporting structures to assist students in reaching their full potential so that they can graduate. To improve the graduation rate of South Africa's students, the government needs to reflect on and pay heed to the potential crisis faced in our country's higher education sector (University of the Free State, 2016). Looking at previous studies conducted in South Africa and the impact that food insecurity has on students, it is suggested that various universities are not readily available to assist those in need.

The BN approach adopted in this study reference authors in the human rights literature who holds that "food is a basic need - probably the most basic need of all" (Burchi & De Muro, 2012).

CHAPTER 3 :
RESEARCH METHODOLOGY

3.1 INTRODUCTION

The purpose of Chapter 3 is to describe in detail the approaches and design applied to this study and how data was collected, analysed, and processed. It provides a clear understanding of how this research was approached and the data collection procedure followed. Most importantly, it explains who the participants of this study were and how the study ensured that ethical measures were applied. The setting and the sampling procedures are also defined.

3.2 METHODOLOGY AND DESIGN

According to Greener (2011), methodology explores the philosophy, applications, and practice relating to a study's methods and what we can comment on from a practical perspective. Leedy and Ormrod (2005) continue by stating that research methodology "is a general approach the researcher takes in carrying out the research project; to some extent, this approach dictates the particular tools the researcher selects." Consequently, in this study, the methodology describes the measures taken to conduct the investigation.

A research design is a "plan or blueprint of how one intends to conduct research". Additionally, "this plan, or blueprint offers the framework in accordance with which data are to be collected to investigate the research hypothesis or question in the most economical manner" (De Vos, 1998).

The two most common approaches to social science research are qualitative and quantitative approaches (Bhattacherjee, 2012). The qualitative approach focuses on the subjective evaluation of opinions, attitudes, and behaviour, while the quantitative approach uses experimental simulations and inferential approaches (Greener, 2011). A quantitative approach was adopted in this study. Aliaga and Gunderson (2000: 29) describe quantitative research as "explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics)." One

of the main methods of a quantitative design is anticipated in the setting of the sample data; quantitative data attempts to represent reality through various ways.(Williams, 2007). In the following arguments, the study will specify the research design that was selected.

3.2.1 Research design

A non-experimental, quantitative study encompassing a cross-sectional design was used in the present investigation (Stangor, 2015). A cross-sectional approach was adopted for this study, the reason being that the study took place at a single point in time, and did not involve manipulating variables.

A non-experimental design does not comprise of control or experimental groups, but is rather used in descriptive studies where all the variables are measured and no manipulation is involved (Salkind, 2010). This is an extensively used design in social science surveys, because surveys can be used for all types of studies - exploratory, descriptive, explanatory, and evaluative. The specific features of a survey include a series of questions that need to be answered by a large sample of people. There are two types of survey research that can be used, i.e. cross-sectional or longitudinal. In the case of this study, a cross-sectional method was used due to the fact that a group of people was surveyed at one particular point in time (Monette, Sullivan & De Jong, 2008). A cross-sectional design is used to determine whether a particular problem exists within a specific group of samples and what the level of concern is (De Vos *et al*., 2011).

3.2.2 Data collection by survey

Data collection is a means by which to identify samples from which to collect data, and it comprises the connection between elements, populations and a sample (Leedy & Ormrod, 2005). Survey data collection is defined as the result of data collected from a sample, the members of which respond to the questionnaire. The data collected in this study was from a sample of first-year students enrolled at the UFS in 2019.

In this study, an online questionnaire was used due to the cost-effectiveness of the method so that the researcher could obtain a maximum number of first-year students at once. The questionnaire was placed on an online platform of the UFS accessible to all first-year students on the Bloemfontein campus.

Data was collected through a survey using a four-point Likert-type scale. A Likert-type scale is a useful question type to get an overall measurement of the research problem. Likert-type scales have the advantage that they do not expect a simple yes or no answer from a respondent but rather allow for degrees of opinion and even no opinion at all (Vanek, 2012).

3.3 SAMPLING

In this study, the sample was limited to first-year students at the UFS main campus to assure more accurate instruments that can secure a higher standard of data. The rationale for including only first-year students is that, according to Upcraft and Gardner (1989), the transition process from high school to university can be rough, and the university phase is a crucial time of student development. Students in their first year struggle to adapt to University life, suddenly they are alone and not in their caretaker's home and are confronted with various impediments.

A sampling plan constitutes part of the planning phase of a research process and is one of the most important stages of a study (Kumar, 2011). The definition of a sample, as stated in Seaberg (1988), is “a small portion of the total set of objects, events or persons that together comprises the subject of study” (Samuel, 2012).

The reason for using a sample is that it is feasible; it is rarely possible or very difficult to use or cover a whole population in a study (Banerjee & Chaudhury, 2010). The use of a sample consequently better and accurate than using a whole population, the reason being with a sample you can make better use of resources, and you can develop more accurate and better instruments that yield a better and high standard of research (Banerjee & Chaudhury, 2010).

3.3.1 Sample representativeness

In this study, a random sample was obtained by means of a probability sampling technique. Methodologists are of the view that random sampling is the only method to ensure an optimal chance of drawing a sample that is descriptive of the population from where it is drawn (Banerjee & Chaudhury, 2010). A researcher can employ two kinds of sampling, namely; probability sampling where each person in the population has an equal chance of being selected to be part of the sample, and non-probability sampling where there is no available sampling frame for the researcher to employ (Gravetter & Forzano, 2019).

3.3.2 Random sampling

A random sampling technique was used in this study. This means that every member of the first-year population on the main campus at the UFS stood an equal chance of being able to complete the survey and be part of the sample.

Simple random sampling ensures that everyone in the population has an equal chance to be selected for sampling in a study (Marlow, 2005). Random sampling, which is also known as probability sampling, as mentioned in Monette *et al*. (2005:134), is a method to draw just a portion or sample of a specific population.

3.4 SAMPLE SIZE OF THE STUDY

According to De Vos (1998: 191), the larger the population, the smaller the percentage of the population that needs to be included in the overall sample size. However, it is noted that more accurate results are likely if the sample is larger. In this study, there were 7600 first-year students enrolled at the UFS main campus for 2019. Using a sample size calculator,[1] the sample should thus constitute approximately 366 first-year UFS students that would have to be included in the study by means of a random sampling technique (Institutional Information Systems (IIS), 2019).

[1] Sample Size Calculator https://www.surveysystem.com/sscalc.htm#one

3.4.1 Sampling strategy

Participants were recruited from the populations of first-year students at the UFS main campus, which totalled approximately 7600 (IIS, 2019). All students in this population had an equal opportunity to complete the survey via the online Blackboard platform. Furthermore, an additional recruitment opportunity was made available to first-year students on campus who were unable to complete the online survey. Overall, 269 first-year students completed the survey online. Students were approached at residential locations on campus and were given hard-copy questionnaires to complete. Finally, 58 students completed the survey manually.

3.5 ETHICAL CONSIDERATIONS

Authorisation and ethical consent to conduct this study with first-year students of the UFS campus were obtained from UFS's Research Ethics Committee of the Faculty of Economics and Management Science (EMS). Furthermore, additional ethical approval was obtained from the Dean of the Student Affairs division. The privacy of participants was maintained by ensuring participant anonymity and confidentiality. Thus, it follows that each participant was treated with respect and dignity.

Research involving human beings carries specific implications and mutual trust needs to be present in such an undertaking. There are two direct sets of ethical responsibility for a researcher: firstly, there is a responsibility to the people or non-human research participants, and secondly, there is a responsibility to the discipline of science to be precise and truthful in the recording of your research (Bhattacherjee, 2012).

Mertens and Ginsberg (2009) elucidate specific standard ethical considerations that will be maintained for purposes of conducting this research study. Primarily, participants will be required to grant informed consent prior to their participation in the study. Furthermore, the completed questionnaires will be stored to guarantee safety. These documents will be locked in the Food Security office of the division for Student Affairs for a period of five years and will also be stored electronically. The head of the food environment will have access to the stored documents for further reference.

3.5.1 Informed consent and voluntariness

Per ethical principles, this research study upholds the value of non-maleficence. The participants signed a consent form, informing them about the particulars of the research. Furthermore, the researcher ensured participants' confidentiality and anonymity by making sure that respondents' anonymity was not violated.

Grinnell and Unrau (2008) mention that respect is involved and people involved in the research process should be able to exercise, choice in what happens to them. In the process of attaining informed consent, various aspects should be considered such as the duration of the research, the goal of the study, the disadvantages and advantages of the study, and the implications of the study for the participants.

3.5.2 Privacy and confidentiality

Participants' privacy can be violated if the data is not handled with confidentiality. This study ensured participant anonymity over and above participant confidentiality.

Each participant was treated with respect and dignity, and therefore avoidance of harm was the primary principle.

3.5.3 Vulnerability

Extra time was given to cultivate understanding and trust by selecting a digital communication tool that participants find comfortable in. Using Blackboard as the communication tool was essential, as the sample was a vulnerable student group.

3.6 DATA PROCESSING AND ANALYSIS

The data was obtained through a survey using a five-point Likert-type scale as seen in Appendix A. A five-point Likert-type scale was useful to the question type to get an overall measurement of the overarching aim of this research study, i.e. to explore the impact of food insecurity on first-year students enrolled at the UFS. Likert-type scales have the advantage that they do not expect a simple yes/no answer from the respondent, but rather allow for degrees of opinion, and even no opinion at all (Vanek,

2012). Therefore, quantitative data was obtained, which means that the data were analysed with relative ease.

3.6.1 Data processing

All first years students at the Bloemfontein campus had an opportunity to complete the questionnaire via an online system using Blackboard or via hard copy. Hard copies were made available at the Student Centre and at strategic areas where first-years gather. Upon completion of the questionnaires, 269 forms were collected and processed by way of the online EvaSys platform, an automated survey software system.

3.6.2 Data analysis

The Statistical Package for the Social Sciences (SPSS) was used to capture data from the EvaSys questionnaire. Data from Evasys was automatically captured into a spread sheet that can be exported to SPSS program. The analysis results comprise of two main themes - demographic analysis and inferential statistics. The demographic analysis reveals the general makeup of the participants (i.e. age, gender, ethnicity, etc.), presented in the form of frequencies and percentages, graphs and tables. On the other hand, the inferential statistics show the relationships of the variables for hypothesis testing (factor analysis, correlation and ANOVA).

3.7 CONCLUSION

Chapter 3 established the methods and design applied to this study and demonstrated the ways in which they are aligned with the data collection. This chapter further described the sampling strategy followed, and the sample size used. The final discussion of the chapter dealt with the implementation of ethical considerations as well as the data processing and analysis methods used.

CHAPTER 4 :
EMPIRICAL FINDINGS

4.1 INTRODUCTION

This chapter presents the outcome of the data analysis. As mentioned in Chapter 3, the data was administered via an online platform called EvaSys, which is an automated survey software program, and some of the survey questionnaires were administered in the form of hard copies. Furthermore, the chapter provides the participants' responses to the research questions, which served as the objectives of this study. A demographic profile of the participants is given, followed by a summary of the findings.

4.2 PARTICIPANTS' DEMOGRAPHIC PROFILES

Participants in their first year of study at the UFS were recruited for participation in this study on a voluntary basis. The population of first-year students at the UFS is approximately 7600 students (IIS, 2019). Thus, a random sample of 269 first-year students was collected via an online survey and 58 first-year students via a hard copy system. All first-year students had the opportunity to complete the questionnaire via the online system or via hard copy. The questionnaires were distributed at various residences and communes on the main campus to make sure that first-year students had the opportunity to participate in the research. Therefore, every first-year student at the UFS stood an equal opportunity to complete the survey and to form part of the sample. To avoid duplication of data, a unique number was allocated to each participant in the study.

4.2.1 Participants' biographical data

4.2.1.1 Age

This section presents a discussion of the participants' biographical information. Figure 1 shows a breakdown of the participants by age. The majority (50.8%) of participants were between the ages of 20 and 30 years, and 46.8% of participants were below the

age of 20 years. All participants were first-year students from the UFS enrolled in 2019.

