EXPLORING PERCEPTIONS AND EXPERIENCES OF STUDENTS' FOOD INSECURITY IN RESIDENCES AT THE UNIVERSITY OF THE WESTERN CAPE (UWC)

by

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ABSTRACT

There have been ongoing debates about the state of food insecurity in institutions of higher learning in South Africa but with minimal sustainable solutions found. This thesis used Sen's Capability Approach in exploring perceptions and experiences of students' food insecurity in residences of the University of the Western Cape. This study employed a mixed-method sequential explanatory research design through a self-administered questionnaire, with 108 participants selected using a random stratified sampling method across the senior residence community. The data were analysed using SPSS for descriptive statistics, and thematic analysis, to better understand the barriers challenging students' in achieving their capabilities and functionings.

The study used Sen's capability approach to identify conversion factors as well as strategies that are employed by students in residences to mitigate challenges that have a negative impact on availability, accessibility, utilisation, and stability of food. The findings of the study showed strengthened ties in terms of financial support for some students when running out of food. They indicated that food insecurity is not well perceived by students in residences and that should be a significant concern for the higher education and training especially for student development. The findings provided significant insight on students' experiences through the Capability Approach on what is lacking in providing social protection to residence students. In addition, the findings have also provided an insight on intervention strategies that could assist students to improve their social and environmental conditions in addressing food insecurity in UWC residences. The findings have also shown that students' food insecurity has not improved, as most students have not utilized the knowledge and awareness of the importance of good nutrition to improve their capabilities and functionings.

DECLARATION

I hereby declare that I know and understand what is meant by plagiarism and that this is my original work. I fully understand the consequences of plagiarism and that it is a punishable offence, as it relates to stealing someone else's work and making it my own. I further declare that this thesis has not been submitted at any other institution, and I have acknowledged all the sources that have been used in this research project appropriately through referencing.

Signature:……

Date:……..

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DEDICATION

I would like to dedicate this thesis to the following:

- My late grandparents (Tembeka Christina and Cyril Bathembu Sigodi) for the significant role that they have played in raising me, your invaluable teachings about the importance of education,
- My mother, Mandisa Sibutha, for the sacrifices that have led me to be the person that I am today.
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LIST OF ACRONYMS AND ABBREVIATIONS

UWC	University of the Western Cape
EMS	Economic and Managements Sciences
SDS	Student Development and Support
DHET	Department of Higher Education and Training
CHE	Council for Higher Education
CA	Capability Approach
NSFAS	National Student Financial Aid Scheme
HFIAS	Household Food Insecurity Access Scale
HDDS	Household Dietary Diversity Scale
RS	Residential services
KAP	Knowledge, Awareness and Practice
UN	United Nations
FAO	Food Agriculture Organization
HEI	Higher Education Institution
HDI	Historical Disadvantaged Institution
GEUFP	Gender Equity Unit Food Programme
SDG	Sustainable Development Goals

Chapter 1

1. Introduction and Background

1.1 Introduction

Many countries are unable to meet the growing and diversifying demand for higher education (Van der Wende, 2003). According to the World Bank (2000), the number of students in institutions of higher learning (HEIs) globally doubled in size, from 40 million in 1975 to more than 80 million in 1995. In South Africa, especially in the past few years, the higher education and training sector has experienced significant challenges, particularly concerning student funding. The National Student Financial Aid Scheme (NSFAS) shortfall in 2020/2021 resulted in some students who receive food vouchers not having access to their allowances (South African Government News Agency, 2021; NSFAS, 2021). This had a negative impact on students' food security and raised concerns around their academic performance. Food insecurity for students who reside in HEIs remains a major concern in South Africa.

This chapter provides a background to this study exploring perceptions and experiences of residence students' regarding food insecurity at UWC. This chapter outlines how restructuring the higher education system increased access to institutions, leading to a much- needed diversified population of students. However, it also increased demand for funding, with many students coming from disadvantaged backgrounds (Council on Higher Education [CHE], 2010: 1).

1.2 Background to the Study

The increase in university access in South Africa exacerbated socio-economic inequalities within the student population in universities, resulting in 'the crisis in access to higher education', due to financial and other challenges faced by the sector (CHE, 2010:1). In addition, students from marginalised and poorly resourced educational environments and socio-economic backgrounds found higher learning challenging and, as a result, were more likely to experience academic failure (McGhie, 2007). The prevalence of food insecurity has been a major challenge in previously disadvantaged South African universities.

The new higher education policy improved the quality of education and reduced perceptions of inadequacy in higher education held in the labour market; however, the challenge of resources requires urgent attention, particularly in historically disadvantaged institutions

(HDI), which have limited ability to contribute to the social and economic development of students. This study explored perceptions and experiences in relation to food insecurity among residence students at UWC.

1.3 Preliminary Literature Review

Food security is a fundamental human right and is an essential determinant of well-being (Collins, 2008: 252). In developed countries, inadequate income is the key determinant of hunger and food insecurity, which is the limited or questionable access to safe, nutritiously satisfactory foods (Che & Chen, 2001: 11). Due to the physical and psychosocial consequences of not having enough access to food, food insecurity is an important public health and social issue, even in developed countries; lack of financial resources is a strong indicator of personal and household food insecurity (Rainville & Brink, 2001). According to the Food and Agriculture Organization (FAO), "food insecurity is a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life" (FAO, 2011:9). For Van der Merwe (2011: 6). The prevalence and increase of food insecurity in urban areas is a cause for concern, needing to be addressed through concrete and clear policies that will be effectively implemented as strategies. Three key dimensions to urban household food security can be identified. These are "food availability, food access and food utilisation" (Van der Merwe, 2011:2). Unlike rural residents, urban residents must purchase most of their food. "Urban food security is therefore highly dependent on money" (Van der Merwe, 2011:2), thus needing efficient and stable income-generation.

1.4 Statement of the Research Problem

Food insecurity among students in HEIs, particularly residence students, is an emerging phenomenon. There is a distinct student group that is vulnerable to food insecurity. Furlong (2017) reported that "students at UWC live in makeshift conditions and go to bed on empty stomachs." Despite the fact that UWC has initiated a few projects aiming at tackling this phenomenon, it seems to persist, affecting virtually every category of students whether funded or not funded. Hence food insecurity may have a large impact on students' well-being and academic success.

1.5 Research Questions

1.5.1 Central research question

- To what extent does food insecurity have an effect on student well-being?

1.5.2 Secondary research question

- What are students' perceptions and their experiences in relation to food insecurity?

1.6 Aim of the Research

The main aim of this research was to explore perceptions and experiences of food insecurity of university students living in campus residences.

1.7 Research Objectives

The objectives of this research were as follows:

- To explore perceptions of students about food insecurity.
- To describe experiences of students concerning food insecurity, disaggregated by race, gender, and other characteristics.
- To provide recommendations to policymakers and student development/support service on possible options/ways of formulating such policy to assist disadvantaged students and HEIs to deal with food insecurity among students living on campus residences.

1.8 Rationale of the Study

This study is a response to the broader developmental intervention agenda of the World Health Organization (WHO, 2018: 57), towards achieving their "strategic objectives such as (i) ending hunger by protecting access to food, (ii) improve nutrition and (iii) achieve food security". This is in line with Sustainable Development Goals (SGDs) 2 (zero hunger), 3 (good health and well-being), and 4 (quality education). Achieving food security in HEIs aims to balance the realisation of human rights (creating conducive living conditions for students), and the increasing demand for access and success of disadvantaged students in higher education (CHE, 2014; Uduku, 2010). Food insecure students are likely to experience challenges relating to poor health, inability to concentrate in class, and poor academic performance, resulting in high dropout rates especially those from low-income households (Bruening et al., 2018; Farahbakhsh et al., 2015; Maroto, 2013; Maroto et al., 2015).

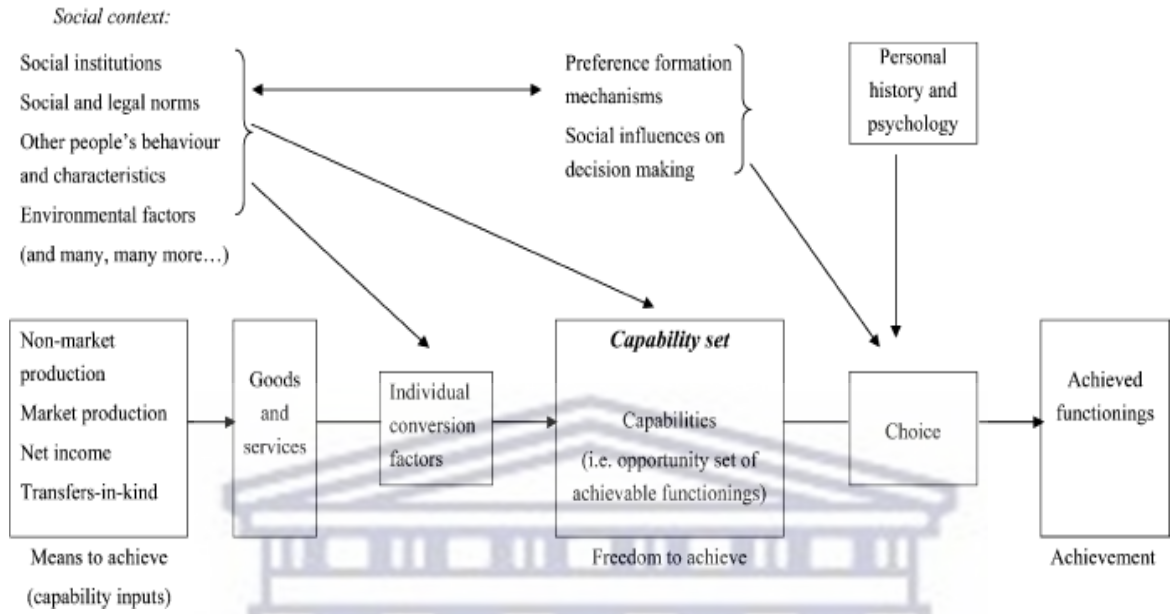
Little research has been done focusing on students living in university residence in South Africa and globally; therefore, the current research represents a significant gap in the research. Universities need more information to address food insecurity and create sustainable intervention programmes guided by an informed policy perspective. The National School Nutrition Programme (NSNP) has increased concentration and attendance levels among learners; however, most students funded by NSFAS still experience inadequate funding (DBE, 2009; DHET, 2020). This is despite the idea that all NSFAS recipients are food secure, which ignores their socio-economic background and pre-existing inequalities. The study's findings could influence the development of food security policy intervention programmes for UWC students.

1.9 Conceptual Framework

The following conceptual framework developed by Robeyns (2005), set out a person's capability set as a multidimensional and dynamic construct that includes a range of functioning's and opportunities that are available to an individual. The framework is not limited to tangible aspects such as income or education but also covers intangible factors such as health, freedom, and overall well-being (Robeyns, 2005). This approach place emphasis on the relationship that is believed to exist between a person's capabilities, social and personal context. While the framework places emphasis on capabilities as being the functioning bundle that and individual can choose from in order to achieve a desired life or a develop a valued well-being (Ibrahim, 2006). According to Deneulin (2004:7) the framework views well-being as 'the whole network of social conditions which enable human individuals and groups to flourish and live a fully, genuinely human life'.

This conceptual framework as highlighted above is not the researcher's own model but a theoretical orientation that has assisted in providing a theoretical context or guideline in framing the study conducted and answering the study objectives. Therefore, the conceptual framework is aligned with capabilities framework developed by Amartya Sen in analysing human development and the well-being of others. The conceptual framework assisted in framing the study by analysing the phenomenon food insecurity in the context of residence students, exploring their perception and experiences in relation to their well-being.

Figure 1.1: A stylised non-dynamic representation of a person's capability set and their social and personal context



Source: (Robeyns, 2005)

1.10 Significance of the Study

The findings of this study could be used as an early tracking system in the drive to achieve the United Nations (UN) SDGs in HEIs across South Africa and Africa. The study findings could further be utilised to develop intervention programmes and inform universities about useful coping strategies that assist in addressing food insecurity among residence students.

This study also contributes significantly to the literature on knowledge, attitude, and practices (KAP) of students in relation to food choices and their behaviour. The findings of the study can also provide practitioners, administrators, researchers, and policymakers with useful insights in food insecurity of the students from a residence community perspective.

1.11 Thesis Outline

The thesis consists of seven chapters.

1.11.1 Chapter 1

This chapter introduced the study, giving a preliminary literature review and statement of the research problem. The chapter presented the research questions, and the aims and research objectives. Furthermore, the rationale of the study was discussed, and the conceptual framework was presented.

1.11.2 Chapter 2

This chapter provides a review of the existing literature on food security in HEIs globally and in South Africa, looking closely at the experiences of students regarding the phenomenon and the institutional support at their disposal. The second part of the chapter focuses on the theoretical framework (the Capability Approach) adopted for the study, the motivation for selecting the framework, and its strengths and weaknesses.

1.11.3 Chapter 3

This chapter presents the research methodology employed throughout the research project and the methods of data analysis utilised in this mixed-method, sequential explanatory research study. The justification of the research design is presented. The chapter highlights the philosophical view of the chosen realism paradigm and links the quantitative and qualitative research approaches in the study. The chapter also provides a description of the methods of data collection, data collection instruments and procedures, trustworthiness of the data collected, data analysis, limitations and ethical considerations adopted in the study.