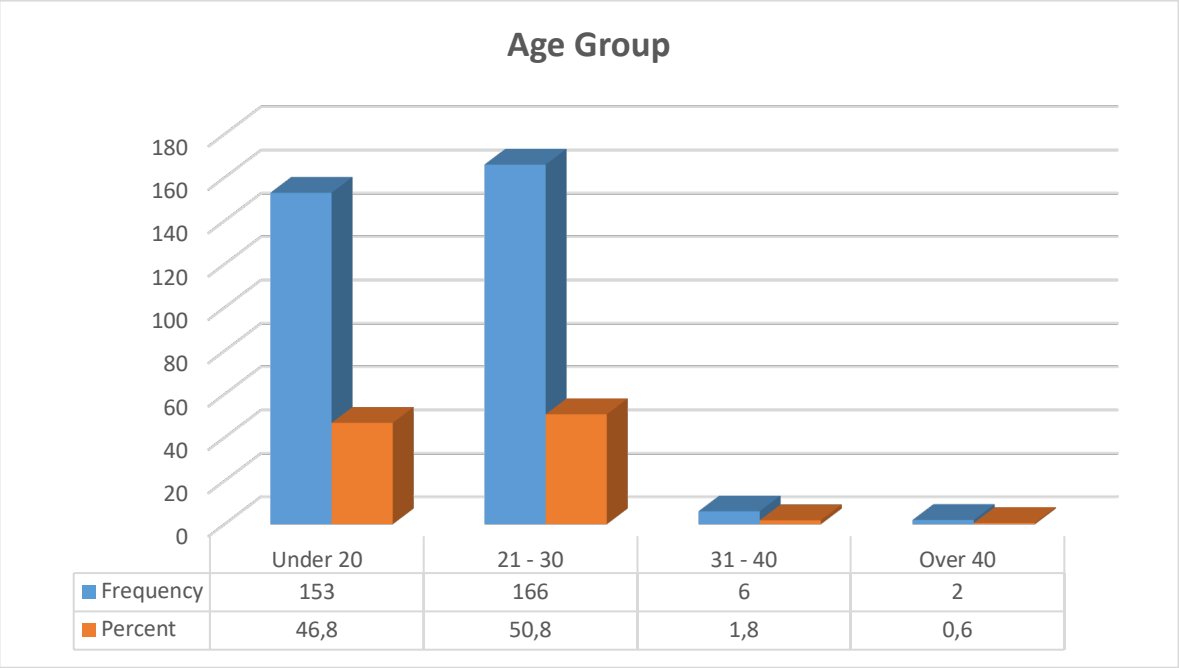


Figure 4.1: Participant age

4.2.1.2 Gender

A total of 327 first-year students completed the questionnaire. The majority of the participants were female, comprising of 236 (72%), as seen in Figure 2. The remaining 84 were male (26%). Only 2% stated that their preference is gender non-conforming.

According to my observation as a practitioner in the Student Affairs department at the UFS, the reason that female students completed more questionnaires than their male counterparts could be that the male students tend to feel self-conscious about disclosing their food situation and would rather go without food than make this known.

An additional contributing factor could be that the demographics of the UFS show that in 2019, there were more female students registered than males, as seen in Figure 4.2.

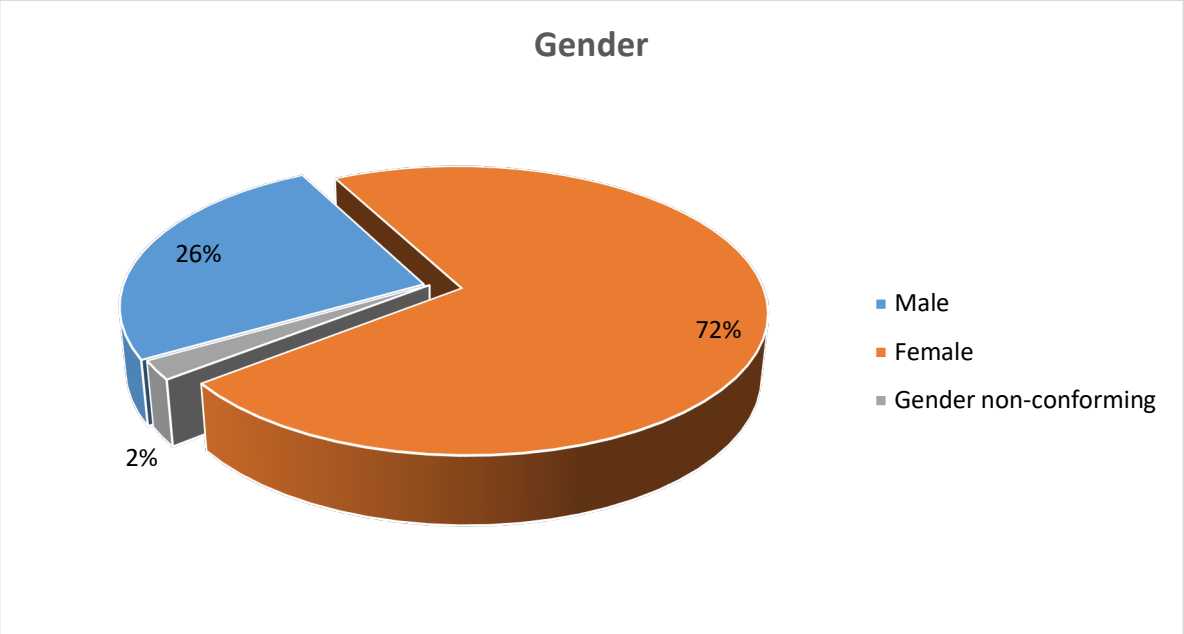


Figure 4.2: Gender profile

4.2.1.3 Ethnicity

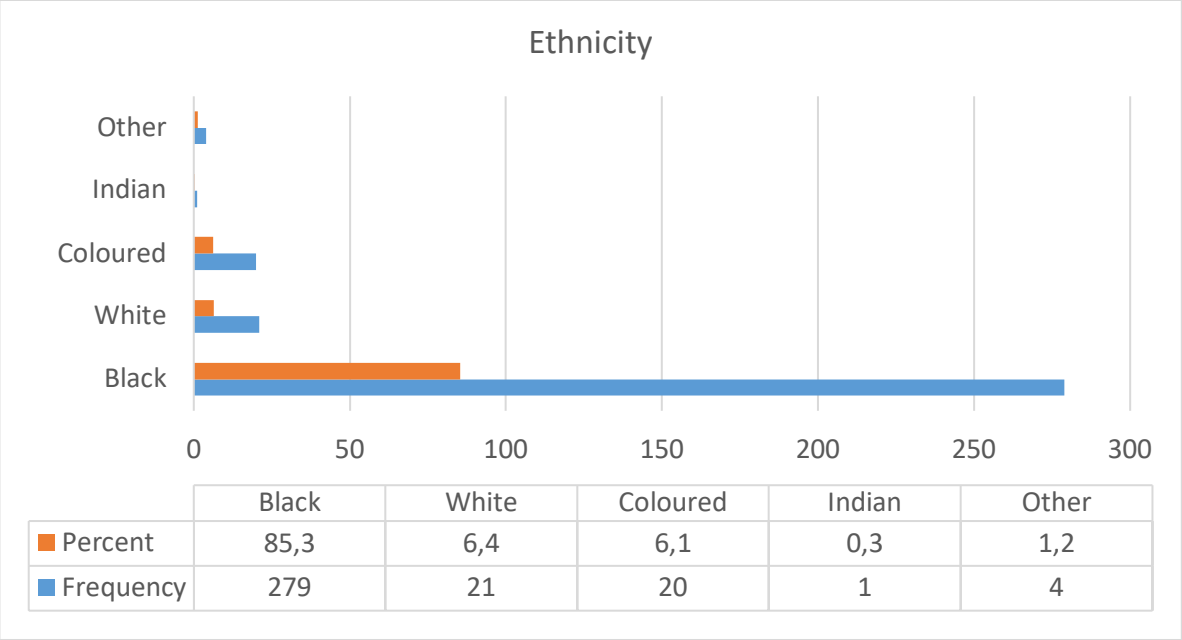
The demographic profile of the UFS in 2019, were as follows:

Table 4.1: Demographic profile of the UFS and sample ethnicity (IIS, 2019)

Ethnic group	UFS	%	Sample	% of the sample
Black	32 804	79%	279	85.3
Coloured	2 183	5%	20	6.1
Indian	529	1%	1	0.3
White	6 159	15%	21	6.4
Other			4	1.2

(Source: Institutional Information Systems (IIS), 2019)

The demographic profile of the participants who completed the questionnaire correlates with the total ethnic demographic profile of the UFS. Figure 4.3 reveals that more black students completed the questionnaire (n=279. 85%). White students and coloured students comprised, 6.4% and 6.1% of the sample.



	Black	White	Coloured	Indian	Other
Percent	85,3	6,4	6,1	0,3	1,2
Frequency	279	21	20	1	4

Figure 4.3: Participant ethnicity

4.2.1.4 Residential particulars

Students at the UFS have a choice between living on- or off-campus. On-campus accommodation includes residing in any of the 20 junior residences situated on the main campus. Off-campus accommodation comprises of various options such as private accommodation, living with family, and commune living.

Most of the students who participated in the questionnaire made use of off-campus accommodation, which constitutes 52.10% of the participants (as seen in Figure 4.4).

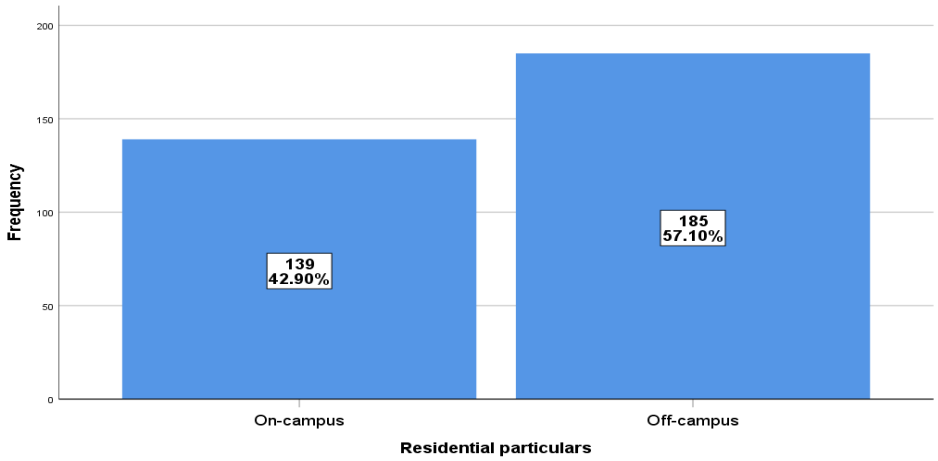


Figure 4.4: Participants' residential particulars

Students making use of off-campus accommodation have various options to consider. In this study, the majority of students lived in a commune (58.4%), others had private accommodation (33%) and only 8% lived with their families. This ratio is illustrated in Table 4.2.

Table 4.2: Different forms of off-campus accommodation

Off-campus accommodation	**Total (*n*)**	**%**
Private accommodation	108	33.0
Living with family	26	8.0
Commune	57	17.4
Total	**191**	**58.4**
Students living on Campus	136	41.6
	327	100.0

Students who lived off-campus and made use of communal living or private accommodation, walked to campus (35.5%) or made use of public transport (22.9%).

Table 4.3: Transport options

Off-campus transport arrangements	**Total (*n*)**	**%**
Public transport	75	22.9
Walk to campus	116	35.5
Total	191	58.4
Students living on campus not using transport	136	41.6
	327	100.0

4.3 RESPONSE TO RESEARCH QUESTIONS

This section summarise responses to research questions and provides information on the data collected during the online questionnaire. This segment is organised according to the research questions, which in turn are structured according to the study themes (1 to 4). These themes are: severity of food insecurity; experiences concerning food insecurity; coping mechanisms; and experiences and causes of with food insecurity.

4.3.1 Responses to questions extracted from the USDA food insecure measure

Theme 1's aim was to answer the research question which concerns obtaining an accurate picture of food insecurity among first-year students at the UFS. All participants were to mark questions posed to them, as shown in Table 4.4.

When considering the statement "I often worried that my food would run out before I had money to buy more", almost all the participants indicated worrying about their food situation and their budget, with responses fluctuating from once a week (27.8%) to almost every day (18.8%). With the next statement regarding the affordability of a balanced meal, 29% responded that they struggle to buy food on almost a daily basis. What is noteworthy is that 58% of the participants did not lose weight, although they struggled to support themselves with a good nutritional meal. Students decreased the size of meals or skip a meal due to the fact that they do not have enough money to eat three meals a day, 19.3% indicated having to decrease the size of their meals at least one a week.

In responding to the statement concerning whether they send money home, 20% of the participants said that they did send money home at least once a week, and 69.5% answered 'not applicable'.

Table 4.4: Food access and affordability (first-year students)

Variables	At least once a week	At least twice a week	At least three times a week	Almost every day	Not applicable
I often worried that my food would run out before I had money to buy more	27.8%	16.4%	12.7%	18.8%	24.4%
I cannot afford to eat balanced meals	15.2%	13.7%	11.2%	29.2%	30.7%
I have decreased the size of my meals / have skipped a meal because I did not have enough money to buy food	19.3%	11.7%	15.0%	17.8%	36.2%
I have been hungry and did not eat because I could not afford enough food	24.1%	12.3%	10.8%	7.1%	45.7%
I have lost weight because I did not have enough money for food	12.8%	6.4%	5.5%	8.9%	66.4%
I have not eaten for an entire day	23.8%	6.5%	6.8%	4.3%	58.6%

because there was not enough money for food					
I eat at least two meals a day	4.6%	5.5%	12.6%	64.4%	12.9%
I send money home	20.3%	3.4%	3.1%	3.7%	69.5%

4.3.2 Picture of experiences with food insecurity

The purpose of this section of questions was to obtain an accurate picture of how first-year students had experienced food insecurity in the past year of study (2019) and what the impact of this was. Students were asked to answer the questions using a five-point Likert-type scale, indicating levels of agreement (i.e. strongly disagree; disagree; neutral; agree; strongly agree). Likert-type scales have the advantage that they do not expect a simple yes or no answer from the respondent, but rather allow for degrees of opinion and even no opinion at all (Vanek, 2012).