1.11.4 Chapter 4

Chapter 4 presents the quantitative results using descriptive statistics and Chi-squared analysis. This chapter reflects on the results, supported by literature, to ascertain the meaning and practical implications of the results.

1.11.5 Chapter 5

This chapter presents qualitative results using thematic analysis which employed Tesch's (1992) eight steps that assisted in development of themes from the data. This chapter also presented and integrated literature to substantiate the claims from the empirical data and make meaning of it under each theme developed.

1.11.6 Chapter 6

The chapter presents a discussion of the food insecurity findings of the study, discussing the practical implications related to the CA perspective.

1.11.7 Chapter 7

The chapter summarises the research project by drawing from key study findings, then presents the significance of the research study, its limitations, implications, and conclusions. The chapter also presents recommendations for future research.

Chapter 2

2. Literature Review and Theoretical Framework

2.1 Introduction

Food security remains a global concern. The United Nations Declaration of Human Rights recognized food as a fundamental human right, where people have a right to an adequate healthy life including the right to food (UN, 2010). This universally recognized right for people should be enforced by countries, together with their government, to address the issue of food security. However, food insecurity continues to be growing public health problem and one of the major issues affecting student well-being in institutions of higher in South Africa, Africa and globally. Several studies have shown a prevalence of food insecurity among the student population in South Africa, associated with prostitution, theft, selling of personal items, and surviving on one meal a day (Dispatch Live, 2015).

This chapter aims to unpack the complexity of food security, looking at its concepts, dimensions, food insecurity indicators (in particular, how they assist in measuring food insecurity), and reviewing previous studies on the topic of food insecurity in order to draw lessons from what has been done to assist in the context of this study. Although South Africa is a middle-income country, its state of inequality has led to many challenges in providing services to its citizens and ensuring that all people have adequate access to food, through its targeted social welfare programmes. This is due to the growing population, socio-economic issues, disparities in income, unemployment, and the growing demand for higher education with its associated funding challenges. Despite the growing concern from recent studies and the need to look deeper into the issue of food insecurity among students in HEIs, little has been done in terms of policy formulation and addressing the issue in practice.

2.2 Concept of Food Security

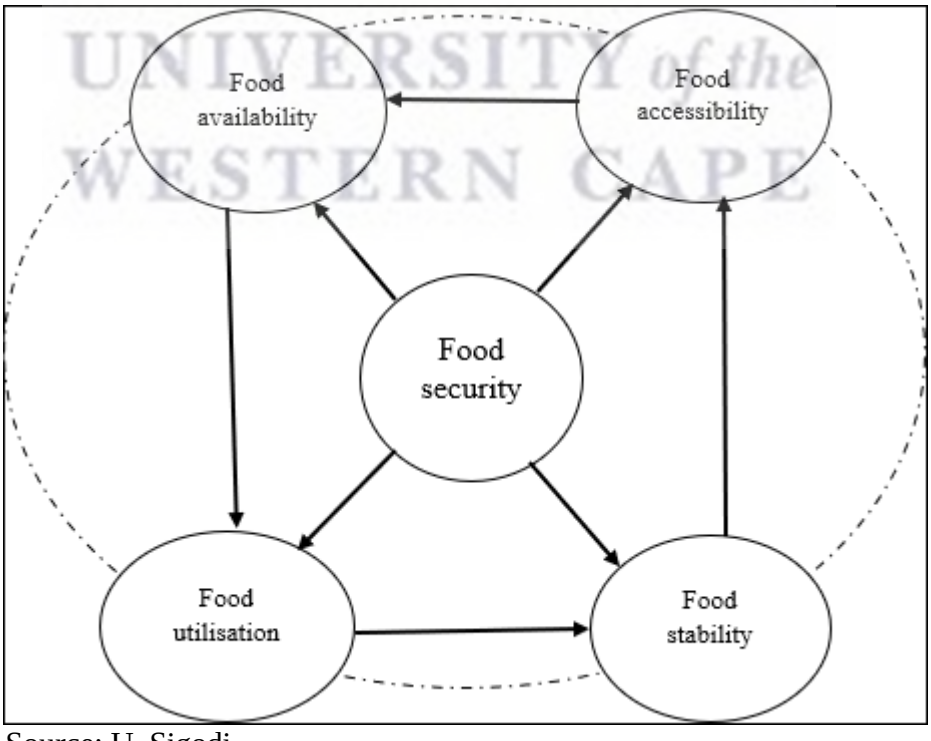
Food security is an essential determinant of well-being (Collins, 2008). FAO (2002) define food security "as a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" cited in Peng & Berry (2019: 1). This definition focuses on food security from a human rights perspective, as a realisation right where people in authority should make a commitment to ensuring that people are food secure and their well-being is protected.

The FAO (2008) sees food security as resulting from four key elements of a food system: (i) food availability, (ii) food stability, (iii) food accessibility, and (iv) food utilisation. According to Berry et al. (2015), this is best considered as a linked pathway from production to consumption, through distribution to processing, recognised in a number of domains rather than in four 'elements.

According to the FAO (2011a:9) "food insecurity is a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life". This definition sees food insecurity as occurring when access to food is not secured, and it is mostly concerned with safety and nutrition. Safety remains important for provision of food security in people's lives; if the food is unsafe, people remain food insecure as this compromises their health and development. Payne-Sturges et al. (2018) emphasise the role of financial resources when defining food insecurity, while Hickey, Shields and Henning (2019) see food insecurity occurring at different levels during a period of time (e.g. a year). Food insecurity has a critical effect on life experiences and can prompt various economic, well-being and social challenges (Gorton, Bullen & Mhurchu, 2010).

2.3 Dimensions of Food Security

Figure 2.1: A conceptual overview of dimensions of food security



Source: U. Sigodi

Figure 2.1 shows how various dimensions of food security are related.

Food availability is concerned about the food supply, with adequate quantities and the right quality, that is distributed through various channels such as stores, food establishments, imports, and local production (Lawlis, Islam & Upton, 2018). Furthermore, Lawlis, Islam & Upton (2018) argues that on local and community level, food availability has to consider factors that includes accessibility of stores or food outlets, cost of food, quality, and diversity of food, looking at both staples and culturally significant foods, as well as food assistance programs.

This dimension concerns the 'supply side' of the food system, particularly food production, in terms of how much stock is available and the ability to finance the stock of food (FAO, 2008). This includes domestic production, food imports, the marketplace and food aid. In the context of university students, the marketplace is where food is available for them; however, lack of financial security provides limitations to accessing food. This emphasises that food availability on its own does not ensure food security (FAO, 2008). According to Burchi & De Muro (2012), food availability is mainly focused on the lack of stability between food and population, taking into consideration supply, demand, and fluctuation of food prices.

Food accessibility is a measure of the ability to secure entitlements (Sen, 1984), which are described as a set of legal, political, economic, and social resources. This dimension covers access by people to satisfactory assets to procure proper foods for a nutritious diet (Garcia-Díez et al., 2021). Food accessibility by households is determined by food production, market purchases and other sources, including transfers (e.g. food aid).

In the context of the current study, this dimension speaks to financial resources that will assist students in having access to food. For students to satisfy the food accessibility dimension requires full and equal distribution of economic resources such as funding in the form of bursaries, NSFAS and other available relief grants. From a personal level in the context of students, this includes the number of meals that a student has access to per day or month. From a community-level perspective, this entails looking at the market (accessible to students?) and retail food prices (affordable?). If students struggle to access an adequate number of meals, it then suggests food insecurity and limited food accessibility. Therefore, the number of meals a student has access to per day or a month is directly related to food accessibility and is a critical factor in determining students' food accessibility. According to FAO (2021), an individual's income and other necessary expenses are an essential determinant of accessibility to food and

an affordable healthy diet.

Food utilisation is commonly understood as the way the body makes the most of various nutrients in the food and also having the ability to utilize food in a reasonable way through having knowledge of important nutrients and care (Ben Hassen & El Bilali, 2022). Garcia-Díez et al. (2021:2) state that this dimension is mostly focused on the "biological use of food through adequate nutrition, drinking water, sanitation, and medical care, to achieve a state of nutritional well-being in which all physiological needs are satisfied". Leroy, Ruel, Frongillo & Ballard (2015) posited that food utilization is mainly concerned with looking at people's capacity to absorb and make use of the nutrients they consumed to support normal functioning of the body. Combined with good biological utilisation of food consumed, this determines the nutritional status of individuals.

Food utilisation reflects concerns about whether individuals make good use of the food they can access. For this study, this dimension required the researcher to look at the diet being consumed by the students and whether it is sufficient and comprises different food groups. Food utilisation requires proper monitoring of changes in diet and consumption patterns in order to be able to observe nutritional status of an individual (FAO, 2013).

Food stability is the fourth dimension; it alludes to the idea of stable food availability over time. According to Garcia-Díez et al. (2021), this refers to a condition where a person, household, or population has stable access to adequate food at all times; this is deemed food security. The FAO (2008) argues that food stability alludes to vulnerability in the condition of an individual or family. Food "stability is a cross-cutting dimension that refers to food being available, accessible and utilization adequate at all times, so that people do not have to worry about the risk of being food insecure during certain or due to external events" (Leroy et al., 2015).

It ensures that no negative shocks have an impact on an individual or household, in the event that one of the three dimensions may pose as a threat towards achieving food security (FAO, 2008). For example, if a student loses funding, that may have a negative impact on the students' income and will cause instability in their ability to access food.

2.4 Food Security Indicators

Several studies have expressed the difficult challenges in measuring food insecurity due to the

complex nature of the phenomenon. According to Labadarios et al. (2009: 6), as food insecurity is able to exhibit "itself in several pathways, it may then be regarded as a multi- dimensional phenomenon", as discussed above. There have been challenges with regard to measuring food security status in South Africa; this is due to limited information about food security, data inconsistencies and limitations encountered due to variation in data from the population in general (Dube, 2013). Several methods have been used in South Africa to measure food security including the Household Food Insecurity Access Scale (HFIAS), Household Dietary Diversity Score (HDDS), the October Household Survey (OHS) and several more (Chitiga-Mabugu et al., 2013; Coates, Swindale & Bilinsky, 2007; Drimie & Ruysenaar, 2010; Hoddinott & Yohannes, 2002; Dube, 2013; StatsSA, 2011). Chinnakali et al. (2014) believes that food insecurity has several determinants that may occur at different levels, including (i) national level, (ii) regional level, (iii)local level, and (iv) household level.

The current study uses the HFIAS, and IDDS, to look at food insecurity access at household level in the context of university residence students. These methods assisted the researcher in looking at food insecurity from the consumption perspective, looking at the socio-demographics, dietary intake, drastic measures, and food expenditure of the participants in the study. Coates et al. (2007: 1) support the use of the HFIAS based on the suggestion that "the experience of food insecurity causes predictable reactions and responses that can be captured and quantified through a survey and summarised in a scale". The IDDS is used to measure food insecurity based on the assumption that the more diverse a diet consumed by a person, the healthier it is, provided that it contains healthy food groups (Hoddinott & Yohannes, 2002). Ruel (2002) states that dietary diversity can be characterised as the quantity of different types of foods or food groups consumed in a stipulated timeframe.

2.5 Food Insecurity

2.5.1 An overview of food insecurity in higher education institutions (HEIs) globally

In a US study, Payne-Sturges et al. (2018) found that 48% students in a state-funded university experienced food insecurity, and about 22% experienced hunger. The difference is because some may have had access to at least some food to eat, even if not nutritious. The presence of hunger among students suggests that their eating routines are disturbed and they are not consuming enough food. Hunger refers to a feeling of discomfort or weakness caused by lack of food, coupled with the desire to eat (Feeding America, 2014). Considerable evidence shows

that students from disadvantaged households are adversely affected by food insecurity, which has a significant effect on their mental health and functioning. This is corroborated by (Van den Berg & Raubenheimer, 2015; Gwacela, 2013), where research finding has shown that hunger and food insecurity continue to be a challenge for disadvantaged students, with varying rates at different institutions: UFS at 65%, UKZN at 34%, North West University (NWU) at 30%, while Unisa is approximately at 30% followed by Wits university at 7%. Other findings reported that the prevalence of food insecurity among university students exceeds that of the US population in general (Goldrick-Rab et al., 2018; Henry, 2017). Van Woerden et al. (2018) reported that systematic reviews in the US estimate the prevalence of food insecurity among the US college students to be between 33% and 51%, compared to US households at 11.8%.

Furthermore, Henry (2017) found that food insecurity is increasing and is closely associated with "silence, stigma, shame and facelessness" among food-insecure students in a study conducted in Texas. In Australia, Hughes et al. (2011) found that 46% of students have experienced some form of food and financial insecurity. The increase in food insecurity is linked with increasing enrolment of 'non-white' and first-generation students at tertiary institutions in the US. According to the Centre for Law and Social Policy (CLASP) (2015), white student numbers have declined from 2000, with a slight increase in non-white numbers, particularly Hispanic students, a trend projected to continue.