The SPSS package was used to capture data from the EvaSys questionnaire. Upon completion of the questionnaires, 269 forms were collected and processed by way of the online EvaSys platform, an automated survey software system.

As seen in Table 4.5, 53.3% of students indicated that they strongly agreed with the statement that they found it difficult to concentrate when they were hungry. A question associated with this asked about whether hunger affected their effectiveness to study. Responses to this statement were on an agreement level of 49.2%. Of all the students, 48.3% indicated that they strongly agreed that they felt motivated to study when they have had enough to eat. In this study, academic performance refers to self-perception regarding ability to concentrate and does not refer to their empirical marks.

Table 4.5: Impact of food insecurity on academic performance

	Significant Level of Agreement					
Statements	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**	**Total**
When I am hungry, I find it difficult to concentrate	4.4%	2.2%	8.7%	31.5%	53.3%	100.0%
Hunger affects my effectiveness to study	4.4%	2.8%	11.8%	31.8%	49.2%	100.0%
I feel motivated to study when I have had	4.1%	3.2%	14.2%	30.3%	48.3%	100.0%

enough food to eat						

Table 4.6: Reported consequences of food insecurity

Low Level of Agreement						
Statements	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**	**Total**
I missed classes because I did not have food to eat	32.6%	30.4%	14.3%	13.0%	9.6%	100.0%
I have skipped class because I did not have the energy to go	19.3%	18.9%	17.1%	28.3%	16.5%	100.0%
I do not participate in other activities or sport	9.3%	14.0%	16.1%	30.4%	30.1%	100.0%
I share food	7.2%	12.2%	20.0%	39.1%	21.6%	100.0%
I have had to choose between a meal and transport to the UFS	42.2%	26.4%	11.5%	9.0%	10.9%	100.0%

4.3.3 Coping mechanisms for food insecurity

The purpose of this section is to obtain an accurate picture of first-year students' coping mechanisms when running out of food supplies. Students were asked to answer the questions using a three-point Likert-type scale, indicating their level of agreement using the estimations of "often true", "sometimes true", or "never true".

In considering the statement "I have been hungry but did not eat because I could not afford enough food," 40% answered that they sometimes went hungry because they could not afford to buy food, and 20% of the sample indicated that this was often true.

When asked a question about if they thought about going to a social worker or food bank for relief but felt too embarrassed to follow through, 19.1% answered that this was often true, and 24.1% indicated "sometimes true".

A considerable number of students have used "fasting" as an excuse to friends for not having food to eat often or sometimes with the response rate of 16.1% and 24.5% respectively.

Table 4.7: Coping mechanisms

Coping Mechanism	Often true	Sometimes true	Never true
I have gone to a Food Bank to receive a food parcel	5.6%	11.8%	82.7%
I have gone to the Social Worker to ask for help	4.7%	6.2%	89.1%
I have thought about going to the Social Worker or Food Bank for relief, but I am too embarrassed to follow through	19.1%	24.1%	56.7%
I have had to engage in unconventional ways to obtain my food (dumpster diving, stealing, etc.)	4.3%	8.0%	87.6%
I have been hungry but did not eat because I could not afford food	20.0%	40.0%	40.0%
I have used 'fasting' as an excuse to friends for not having food to eat	16.1%	24.5%	59.3%

4.3.4 Experience and causes of food insecurity

In this part of the questionnaire, participants were required to tick statements that best applied to them. Respondents were allowed to tick more than one option for the specific question.

Figure 4.5 reveals respondents' evaluations of the causes of food insecurity. What emerged as noteworthy in these questions is that 26% of the sample group indicated that they experienced the cost of food as being too expensive, 18 % indicated that they feel the financial support they receive is not enough, some participants indicated that housing (10%), tuition fees (8%), and transportation (4%) is expensive. If we look at these indicators, participants struggle financially to support themselves.

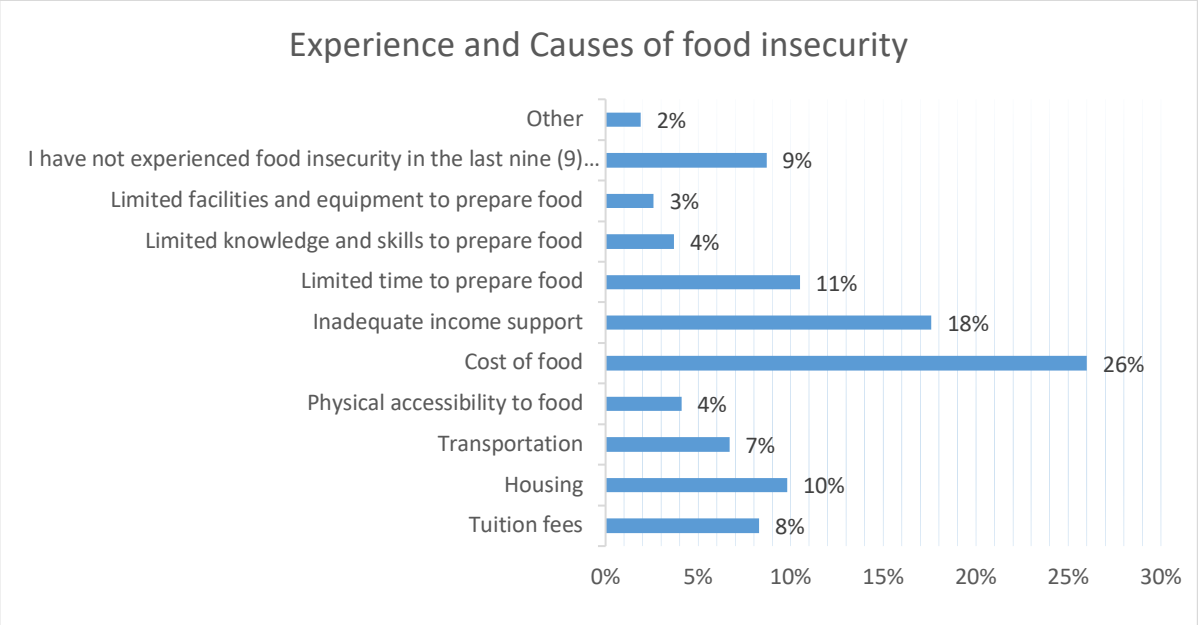


Figure 4.5: Experience and Causes of food insecurity

In an open-ended question given to respondents to indicate whether they thought there were any other causes of food insecurity, 16 students answered in the affirmative. Most responses concerned their financial situation, and one participant responded by saying that he/she is vegan and that it is expensive to buy this type of food. Another respondent said that the NSFAS bursary allowance is not sufficient.

4.3.5 Impact of food insecurity

To determine the impact of food insecurity, the participants were asked to identify what areas of their life have been negatively impacted. The top five areas identified by the participants are shown in Table 4.8, with mental health emerging as the strongest site of impact (18.2%), followed by physical health at 17.9%, and participant grades at 17.0%.

Table 4.8: Self-reported impact of food insecurity

Impacts of food insecurity	Responses	
	Total (*n*)	%
Mental health	132	18.2
Physical health	130	17.9
Grades	123	17.0
Class participation	116	16.0
Social life	96	13.2
I have not experienced food insecurity in the last nine (9) months	67	9.2
Extracurricular activities	60	8.3
Other	1	0.1
Total	725	100.0
Dichotomy group tabulated at value 1.		

Given the option to indicate whether there were any other influences experienced regarding food insecurity, students replied as follows: he/she lost weight, and they struggled to obtain nutritional food.

4.4 INFERENTIAL STATISTICS

4.4.1 Questionnaire validity

The data analysis involved the summing up of several variables to measure a single major construct. However, the variables that are summarised have to be reliable to be loaded together. Therefore, the reliability test was calculated by using Cronbach's alpha-coefficient, which was calculated to determine the reliability of the items. Cronbach's alpha is a reliability metric used to evaluate the extent to which item responses derived from a scale correlate with each other (Shelby, 2011:142). Even though there is no universally accepted scale for Cronbach's alpha, previous studies have used Cronbach alpha scores ranging from 0.4 to 0.9 to determine the validity of the items loaded together (George & Mallery, 2003; Gregory, 1999; Houser & Bokovoy, 2008; Kline, 2000; Makhitha & Dlodlo, 2014; Nunnally, 1978; Nunnally & Bernstein, 1994; Desta, 2015). Hence, in this study, a Cronbach alpha score of 0.5 and above was selected as an acceptable reliability coefficient.

Table 4.9: Variables measured

Variables	N of Items	Cronbach's Alpha (α)
Severity of food insecurity	8	0.76
Food insecurity and academic performance	6	0.68
Coping mechanisms	6	0.71

As a result, the above table shows the variables, the number of items used to measure the variables (N) and the Cronbach alpha (α). Furthermore, the table shows that the minimum Cronbach alpha-coefficients for all the items used was 0.68, and the maximum was 0.76. In all cases, these were higher than 0.5 and hence the loading of the items was deemed to be acceptable. Consequently, constructs concerning the severity of food insecurity, food insecurity, and academic performance and coping mechanisms have been summarized of 8, 6, and 6 items, with a Cronbach's alpha of 0.76, 0.68, and 0.71 respectively. As can be seen from the table above (Table 4.9), the variables with lower Cronbach alpha values were measured with a smaller number of items when compared to the variables with higher Cronbach alphas. Tavakol and Dennick (2011) explain that very few questions can result in a low alpha value.

In addition to Cronbach's alpha, a correlation matrix, T-test, and ANOVA were performed, when applicable, to test the proposed hypothesis and relationship amongst the major constructs. The result shows that all the constructs and the relationships between them were statistically significant with normal distribution.

Table 4.10: Major constructs

Variable	Items	Mean	Std. Deviation
Reported consequences of food insecurity	In the past months of 2019, there was a time that I ran out of food and could not afford to buy any more	2.94	1.647
	I often worried that my food would run out before I had money to buy more	2.94	1.560
	I cannot afford to eat balanced meals	3.48	1.424
	I have decreased the size of my meals / have skipped a meal because I did not have enough money to buy food	3.42	1.532
	I have been hungry and did not eat because I could not afford enough food	3.40	1.691
	I have lost weight because I did not have enough	4.08	1.469

	money for food		
	I have not eaten for an entire day because there was not enough money for food	3.66	1.729
	I eat at least two meals a day	3.75	.919
Food insecurity on academic performance	When I am hungry, I find it difficult to concentrate	4.26	1.021
	I missed classes because I did not have food to eat	2.38	1.327
	Hunger affects my effectiveness to study	4.19	1.047
	I feel motivated to study when I have had enough food to eat	4.16	1.049
	I have skipped class because I did not have the energy to go	3.05	1.370
	I have had to choose between a meal and transport to the UFS	2.20	1.348
Coping Mechanisms	I have gone to a Food Bank to receive a food parcel	2.78	.533
	I have gone to the Social Worker to ask for help	2.85	.457
	I have thought about going to the Social Worker or Food Bank for relief, but I am too embarrassed to follow through	2.39	.788
	I have had to engage in unconventional ways to obtain my food (dumpster diving, stealing, etc.)	2.84	.451
	I have been hungry but did not eat because I could not afford enough food	2.20	.751
	I have used 'fasting' as an excuse to friends for not having food to eat	2.42	.755

4.5 CORRELATION

A correlation is a statistical device that measures a supposed linear relationship and its strength between two or more variables. The Pearson correlation, which estimates a relationship between two or more variables, is one of the most commonly used measures. In this case, both Pearson and Spearman's correlation have been performed. However, identical result obtained from both correlation methods which indicates that there are no outlier in the data set computed. The constructs in the correlation table below i.e. Severity of Food Insecurity, Food Insecurity and Academic Performance, and Coping Mechanism are composite of number of items (variables) see Table 4.10.

Table 4.11: Correlation report

Correlations				
		Severity of food Insecurity	**Food insecurity and academic performance**	**Coping mechanisms**
Severity of food insecurity	Pearson Correlation	1	-.282**	.453**
	Sig. (2-tailed)		.000	.000
	N	314	300	297
Food insecurity on academic performance	Pearson Correlation	-.282**	1	-.528**
	Sig. (2-tailed)	.000		.000
	N	300	312	296
Coping mechanisms	Pearson Correlation	.453**	-.528**	1
	Sig. (2-tailed)	.000	.000	
	N	297	296	309
**. Correlation is significant at the 0.01 level (2-tailed).				

According to the correlation table, the severity of food insecurity and academic performance exhibits a weak negative linear relationship with a correlation coefficient of (α) = (-0.282) and a *p*-value of 0.00, which is less than the threshold *P*-value of 0.05. In other words, as the severity of food insecurity increases, academic performance decreases at a slower rate. On the other hand, food severity shows a moderate positive linear relationship with coping mechanisms with a correlation coefficient of (α) = 0.453 and *p*-value of 0.00. This indicates that coping mechanisms increase as the severity of food insecurity moderately increases. Finally, coping mechanisms and academic performance show a moderate negative relationship with a Pearson's correlation of (α) = (-0.528) and a *p*-value of 0.00, which indicates that the correlation is statistically significant, i.e. as coping mechanisms increase, academic performance decreases.

4.6 HYPOTHESIS TESTING

A hypothesis is a statement or theory emerged either from observation, literature review, data analysis, etc. that is yet to be tested in order to be accepted or rejected. There are two hypothesis types, i.e. the null hypothesis (H_0) and the alternative hypothesis (H_1). In this research**,** two hypotheses have been proposed, by following the statistical techniques of T-test and ANOVA, to either accept or reject the null hypothesis.

4.6.1 Testing of hypothesis 1

H_o*: Severity of food security creates no difference in academic performance*

H_1*: Severity of food insecurity affects academic performance*

To test this hypothesis, a bivariate correlation analysis was carried out for the correlation between severity of food insecurity and academic performance. Table 4.2 shows that the severity of food insecurity has a significant correlation with academic performance, with a *P*-value of 0.000 which is less than 0.05. Furthermore, the correlation is a weak negative (inverse) relationship with a Spearman's rho correlation coefficient of ***r*** = -0.321. Therefore, the null hypothesis, which states that the severity of food security causes no difference in academic performance, is rejected due to the observed significant difference.

Note: Severity of food insecurity and academic performance treated separately unlike Table 4.11. Each of this variables are ordinal measurement, hence the Spearman's rho (***r***) correlation.

Table 4.12: Correlation between food insecurity and academic performance

Correlations				
			Severity of food Insecurity	**Academic performance**
Spearman's rho	The severity of food Insecurity	Correlation Coefficient	1.000	-.321**
		Sig. (2-tailed)	.	.000

		N	314	300
	Academic performance	Correlation Coefficient	-.321**	1.000
		Sig. (2-tailed)	.000	.
		N	300	312
** Correlation is significant at the 0.01 level (2-tailed).				

4.6.2 Testing of hypothesis 2

For the second hypothesis, a one-way analysis of variance (one-way ANOVA) was performed to analyse the extent to which the quantitative dependent variable is affected by the single factor (independent variable). The hypothesis proposed is as follows:

***H_1**: Severity of food insecurity differs amongst students of different ethnicity*

***H_o**: There is no difference in the severity of food security across ethnicities*

To determine the severity of food insecurity among all ethnic groups participating in the survey, ethnicity (the independent variable) and severity of food insecurity (the dependent variable) were computed using a one-way ANOVA.

4.6.3 ANOVA (Analysis of variance)

Table 4.13: Descriptive statistics

Descriptives								
Severity of food insecurity								
	N	**Mean**	**Std. Deviation**	**Std. Error**	**95% Confidence Interval for Mean**		**Min**	**Max**
					Lower Bound	**Upper Bound**		
Black	270	27.285	7.29797	.44414	26.410	28.1596	8.00	40.00
White	21	33.238	8.43152	1.83991	29.400	37.0761	11.00	40.00
Coloured	17	27.529	6.73719	1.63401	24.065	30.9934	17.00	40.00
Other	4	26.500	6.02771	3.01386	16.908	36.0914	21.00	35.00
Total	312	27.689	7.45422	.42201	26.858	28.5195	8.00	40.00

The ANOVA results shown in Table 4.14 reveals the sample size of the participants from each ethnic group, the means, standard deviations, as well as the minimum and maximum response values to the severity of food insecurity. In this table it is observed that there is a mean difference between the ethnic groups, which can be largely attributed to the variation in the sample size. A total of 312 students responded, from which 270 were black students, 21 were white, 17 were coloured students, and four were from other ethnic groups.

Table 4.14: Analysis of variance of food insecurity vs race

ANOVA					
Severity of food insecurity					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	696.757	3	232.252	4.313	.005
Within Groups	16584.086	308	53.844		
Total	17280.843	311			

The table above shows the statistically significant *P*-Value of 0.005, which is less than 0.05. Therefore, there is a significant difference in the severity of food security among different ethnic groups. As a result, the null hypothesis, which states *there is no difference in the severity of food security across all races,* is rejected. Hence, it was imperative to perform a post-hoc test to determine the precise mean differences across all the ethnic groups. Post-hoc testing identifies these differences. Multiple comparison procedures look at all possible pairs of means and determine if each individual pairing is the same or statistically different.

Table 4.15: Post-hoc multiple comparisons

Multiple comparisons						
Dependent variable: Severity of food insecurity						
LSD						
(I) Ethnicity	(J) Ethnicity	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Black	White	-5.95291*	1.66236	.000	-9.2239	-2.6819

	Coloured	-.24423	1.83487	.894	-3.8547	3.3662
	Other	.78519	3.69602	.832	-6.4875	8.0578
White	Black	5.95291*	1.66236	.000	2.6819	9.2239
	Coloured	5.70868*	2.39402	.018	.9980	10.4194
	Other	6.73810	4.00314	.093	-1.1389	14.6151
Coloured	Black	.24423	1.83487	.894	-3.3662	3.8547
	White	-5.70868*	2.39402	.018	-10.4194	-.9980
	Other	1.02941	4.07780	.801	-6.9945	9.0533
Other	Black	-.78519	3.69602	.832	-8.0578	6.4875
	White	-6.73810	4.00314	.093	-14.6151	1.1389
	Coloured	-1.02941	4.07780	.801	-9.0533	6.9945
* The mean difference is significant at the 0.05 level.						

The post-hoc test of multiple comparisons revealed that the severity of food insecurity differs between white and black students, with *a P*-value of 0.000. However, the coloured and "other" students showed no significant differences compared to the black students, with a *P*-value of 0.864 and 0.832, which is greater than 0.05, respectively.

4.7 SUGGESTIONS FOR ADDRESSING FOOD INSECURITY

Participants were asked to give suggestions to solve the issue of food insecurity. This question was posed as follows: "In your opinion, what can be done to solve the problem of food insecurity?" One hundred and eighty-five (185) students responded to this open-ended question.

The majority of the respondents suggested that a food bank(s) be instituted, and the support of a dining hall for those students in need. As stated in Figure 4.15, students experienced the cost of food/living expenses as high. Therefore, it stands to reason that the respondents also suggest that cheaper food/groceries should be made available on campus.

Table 4.16: Responses to suggestions to solve food insecurity

RESPONSE	count	%
Food bank	46	24.86
Dining hall/Feeding scheme	44	23.78
Cheaper food/groceries	35	18.92

NSFAS/bursaries need to increase food allowance	33	17.84
Education regarding budget/tips to prepare nutritional food	16	8.65
Food gardens	5	2.7
Other	6	3.24
Total	**185**	**100%**

4.8 CONCLUSION

To conclude and summarise Chapter 4, the answers to the questions presented to first-year students were answered through an online questionnaire and a hard copy system, with a total of 327 students having responded. This chapter presented the demographical results and the inferential statistics.

The predominant ethnic group constituted black female first-year students, with their ages ranging from under 20 years to 30 years. Most of the participants reside off-campus in private accommodation or, communes.

The responses to the research questions were tested, as well as the reliability of the questionnaire.

The following hypotheses were tested:

***H_0**: Severity of food insecurity affects academic performance*

***H_1**: Severity of food insecurity is higher amongst black students*

It has been statistically established that the two hypotheses tested show a significance in the validity of the two statements.

The relationship between the severity of food insecurity and academic performance was tested and is presented as follows: as the severity of food insecurity increases, academic performance decreases at a slower rate. As coping mechanisms increase, the severity of food insecurity increases at a moderate pace. Statically the correlation is significant as coping mechanism increases as academic performance decreases.

The majority of the respondents suggested that a food bank(s) be initiated as well as a dining hall that can support students in need. It was statistically proven that students find living expenses high, and consequently cheaper purchasing options of food or groceries will be an option to support food-insecure students.

In the following chapter, I discuss the findings and discuss the limitations, recommending specific strategies to eradicate or minimise food insecurity among university students.

CHAPTER 5 :
CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The main focus of this chapter is to provide insight and to make a scholarly contribution to the field of development studies research. Based on the Basic Needs Framework, which motivates mobilisation of resources to a specific group that could be malnourished or to rural communities, the study explores and evaluates food insecurity concerns and addresses issues emerging among first-year UFS students (Burchi & De Muro, 2012).

Furthermore, this chapter outlines the purpose and importance of the study, describes the methodology used and discusses the participants' responses to the research questions. Finally, conclusions and recommendations have been provided based on the results, all of which focus on addressing the issue of food insecurity for first-year students at the UFS.

5.2 STUDY PURPOSE, IMPORTANCE, AND METHODOLOGY

5.2.1 Study purpose

The purpose of this study was to assess and measure the extent of food insecurity at higher education institutions and specifically amongst first-year students at the UFS main campus. Furthermore, it aimed:

I. To establish the self-perceived extent to which food insecurity affects the academic performance of first-year students at the UFS.
II. To explore the efficacy of existing food security strategies at the UFS in assisting vulnerable first-year students;
III. To identify how effective the methods of food security at the UFS are; and
IV. To make recommendations on other measures that can be useful in the quest to eradicate or minimise food insecurity among university students, as food insecurity causes developmental setbacks.

5.2.2 Importance of the study

The outcome of this research provides a general picture of the state of UFS students, food insecurity from different gender, ethnicity, and socioeconomic backgrounds. Furthermore, the study provides baseline information from which UFS management, student affairs, and practitioners can compile strategic plans.

5.2.3 Methodology

A non-experimental, quantitative study encompassing a cross-sectional design was used to obtain the data for the study. A total of 327 questionnaires (269 online and 58 hard copies) was distributed and administered to ensure the participation of the maximum number of first-year students in the completion of the survey. Furthermore, prior to collecting the data, ethical clearance was granted by the UFS research ethics committee. In addition, each student who completed the survey was treated with respect and dignity and all participants were requested to sign a consent form giving the researcher permission to use the data for the study.

Data were obtained through a survey method using a four-point Likert-type scale and processed using EvaSys, an automated survey software system. The Statistical Package for Social Sciences (SPSS) was used to capture and analyse the data from EvaSys.

5.3 DISCUSSION OF FINDINGS

This section discusses the study's empirical findings in alignment with different works of literature concerning food security in higher education.

> *If we look at the food system, it is surely a complex structure, and although the Social Movement, such as food sovereignty place producers, distributors, and consumers amid the food system, the reality is that "food is a basic need - probably the most basic need of all"* (Patel & Patel, 2009).

As cited in the literature review, universities are educational settings and should influence students' food choices and food environments (Tseng *et al*., 2016). Food environments can influence the availability of food in a community; in this case, the

student community (Rideout *et al*., 2015). This can also influence the type of food students buy, their awareness of the importance of their diets, and their health-related outcomes (Rideout *et al*., 2015).

In the past years since 2013 years, universities in South Africa have experienced considerable increases in student enrolments, and the UFS is no exception (Kassier & Veldman, 2013). With the increase of enrolments, the issue of food insecurity has intensified as more students from previously disadvantaged communities have enrolled in higher education institutions (Kassier & Veldman, 2013).

Part of the knowledge gap that exists around meeting students' basic needs is that students who are economically vulnerable and susceptible to food insecurity are the least likely to ask for help. Socially, the stigma associated with food insecurity can take a toll on students' self-esteem (Gwacela, 2013). The stigma around being food insecure can also hamper well-meaning advocates. How the UFS approaches students on such a sensitive issue is as important as the resources they offer.

To achieve the objective of this study, specific questions were put forward to first-year students at the UFS. These questions were compiled to provide answers to the research questions, which in turn led to the formulation of the study's objectives. These questions aimed:

I. To establish the extent to which food insecurity affects the academic performance of first-year UFS students;
II. To determine the severity of food insecurity and the impact on first-year students at the UFS;
III. To determine which areas of life in a first-year student's academic year are negatively impacted due to food insecurity; and
IV. What strategic avenues can be instituted to make a positive impact on first-year students' academic lives.

5.4 DISCUSSION OF OBJECTIVES

The following objectives were used as guidelines to explore and evaluate the food insecurity of first-year students at the UFS. The overarching aim of this study was to explore the academic impact of food insecurity on first-year students at the UFS. The

research sought to assist management in determining the impact of food insecurity. Based on the data analysis in Chapter 4, it is evident that the issue of food insecurity among first-year students at the UFS is a challenge. However, specific concerns need to be addressed by management to ensure that the academic performance of students is not affected (see Figure 4.5). A significant number of participants indicated that they experience food insecurity due to inadequate income support, cost of food, as well as housing and living expenses.