Morris et al. (2016) found that undergraduate students in four US public institutions reported a higher prevalence of food insecurity, particularly among African-Americans who were on student financial aid compared to those staying at home. A study at California State University Sacramento found that 23% of high-performing students from low-income families have experienced having to go a day in a month without food (Dubick, Mathews & Cady, 2016). A Western Oregon University study reported that approximately 59% of the student respondents were food insecure and had low academic performance (Dubick et al., 2016). Furthermore, food insecurity has been reported across a range of students, including students of colour, students deemed to be financially independent, and those receiving financial support from government (Bruening et al., 2017)

2.5.2 Food insecurity at HEIs in South Africa

Rudolph et al. (2018) report that food insecurity at South African HEIs is extremely high.

Munro et al. (2013) showed that University of KwaZulu-Natal (UKZN) students are adversely affected by food insecurity, particularly those funded by NSFAS. These students qualify for funding due to their disadvantaged backgrounds; they are thus highly unlikely to afford a nutritious/healthy diet on a daily basis. Dominguez-Whitehead (2015) reported that UKZN students had gone to sleep without consuming food, having exhausted their financial aid. Furthermore, some students had participated in stealing food from their residence housemates (Dominguez-Whitehead, 2015).

Thus, food insecurity and hunger amongst HEI students is not a myth (Mogatosi, 2016). UKZN is particularly affected compared to other institutions as per studies conducted, such as UFS, Wits, and NWU, having 53% of its students from economically disadvantaged communities (Kassier & Veldman, 2013). South African HEIs have significantly increased access for previously disadvantaged students (Munro et al., 2013); however, these students are the most vulnerable to food insecurity. Kassier & Veldman (2013) showed that over 12% of NSFAS students at UKZN were found to be food insecure, with most participants experiencing food deprivation toward mid-year. Sabi et al. (2020) posit that food insecurity in South Africa threatens the country's economic development and graduate entry into the labour market. Universal human rights provide that individuals in a society should have access to enough nourishment to promote their active participation daily life (Ayala & Meier, 2017). Munro et al. (2013) reiterate that beyond human rights, it is important to ensure that all students at HEIs have their basic needs met so that they have a reasonable possibility of thriving academically.

Bruening et al. (2017) reported that various studies conducted in South African universities have revealed similar or lower rates of food insecurity compared to national rates. Van den Berg & Raubenheimer (2015), in a University of the Free State (UFS) study, reported that the "level of food insecurity found in the sample was only marginally higher than that in the surrounding population". Rudolph et al. (2018) showed that food security amongst South African HEI students ranges from 11% to 38.3%. According to StatsSA (2019), about 15.8% of households in South Africa reported inadequate access to food, and 5.5% of those households described their food access as severely inadequate.

Most students at HEIs face financial challenges, particularly those on financial aid; some share some of their food allowances with others at home (Gwacela, 2013; Kassier & Veldman, 2013; Van den Berg & Raubenheimer, 2015). Students from disadvantaged backgrounds carry many

issues as they transition to university; some are heading families while also facing their academic commitments. According to StatsSA (2017), 21.3% (17 million) of South African households experienced hunger in 2017, and more than 60% of those households were found in the urban areas.

2.6 Food Insecurity in South Africa

Van den Berg & Raubenheimer (2015) reported that South Africa is regarded as food secure at national level, based on food produced in the country; however, this is not the case at household level (Altman, Hart & Jacobs, 2009; Hendriks, 2005). South Africa faces a high prevalence of food insecurity, with a portion of its population struggling to have access to an adequate and nutritious food supply. This problem is influenced by many factors such as inequality, poverty, and unemployment. Mthethwa (2021) argues that food insecurity in South African universities stands at 30%, which is relatively higher than the national average of 26% in the country.

South Africa's existing socio-economic inequality is shown by approximately 17.9% of black African-headed households reporting vulnerability to food insecurity, whereas Coloured households were reported to be at 13.5% (StatsSA, 2019). The socio-economic inequality in South Africa is also shown in a study conducted in Limpopo which projected levels of food insecurity among rural households of around 52% (De Cock, et al., 2013). Socio-economic inequality plays a criucial role in exacerbating food insecurity. The vulnerable groups, such as low-income housholds, unemployed youth and those living in impoverished ares, are more likely to experience food insecurity. In addition, Naicker (2015) reported a 70% household food insecurity rate among people living in informal settlements, which expose those households to health hazards, chronic disorders and mental health issues.

2.7 Causes of Food Insecurity

There are many causes of food insecurity across the world; however, for the current study, the researcher will focus on urbanisation and migration, and population growth.

2.7.1 Urbanisation and migration

The relationship between migration and urbanisation and food security globally, and the impact on development in Africa, have been widely discussed. People move to urban areas for economic reasons and the lack of state support in uplifting the rural economy. According to

Crush (2012), South Africa has the highest proportion of urban dwellers (60-70%) in the SADC region. Urbanisation involves people moving from rural to urban areas (McGranahan & Satterthwaite, 2014), while migration is about movement of people from one residential area to another, which may be internal or international (Stats SA, 2006). This study will only refer to internal migration.

Crush (2012) reports high levels of food insecurity among migrants; contributing factors are inadequate access to land and capital and informal employment opportunities. HEI students are not immune to such conditions, as many students migrate from rural areas to the Western Cape to further their studies. Migration plays a critical role in the lives of these students, who are challenged with food insecurity in their residences and resort to seeking employment opportunities in an attempt to manage university life.

2.7.2 Population growth

Another factor that contributes to food insecurity in South Africa is population growth. According to the United Nations [UN] (2015), Africa has the fastest growing population globally; it is currently around 1.1 billion, with future predictions that it may reach 2.4 billion by 2050. Similarly, the HEI sector is also growing. According to Klemencic & Fried (2007), there has been a significant increase in numbers, as HEI studies are becoming a universal aspiration. In South Africa, this revolves around government goals to increase access to HEIs, to bolster the workforce and increase participation in the market. However, massification of higher education has its own challenges, including the financial burden on the public budget in South Africa and other African countries (Dunrong, 2007). The population growth in institutions of higher learning will result housing or accommodation challenges, where students will struggle to get residences and that might likely result in students being faced with food insecurity. Financial resources will be diverted towards securing adequate accommodation instead of getting nutrition. Due to population growth of students, comes pressure on infrastructure and that includes high demand for transportation, as in the case with students protesting on campus due to lack of buses and that can indirectly affect the accessibility of food for students. Currently UWC is struggling to expand food services and facilities across campus, while the population growth of students is expanding. Availibility and affordability of food on campus at UWC is indirectly affecting students because of increasing competition for resources in the university as a result of the growth in student population.

2.8 Gender Differences in Food Security and Choices

According to the World Health Organization (WHO) (2018: 6), "food preferences, taboos and consumption patterns have different impacts on the nutritional status of family members according to their sex and age, with boys being given preference in some contexts and girls in others". Gender also impacts food insecurity in the context of students living in university residence, as it influences their food preferences and consumption patterns, negatively or positively. Wardle et al. (2004) argue that gender differences in food choices may relate to some women's desire to control their weight and have healthy eating habits, compared to some men (Bellows, Alcaraz, & Hallmark, 2010). Wardle et al. (2004:104) highlight that "women were more likely than men to report avoiding high-fat foods, eating fruit and fibre, and limiting salt" as well. Sraboni et al. (2014) argues that, in households that are controlled by women, the food tends to be rich in calories, with a more diverse diet in that household. However, on campus, both male and female students hold responsibility for cooking and the choices around their diet.

2.9 Food Consumption Patterns among Students

Various factors impact on food consumption patterns, including one's physical context, traditions, and religion (Abdalla & Taha, 2015), which can influence food insecurity among university students. However, Abdalla & Taha (2015) believe that food consumption patterns are mostly influenced by financial resources, which dictate dietary diversity. The availability of financial resources such as bursaries, NSFAS and funds from home significantly influences the dietary diversity that students can access.

According to Sundaram, Ghazi & Elnajeh (2018:19), "poor food consumption pattern and breakfast habit result in poor nutritional status and increased risks of diseases in students". Skipping of certain meals such as breakfast can result in nutrient deficiency; in students, intake is mostly influenced by inconsistent patterns in food intake, based on convenience or lack of time for preparation. According to Merdol (2001) cited in Ozdogan, Ozcelik & Surucuoglu (2010), skipping breakfast is associated with fatigue, headache, and attention and perception deficits. Skipping breakfast on a regular basis may thus have a negative impact on students' well-being and academic performance.

2.10 The Impact of Food Insecurity on Student Well-being

Several studies conducted on the impact of food insecurity on student well-being have indicated dire consequences globally. In a Malaysian study, Mohd Abu Bakar et al. (2019) found three consequences of food insecurity: physical and mental health problems and reduced academic achievement. In US students, van Woerden et al. (2018) found a strong association between food insecurity and stress, anxiety and depression, and low academic performance. In a quantitative University of Hawai'i study, Chaparro et al. (2009: 2097) found food insecurity was linked with "behavioural and attention problems, ranging from absenteeism, tardiness and psychosocial dysfunction".

According to Kozicky (2019), in a compiled report at the University of British Columbia (UBC), food insecurity has a negative effect on students' physical and mental state as a result of nutritional deficiency and stress. Food insecurity forces students to look for alternative work while registered full-time. In addition, Chaparro et al. (2009) and Hickey et al. (2019) reported that students resort to buying cheap food based on convenience, hiding inadequate food from family, friends, and fellow students, and skipping meals due to inadequate funds/resources. In a study conducted at the University of Witwatersrand, Rudolph et al. (2018) revealed a correlation between food insecurity and students' academic performance, impacting student drop-out rate by approximately 60%.

Considering the abovementioned studies, food insecurity remains a critical component having a negative outcome on students' physical and emotional well-being. Students' basic needs must be addressed by HEIs, with collaboration from civil society and government, to provide a safety net for the population of students affected by food insecurity.

2.11 Food Insecurity and Institutional Support

Payne-Sturges et al. (2018) state that much is reported about the prevalence of food insecurity among the general population in developed countries even at household level, but little has been done among university students. This section looks at the available support programmes for HEI students internationally and in South Africa.

2.11.1 International experience with institutional support programmes

The Supplemental Nutrition Assistance Programme (SNAP) is a United States (US) federal government and state-driven programme that enables households to have financial means to

access nutritional food (Jimenez et al., 2021). Individuals that were entering college were excluded in the programme. However, a 1980 amendment provided for identified students to have access to SNAP, based on various eligibility criteria. This led some universities to advocate for students to have access to food available from campus-based vendors, through SNAP outreach, meal swipe donation programme, and food voucher programmes (Jimenez et al., 2021), potentially using an electronic benefit transactions (EBT) system.

In addition, due to the prevalence of food insecurity at universities in Canada, University of British Columbia (UBC) initiated food banks in 2005 in an attempt to eradicate food insecurity among its students (Kozicky, 2019). The students who benefited from this programme were also referred to budgeting and food skills workshops, and it operated as a safety net for student to access food when in need (Kozicky, 2019). Similarly, the University of California launched a Global Food Initiative in all its campuses in 2014, based on the prevalence of food insecurity among its students (Martinez, Maynard & Ritchie, 2016). This programme was driven by staff, students, and postgraduate students, and also aimed at providing financial literacy and life skills training to students.

2.11.2 South African experience with institutional support programmes

In South Africa, the impact of food insecurity in rural and urban households is known to have a negative impact on health; yet, there is little focus on students' food insecurity and increasing mental health challenges related to food insecurity in HEIs. South Africa's gradual progress in reducing poverty contrasts with the persistent nature of inequality, highlighting a fundamental distinction between the two; poverty and inequality (Soudien et al., 2019). As a result, historically disadvantaged Institutions (HDIs) make intervention programmes that will assist students and, in an attempt, toeradicate food insecurity and promote learning through the Gender Equity Unit Food Programme (GEUFP). In their first year, the GEUFP focussed on collecting non-perishable foods. The programme would sustain students for one year, on condition students retained 60% average in their academic performance (UWC website).

The UWC has several programmes to combat the impact of food insecurity among its students. The Ikamva Lethu fund was initiated by the 2015/2016Student Representative Council (SRC). There is also the Fairy Godmother initiative at UWC; students in need of social support email the "Fairy Godmother" stating their need, and they are assisted. UWC has also entered into a partnership with Tiger Brands for the Nutrition and Wellness Project to assist students affected

by food insecurity. The programme is managed through the Student Development and Support office, where staff check whether the students qualify based on their funding status; they are eligible if they have no funding (NSFAS or bursary). In addition, the School of Public Health established a food programme for students, where they would provide breakfast on campus twice a week (Mogatosi, 2016).

The Residential Services (RS) programme called the SREP (Skills Resources Exchange Programme) is an initiative of the Central Housing Committee (CHC) and RS through the portfolio of the Gender and Security Officer. According to Khan (2014), it was initiated due to number of residence students experiencing food insecurity. The SREP is administered from the Res Life offices, and there are several criteria for recruiting students. Students are allowed to access the programme twice per semester; they are given a food hamper containing sufficient nutritional food, including non-perishable foods, to last two weeks. The SREP programme is a skills exchange programme where beneficiaries must avail their skills when they have time outside their academics, and the RS office also monitors their academic performance. The students can assist house committee members when they have their events at residences, even the ResLife staff when they have events, the students will volunteer assits with anything ranging from tech assistants, students assistant related duties to even ushering at some of the events. A total of 281 students benefited from SREP in 2017, with 352 hampers provided.