5.4.1 Discussion of objective 1

The objectives in this section have been outlined to draw a comparison to the results and to justify further discussion. The first of these objectives is:

To establish the self-perceived extent to which food insecurity affects the academic performance of first-year students at the UFS.

To establish the responses to this objective, statements were presented to the respondents to indicate how often they experienced food insecurity and to determine the influence of this on their well-being. To manage these influences, students use coping mechanisms to survive, and this has consequences for their academic performance.

The participants in the study indicated that they often worry about money to buy food, with **56.9%** (Table 5.1) indicating that they worry at least once a week, while **18.8%** worried almost every day, and **23.8%** indicating that they had sometimes not eaten for an entire day because they did not have enough money to buy food. An alarming percentage of 86.1% of students reported not being able to eat a balanced meal at least once a week, with 29.2% of this figure not having the capability to buy a healthy meal every day. As indicated in this study, students are from socioeconomically disadvantaged groups/households, and 30.5% of registered first-year students send money home to their families.

Table 5.1: Picture of food insecurity of first-year UFS students

Variables	At least once a week	At least twice a week	At least three times a week	Almost every day
I often worried that my food would run out before I had money to buy more	27.8%	16.4%	12.7%	18.8%
I cannot afford to eat balanced meals	15.2%	13.7%	11.2%	29.2%
I have decreased the size of my meals/ have skipped a meal because I did not have enough money to buy food	19.3%	11.7%	15.0%	17.8%
I have been hungry and did not eat because I could not afford enough food	24.1%	12.3%	10.8%	7.1%
I have lost weight because I did not have enough money for food	12.8%	6.4%	5.5%	8.9%
I have not eaten for an entire day because there was not enough money for food	23.8%	6.5%	6.8%	4.3%
I send money home	20.3%	3.4%	3.1%	3.7%

The findings found in the table above validate the findings of previous research conducted by the student engagement group, which developed a Financial Stress Scale for the South African Survey of student engagement and indicated that student success is greatly impacted by these socioeconomic inequalities (UFS, 2016).

A number of students in this study strongly agreed (53.3%) that they struggled to concentrate when they were hungry, and 49.2% strongly agreed that hunger affected their effectiveness to study; with 48.3% mentioning that they felt motivated to study when they had enough food to eat (Table 4.5). These results demonstrate that first-year students experience difficulty in accessing nutritional food to support an active and healthy lifestyle, which can impede their academic outcomes. As indicated by the findings of previous studies, these food insecurities have an impact on students' self-reported emotional well-being, physical health and academic performance (Davidson, 2018).

Furthermore, Figure 4.5 demonstrates that students in their first year worry about their food resources and their financial situation. In Table 5.1, 86.1% of students indicated

that they struggle to eat a balanced meal. To manage their meal intake, they decrease the size of their meals. The findings reveal how finances play a crucial role in ensuring students' health and an adequate diet by enabling buying power. The rise in the cost of both tuition as well as ancillary expenses could be a likely cause. Previous studies have revealed that factors influencing food insecurity are a situation resulting from financial difficulties, poverty, and a lack of skills in managing money and food (Chaparro *et al*., 2009).

A significant statistical correlation was demonstrate between the severity of food insecurity and the self-reported academic performance of first-year students at the UFS Bloemfontein campus. As seen in Table 4.11, as the severity of food insecurity increases, self-reported academic performance decreases at a slower rate. A hypothesis testing was performed to validate the following statement, and statistically, it was established that this statement can be confirmed:

***H_1**: Severity of food insecurity affects academic performance.*

A significant indication was that the students' coping mechanisms increase when their academic performance decreases. The coping mechanism used by first-year students in this study differed significantly and will be discussed in the paragraphs below.

An alarming result of this study was that students use various strategies to combat food insecurity and that this can add to their stress levels, further undermining their socio-emotional well-being. Some students engage in unconventional ways to obtain food such as dumpster diving, stealing food, etc. Twelve percent (12%) indicated that they resort to these means.

Socially, the stigma associated with food insecurity can take a toll on students' self-esteem. An alarmingly new result concerning the coping mechanisms used by first-year students is to use "fasting" as an excuse to friends for not having food to eat, with 41% of students reporting that they used this excuse often (16.1%), or sometimes (24.5%). This is substantiated in an article written by Steven Devereau (2018), which found that students find different ways to cope with food insecurity, such as eating with friends, using fasting as an excuse, or eating less nutritional foods. In a study conducted at the University of California, participants indicated that they attend events to attain meals or swipe their ID cards (student cards) to assist each other (Watson *et al*., 2017).

The demographic results in this study illustrated that 72% of respondents were females and only 26% males, with a possible reason for this important variance being the fact that the demographics of the UFS show that there are more female students than males (IIS,2019).

The ethnic demographics of this study indicated that 279 black students out of 325 participants completed the survey, which correlates with the racial demographic profile of the UFS (Table 4.1). Here it is specified that 85.3% are black students (IIS,2019). In this study, the predominant ethnic group constituted black female first-year students, and the hypotheses testing was significant in the validity of this statement below:

***H_1**: Severity of food insecurity differs amongst students of different ethnicities*

This result can be due to the fact that more students from low-income economic groups have the opportunity to study at higher education institutions in South Africa. Statistics South Africa (SSA) confirmed that black people are most vulnerable to impoverished socioeconomic circumstances. This brings a new level of socioeconomic inequality due to the number of student enrolments in the past two years (Kassier & Veldman, 2013).

5.4.2 Discussion of objective 2

To explore the efficacy of existing food security strategies at the UFS in assisting vulnerable first-year students.

Looking at the responses to the data collected on students' experiences with food insecurity and their coping mechanisms, we can report that the majority of first-year students do not report their status to the Social Worker or to the Food Environment Office which coordinates the food bank and NSH bursary programme. Statistically, 82.7% of first-year students never request assistance (food parcels), and 89.1% never enquire or report to the Social Worker (Social Support Unit) for help, although 19.1% indicated that they had considered going to either the Food Environment Office or the Social Worker (please see Table 5.2 below).

Table 5.2: Coping mechanisms

Coping mechanism	Often True	Sometimes True	Never True
I have gone to a Food Bank to receive a food parcel	5.6%	11.8%	**82.7%**
I have gone to the Social Worker to ask for help	4.7%	6.2%	**89.1%**
I have thought about going to the Social Worker or Food Bank for relief, but I am too embarrassed to follow through	**19.1%**	24.1%	56.7%
I have had to engage in unconventional ways to obtain my food (dumpster diving, stealing, etc.)	4.3%	8.0%	87.6%
I have been hungry but did not eat because I could not afford enough food	20.0%	40.0%	40.0%
I have used 'fasting' as an excuse to friends for not having food to eat	16.1%	24.5%	59.3%

An alarming percentage of 86.1% of students cannot eat a balanced meal at least once a week due to the high cost of food and insufficient income support.

The study indicated that most of our students are from the economically vulnerable group and, therefore, most susceptible to food insecurity. Furthermore, when financial aid does not explicitly cover food but instead is delivered as financial credit, some students face near impossible choices. Students may use this money to feed themselves, or as has been documented in this study, students may skip meals and instead send money to financially strapped family members. First-year students are especially susceptible to food insecurity due to more students from the low-income economic group becoming enrolled in the higher education system. Most of these students come from an educational system where they receive a daily meal from the National School Nutrition Programme (NSNP). These students struggle with transitioning from high school to tertiary education institutions and lack basic needs such as accommodation and food (Dullah Omar Institute, 2019).

Although the majority of first-year students from previously disadvantaged backgrounds study with an NSFAS bursary, students still experience financial difficulties, especially in supporting themselves concerning basic needs such as nutrition (Kaiser *et al*., 2015).

It was specifically stated in a Government Gazette dated 21 August 2014, that public colleges and universities must ensure that no students are hungry. The UFS instituted

a NSH (No Student Hungry) bursary for academically deserving students who do not have bursaries to support them in affording living expenses via a food bursary.

Although the South African government instituted free education for all in 2017, the monthly income that students receive is still not enough to support them with their basic needs, such as nutritional food. The NSH programme can only assists 100 students on the Bloemfontein campus who excel academically and who do not have the support of a food allowance. However, NSFAS students are excluded from this programme. The NSH bursary scheme, established in 2011, was an innovative intervention aimed at fulfilling this need. Nonetheless, the dynamics of the financial circumstances of students has changed dramatically due to government interventions (free education), where most students now receive bursaries but are still in need of support for their basic needs. The NSH bursary does not address the needs of these students.

In this study, 24.9% of students suggested that more food banks must be introduced, and another option was cited regarding the establishment of a feeding scheme (dining hall), as seen in the table below.

Table 5.3: Suggestions for addressing food insecurity

RESPONSE	Count	%
Food banks	46	24.86
Dining halls / Feeding scheme	44	23.78
Cheaper food/groceries	35	18.92
NSFAS/bursaries need to increase their food allowance	33	17.84
Education regarding budget/tips to prepare nutritional food	16	8.65
Food gardens	5	2.7
Other	6	3.24
Total	**185**	**100%**

The study also demonstrates that students need assistance in various ways and that existing interventions do not assist the majority of students that are food insecure. Only a small percentage of students make use of the limited resources on offer by the UFS, such as the NSH programme and the Food Parcel project.

5.4.3 Discussion of objective 3

The third objective of the study is presented below:

To identify the effectiveness of food security methods at the UFS.

The majority of first-year students indicated in the questionnaire that they struggle with their finances and with preparing a healthy meal due to lacking time management skills and due to the fact that they find themselves in a situation where, for the first time in their lives, they have to manage themselves away from the home environment. As indicated in Figure 5.2, 26% of students indicated that their financial situation contributes to their feeling of food insecurity, with 18% saying that the fact of income support contributes to their food insecurity.

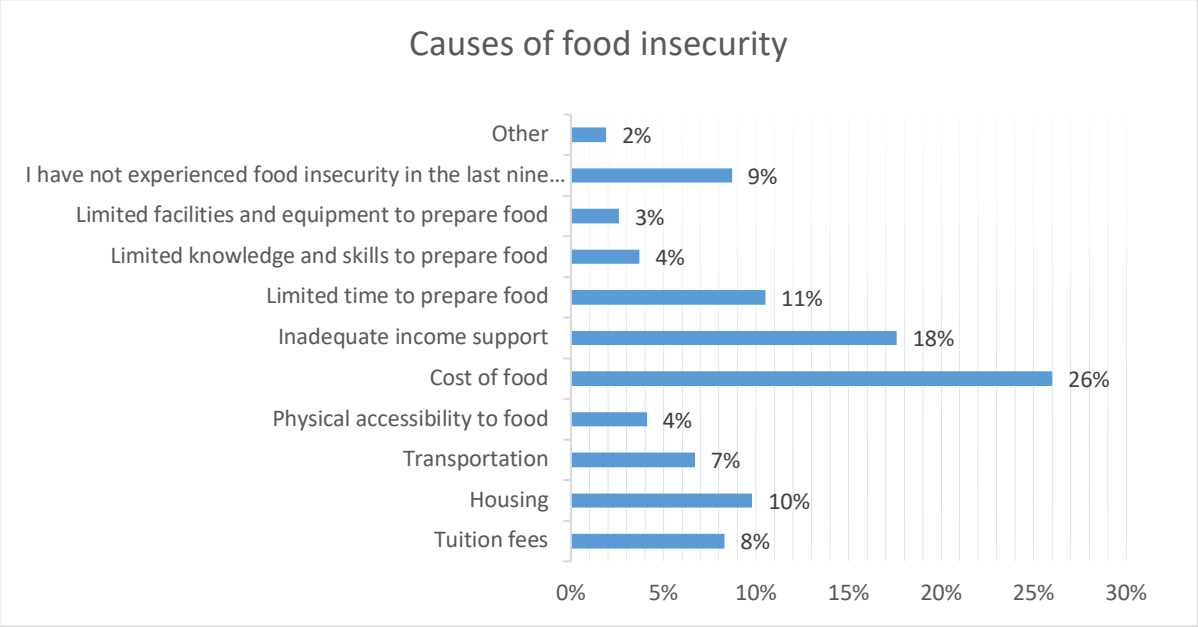


Figure 5.1: Causes of food insecurity

The UFS has programmes to support food-insecure students, but unfortunately, the majority of students do not report their status. The reasons for this are that there seem to be information obstacles, in that the majority do not know that there is support.

Secondly, the support offered does not speak to the mainstream body of students, as is illustrated by the following:

I. The NSH bursary only supports academically deserving students with an average of 60%;

II. The food bank only supports students who did not receive the NSFAS or other bursaries that fund their basic needs, such as meals, groceries, and toiletries.

An enormous contributing factor for students' struggle with food insecurity is that the majority of students struggle to manage their finances due to the high cost of food and the mismanagement of their budget (allowance). To eliminate the effects of these factors, the study recommends approaches which are discussed in section 5.5.

5.5 RECOMMENDATIONS

The following recommendations are based on the results obtained and are meant to inform policymakers and Student Affairs practitioners at all levels in the field of higher education, to understand and develop programmes to eradicate food insecurity, and consequently to improve students' academic performance. The UFS can only be successful when they confront food insecurity on various fronts, such as at the level of food providers, administrators, policymakers, advocates, the academia, and the students at UFS.

A coordinated approach is needed, with broader structural changes in policy, which includes improving education on financial literacy, budgeting, and cost-effective nutritional and culinary approaches.

How university officials approach students on such a sensitive issue is as important as the resources we offer. Socially, the stigma associated with food insecurity can impede students' self-esteem. The stigma around food insecurity amongst students is evident in this study as **40.6%** of research participants indicated that they use "fasting" as an excuse to friends for not having food to eat!

5.5.1 Reconsidering NSH bursary guidelines and approach

The UFS management needs to reconsider the NSH bursary programme and look at new criteria and implementation methods of the money generated for this programme.

The NSH bursary scheme was successful but due to various new situations occurring in recent years, a new vision is needed:

I. Although there are supporting programmes active at the UFS, such as the NSH[1] bursary scheme and the Food Parcel Project, the current study indicated that there is still not enough support for the majority of students at the UFS.
II. The NSH bursary scheme, established in 2011, was an innovative intervention at the time. Nonetheless, the dynamics of the financial circumstances of students has changed since the *#feesmustfall* campaign and government statements concerning free education for financial disadvantaged groups (less than R350 000 income per annum per household).
III. The NSH bursary programme should not be a bursary programme. The money accrued for NSH should be reallocated to subsidise meals for students that are food insecure.

5.5.2 Subsidising meals

The subsidising of meals should be initiated to assist a majority of students that are food insecure; this will include NSFAS students and students who do not receive a food allowance through their bursary. Such an intervention will ensure that first-year students from disadvantaged backgrounds will at least receive a healthy meal once a day.

The subsidising of meals will help to accommodate students from disadvantaged backgrounds who do not have a food bursary or have an inadequate bursary to support their basic needs.

An intervention such as subsidised meals on a student card will provide a solution to several difficulties experienced by students, such as:

I. Late payment of financial aid, which impacts students' food security and increases stress levels;
II. Social stigma;
III. Increases in the cost of food;
IV. Access to food, especially nutritional food;
V. Harm to students' well-being, such as their mental (stress levels) and physical health; and

[1] The No Student Hungry (NSH) Programme provides students in need with modest food allowances.

VI. Negative impact on their academic performance.

As recommended by the participants in this study, the UFS must develop and maintain instruments for assisting students who do not have access to food or meals. The existing Food Parcel project should be maintained, but the most important intervention should be subsidised meals to accommodate socioeconomically disadvantaged students. Subsequently, subsidised meal plans for socioeconomically disadvantaged students would provide a solution to the problems brought about by students receiving financial aid, as mentioned in Kassier and Veldman (2013), in which the allowance is not enough or is paid into their bank account late. The fact that the allowance is paid into their private bank account creates a problem as students abuse their allowance or support their family members at home.

The implementation of a subsidised meal plan package will ensure that students receive a healthy meal at least once a day and such an intervention will be beneficial to the students' well-being. Nevertheless, this will also address the stigma around food insecurity as all students will make use of the allocated vendors that serve healthy meals.

5.5.3 Incorporating dietetic services

Healthy eating practices are a vital component of health and therefore a preventative care programme is of the utmost importance.

These services should form part of the Primary Health Care services rendered by Kovsie Health. The primary responsibilities of such an appointment should be to deliver nutritional services, conducting nutritional educational programmes, and developing nutrition-related health communication materials. Consequently, this will mean that the dietician will be part of a multidisciplinary general practice on campus providing nutritional care directly to patients (students), and helping to upskill other primary health care professionals in nutrition and delivering health promotion initiatives to all campus students.

5.5.4 Implementing community food gardens

Although the UFS has accepted a strategy to address the food environment at the UFS, it still needs to be introduced and implemented (Browne, 2019). One of the objectives is to promote and install health-promoting food and meals that are available and accessible to all students. This project will help individual student communities to initiate and maintain their vegetable gardens to address food insecurity within their own environment.

In collaboration with the Faculty of Natural Sciences and the Center for Sustainable Agriculture, Rural Development, and Extension, the UFS established a food garden to ensure a food security programme by involving students, through residences, to collaborate and mentor students to produce their own vegetables. This initiative is a step in the right direction, although, to eradicate the problem of food insecurity, the UFS needs to harvest its agricultural produce to subsidise dining halls. A vigorous strategy towards these gardens is needed to ensure a sustainable resolution to the issue of food insecurity. Food gardens will ensure access to nutritious food while helping to pave the way to long-term success.

5.6 RECOMMENDATIONS FOR FURTHER RESEARCH

The UFS comprises three campuses, namely the Bloemfontein Campus, the South Campus (situated on the southern side of Bloemfontein) and the Qwaqwa Campus. It will be of interest to investigate the impact of food insecurity on the other two campuses as the demographics of these two campuses differ from that of the Bloemfontein Campus.

Qwaqwa is situated in the Eastern Free State, on the outskirts of the town called Phuthaditjhaba, located in a rural area. A large number of households are food insecure due to the poverty rate in this disadvantaged setting. The Qwaqwa campus is typically situated in a Food Desert, meaning that the students of this campus depend on small stores with a scarcity of fresh and nutritional food. The fact that this university is situated in a region where there is limited to no access to food choices has an impact on the students enrolled at the Qwaqwa Campus.

Given the growth of the Food Banks at the UFS, further research is needed to determine the nutritional value of such food parcels and the impact they make for those that utilise the food banks on the three campuses. Interestingly enough, the majority of research comes from Canada and Australia, and to be able to look at the similarities and differences between these settings will be of benefit for the UFS and provide much-needed insight.

Despite findings from previous studies conducted at UFS, UKZN, and Wits, comprehensive national data is needed to determine how many students suffer from food insecurity.

5.7 LIMITATIONS

Although special care was taken to ensure the thoroughness and trustworthiness of this study, some limitations should be acknowledged. This study was conducted at the UFS and was limited to first-year students enrolled at the UFS.

The study relied on volunteer participants who were willing to complete the questionnaire. Therefore, a sample of 269 first-year students completed the questionnaire via an online survey using Blackboard to ensure a maximum number of first-year students' participation due to the cost-effectiveness of such a method. A sample of only 269 was collected, which means that only 28% of the first-year student population completed the survey. A sample size calculator was used and it was suggested that the sample size should be 450, but unfortunately this could not be accomplished. However, the sample obtained is statistically viable and large enough for inferential statistics to be run and interpreted.

The study did not include a question in the questionnaire to determine if the group of students that skip meals are also the group of students that send money home.

The study only measured the responses of first-year students enrolled (2019) at the UFS Bloemfontein campus and not the students on the South and Qwaqwa Campuses. Food insecurity exists across all three campuses and does not exclude seniors registered at the UFS. The researcher focused on first-year students due to the challenges experienced by this population group in adapting to University life, since, according to Upcraft and Gardner (1989), the transition process from high

school to university can be rough, and the university phase is a crucial time of student development.

5.8 STUDY ASSUMPTIONS

This study was based on the assumption that participants truthfully and correctly answered questions asked in the questionnaire that was available online (i.e. via Blackboard) and via hard copies of the questionnaire distributed by the researcher.

5.9 DISSEMINATION OF THE RESEARCH RESULTS

This study will be available to the UFS management and particularly to the Vice-Rector: institutional change, student affairs, and community engagement. The researcher will use this paper to write an article for submission to an appropriate journal.

5.10 CONCLUSION

The study established that the predominant ethnic group struggling with food insecurity constitutes black students at the UFS. It was furthermore established that as the severity of food insecurity increases, academic performance decreases and coping mechanisms increase. Students use different coping mechanisms, with an alarming percentage of students (40.6%) using fasting as an excuse to friends for not having food, 60% of students skipping meals because they do not have enough money, and 43.2% of students being too embarrassed to ask for help.

Various factors contribute to this alarming scenario, with the main reason being that the majority of students are from impoverished economic and social circumstances. This suggests that although students receive NSFAS funding or any other bursary, it is not a guarantee that they are food secure.

Although local solutions to food insecurity are gaining significant traction on campuses throughout South Africa, structural policy-based services would more effectively create a long-lasting, meaningful resolution to the problem. As mentioned, the UFS

proposed a strategy to address the issue of food insecurity and the food environment they operate in (Browne, 2019). This study may assist in the proposed strategy accepted by the UFS that speaks to the food environment at the UFS (Browne, 2019).

It is only through strong leadership, new and innovative partnerships that we can hope to alleviate poverty and hunger, address nutrition, improve education, restore dignity and hope, and thus make the difference required.

BIBLIOGRAPHY

(2018, April 15). Retrieved from Stats South Africa: http://www.statssa.gov.za/?page_id=739&id=1

Acharya, S., Lin, V., & Dhingra, N. (2018). The role of Health in achieving the sustainalbe developent goals. *Bull World Health Organ , 96*, 591-591.

Adeniyi, O. (2018, May 16). *Food insecurity among students a lingering after-effect of apartheid*. Retrieved from IOL: https://www.iol.co.za/capetimes/opinion/food-insecurity-among-students-a-lingering-after-effect-of-apartheid-16057030

Aliaga, M., & Gunderson, B. (2000). *Introduction to Quantitative research. Doing Quantitative Research in Education with SPSS.* Thousand Oaks: Sage Publications.

Altman, m., Hart, T. G., & Jacobs, P. T. (2009). Household food security status in South Africa. *Agrekon*, 345-361.

Banerjee, A., & Chaudhury, S. (2010). Statistics without tears: Populations and samples. *Industrial Psychiatry Journal, 19*(1), 60-65.

Bhattacherjee, A. (2012). *Social Science Research: Principles, Methods, and Practices* (2 ed.). Florida, South Florida, USA.

Browne, Carol. (2019). *Proposed Strategy to address the food environment at the Unversity of the Free State.* Bloemfontein: University of the Free State.

Bruening, M., Brennhofer, S., Van Woerden, I., Todd, M., & Laska, M. (2016). Factors related to the Highrates of Food insecurity among diverse, Urban College Freshmen. *Journal of the academy of Nutritions and Dietetick*, 1450-1456.

Burchi, F., & De Muro, P. (2012). *A Human Development and Capabilty Approach to Food Securiyt: Conceptual framework and infrmatinal basis.* Rome: Unitied Nations Development Programme.

Chaparro, M. P., Zaghlouol, S. S., Holck, P., & Dobbs, J. (2009). Food insecurity prevalence among college students at the University of Hawai'i at Manoa. *Public Health Nutrition, 12*(11), 2097-2103.

Chutel, L. (2019, January 27). *Post-apartheid South Africa is failing the very people it liberated*. Retrieved from Quartz Africa: https://qz.com/africa/1061461/post-apartheid-south-africa-is-failing-the-very-people-it-liberated/

Cidro, J., Adekunle, B., Peters, E., & Martens, T. (2015). Beyond Food Security, Understanding access to cultural food for Urban indigenous people in Winnipeg as indigenous food sovereignty. *Canadian Journal of Urban Researchca, 24*(1), 24-43.

Davidson, A. R. (2018). Food insecurity prevalence among university students in New Hampshire. *Journal of Hunger & Environmental Nutrition*, 1-10.

De Vos, A. S. (1998). *Research at grass roots* (First edition ed.). Pretoria: Van Schaik .

De Vos, A. S., Strydom, H., Fouche, C. B., & Delport, C. S. (2011). *Research at grass roots* (4th ed.). Pretoria: Van Schaik Publishers.

Desta, N. T. (2015). *Networking as a growth initiative for small and medium enterprises.* Doctoral dissertation, University of the Free State.

Devereux, S. (2018, August 27). *South Africa's univerisyt students face a crisis: nearly a third go hungry*. Retrieved from The Conversation: https://theconversation.com/south-africas-university-students-face-a-crisis-nearly-a-third-go.hunger

Dominguez-Whitehead, Y. (2015). Student's food acquisition strugles in the context of South Africa: The fundamentals of Student development. *Journal of College Student Development, 56*(3), 292-308.

Dullah Omar Institute. (2019, April 13). *Dullah Omar Institute*. Retrieved from The challenges of hunger among students in higher education in South Africa: http://dullahomarinstitute.org.za/news/nsfas-at-the-helm-of-student-hunger-at-univer...

Evans, B. A. (2017). Homeless and hungry. *The magazine of Higher Learning, 48*(1), 26-29.