The University of Witwatersrand (Wits) initiated a food bank, providing a monthly food pack to students to the value of R430.00, including corned beef, rice, lentils, beans and peanuts (Vakil, 2017). Wits also implemented the Masidlaleni Daily Meal Project, which provided hot lunch to 900 students per day. According to Vakil (2017), the institution also ran the Wits Inala, which promoted food self-sufficiency among students by cultivating food gardens on campus. Lastly, Holy Trinity Catholic church run an SVP (St Vincent de Paul) Soup Kitchen at Wits and also offer lunch to students from Monday to Friday (Vakil, 2017).

UFS initiated a No Student Hungry bursary programme, where beneficiaries were provided with a daily allowance (R30) to purchase meals at selected food outlets on campus. This initiative was established by former Vice-Chancellor Jonathan Jansen; the allowance was loaded onto student cards and could be used at campus shops and restaurants (Meko & Jordaan,

2016). The University of Cape Town (UCT) had a similar programme; it was named UCT Lunch Voucher, and residence students were provided a R25 voucher, which they could use to purchase food from vendors on campus during lunchtime (Spertus-Melhus, 2016).

2.11.3 The role of NSFAS in addressing food insecurity

NSFAS is a government entity of the Department of Higher Education and Training. It was established through Act No 56 of 1999, with the intention of providing loans and bursaries to students studying in government-funded HEIs (Morcucci & Johnstone, 2009). Munro et al. (2013) posit that NSFAS was established by parliament to mitigate the financial challenges experienced by the children of the poor and the working class from disadvantaged communities; however, it has been faced with numerous challenges in funding students in recent years. Students are selected based on the NSFAS means test. In the years before the #FeesMustFall campaign (late 2015), NSFAS provided funding to students whose annual family income was R122 000 and below. However, due to the students' demands and continued annual fee increases by universities, the income threshold component was questioned for excluding those students termed the 'missing middle'. The threshold for NSFAS funding was thus changed to R350 000 per annum. This allowed more students to qualify for funding; however, this has created further funding challenges in the higher education sector.

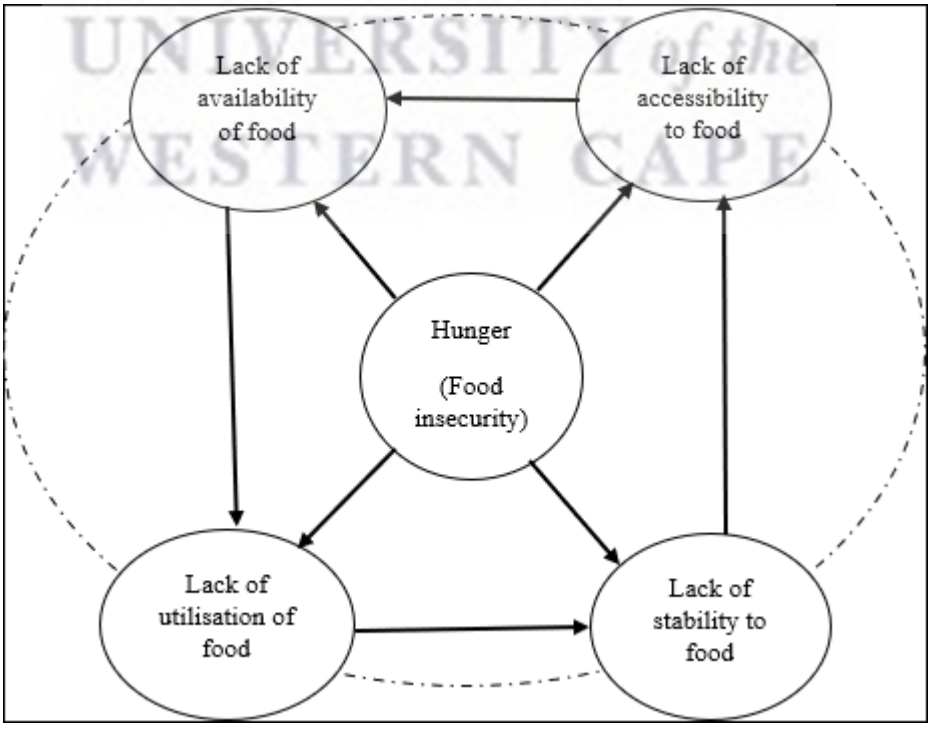
According to Morcucci & Johnstone (2009), "NSFAS uses a combination of proxies and income to determine eligibility for funding and the size of the award"; thus, NSFAS assesses the expected contribution from the student's family, with the rest to be covered by the scheme. The full cost of study per student differs because of the different programmes they choose and the university where they study. The overall allocation of funding is based on the projected programme cost, accommodation, book allowance and meal allowance. However, non-residence students were not eligible for food allowances directly to a student card in order to purchase food in one of the dining halls dating back to 2015, instead were given Pick 'n Pay vouchers to the amount of R3000.00 (Dlabatshana, 2022). Each award, however, constitutes only a fraction of the cost of a university degree, which leaves poor students still struggling with getting adequate food and other basic needs. UWC reported that NSFAS was funding 21,796 (13,036 female; 8,760 male) full-time students (DHET, 2018).

The role of NSFAS in addressing food insecurity can be looked through financial assistance through providing financial support to students who come from disadvantaged background or

low-income families. As alluded to above this support covers accommodation, tuition fees, and daily living expenses such as food. According to NSFAS (2016b), during the year 2016, the University of Cape Town (UCT) offered a monthly stipend of R1,600.00, while the University of KwaZulu-Natal provided monthly allowances ranging from R1,200.00 to R1,800 during the same year. Therefore, the aspect of food availibility is provided via meal allowances where students receive meal allowances via Pick n Pay vouchers in the past and currently through their bank accounts. The important role with the meal allowance is that it is meant to help students to have access to nutritious meals through the markets and nearest shops, and that assists in reducing food insecurity. However, it might likely pose a challenge when some disadvantaged students may be forced to share their meal allowance with people back home because of problems experienced at home as well. NSFAS can play a pivotal role in addressing food insecurity among students living in university residences by providing the needed financial support in time, to ensure that students can focus on their education without the added stress of not having enough food to eat.

2.12 Conceptual Framework for Food Insecurity

Figure 2.2: A conceptual framework of dimensions of food insecurity



Source: U. Sigodi

2.12.1 Lack of availability of food

Abbade (2017) states that food insecurity at household level involves lack of availability of food, people having inadequate purchasing power, being unable to circulate food properly, and their inability to make use of food. The food availability dimension is mostly concerned with sufficient quantity and quality of food that is being supplied by the market to consumers; in the case of students and nationally, lack of availability is not the problem. The food availability aspect primarily focuses on ensuring that an adequate quantity of food is supplied to consumers through the market. In the context of students and the nation as a whole, the issue is not a lack of availability. South Africa is food secure at national level, however, there is a high prevalence of food insecurity mostly connected with socio-economic factors (Pereira, Cuneo & Twine, 2014), including income inequality (StatsSA, 2014).

2.12.2 Lack of accessibility to food

This dimension is characterised by financial resources in attaining food, food production at household level and market purchase, plus the distribution component. According to Abbade (2017), the food accessibility dimension comprises economic access (EA) and physical access (PA) to food. High levels of unemployment lead to poor EA (Crush et al., 2012). Abbade (2017) argues that PA is mostly centred around logistical infrastructure, retailers and grocery stores, while EA is facilitated by South Africa government social grants. The absence of NSFAS funding for some students may potentially lead to challenges to an economic access component (EA), possibly causing difficulties in accessing food and hindering their ability to maintain a sufficient diet that can enhance their overall well-being.

2.12.3 Lack of utilisation of food

The dimension of food utilisation is concerned mostly with how food is properly used, how it is processed and stored, nutritional knowledge, and adequate sanitation (FAO, 2013). The assessment of food utilisation at individual level involves looking closely at dietary diversity. Students living in self-catering university residences face a lack of food preparation skills; this results in procurement and consumption of nutritionally inadequate food items. In some cases, students face conflicts of cultural practices, where they cannot consume certain food items based on cultural beliefs; this results in lack of utilisation of adequate nutritious food. If students have access to nutritious and appealing meals, they are more likely to make healthy food choices. This then speaks to the quality, and accessibility of food facilities on campus with

varied options that can influence food utilisation. Campuses that cater to students with a wide range of dietary needs are likely to enhance food utilization. However, at UWC there are limited facilities to provide students with a diverse dietary preference that is likely to enhance utilization of food. Time plays a significant role in utilisation of food for residence students because of the commitment towards academics and extra-curricular activities, which can limit students in having access a diverse food options and their limited time. Affordability is also a critical factor, where finance can restrict students' accessibility to food and that results in lack of utilization of food. Students'proximity to markets or grocery stores can also have an impact in the ability of students to utilise food in their residences.

2.12.4 Lack of stability to food

The concept of food stability considers the three dimensions of food security collectively, with the aim of preventing vulnerability at individual, household, and national level (FAO, 2013). For individuals and households to achieve the capability of being 'food secure', they require adequate access to food at all material times. The food access dimension is the driver in achieving food security in its broader context. The EA component ensures that people will have PA to food that is nutritious to improve their well-being (Abbade, 2017). This, therefore, means that households need to have some source of income through employment or social grants. For students, fulfilling this dimension requires adequate funding from government in the form of bursaries and NSFAS. However, if this fails, students find themselves in a situation of food instability.

2.13 Knowledge, Awareness and Practice (KAP) of Nutritious Food by University Students Globally

Van den Berg and Raubenheimer (2015) reported that South African students had shown a lack of nutrition knowledge in general, while other studies pointed out poor shopping and financial management skills among food-insecure UFS students. According to Kwol et al. (2020), the knowledge, attitude, and practice (KAP) model argues that knowledge provides positive motivation to an individual's attitude and in turn prompts changes in their behaviour or practice. KAP has been used in previous studies to better understand what measures must be taken to improve student food insecurity (FAO, 2014). Bano et al. (2013) argue that the primary

objective of any university is to widen students' scope of knowledge; thus, improving student's lives through nutrition attitudes and practices remain critically important for students to make sound, healthy and diet-conscious decisions. At the core of the KAP framework lies the issue of behavioural learning; students' positive knowledge should yield positive results through their awareness of what constitutes junk food and a healthy diet. In the study context, the researcher assessed students' level of nutrition awareness and also why they consume junk food, regardless of their awareness. The rationale behind the KAP in relation to this study was also to look at the factors that influence the students' food choices.

2.14 The Capability Approach

Robeyns (2005: 94) states that the Capability Approach (CA) is "a broad normative framework for the evaluation and assessment of individual well-being and social arrangements, the design of policies, and proposals about social change in society". The CA is a tool for the conceptualisation and evaluation of issues like well-being, in regard to one's capabilities to function (Sen, 1985). This approach has been utilised in different fields including development studies and social strategy, among others (Robeyns, 2005). According to Sen (1985), well-being refers to the accomplishment of functionings that individuals regard worthy. The CA primarily centres on what people can be or turn into (Robeyns, 2005); thus, the CA's main focus is on a person's capabilities.

The use of the CA as a framework to analyse food insecurity enables the researcher to better understand what constitutes a person's well-being and what is lacking in people achieving well-being (Burchi & De Muro, 2016). Chiappero-Martinetti & Venkatapuram (2014: 709) state that the CA is helpful in "describing and analysing individual well-being or quality of life in terms of real possible opportunities that will assist in achieving various outcomes in relation to 'beings and doings' that make up a good or flourishing life." The connection between food security and the CA is centred on improving student well-being, using the lens of the CA to look at students' real opportunities available to achieve the capability of being well-nourished; it also looks at the capability set for students to choose from in order to achieve their desired functionings.

According to Chiappero-Martinetti and Venkatapuram (2014: 709), the CA values individual values and opportunities, as well as their freedom of choice; well-being is considered to be

intrinsically multidimensional". For food security to be met, several dimensions have to be met, including accessibility, availability, utilisation, and stability of food. Therefore, to be able to analyse students' well-being using the CA lens, the researcher must look at the real opportunities available to students from the capability set (the basket of capabilities). The CA approach states that an individual's freedom to convert commodities into functionings sometimes relies on the available social and political opportunities and how people respond to those opportunities (Nambiar, 2013). The use of CA in this study assisted the researcher to look at the different nutritional factors and information relating to how residence students live, what they are able to do and be (Gasper, 2007). The core concepts of the CA are discussed below.

2.14.1 Capabilities

A capability refers to one's freedom to choose between different ways of living (Robeyns, 2005). It consists of a combination of potential functionings. The term capability has been used synonymously with the term capability set, which equates to a person's opportunity set (Robeyns, (2005). Given the presence of freedom, an individual can exercise their ability to work towards what they deem valuable, described by Sen as agency (Sen, 2003). In terms of freedom and choice, freedom allows an individual to determine and choose what he/she wants to do or become.

Sen identified five freedoms which contribute to the capability to live freely. These include social opportunities, economic facilities, political freedom, protective security and transparency guarantees (Sawyer, 2007: 29). Chiappero-Martinetti and Venkatapuram (2014) posit that an individual's capability consists of combined internal (e.g. biology, knowledge and skills) and external factors (e.g. social material and environmental factors). In applying the concept to this study, the researcher assessed whether food insecurity has a negative effect on the concentration level of students (biology) and whether knowledge and awareness about nutrition also contribute to residence students being well nourished. External factors relating to social material and environmental factors were also assessed. The students have freedom to choose from their basket of capabilities, such as being food secure, and being able to live a nutritious and healthy lifestyle.