Farahbakhsh, J., Hanbazaza, M., Ball, G. D., Farmer, A. P., Maximova, K., & Willows, D. (2017). Food insecure student clients of a university-based food bank have comproised health, dietary intake and academic quality. *Nutriton & Dietetics, 74*, 67-73.

Food and Agricultural Organization of the United Nations. (2019, May 18). *Chapter 2. Food security: concepts and measurment*. Retrieved from Food and Agricultural Organization of the United Nations: http://www.fao.org/3/y4671e/y4671e06.htm

Frndak, S. E. (2014, April 17). Food-Deserts and their relationship with academic achiement in school children. *Food-Deserts and their relationship with academic achiement in school children*. New York, usa: ProQuest LLC.

Gallegos, D., Ramsey, R., & Ong, K. W. (2014). Food Insecurity: is it an issue among tertiary students? *High Educ*, 497-510.

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference.* Boston: Allyn & Bacon.

Gordillo, G., & Jeronimo, O. M. (2013). *Food security and sovereignty.* Food and Agriculture Organizations of the United Nations.

Government of South Africa. (1996). *The South African Constitution–Bill of Rights*. Retrieved from http://www.info.gov.za/documents/constitution

Gravetter, F. J., & Forzano, L. B. (2019). *Research methods for the behavioral sciences* (6 ed.). Belmont: Wadsworth/Thomson Learning.

Greener, I. (2011). *Designing social research a guide for the bewildered* (First ed.). London: SAGE Publications Ltd.

Gregory, R. J. (1999). *Foundations of intellectual assessment: The WAIS-III and other test in clinical practice.* Boston: Allyn & Bacon.

Gresse, A., Steenkamp, L., & Pietersen, J. (2015). The influence of student accommodation on NMMU students dietary patterns, activity and alcohol consumption. *South African Journal of Higher Education, 29*(6), 93-105.

Grinnell, R. M., Williams, M., & Unrau, Y. A. (2008). *Research methods for social workers: a generalist approach for BSW students.* Eddie Bowers Publishing Company.

Gwacela, M. (2013). *Exploring food Insecurity and Socio-Economic factorsaffecting academicperformance: A case study of first year students on probation and at-risk of academic exclusion tye.* South Africa: University of KwaZulu-Natal.

Hosseinpoor, A. R., Bergen, N., Schlotheuber, A., & Grove, J. (2018). Measuring health inequalities in the context of sustainable development goals. *Bull World Health Organ, 96*, 654-659.

Houser, J., & Bokovoy, J. (2006). *Clinical Research In Practice: A guide for the bedside scientist.* Sudbury, Massachusetts: Jones and Bartlett.

Hunger and Health and Feeding America. (2020, June 24). *Understand Food Insecurity*. Retrieved from Understand Food Insecurity: https://hungerandhealth.feedingamerica.org/understand-food-insecurity/

Institutional Information Systems (IIS). (2019). *University of the Freestate*. Retrieved July 03, 2019, from http://iinfo.ufs.ac.za/PowerHEDA/dashboard.aspx

Institutional Information Systems (IIS). (2019). *University of the Freestate*. Retrieved July 03, 2019, from http://iinfo.ufs.ac.za/PowerHEDA/dashboard.aspx

Jessri, M., Abedi, A., Wong, A., & Eslamian, G. (2014). Nutritional Quality and price of food hampers distributed by a Campus food bank: A canadian experience. *Journal of health, population, and nutrition, 32*(2), 287-300.

Kaiser, M. L., Himmelheber, S., Miller, S., & Hayward, R. A. (2015). Cultivators of Change: Food Justice in Social Work Education. *Social Work Education, 34*(5), 544-557.

Kassier, S., & Veldman, F. (2013). FoodSecrity status and Academic performance of students on Financial Aid: The case of University of Kwazulu-Natal. *Alternations Special Edition 9*, 248-264.

Kline, P. (2000). *The handbook of psychological testing.* London: Routledge.

Koch, J. (2011). *The food security policy context in South Africa.* Esplanada dos Ministerios: International policy centre for inclusive growht United Nations Development Programme.

Kumar, R. (2011). *Research Methodology A step by step guide for beginners* (Third ed.). London: Sage.

Kuruvila, S., Sadana, R., Montesinos, E. V., Beard, J., & Vasdeki, J. F. (2018). A Life-course approach to health: synergy with sustainable development goals. *Bull World Health Organ, 96*, 42-50.

Labadarios, D., Davids, Y. D., Mciza, Z., & Weir-Smith, G. (2008). *The assesment of food insecurity in South Africa.* Cape Town: Human Sciences research Council.

Leedy, P. D., & Ormrod, J. E. (2005). *Practical Research: Planning and Design* (8th ed.). Upper Saddle River New Jersey: Prentice Prentice Hall.

Lexico. (2019). *Lexico powerd by Oxford*. Retrieved December 04, 2019, from https://www.lexico.com/en/definition/gender-nonconforming

MacDonald, R., & Reitmeier, C. (2017). *Understanding Food Systems.* Oxford: Academic Press.

Makhitha, M., & Dlodlo, N. (2014). Examining salient dimensions of online shopping and the moderating influence of gender: The Case of students at a South African University. *Mediterranean Journal of Social Sciences, 5*(23), 1838 - 1848.

Manyamba, C., Hendriks, S. L., Chilonda, P., & Masaba, E. (2012). Factors Contributing to Inequalities in Food Security in South Africa: Implications for Agricultural Policy. *Strateies to Overcome Poverty and Inequality.* Cape Town: University of Cape Town.

Marlow, C. R. (2005). *Research methods for generalist social work.* London: Thomson Brooks/Cole.

Meko, N. M., & Jordaan, E. M. (2016). The food environment of students on a financial assistance programme at the University of the Free State, Bloemfontein. *South African Journal of Clinical Nutrition, 29*(03), 116-117.

Mertens, D. M., & Ginsberg, P. E. (2009). *The handbook of social research ethics.* London: Sage.

Micevski, D. A., Thornton, L. E., & Brockington, S. (2014). Food Insecurity among university students in Victoria: A pilot study. *Dietitians Association of Australia, 71*, 258 - 264.

Monette, D. R., Sullivan, T. J., & De Jong, C. R. (2008). *Applied social research: a tool for the human services* (7th ed.). Belmont: Thomson Wadswoth.

Nunnally, J. C. (1978). *Psychometric Theory.* New York: McGraw-Hill Book Company.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3 ed.). New York: Mcgraw-Hill.

Oxford, T. (2018, Oct 26). *Mail and Garduin*. Retrieved May 23, 2019, from http://mg.co.za/article/2018-10-26-00-the-complex-insecurity-of hunger-in-south-africa

Patel, & Patel, R. (2009). Grassroots voices. *The Journal of Peasant Studies, 36*(3), 663-706.

Platkin, C. (2019). New York City Food Insecuryt among College Students. New York.

Republic of South Africa. (2014, August 21). Goverment Gazette. *Goverment Gazette, 590*, 1-31.

Rideout, K., Mah, C. L., & Minaker, L. (2015). *Food Environments: An Introduction for Public Health Practice.* National Collaborating Centre for Environmental Health.

Rubin, A., & Babbie, E. (2005). *Research methods for social work.* Australia: Thomson Brookes/Cole.

Rudolph, M., Kroll, F., Muchesa, E., Manderson, A., Berry, M., & Richard, N. (2018). Food Insicurity and Coping Strategies amongst Students at University of Witwatersrand. *Journal of Food Security, 6*(1), 20-25.

Sabi, S., Siwela, M., Kolanisi, U., & Naidoo, D. K. (2018). Complexities of food Insecurity ath the University of Kwazulu-Natal, South Africa: A Review. *Journal of Consumer Sciences, 46*, 10-18.

Sachs, J. (2012). From Millennium Development Goal to Sustainble Development Goals. *Lancet, 379*, 2206-2211.

Salkind, N. J. (2010). *Encyclopedia of Research Design*. Retrieved August 4, 2019, from https://methods.sagepub.com/reference/encyc-of-research-design/n271.xml

Samuel, F. G. (2012, March 25). *Experiences of Secondary School Managment teams in the implementation of continuous assessment.* Retrieved from https://repository.up.ac.za/bitstream/handle/2263/28650/00front.pdf

Shelby, L. B. (2011). Beyond Cronbach's alpha: considering confirmatory factor analysis and segmentation,human dimensions of wildlife. *An International Journal, 16*(2), 142-148.

Stangor, C. (2015). *Social groups in action and interaction.* London: Routledge.

Streeten, P. (1981). *Development perspectives.* London: The Macmillan press Ltd.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education, 2*, 53-55.

The SUN Movement Strategy and Roadmap. (n.d.). Retrieved from https://scalingupnutrition.org/about-sun/the-sun-movement-strategy/

Trading Economics. (2019, January 27). *South Africa Unemployment Rate*. Retrieved from Trading Economics: https://tradingeconomics.com/south-africa/unemployment-rate

Tseng, M., DeGreef, K., Fisher, M., Gipson, R., Koyano, K., & Neill, D. B. (2016). Assesment of a University Campus Food Environment, California, 2015. *Preventing Chronic Disease public health research, pratice, and policy, 13*(E), 1 - 10.

Turner, C., Aggarwal, A., Walls, H., Herforth, A., Drewnowski, A., Coates, J., . . . Kadiyala, S. (2018). Concepts and critical perspectives for food environment research: A global framework with implications for action in low-and middle-income countries. *Global Food Security, 18*, 93-101.

UNDP. (2009). *Human Development Index.* New York: United Nation Development program.

United Nations. (2016). *Influencing food environments for health diets.* Food and agricultural organistions of the United.

United Nations. (2019, April 24). *United Nation Sustainable Development Goals.* Retrieved from United Nations: https://www.un.org/sustainabledevelopment/sustainable-development-goals/

University of the Free State. (2016). *South African Surveys of student Engagement.* Bloemfontein: University of the Free State.

Upcraft, M. L., & Gardner, J. N. (1989). *The Freshman Year Experience. Helping Students Survive and Succeed in College.* California: Jossey-Bass Inc.

Van Den Berg, L., & Raubenheimer, J. (2015). Food insecurity among students at the University of the Freestate, South Africa. *S Afr J Clin Nutr*, 160-169.

Vanek, C. (2012). *Likert Scale - What is it? When to Use it? How to Analyze it?* Retrieved July 09, 2019, from http://www.surveygizmo.com/survey-blog/likert-scale-what-is-it-how-to-anaylyze-it-and-when-to-use-it/

Watson, T., Malan, H., Glik, D., & Martinez, S. M. (2017). College students identify university support for basic needs and life skills as key ingredient in addressing food insecurity. *California Agriculture, 71*(3), 130-138.

WFP. (2018, October 19). *World Food Programme.* Retrieved from World Food Programme: http://www1.wfp.org/zero-hunger

Wilkinson, K. (2018, February 15). *Factsheet.* Retrieved from Factsheet: South Africa's official poverty numbers: https://africacheck.org/factsheets/factsheet-south-africas-official-poverty-nubers

Williams, C. (2007). Research Methods. *Journal of Business & Economic Research, 5*(3).

Wong, S. Y. (2012). Understanding Poverty: Comparing Basic Needs Approach and Capability Approach. *University of Bristol* (pp. 1-14). Bristol: University of Bristol.

ANNEXURE A: EVASYS QUESTIONNAIRE

DRAFT

EvaSys	MDS Research Study	Electric Paper
Faculty of Economic and Management Sciences	Researcher	
Department of Development Support	Annelize Visagie	

Mark as shown: ☐☒☐☐☐ Please use a ball-point pen or a thin felt tip. This form will be processed automatically.
Correction: ☐■☐☒☐ Please follow the examples shown on the left hand side to help optimize the reading results.

1. Demographic Information

Dear respondent,

The purpose of this questionnaire is to assist the researcher in analysing the impact of food insecurity on first-year students enrolled at the University of the Free State; this study is part of a Mater's degree in Development studies.

Reflect on the past year of study (2019), and please try to be as honest as possible when answering questions. All the questions asked are strictly for research purposes only. Strict confidentiality will be maintained throughout the study. Therefore, we request that you refrain from writing your name on any part of this questionnaire.

Researcher details are as follows:
Annelize Visagie - email VisagieA@ufs.ac.za - Master's in Development studies as the University of the Free State.

Please indicate your choice by marking [x] the appropriate box:

1.1 **Age group**
☐ Under 20 ☐ 21 - 30 ☐ 31 - 40
☐ Over 40

1.2 **Gender**
☐ Male ☐ Female ☐ Gender non-conforming

1.3 **Ethnicity**
☐ Black ☐ White ☐ Coloured
☐ Indian ☐ Asian ☐ Other

1.4 **Residential particulars**
☐ On-campus ☐ Off-campus

1.5 **If off-campus, please select the option that best applies to you**
☐ Private accommodation ☐ Living with family ☐ Commune

1.6 **If off-campus, please select the option that best applies to you**
☐ Use public transport ☐ Walk to campus

2. Questionnaire

The following statements are about the severity of food insecurity! Please read each statement carefully to determine if these statements have ever confronted you in your past year of study (2019).