2.14.2 Functionings

A functioning, according to Sen (2003), refers to a person's achievement: what one becomes or does. An example of a functioning is being adequately nourished. This relates to what one becomes, which Sen (2003) refers to as 'beings. When functionings are what one does, this is referred to as 'doings'. Functionings are achieved through the conversion of resources available to an individual (Nambiar, 2013). Functionings are hindered or promoted by various factors such as social, political, and economic institutions, among others.

In the context of the study, the functioning needing to be realised is becoming well-nourished or food secure for residence students. However, many factors influence this: funding, financial dynamics in the context of the student and family at home, NSFAS and bursary allowance, etc. This approach allows the researcher to analyse the factors inhibiting the achievement of this functioning.

2.14.3 Agency/choice

Sen (1999:18) defined "agency as the ability to pursue goals that one values and has reason to value". For Sen, agency enables people to expand their freedoms/choice and choice is a principal determinant of individual initiative and social effectiveness (Sen, 1999:18). According to Nambiar (2013), agency and freedom/choice are social rather than institutional constructs.

The concepts of agency and choice allow the researcher to look at the ability of students to pursue their most valued functionings. Looking at the capability set or basket of opportunities that students have, ideally, they have freedom of choice to pursue the goals that they value the most, such as being well-nourished, being a graduate, being food secure, etc. Agency and choice allow the researcher to study students' preferences in relation to food, whether influenced by internal or external limitations. Their choice might be influenced by external constraints relating to availability, accessibility, and utilisation of food.

2.14.4 The idea of individual endowments

In the CA, individual endowment refers to the resources available to individuals (Chiappero-Martinetti & Venkatapuram, 2014); these include biological and mental features, as well as private means (e.g. income, wealth, physical assets). Some public goods and services are also

instrumental in creating capabilities (Chiappero-Martinetti & Venkatapuram, 2014). According to Burchardt (2010), time and income are regarded as resources that are available to individuals for personal care.

The idea of individual endowments assists the researcher to consider time and income as resources available to students towards achieving their functionings. Daily, students must make use of their time to focus on their studies; the researcher examined how they do this during assessment periods and everyday life, to achieve their capabilities and functionings (e.g. being food secure and well-nourished), and their freedom of choice regarding achieving a valuable functioning. The CA concept assists in looking at income as a resource available to residence students (is it sufficient and utilised to achieve a valuable functioning?). Income in the context of the study relates to NSFAS allowance, bursaries or any money coming to the student on a monthly basis.

2.14.5 Conversion factors

Goerne (2010) defines conversion factors as social structures that assist in understanding the structural effects within the CA, as they influence what capabilities can be converted to functionings. Nambiar (2013) provided three categories of conversion factors: personal, social, and environmental factors. Personal factors are internal aspects of the person (e.g. intelligence); social conversion factors include public policies and social norms, among other factors (Nussbaum, 2003), and environmental conversion factors (e.g. geographical location) also influence how one utilises resources. Bonvin & Laruffa (2017) state that the conversion factor is the most important concept in the CA as it provides a central focus on capabilities and functionings, rather than material resources or rights. According to Sen (1999: 86–87), "individuals differ in their ability to convert resources into capabilities and functionings and also, that individual capabilities may be enhanced in other ways than only through the increase of material resources possessed by a given person".

This concept assists the researcher to understand the personal, social and environmental conversion factors that influence residence students when faced with social pressures, assessments, and their food choices in relation to food insecurity. These conversion factors help the researcher understand how students make those choices and transform them into functionings. For example, students are unable to achieve the functioning of being food secure

or well-nourished if they are unable to cook food supplied or accessed through their allowances (personal conversion factor). Thus, the desired functioning cannot be achieved.

The characteristic of social conversion factors includes gender practices in a society, social norms, social hierarchies, and government policies (Nambiar, 2013). For students living in self-catering residences, it is expected that they cook for themselves. However, some students come from an environment where they have had no experience of cooking (e.g. a helper cooks, or male children do not cook). Therefore, they come to tertiary institutions with instilled gender practices, making it difficult for them to adapt in the residence. Thus, if affordable, they purchase fast food, making the functioning of being well-nourished difficult to achieve.

Environmental conversion factors relate to "provision of public goods, climate, and infrastructural facilities" Nambiar (2013:4). For the current study, the relevant environmental conversion factors include geographical location of markets, malls, and transportation, as they may constrain the achievement of the desired functioning. The procurement of food items from markets and malls relies on students' income availability, which may also constrain food security overall. In conclusion, these conversion factors assist the researcher to understand the constraints that hinder the holistic achievement of the desired functionings.

2.14.6 Operationalising the CA framework

Chiappero-Martinetti & Roche (2009) argue that research application of the CA will vary considerably based on research aims and objectives. In this current study, application of the CA will provide a plurality of views to understand the analysis of the quantitative and qualitative data. The quantitative data will enable the researcher to look at the food insecurity indicators in comparison to the dimensions of food security, through the application of the CA. The researcher will also be able to look at the environmental contexts, socio-economic background, geographical, cultural, and institutional variables that are within the CA, to give a broader perspective on food-insecure students. The CA, therefore, will assist the researcher to use the statistical analysis of students at an individual level (e.g., gender, age, race/ethnicity), as households and as subgroups, which can affect the processing of resources into capabilities. This enables the researcher to measure well-being in terms of capabilities in contrast with resources such as income, basic needs, and utilities (Chiappero-Martinetti & Venkatapuram, 2014).

2.14.7 Relevance of CA in understanding food security

Burchi & De Muro (2016) reported that the CA application to food security was developed by Jean Dreze & Amartya Sen in 1989 in *Hunger and Public Action*. According to Ravallion (1991), for Dreze & Sen (1989), the most crucial capability to be achieved is being healthy and alive, which speaks directly to nourishment; being nourished facilitates access to basic education, health care, etc., which themselves improve nutrition. Burchi & De Muro (2016) state that the CA considers food factors such as quality, utilisation and social responsibility, and the interaction with other basic capabilities such as health and education. This approach assists the researcher to examine the underlying causes of food insecurity and the well-being of students in the context of this study. The underlying causes of food insecurity in this context include urbanisation and migration, and population growth. Using the CA to analyse students' food insecurity allows understanding of the students' capability set (opportunities) and their social and personal context as residence students.

The UWC is a social institution where residence students live; applying the CA approach highlights that UWC has social and legal norms which residence students must abide by. All UWC residences are self-catering, so each corridor has a kitchen for students to cook their own meals. Students' behaviour differs concerning food preparation; some students are able to cook for themselves, while others have never cooked a meal before, which changes their behaviour around home-cooked meals. Relevant environmental factors include the availability of fast-food shops on campus; these may contribute to the students' behaviour towards a cooked meal and even lack of cooking skills. Making use of the CA allows the researcher to understand the social context of the students' situation in relation to food insecurity and also provides a basket of capabilities from which students have the freedom to achieve their capabilities.

The CA is also relevant in looking at social influences on decision-making among students, informing their choices relating home-cooked meals or fast food. Therefore, the CA allows the researcher to assess whether students' choice of means of nourishment is based on personal, social, or environmental factors. Using the CA framework to analyse food insecurity can assist in assessing the role of education, the health component, and other basic capabilities that will translate into students' well-being and the attainment of the functioning of being food secure/well-nourished.

2.14.8 Strengths of the CA framework

Dean (2009) argues that one of the CA's extraordinary qualities is that it emphasises the importance of functionings that are not saleable. For Nussbaum (2011), the CA encourages the inception of an individual as a 'being' who is not naturally skilled, but considerably important and having human dignity. The CA is also strong in placing freedom on people, regardless of their background, to develop themselves according to their skills and interests (Gasper, 2007). Another appealing quality of the CA is that it expresses that individuals ought to be equal, taking account of respect for freedom (Gasper, 2007). Kinghorn (2010) views the strength of the CA being that it "focuses on the ability of individuals to lead a life that they have reason to value".

2.14.9 Criticism of the CA as a framework

The CA is believed to be too individualistic as Sen ignored the use of collective capabilities and that excludes collective freedoms (Fredian, 2010). In addition, Comin (2001) argues that the CA does not provide practitioners and researchers practical guidelines on how capabilities are identified and assessed. Gasper (2007:351), furthermore, states that "the capability concept concerns attainable opportunities and it lacks an explicit time-dimension". According to Cohen (1993), there is no knowledge of whether an individual's capability set is better or worse than others, and this information is believed to be unavailable. Gasper (2007) also points out that the capability concept cannot be practically operationalised in terms of standard human values, because the CA's call for effective equality of freedom is more difficult to interpret than the attainment of basic freedoms.

2.15 Conclusion

The chapter consisted of two parts; firstly, the existing literature concerning food insecurity in tertiary institutions was reviewed, as well as challenges experienced by HEIs from the global to the local context. The second part focused on the theoretical framework (CA) adopted for the study and how its lens could be used to analyse perceptions and experiences of students in relation to food insecurity. The following chapter provides a detailed description of the research methodology utilised throughout the research study in reaching its intended objectives and research aims.

Chapter 3

3. Research Methodology

3.1 Introduction

This chapter gives a detailed description of the research methodology applied in this study. It describes how data were collected and analysed to answer the study's research questions and objectives. The chapter explains the research design, and justifies the research paradigm and methodology. The study used a mixed-methods approach, as it was relevant to the identified research problem. The sampling criteria are described, followed by a detailed explanation of the data collection instruments used and the data collection process. The methods of data analysis are also discussed, followed by the trustworthiness of the qualitative data. Finally, the chapter concludes by highlighting the limitations of the research process and the ethical issues involved.

3.2 Research Design

Creswell (2008) defined a research design as the procedure to direct research, including the techniques and precise strategies utilised to achieve a defined outcome. Research designs are plans, assisting the researcher to navigate the many choices for conducting the research (Creswell, 2009). When designing research, it is imperative to recognise the sort of proof required to answer the research question convincingly. The function of a research design is to guarantee that the evidence obtained enables researchers to answer the fundamental inquiry as unequivocally as possible. Nachmias & Nachmias (2008) say the "the importance of research design derives from its role as a critical connection between the theories and arguments that inform the research and the empirical data collected".

This study sought to explore perceptions and experiences of food insecurity of university students living in campus residences at UWC. The researcher chose to conduct a study focusing on university students based on the prevalence of food insecurity and the consequences among HEI students. Universities are a microcosm of society, and students' struggles must not be overlooked as they impact on the country's economy; student hunger is also an under-studied aspect of food insecurity. The study used a self-administered questionnaire, with both closed and open-ended questions, to collect data on students' food insecurity in UWC campus residences. The researcher applied a qual-QUANT complementary approach (Morgan, 1998 as cited in Ulin, Robinson & Tolley, 2004), using two food security indicators (the HFIAS

and IDDS) and open-ended questions to explore students' perceptions and experiences of food insecurity in university residences. In a qual- QUANT design, a smaller qualitative study helps guide the formation of questions in the larger (principal) quantitative data collection.

The research design for the current study was a sequential explanatory design providing the researcher different ways of ensuring that the purpose of this research was achieved. This was aimed at gaining insight into the participants' lived experiences, by exploring and describing their perceptions and experiences of food insecurity.

3.2.1 Justification for methodology

Fouche & Delport (2011:66) argue that "human sciences research mostly utilizes both the qualitative and quantitative methodologies", based on their complementary strengths and weaknesses. Hanson et al. (2005) emphasise that mixed methods encourage the use of multiple methods and collection of data, allowing triangulation, which seeks convergence and corroboration of the findings from the different methods (Shank & Brown, 2007). Johnson & Onwuegbuzie (2004) state that the goal of mixed-method research is to draw strength from the different approaches, with an attempt to minimise weaknesses of each approach. Furthermore, Scott & Morrison (2007) believe that mixed-method research facilitates an improved combination of both an outsider and insider perspective in the research process.

3.3 Research Paradigm

Guba & Lincoln (1994) define a paradigm as a basic set of beliefs that guides how research studies must be conducted, particularly in relation to human social problems. Alternatively, Kuhn (1996) characterises a paradigm as a set of theories or hypotheses and linked assumptions shared among a network of researchers. Guba & Lincoln (1994) identified four research paradigms that provide assumptions about the world: critical theory, constructivism, positivism and lastly realism. This study used the realism paradigm, described further below.

3.3.1 Justification for realism paradigm

Guba & Lincoln (1994) state that realism is a research philosophy that believes there is a real world to discover regardless of its imperfection that is apprehensible. The realism paradigm is placed between positivism and interpretivism (Blumberg, Cooper & Schindler., 2011).

According to Saunders et al. (2009:114), from the view of a realist, "there are social processes and forces that are beyond the control of humans, which affect their beliefs and behaviour". Therefore, this paradigm assisted the researcher to investigate students' interpretations of food insecurity and their understanding of their experiences, to identify the contributing factors to their attempt to give meaning to their situations. This paradigm was appropriate to answering the research question: "What are students' perception and their experiences in relation to food insecurity?" because it is specifically looking at the social aspects of real-life problems faced by the students. Furthermore, it was appropriate as it sought to describe and explain complex social science phenomena, including food insecurity.

3.4 Sampling Criteria

The sample for this research project was drawn from residence students at UWC. The residence population of UWC is approximately 3,500. The study employed a stratified random sampling procedure to access a sample comprising 50% female and 50% male students residing in university-owned or -controlled residences in order to achieve gender balance. The study aimed at a sample size of 108 student participants living in the nine university residences. The balance of gender representation aimed at looking and assessing whether gender maybe a significant factor in exploring food insecurity among students.

According to Ackoff (1953), stratified random sampling is where the population is divided into subgroups, with a random sampling out of each subgroup to be representative of that target population. However, the size of the population informed the use of probability sampling (Daniel, 2012), as the population of residence students was too big for this research project. For the current study, the sample comprised six females and six males from each residence, making 12 participants purposively chosen from each of the nine residences sampled.

The collected data contained 108 completed self-administered questionnaires from the targeted residences; there were no unreturned questionnaires. The target population ranged from second year to postgraduate students, based on the assumption that first years at the time of data collection would not have sufficient experiences in relation to food insecurity on campus at the time.

Table 3.1: Sample of residences and their numbers of participants

Name of the residence	Frequency (n)	Percentage (%)
Basil February	12	11.1
Chris Hani	12	11.1
Coline Williams	12	11.1
Disa	12	11.1
Eduardo Dos Santos	12	11.1
Gorvalla	12	11.1
Hector Petersen	12	11.1
Liberty	12	11.1
Ruth First	12	11.1
Total	**108**	**100.0**

Source: Survey data

3.5 Data Collection

3.5.1 Data collection instruments

Burns & Grove (2011) describe data collection as the systematic gathering of information relevant to the specific objectives of the study. The researcher made use of a self- administered questionnaire, comprising 54 questions; this was completed by 108 students residing at UWC residences. The questionnaire had four sections (see Appendix F): Section 1: socio-demographic and socio-economic questions; Section 2: questions related to factors affecting students' nutritional and well-being; Section 3: 24-hour dietary recall (the Dietary Diversity Score [DDS]), aimed at recording the different food groups that students consumed in their residences; and lastly Section 4: the Household Hunger Scale (HHS), to measure household food insecurity (Ballard et al., 2011).

The questionnaire had both closed and open-ended questions that assisted the researcher in better understanding residence students' food insecurity, in line with the aims and objectives of the research study. The instrument allowed the researcher to collect data pertaining to different sources of food, income sources, monthly expenditure (from beverages to non-food items), and to procuring goods and services. The instrument also allowed the collection of

social protection information, such as whether students were recipients of social grants prior to entering university, to understand the socio-economic profile of the students. The instrument also allowed students to express their views on food choices in relation to fast food and cooked meals, recorded their coping strategies when they ran out of money for food, as well as their awareness of nutrition.

Devereux & Tavener-Smith (2019) identified the Dietary Diversity Score (DDS) and the Household Food Insecurity Access Scale (HFIAS) as the most-used indicators for the assessment of food insecurity. In describing the students' experiences of food insecurity in UWC residences, the IDDS and the Household Hunger Scale (derived from the HFIAS) were used. These indicators enabled the researcher to answer objective two: Describe experiences of the students about food insecurity. Both indicators mentioned above assisted the researcher to make conclusions about food insecurity status and experiences among residence students.

3.5.2 Dietary Diversity Score (DDS)

Arimond et al. (2010) view dietary diversity as the number of foods consumed across a period of time and within food groups; it is recognised as the key dimension to assess dietary quality. Hoddinott and Yohannes (2002) believe that a diversified diet is a strong indicator of food security in a household, and is associated with high levels of food consumption. There are 12 different food groups used to calculate the dietary diversity score per household (FAO, 2010). The researcher made use of a dietary diversity recall schedule based on diet consumed in the previous 24 hours. The students were asked to recall the ingredients of each meal consumed in the previous 24 hours (see Table 3.2).

Table 3.2: Dietary diversity recall (24 hours) chart

Breakfast	Snack	Lunch	Snack	Dinner	Snack	Other

Source: FAO (2010)

Table 3.3 shows the classification of food groups used for the DDS when the questionnaire is administered from a household level. The present study used the IDDS, as students had to

recall the ingredients of the meals they had consumed, whether inside or outside their residences (FAO, 2010). It was a decision mainly based on on comparison between the two tools because the HDDS can serve as a validation for the IDDS. The HDDS helps rsearchers understand the entire household, if it is receiving a diverse and nutritious diet. While, the IDDS provided the researcher with an insight into the student's dietary patterns and eating behaviour and also assess the student's nutritional status. HDDS also assists in providing an account of all the household members' nutrition practices. "The HDDS can be used to assess access to food and as a result, it is commonly applied qualitatively to determine food consumption by households" (Vaitla et al., 2017).

Table 3.3: Different food groups for Dietary Diversity Score

Household Dietary Diversity Score (HDDS)	**Individual Dietary Diversity Score (IDDS)**
Cereals	Cereals, white tubers
Tubers and roots	Vitamin A-rich vegetables/fruits
Legumes, nuts, and seeds	Dark green leafy vegetables
Milk and milk products	Other vegetables/fruit
Eggs	Organ meat
Fish	Flesh meat, fish, seafood
Meat	Eggs
Sweets	Legumes, nuts
Oils and Fats	Milk
Vegetables	
Fruits	
Spices, condiments and beverages	

Source: FAO (2010) and Arimond et al. (2010)

3.5.3 Household Food Insecurity Access Scale (HFIAS)

The HFIAS was developed in 2006 by the Food and Nutrition Technical Assistance Project (FANTA) with the intention of providing researchers with a valid tool for measuring food insecurity in developing countries (Coates et al., 2007). The HFIAS consists of nine occurrence questions and nine frequency-of-occurrence questions (Ballard et al., 2011). The occurrence questions "were designed to represent varying levels of food insecurity" based on conditions that have occurred during the past four weeks (Ballard et al., 2011:3). The HFIAS occurrence

questions are shown in Table 3.4. The HHS and HFIAS tools are related to one another are both used to assess food insecurity. The HFIAS helps researchers to provide clarification on specific measures and questions used in a study. In the context of the study the HFIAS provided clarity in terms of students experiences of food insecurity and provided basis to measure student's nutritional status in a broader context. The use of HHS alongside HFIAS also strengthen the validity and reliability of the findings of the study through appropriate measures employed to get the better understanding of the students' experience of food insecurity.

Table 3.4: HFIAS occurrence questions

No.	HFIAS occurrence questions
1.	In the past four weeks, did you worry that your household would not have enough food?
2.	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?
3.	In the past four weeks, did you or any household member have to eat a limited variety of foods due to lack of resources?
4.	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?
5.	In the past four weeks, did you or any household member have to eat smaller meals than you felt you needed because there was not enough food?
6.	In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?
7.	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?
8.	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?
9	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?

Source: Ballard et al. (2011)

The last three occurrence questions are perceived as being central to the experience of food insecurity cross-culturally (Ballard et al., 2011), and this resulted in the adoption of the Household Hunger Scale (HHS), which has a specific focus on insufficient food supply and

intake and their physical consequences (Ballard et al., 2011) (see Table 3.5). The Household Hunger Scale (HHS) is employed in this study due to its cross-cultural applicability.

3.5.4 Diary as a research tool for data collection method

In methodology literature, a research diary is described as a tool that enables a researcher to record decisions taken during the research process and also serves a way to reflect on those processes (Gibbs, 2007). Starks & Trinidad (2007) posit that during the data analysis phase, the research diary is an important instrument for analysis through making judgements about coding and analysing themes. Hence the researcher made use of a diary to assist in providing the credibility and trustworthiness of the data collected.

Through making use of the diary to record observations, the researcher was able to note relevant issues for participants (e.g. some rooms had no refrigerator). The researcher could also note clarifications made by the participant and observations of the student's room and their dress. These were recorded according to the questionnaire number to preserve anonymity. The diary also assisted in making further observations when participants were answering the structured qualitative questions.

3.5.5 Data collection procedures

The researcher obtained permission to collect data from the Humanities and Social Science Research Ethics Committee of the UWC; permission was obtained from the director of residential services for access to residences and to interview students in their rooms. The researcher went door to door at all the identified university residences. The researcher would knock on a student's door, introduce himself and then state the purpose of the visit. If the student was willing to partake in the study, an information sheet (see Appendix D) was provided, as well as the consent form (see Appendix E), and the participant's rights were explained.

Once the consent form was signed, the questionnaire was given to the participant to complete. The researcher remained present to clarify any questions. Completing the questionnaire took up to 30 minutes, and most of the participants who gave consent completed the questionnaire successfully. Some students would look at the questionnaire and ask to the researcher to come back at another time. In these cases, the questionnaire was not left with the student. Due to the

sampling technique, the researcher would continue door to door till 12 participants for that residence had been completed in terms of gender representation.

The data collection was from 19:00 till 22:00 during weekdays and 11:00 till 15:00 on weekends. This was to allow sports participants and those students undertaking extra-mural activities to come back, and most students were usually cooking at those times. The completed questionnaires were kept in a box in the researcher's room, and when all 108 were completed, the researcher began with a process of grouping them by residence. This was then followed by double-checking whether the information and all the questions were correctly completed and understood. There were no administrative errors, and all the information was completed correctly as per the participants' views and understanding of the questions asked in the questionnaire.

3.6 Data Analysis

Data analysis involves reducing the data to manageable proportions and identifying different patterns and themes in the data (Majesky, 2008). The researcher made use of the Statistical Package for Social Sciences (SPSS) to analyse the quantitative data in order to answer the research aims and objectives. It was also used to test significant relationships between variables.

Marshall & Rossman (2006) state that qualitative data gathered should be re-read repeatedly to get an in-depth understanding of the information recorded. In this manner, possible themes or patterns start to emerge from the data. According to Polit & Beck (2008), in qualitative research it is important that researchers are able to familiarise themselves with the data gathered, to ensure accuracy in the captured and transcribed data. According to Babbie & Mouton (2011), qualitative data is analysed by ascertaining patterns and themes in order to make meaning out of it; thus, thematic analysis was used to analyse the qualitative data. The researcher first transcribed the qualitative data from the three open-ended questions in the questionnaire. This was followed by a process of clustering the transcribed data to facilitate creating themes from those clustered responses.

3.6.1 Methods of data analysis

The quantitative data was captured, cleaned, and organised for statistical analysis using IBM SPSS Statistics 26. The SPSS analysis yielded descriptive statistics and allowed for the

presentation of the results in graphs, frequency distributions and cross-tabulations. The researcher used Chi-squared tests to assess the relationships between variables (e.g. gender, race) and food insecurity status.

3.6.2 Dietary Diversity Score (DDS)

For the IDDS, students were asked to recall the ingredients that made up the meals they had consumed over the previous 24 hours. They listed these ingredients, and for each group, if a student did not consume anything in that group, then it was scored a zero (0). The score was one (1) for any ingredient or food item that was consumed from a group. The IDDS was then calculated by adding the score for each of the nine groups.

3.6.3 Household Hunger Score (HHS)

Table 3.5: HHS occurrence questions and response options

No.	Question	Response Option
Q1	In the past [4 weeks/30 days], was there ever no food to eat of any kind in your house because of lack of resources to get food?	0 = No (Skip to Q2) 1 = Yes
Q1a	How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)
Q2	In the past [4weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food?	0 = No (Skip to Q3) 1 = Yes
Q2a	How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)
Q3	In the past [4 weeks/30 days], did you or any household member go a whole day and night without eating anything at all because there was not enough food?	0 = No (Skip to the next section) 1 = Yes
Q3a	How often did this happen in the past [4 weeks/30days]?	1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)

Source: Ballard et al. (2011)

To calculate the HHS, the frequency-of-occurrence is coded as a 0 for every case where

participants reported no occurrences. If participants responded with a Yes, this response is coded as 1. In this case, the participant is required to choose from the frequency-of- occurrence options, selecting 1, 2 or 3 (Ballard et al., 2011) (see Table 3.5). For each question, the scores are calculated as follows (example from Q1 – first question on the questionnaire):

If Q1 = 0, the score is 0 (proceed to next question).

If Q1a = 1 or 2, the score is 1

If Q1a = 3, the score is 2

The total score is the sum for the three questions. According to Ballard et al. (2011), the potential scores for the HHS range from 0 to 6. Scores of 0-1 indicate little or no food insecurity; scores of 2-3 indicate moderate food insecurity, and scores of 4-6 indicate severe food insecurity.

Table 3.6: Revised food insecurity indicator scores

Scores	**Food insecurity indicator**
0	No food insecurity
1	Little food insecurity
2	Moderate food insecurity
3	Severe food insecurity

3.6.4 Thematic analysis

Due to the national lockdown as a result of COVID-19 pandemic, I was unable to conduct focused groups and in-depth interviews as initially planned. The researcher used a mixed instrument that contain open and closed-ended questions. Thematic analysis allows a researcher to pinpoint or examine patterns or themes in data (Daly, Kellehear & Gliksman, 1997). For Braun & Clarke (2006), it is a method mostly used for identifying, analysing, describing, and reporting themes that are found within collected qualitative data. Thematic analysis has six phases: familiarisation with the data, generating initial codes, searching for themes among codes, reviewing themes, defining, and naming themes, and producing the final report (Clarke, 2006).