If you have <u>never</u> been in this situation, please mark [x] 'not applicable' as your response. If you <u>have</u> been in this situation, please indicate how often you experienced this by marking [x] the option that best describes how frequently you are confronted with this situation.

2.1 **In the past months of 2019, there was a time that I ran out of food and could not afford to buy anymore**
☐ At least once a week ☐ At least twice a week ☐ At least three times a week
☐ Almost every day ☐ Not applicable

2.2 **I often worried that my food would run out before I had money to buy more**
☐ At least once a week ☐ At least twice a week ☐ At least three times a week
☐ Almost every day ☐ Not applicable

2.3 **I cannot afford to eat balanced meals**
☐ At least once a week ☐ At least twice a week ☐ At least three times a week
☐ Almost every day ☐ Not applicable

2.4 **I have decreased the size of my meals/ have skipped a meal because I did not have enough money to buy food**
☐ At least once a week ☐ At least twice a week ☐ At least three times a week
☐ Almost every day ☐ Not applicable

2.5 **I have been hungry and did not eat because I could not afford enough food**
☐ At least once a week ☐ At least twice a week ☐ At least three times a week
☐ Almost every day ☐ Not applicable

DRAFT

2. Questionnaire [Continue]

2.6 **I have lost weight because I did not have enough money for food**
☐ At least once a week ☐ At least twice a week ☐ At least three times a week
☐ Almost every day ☐ Not applicable

2.7 **I have not eaten for an entire day because there was not enough money for food**
☐ At least once a week ☐ At least twice a week ☐ At least three times a week
☐ Almost every day ☐ Not applicable

2.8 **I eat at least two meals a day**
☐ At least once a year ☐ At least twice a year ☐ At least three times a year
☐ Almost every day ☐ Not applicable

2.9 **I send money home**
☐ At least once a week ☐ At least twice a week ☐ At least three times a week
☐ Almost every day ☐ Not applicable

The purpose of this section of the questionnaire is to obtain an accurate picture of how you experience the impact of food insecurity in the past year of study (2019). Please read each statement carefully to determine whether you have confronted these situations in the past year.

Please indicate your choice by marking [x] the appropriate box:

2.10 **When I am hungry, I find it difficult to concentrate**
☐ Strongly disagree ☐ Disagree ☐ Neutral
☐ Agree ☐ Strongly agree

2.11 **I missed classes because I did not have food to eat**
☐ Strongly disagree ☐ Disagree ☐ Neutral
☐ Agree ☐ Strongly agree

2.12 **Hunger affects my effectiveness to study**
☐ Strongly disagree ☐ Disagree ☐ Neutral
☐ Agree ☐ Strongly agree

2.13 **I feel motivated to study when I have had enough food to eat**
☐ Strongly disagree ☐ Disagree ☐ Neutral
☐ Agree ☐ Strongly agree

2.14 **I have skipped class because I did not have the energy to go**
☐ Strongly disagree ☐ Disagree ☐ Neutral
☐ Agree ☐ Strongly agree

2.15 **I do not participate in other activities or sport**
☐ Strongly disagree ☐ Disagree ☐ Neutral
☐ Agree ☐ Strongly agree

2.16 **I share food**
☐ Strongly disagree ☐ Disagree ☐ Neutral
☐ Agree ☐ Strongly agree

2.17 **I have had to choose between a meal and transport to the UFS**
☐ Strongly disagree ☐ Disagree ☐ Neutral
☐ Agree ☐ Strongly agree

The purpose of this section of the questionnaire is to obtain an accurate picture of a coping mechanism. Please read each statement carefully to determine whether you have confronted these situations in the past year of study (2019).

Please indicate your choice by marking [x] the appropriate box:

2.18 **I have gone to a Food Bank to receive a food parcel**
☐ Often true ☐ Sometimes true ☐ Never true

2.19 **I have gone to the Social Worker to ask for help**
☐ Often true ☐ Sometimes true ☐ Never true

2.20 **I have thought about going to the Social Worker or Food Bank for relief, but I am too embarrassed to follow through**
☐ Often true ☐ Sometimes true ☐ Never true

2. Questionnaire [Continue]

2.21 **I have had to engage in unconventional ways to obtain my food (dumpster diving, stealing, etc.)**
☐ Often true ☐ Sometimes true ☐ Never true

2.22 **I have been hungry but did not eat because I could not afford enough food**
☐ Often true ☐ Sometimes true ☐ Never true

2.23 **I have used 'fasting' as an excuse to friends for not having food to eat**
☐ Often true ☐ Sometimes true ☐ Never true

The questions that follow are to assess your experiences with food insecurity.

Please mark [x] the option(s) that best apply to you. You can select more than one option for each question.

2.24 **If you have experienced periods of food insecurity, what do you believe contributes to your feeling food insecure?**
☐ Tuition fees ☐ Housing ☐ Transportation
☐ Physical accessibility to food ☐ Cost of food ☐ Inadequate income support
☐ Limited time to prepare food ☐ Limited knowledge and skills to prepare food ☐ Limited facilities and equipment to prepare food
☐ I have not experienced food insecurity in the last nine (9) months ☐ Other

2.25 **If you answered 'other', please specify**

2.26 **If you have identified yourself as being food insecure, what areas of your life have been negatively impacted?**
☐ Physical health ☐ Mental health ☐ Social life
☐ Grades ☐ Class participation ☐ Extracurricular activities
☐ I have not experienced food insecurity in the last nine (9) months ☐ Other

2.27 **If you answered 'other', please specify**

2.28 **In your opinion, what can be done to solve the problem of food insecurity?**

2.29 **Any additional comments on the food situation?**

Thank you for taking the time to complete this questionnaire.

ANNEXURE B: CONSENT FORM

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM

DATE

8 October 2019

TITLE OF THE RESEARCH PROJECT

An explorative evaluation of food insecurity at Higher Education Institutions: the case of first-year students at the University of the Free State.

PRINCIPLE INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

Annelize Visagie *083 382 6632*

FACULTY AND DEPARTMENT:

Faculty of Economic and Management Sciences
Department of Development Support

STUDY LEADER(S) NAME AND CONTACT NUMBER:

Dr. Anesu Ruswa *071 341 7598*

WHAT IS THE AIM / PURPOSE OF THE STUDY?

Even though there are already measures implemented to eradicate food insecurity and assisted students in need, the majority of students are still underperforming. The measures in place, such as the NSH programme and the Food Parcel Project, are not adequate to eradicate the need for sufficient food for the majority of students registered at the UFS. Food Insecurity at South African universities has several consequences and challenges. To be able to excel in academic performance students need to be healthy without external stressors negatively impacting their studies. The reality is that students struggle daily to manage and consequently suffer hunger, a situation that negatively impacts their education. Students are often caught in a quandary; they need to make a choice between transport money to the University or to buy something to eat. Thus, the goal of this study is to explore solutions to these challenges as faced by students in Higher Education Institutions of learning.

WHO IS DOING THE RESEARCH?

Annelize Visagie will be doing the research. The researcher is currently a Masters's student who will expectantly be conducting research into the food insecurity of first-year students at the University of the Free State. Currently, I am the Head of the Food Insecurity office at the Univerity of the Freestate

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher.

Approval number: *UFS-HSD2019/1197*

WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

You are invited to participate in this study as you are currently registered as a first-year student at the University of the Free State in 2019. I will visit various locations at the UFS to conduct the research. These locations will be at Residence's and Off-Campus institutions and Day residence and with Gateway buddies. You will be one of approximately 300 first-year students who will complete the questionnaire during the year.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

Students of the University struggle daily to make ends meet pertaining to meals they require in order to be able to concentrate and study. The aim of this study is to explore positive ways to assist students pertaining to their daily food intake. Further, this study will explore structures at the UFS and whether these structures assist students in fighting food insecurity. Authorisation and ethical consent to conduct this study with first-year students of the UFS Bloemfontein campus will be obtained from the Research Ethics Committee of the Faculty of Economic and Management Science (EMS). Additional ethical approval will be obtained from the Dean of the Student Affairs division.

CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?

Participation in this study is completely voluntary. Neither incentives nor coercion will be used in the recruitment of participants. Should you decide on participating in this study, you will be provided with a copy of this information sheet and asked to sign a written consent form. There is a questionnaire that you need to complete. If you want to decline or withdraw from participation in this study, you may do so without giving a reason and without any negative repercussions.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

The information that you will share with me may not benefit you personally but will assist in understanding first-year students' experiences at the University of the Free and how food insecurity impacts upon first-year students. The findings of this study might lead to suggestions for intervention-based studies for future research regarding food insecurity as a protective factor and possible facilitation tool in the adjustment to university, thereby benefitting future first-year students.
Even though there are already measures implemented to eradicate food insecurity and assisted students in need, the majority of students are still underperforming. The measures in place, such as the NSH programme and the Food Parcel Project, are not enough to eradicate the need for sufficient food for the majority of students registered at the UFS. Food Insecurity at South African universities has several consequences and challenges. To be able to excel in academic performance students need to be healthy without external stressors negatively impacting their studies. The reality is that students struggle daily to manage and consequently suffer hunger, a situation that negatively impacts their education. Students are often caught in a quandary; they need to make a choice between transport money to the University or to buy something to eat. Thus, the goal of this study is to explore solutions to these challenges as faced by students in Higher Education Institutions of learning.

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

The discussion of the challenges experienced at university may be uncomfortable for some individuals. Should you experience any discomfort or distress as a result of participating in this study, you may contact Dr. Melissa Barnaschone at UFS Student Counselling and Development at 051 4012853, who will arrange for 2-3 counseling sessions free of charge. You might also contact the Social Support unit, in particular, the Social Worker, Mrs. Elizabeth Msadu, at the Steve Biko Building at the Student Center. Mrs. Msadu can be contacted at 051-4019117.

WILL WHAT I SAY BE KEPT CONFIDENTIAL?

It is a priority to protect participants from any potential harm; thus, the data collected will be handled with confidentiality. The data collected will only be available to the researcher, the researchers' supervisor, and an additional transcriber. The transcriber will be given a confidentiality agreement to sign, confirming that the data collected will remain confidential and strictly be used for the purposes of this study. Should there be a need to refer to you in the written document, a pseudonym will be used to protect your identity. If the data collected in this study would be used in publications in general, articles, or presentations, your identity will still remain anonymous. You will not be personally identified through your participation in this study.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Hard copies of your responses will be stored in a locked cupboard/filing cabinet at the Student Affairs social support Unit for future research or academic purposes, and electronic information will be stored on a password-protected computer. The data collected will be stored for a period of 5 years. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. After this time period, the data will be destroyed to prevent access to unauthorized individuals.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There will not be any form of payment or reward offered for participating in this study to prevent coercion of any kind to play a role in the results of the study. Further, there are no foreseeable risks involved with regards to others identifying you as a participant in this project. Other students might have noticed that you are complete questionnaire, however, as this is an individual questionnaire, no one apart from the individuals involved in this research such as the researcher, supervisors, additional transcriber, and possibly additional individuals from the Research Ethics Committee will be able to identify you as a participant in this study.

HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?

If you would like to be informed of the final research findings, please contact Annelize Visagie at 051-4013258 or visagiea@ufs.ac.za. The findings will be accessible to participants once they requested a copy of the final document.

Thank you for taking the time to read this information sheet and for participating in this study.

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), hereby confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read and understood the study, as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the stud. I understand that my participation is voluntary and that if I feel uncomfortable, I have the right to decline to complete the questionnaire or to withdraw my participation in the study without penalty. I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

Moreover, I understand that should I suffer any emotional distress or personal embarrassment during the process of reflecting on and sharing my experiences as a first-year student at UFS during the course of the study, I may contact Dr. Melissa Barnaschone at UFS Student Counselling and Development (051) 4012853 who will provide 2-3 counselling sessions, free of charge. In addition, you may contact the Social Worker on Campus Mrs. Elizabeth Msadu for an appointment; her number is 051-4013258 situated at the Steve Beko building Student Center.

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

Full Name of Participant: _____

Signature of Participant: _____ Date: _____

Full Name(s) of Researcher(s): Annelize Visagie (visagiea@ufs.ac.za)

Signature of Researcher: _____ Date: _____

ANNEXURE C: ETHICS APPROVAL

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

07-Oct-2019

Dear Miss Visagie, Annelize A

Application Approved

Research Project Title:
An explorative evaluation of food insecurity at higher educations institutions: the case of first year students at the University of the Free State.

Ethical Clearance number:
UFS-HSD2019/1197

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

Prof Derek Litthauer
Chairperson: General/Human Research Ethics Committee

Digitally signed by Derek Litthauer
Date: 2019.10.08 11:50:43 +02'00'

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