De Vos et al. (2011) identified themes as recurring ideas and patterns of beliefs that link individuals and their natural settings together. Qualitative data analysis may be defined as largely an inductive process of organising data into categories and identifying patterns or

relationships among the categories (McMillan & Schumacher 2006). However, thematic analysis is not immune to challenges, as its flexibility may result in inconsistency and lack of coherence during the process of developing themes from the data gathered (Holloway & Todres, 2003).

The qualitative data analysis was conducted by implementing the eight steps of Tesch (1992):

1. The researcher carefully read through the qualitative responses and got a sense of the whole dataset.
2. The researcher read through the qualitative responses repeatedly to understand the underlying meaning of the data; he selected responses from each participant and wrote down thoughts that came into mind.
3. After going through the transcript, the researcher clustered similar responses together.
4. The researcher abbreviated the topics as codes and wrote the codes next to the appropriate segment of the text. The researcher then observed how the data was organised to check if new categories or codes emerged.
5. The researcher found the most descriptive wording for the topics and converted them into categories.
6. A final decision was made on the abbreviation for each category and the codes were arranged alphabetically.
7. The data material belonging to each category was put together in one place and preliminary analysis was performed.
8. Recoding of the data was done if necessary.

3.7 Trustworthiness of the Qualitative Data

Lincoln & Guba (1985) believed that trustworthiness shows that the research has been conducted in a clear, consistent way, which is described in sufficient detail for readers to find the study credible. This criterion is mostly concerned with acceptability and usefulness of the research process (Lincoln & Guba, 1985).

3.7.1 Credibility

Tobin & Begley (2004) described credibility as a criterion that addresses the 'fit' between views of the participants and how those views are presented by the researcher. Credibility in the study was achieved through the engagement between the researcher and the participants

when they were responding to the qualitative questions. This allowed the researcher to explain to the participants what the questions were looking for without imposing his views on the participant's response. The researcher engaged thoroughly with the transcript to provide a clear demonstration of the links between the data collected and the interpretation.

3.7.2 Transferability

The aspect of transferability in trustworthiness is mostly concerned with the applicability of the findings of the research to other settings and target populations (Korstjens & Moser, 2018). The researcher achieved transferability through providing a thorough description of the participants' experiences of food insecurity and the researcher's observations during the research process.

3.7.3 Dependability

Dependability refers to the reliability of data and the ability of the collected data to be audited; it requires considerable evidence in relation to decisions concerning the theoretical and methodological processes of the study (Koch, 1994). This means that any reader may be able to audit and arrive to the same conclusion as the researcher. In this study, the supervisor has audited the transcript as a means of inspecting the data and confirming that it was worthy to continue with interpretations and findings.

3.7.4 Confirmability

Tobin & Begley (2004) state that confirmability is a criterion of worthiness of qualitative research that is mostly concerned with demonstrating how the researcher came to their interpretations and conclusions. This is achieved through an audit trail ascertaining whether credibility, transferability and dependability have been achieved (Guba & Lincoln, 1989). In the context of this study, the researcher had audit trails containing dates and times of when data were collected and transcripts of the qualitative responses, which confirms the truthfulness and reliability of the data collection and its processes.

3.7.5 Validity and Reliability

This section focused on explaining what is validity and reliability and how they were applicable in the context of this study, and mostly in relation to the quantitative data. The researcher in an attempt to maintain a high level of validity and reliability had to conduct a detailed literature review on the current topic of inquiry, looking at previous studies relating issues of food

insecurity among students, and prevalence studies across the globe. The study had to make use of food security indicators, such as the DDS and HFIAS to measure food insecurity. These indicators were part of the instruments used to test and measure the existence and the impact of food insecurity among students, households and communities in previous studies. The use of these indicators provides some sort of validity and reliability of the data gathered and results reported in previous studies. The findings that will be reported later in this thesis are consistent with the findings reported on the same indicators in other studies. According to Creswell (2012) validity is an important component in any research project conducted because it able to assist in answering a research question, whereas reliability is mostly concerned with the consistency of the results. Furthermore, it is believed that validity is more important that reliability because if a study is deemed not valid, there is no reliability on the study and the data gathered (Creswell,2012). It is therefore clear that if the instruments or techniques utilized in the research process are unreliable, it is highly like to produce invalid data (Sapsford & Jupp, 1996).

In ensuring the validity of the study, the self-administered questionnaire was developed and the content was reviewed by the researcher together with the supervisor, to assess if the key concepts and the questions are in line with objectives of the study. This relates to what is known as content validity, where the literature review chapter as well as constant consultation with supervisor led to amendments to the questionnaire by the researcher. When the pilot test was conducted it revealed that some questions from the questionnaire were unclear and time consuming to the participants which led to the redesign of the instrument to ensure validity of the data.

3.8 Limitations of the Study

The study's limitations mostly related to the methodology that was employed throughout the research process (Shiu et al., 2009). The researcher used stratified random sampling, which excluded some students from participating. The residence student population (about 3,500) was too big for a mini-thesis project. First-year students were excluded from participating, as they would have had too short a time on campus for them to contribute meaningfully. Off-campus students were also excluding from participating the study. This therefore meant that results may not be generalisable to the general population of UWC students. Covid-19 regulations also did not allow the researcher to conduct focus groups at UWC. This meant that the researcher had to complete the research project with the data collected using the

questionnaire as it contained both quantitative and qualitative questions. The supervisor confirmed that the data collected allowed the researcher to continue with the mixed-method approach for the study as planned. The study findings are limited to UWC students, living in campus residences that are owned and managed by the institution, and can therefore not be generalised to students in other HEIs, or to the broader population.

3.9 Ethical Considerations

In line with UWC ethical principles, regulations and guidelines, the researcher adhered to the ethical standards that regulate the protection of research participants from any potential harm from the research process. The proposal was approved by Senate and the Research Ethics Committee (see Appendix A). The data collection instruments were approved by the UWC Research Ethics Committee confirming that the research instruments are in line with university regulations (see Appendix F). The researcher obtained informed consent from the participants, and their signatures confirmed that they were not coerced into partaking in the research project. Their confidentiality was ensured, since their names were not included in the consent forms (Devlin, 2006). The researcher also informed the participants that they could withdraw from completing the questionnaire at any stage in the process.

In ensuring confidentiality, the researcher did not request any information regarding participants' identification, and their anonymity was preserved throughout the research process (Terre Blanche, 2006). Where participants had questions regarding the research process, the information sheet each participant received contained contact details of the researcher, the supervisor and also the contact number of where they would be referred in case, they felt they needed psychological intervention due to the nature of the questions asked. The information sheet contained all the relevant information on the purpose of the study, the role of the researcher, and how the data collected will be communicated with the supervisor through the research process. The data will be stored at the UWC Institute for Social Development and with the researcher and will be destroyed after five years.

3.10 Conclusion

This research made use of a mixed-methods approach which utilised elements of quantitative and qualitative techniques in collecting primary data through a self-administered questionnaire. The methods of data collection and analysis were described extensively. The study employed the required ethical standards throughout the research process. The next chapter will present findings that emerged from the quantitative data analysis.

Chapter 4

Presentation of the Quantitative Results

4.1 Introduction

This chapter presents the quantitative results of the study using descriptive statistics. The chapter begins by outlining the demographic profile of the participants, then reports on the Chi-square analyses utilised to determine significant relationships between variables.

4.2 Demographic Outline of the Sample

The total sample size was N=108, out of a sampling frame of ±3,500 residence students at UWC in 2020.[1] The sample had a 50% gender balance (54 females; 54 males). This was a deliberate sampling strategy after the researcher opted to use random stratified sampling strategy in this study. The participants' gender is very important in understanding food insecurity dimensions, especially concerning accessibility and utilisation of food. This is based on understanding that males and females have different approaches and behaviour in relation to food security. Male respondents ranged in age from 20 to 41 (15-24 years: 44.4%; 25-34 years: 5.6%). Female students ranged in age from 19 to 44 (15-24 years: 44.4%; 25-34: 4.6%; 35-44 years: 0.9%) (see Table 4.1). The mean age of the sample is 21.94 (SD: 3.117) years. The age distribution is as expected in a student sample.

Concerning race, 95% of the respondents were African (black), while 5% were Coloured, with no white or Indian students (see Table 4.1). According to the UWC residence admission policy, students must reside outside a 60 km radius to be considered for residence placement, and in most cases, white, Indian, and Coloured students live in close proximity to the institution. Therefore, the majority of the student population of living in UWC residences are black African and are mostly from outside the 60 km radius. Table 4.2 shows the race distribution of UWC residence students.

Table 4.1: Demographic characteristics of the sample

Variable		n	%
Gender of the respondents	Male	*54*	*50*

[1] Reslife systems administrator, an employee of one of the departments of Student Development and Support (SDS) at UWC, (Personal communication, 2021).

	Female	*54*	50
Age of the respondents (Males)	(15 – 24)	48	44
	(25 – 34)	6	5.6
	(35 – 44)	0	0.0
Age of the respondents (Females)	(15 – 24)	48	44
	(25 – 34)	5	4.6
	(35 – 44)	1	0.9
Race	Black	103	95
	Coloured	5	5
	White	0	0
	Indian	0	0

Source: Survey data

Table 4.2: Race of students living in university residences in 2020 at UWC

Race	**Number (n)**	**Percentage (%)**
African	2,986	85.4
Coloured	477	13.6
White	8	0.2
Indian	7	0.2
Asian	3	0.08
Other	16	0.4
Total	**3,497**	**100**

Source: Personal communication (2021)

4.3 Study Level of the Participants

Table 4.3 shows the study level of the student participants at the time of data collection. The largest group (38.0%) were doing third year, 35.2% were doing second year, 18.5% doing their fourth year of study; 4.6% were doing Masters, while 3.7% were in their honour's year.

Table 4.3: Study level of the participants

Study level	Number (n)	Percentage %
2nd year	38	35.2
3rd year	41	38.0
4th year	20	18.5
Honours	4	3.7
Masters	5	4.6
Total	**108**	**100.0**

Source: Survey data

4.4 Student Distribution per Faculty

Table 4.4 shows the distribution of the participants in terms of the faculties they are enrolled in at UWC. The largest group (24.1%) came from Economic and Management Sciences (EMS), while 23.1% came from Natural Sciences. The third highest number of participants (18.5%) came from Community and Health Sciences (CHS), with Arts and Humanities having 15.7%. Education and Law had 8.3% and 7.4% participants, respectively, while Dentistry had 2.8%. All seven faculties of UWC were thus fairly represented in the study. The distribution was similar to enrolment numbers per faculty, except that there is a decline in the sample enrolments for Arts and Humanities, and an increase in representation of the Natural Sciences and CHS students.

Table 4.4: Comparison between sample enrolment and enrolment numbers per faculty

Faculty	Sample n (%)	Enrolment by faculty n (%)
Economic and Management Sciences (EMS)	26 (24.1)	5,762 (24.0)
Natural sciences (NS)	25 (23.1)	4,005 (16.6)
Community and Health Sciences (CHS)	20 (18.5)	3,669 (15.3)
Arts and Humanities (A&H)	17 (15.7)	4,534 (18.9)
Education	9 (8.3)	2,871 (12.0)
Law	8 (7.4)	2,432 (10.1)
Dentistry	3 (2.8)	737 (3.1)
Total	**108 (100)**	**24.019 (100)**

Source: Survey data and personal communication from the deputy registrar (7/07/2021)

4.5 Pocket Money for Living Expenses

Table 4.5 shows the reported results from the participants concerning pocket money for living expenses. For the purpose of the study, living expenses refers to the necessary items such as food, toiletries, clothing and other essential items for daily functioning in the life of a student. Majority of the participants (65, 60.2%) reported having R1 000–R1 999 of pocket money for living expenses per month. This group of participants reportedly have sufficient monthly pocket money to put them above the maximum cut-off point in terms of national poverty lines. The upper- (UBPL) and lower-bound (LBPL) poverty lines provide a range for understanding poverty levels of households. According to StatsSA (2020), the UBPL in 2020 was R1,268.00, and the LBPL was R840. These participants are thus above both the LBPL and the UBPL, which suggests they are able to afford the cost of food and non-food items that are essential for their health and well-being. Those above the UBPL are assumed to be able to afford the minimum lifestyle desired by most South Africans.

The second largest group (19; 17.6%) reported receiving R2 000–R 2999 monthly for living expenses, while 17 (15.7%) reported having R500–R999 available for their monthly living expenses. This means most of these 17 participants fall below the LBPL (R840 in 2020), while some are also below the food poverty line (FPL). According to StatsSA (2020: 3), the food poverty line (FPL) "refers to the amount of money that an individual will need to afford the minimum required daily energy intake" per capita in a month; in 2020 that amount was R585. This is known as the absolute deprivation threshold, which represents the minimum amount of

money needed for family to purchase the essential daily quantity of food required to obtain the necessary. What was concerning were the four participants (3.7%) who reported receiving between R100– R499 per month for living expenses, could imply that the amount might not be suffient to meet the student's basic needs considering the current cost of living. In national terms, this level of income comes with severe challenges regarding availability and accessibility of food in most households. Thus, these students are exposed or vulnerable to food insecurity.

The smallest groups of participants (2, 1.9%; 1, 0.9%, respectively) reported their available pocket money for living expenses in a month to be between R3000–R3 999 and >R4 000. Since most of the students hail from rural areas with limited financial resources, this amount would represent an opportunity to obtain certain amenities that other students might not be able to get access to had not receive a bursary or NSFAS.

Table 4.5: Pocket money for living expenses

Pocket money for living expenses	Frequency (n)	Percentage (%)
R100 – R499	4	3.7
R500 – R999	17	15.7
R1 000 – R1 999	65	60.2
R2 000 – R2 999	19	17.6
R3 000 – R3 999	2	1.9
>R4 000	1	0.9
Total	**108**	**100.0**

Source: Survey data

4.6 Money Spent on Food per Month by Participants

A majority of the participants (67, 62.0%) reported that they spend R500–R999 monthly solely on food, while 28 (25.9%) of the participants spend from R1,000–R1,999 on food. This group of students are reportedly above the three poverty lines identified by StatsSA (2020) and are presumably able to afford a nutritious and healthy diet conducive to their well-being. A further 12 (11.1%) participants reported spending R100–R499 on food per month, and one (0.9%) participant reported spending R50–R99 on food in a month. The reported amount spent on food by these 13 participants is below the FPL; they can barely afford the amount of food contained in the urban household food basket. According to the Food Price Monitor (2020: 1), the National Agricultural Marketing Council (NAMC) of South Africa reported that the cost of a

"28-item urban food basket amounted to R875.95 during the month of January 2020".

Table 4.6: Money spent on food per month

Money spent on food in a month	**Frequency (n)**	**Percentage (%)**
R50 – R99	1	0.9
R100 – R499	12	11.1
R500 – R999	67	62.0
R1 000 – R1 999	28	25.9
Total	**108**	**100.0**

Source: Survey data

These results raise concerns regarding the dimensions of food security, in particular food accessibility, availability and, most importantly, nutrition. It is highly likely that the quantity and dietary quality of food for students is compromised. Mkhawani et al. (2016) posit that the rising food prices in South Africa pose a serious threat to food security, both at national and household level. Students are a microcosm of our societies and are not immune to those threats which have a negative effect on their health and progress academically.

The majority (62%) of the participants in the study use a large proportion of their money on food, ranging from R500– R999, and it is highly likely that the quality and quantity of food purchased is reduced, based on high food prices in the market. The findings suggest that 62% of the students in the study use a large proportion of their money on food, ranging from R500–R999. Based on the high prices in the market this could mean that the quality and desired quantity of food purchased is reduced, which may lead to food insecurity. This is illustrated by Mkhwani et al. (2016:69), "poor household are usually food insecure, because they spend a large fraction of their income on food".

This section assisted the researcher in getting an understanding whether students or participants are able to utilise or convert the money available for food into valuable functionings. Looking at the results, 87.9% of the participants are spending more than R500 monthly on food, and the question arises about whether it is nutritious food that is able to assist participants is achieving the functioning of being nourished. Bonvin & Laruffa (2017) argue that most people in societies are "functioning poorly without being income poor", in line with Balestrino (1996) who said people may face problems in converting their income into valuable functionings.

4.7 Source of Income for Participants

The source of income for the participants is presented in Table 4.7. The majority (90, 84.1%) of the participants are funded by the government through NSFAS. Thus, most participants come from households with a combined income below the threshold of R350 000 per annum.

Table 4.7: Source of income

Source of income	**Frequency (n)**	**Percentage (%)**
Bursary	6	5.6
Parent/guardian	8	7.5
Other family member	2	1.9
Student loan (NSFAS)	90	84.1
Employment	1	0.9
Total	**107**	**99.1**

Source: Survey data

According to NSFAS-DHET guidelines (2020), the breakdown of funding per student is as follows: Students staying at university residences are eligible to get a maximum amount of R5 200 for book allowance, the actual cost of accommodation, and lastly the maximum allowance for meals (food allowance) is R15 000 per annum, which is paid directly to the students' bank account. This differs from the previous system, where the Financial Aid office would distribute Pick n Pay vouchers to students at an amount determined by the office. The new NSFAS system was an attempt to diversify accessibility and utilisation of food among students. Students are now able to access a variety of options from the market using cash. This system allows students to use agency to expand their food choices – which may include nutritious or junk food.

Six (5.6%) participants have bursaries to finance their studies, while eight (7.5%) are financed by their parent or guardian. This is very small proportion of the parents who have the means to finance their children's education. A further two (1.9%) participants have their tuition fees paid by a family member, while one (0.9%) participant is working while studying to finance their studies. This therefore confirms that the majority of the students participating in the study are from a poor socio-economic background, as reported by Letseka (2007), and are vulnerable to food insecurity as they are dependent on the state for the provision of welfare throughout their academic period.

4.8 Students Concentration Levels are Hindered when Hungry

Participants responded to a question concerning their concentration levels being hindered as a result of being hungry. This question was raised to get better understanding of whether students are able to concentrate when feeling hungry during the specified times. According to Sabi et al. (2020), food insecurity is believed to have a "negative impact on the socio- psychological state of the individual and lower his or her self-esteem, actualisation and well- being, based on the assumed adverse effect it has on human physiology and health". Most participants indicated that they are unable to concentrate or focus in class when they are hungry.

Table 4.8 shows that 20 (18.5%) participants strongly agreed that their concentration levels are hindered when they are hungry, while 46 (42.6%) agreed with the statement. On the other hand, 17 (15.7%) strongly disagreed, meaning their concentration levels are not hindered when they are hungry, and 25 (23.1%) disagreed.

Table 4.8: Students' concentration levels are hindered when hungry

Concentration levels are hindered when hungry	**Frequency (n)**	**Percentage (%)**
Strongly agree	20	18.5
Agree	46	42.6
Disagree	25	23.1
Strongly disagree	17	15.7
Total	**108**	**100.0**

Source: Survey data

4.9 Measuring Food Insecurity Status – the Household Hunger Scale

Ballard et al. (2011) state that the Household Hunger Scale (HHS) is designed to represent varying levels of food insecurity while at the same time reflecting three domains perceived as central to the experience of food insecurity cross-culturally: 1) anxiety about household food supply, 2) insufficient quality (including variety, preferences, and social acceptability), and 3) insufficient food supply and intake and the physical consequences. According to Ballard et al. (2011:5), it is important to know that the HHS's primary focus is "on the food quantity dimension of food access and does not measure dietary quality".

Table 4.9: Frequencies of occurrence of HHS conditions

No.	Questions	No n (%)	Rarely n (%)	Yes Sometimes n (%)	Often n (%)	∑ Q1a ∑ Q2a ∑ Q3a n (%)
Q1	In the past [4 weeks/30 days], was there ever no food to eat of any kind in your house because of lack of resources to get food?	82 (75.9)	14 (13.0)	12 (11.1)	0 (0.0)	26 (24.1)
Q2	In the past [4 weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food?	93 (86.1)	5 (4.6)	10 (9.3)	0 (0.0)	15 (13.9)
Q3	In the past [4 weeks/30 days], did you or any household go a whole day and night without eating anything at all because there was not enough food?	102 (95.3)	3 (2.8)	2 (1.9)	0 (0.0)	5 (4.6)

Table 4.9 shows the frequencies and percentages of occurrences of food insecurity conditions on the HHS. About a quarter (26, 24.1%) of the students reported that they "had no food to eat of any kind in their households because of lack of resources to get food". Of these, 12 (11.1%) students reported that this has occurred 3–10 times, while 14 (13.0%) reported that this has occurred 1–2 times. The great majority (82, 75.9%) reported that they have not experienced this condition of food insecurity in the past 30 days.

In terms of going "to sleep at night hungry because there was not enough food", 15 (13.9%) student participants reported this experience. Ten (9.3%) confirmed that this occurred "sometimes" in the past 30 days, while five (4.6%) had experienced this "rarely" (1–2 times) in the past 30 days.

In terms of going "a whole day and night without eating anything at all because there was not enough food", this was experienced by five (4.6%) students. Of these, two (1.9%) said it occurred "sometimes", and three (2.8%) experienced it "rarely". The mean HHS score for males (1.15) was higher than that for females (1.06).

4.10 Dietary Diversity Score (24-hour recall)

The Dietary Diversity Score (24-hour recall) shows the distribution of foods taken by participants over the previous 24 hours. Cereal and white tubers have the highest contribution at 99.1%. Cereal and tubers are staple foods and a good source of carbohydrates and energy for humans, as they provide nutritional and health benefits (Chandrasekara & Kumar, 2016). Only one participant did not take cereal or white tubers as reported in the 24-hour period. Flesh meat, fish and seafood was eaten by 70 (64.8%) participants, while 53 (49.1%) had eaten 'other vegetables/fruits'. Milk and cheese were consumed by 44 (40.7%) participants, 42 (38.8%) participants ate Vitamin A-rich vegetables/fruits. Eggs were eaten by 23 (21.3%) participants, while 16 (14.8%) participants ate legumes and nuts. Dark green leafy vegetables were eaten by 13 (12%) participants and seven (6.5%) had eaten organ meat.

Table 4.10: Dietary recall of diet consumed and not consumed in the past 24 hours

Dietary recall based on diet consumed in past 24 hours	**Yes n (%)**	**No n (%)**
Cereal, white tubers	107 (99.1)	1 (0.9)
Flesh meat, fish, seafood	70 (64.8)	38 (35.2)
Other vegetables/fruit	53 (49.1)	55 (50.9)
Milk, cheese	44 (40.7)	64 (59.3)
Vitamin A-rich vegetables/fruits	42 (38.9)	66 (61.1)
Eggs	23 (21.3)	85 (78.7)
Legumes, nuts	16 (14.8)	92 (85.2)
Dark green leafy vegetables	13 (12.0)	95 (88.0)
Organ meat (liver, kidney, heart, or brain)	7 (6.5)	101 (93.5)

Source: Survey data

Therefore, foods regarded as basic, cheaper, and readily available are widely consumed by students. Shifting from a varied diet rich in micronutrients to one that is derived predominantly from high carbohydrates staples is common response to declines in income (FAO, 2012). The cost of living is too high and the R1000 or more may be insufficient to cover the students' basic necessities and expenses. Currently we experiencing tough times in terms of the economy, also experiencing rising food prices and food availability as well as affordability may vary and affect how that R1000 or more is perceived. This is because most staple foods (e.g. rice, maize, cassava) are much cheaper than fruits, vegetables and animal source foods. However, when staples are eaten on their own or with very small amounts of other foods, the result is a poor quality, monotonous

diet that is likely to be nutritionally inadequate in protein, fats, and micronutrients (Thompson 2009), resulting in poor health outcomes (FAO, 2012).

In addition, an increase in food prices will cause a decrease in dietary quality, followed by a decrease in quantity if necessary. However, food price spikes can also increase overnutrition.

However, when the researcher began analysing the data, he realised that the results were only reflecting the first two categories (scores from 0-3). The results did not reveal anything on severe food insecurity, while the moderate food insecurity category had low numbers of participants. The researcher then decided to split the low food insecurity categories in order to get a more granular sense of food insecurity from the responses. This deviates from the FANTA methodology. In the presentation of the results, the variable appears as: food_insecurity_revised. Scores range from 0-3 (see Table 3.6). This is derived by summing the FS scores for the three occurrences as follows: FS1+FS2+FS3 = Total. This gives a better indication of which category each student falls under in relation to food insecurity.

4.11 Distribution of Food Insecurity by Ethnicity of Respondents

This section analyses and discusses the distribution of food insecurity according to ethnicity of the respondents. Table 4.11 shows that 75 (69.4%) students reported 'no food insecurity' in their experience; five (6.7%) of these respondents were Coloured, and 70 (93.3%) were black. In terms of 'little food insecurity', 22 (20.4%) participants reported that there were incidences in the past 30 days where they would go to sleep at night hungry because there was not enough food in their place of stay; all 22 respondents were black. Eleven (10.2%) students reported 'moderate food insecurity' in the past 30 days, when they would go a day and night without eating anything at all because there was not enough food; all 11 of those students were black.

Table 4.11: Distribution of food insecurity status by ethnicity

		Ethnicity of the respondents		Total n (%)
		Black n (%)	Coloured n (%)	
Food_insecurity_revised	No food insecurity	70 (68.0)	5 (100)	75 (69.4)
	Little food insecurity	22 (21.4)	0 (0.0)	22 (20.4)
	Moderate food insecurity	11 (10.7)	0 (0.0)	11 (10.2)
Total		103 (100)	5 (100)	108 (100.0)

Source: Survey data

Note: *Food_insecurity_revised refers to the variable food insecurity status. It was changed based on the deviation from the FANTA methodology when capturing data as explained in Chapter 3, along with the rationale behind the deviation.*

The researcher then conducted a significance test to investigate whether there is a significant relationship between food insecurity status and ethnicity. Chi-squared analysis showed no significant relationship: $\chi 2(2) = 2.307$; $p = 0.316$. The p-value is 0.316, which is above the significance threshold of $p < 0.05$.

In the context of this study, ethnicity is a personal conversion factor, which is inherent to the participants (Bonvin & Laruffa, 2017), which has an influence in the conversion of resources into capabilities and valuable functionings. The different disadvantaged social groups may control the same amount of resources but may not be able to attain the same outcomes in terms of their capabilities (Bonvin & Laruffa, 2017). Both black and Coloured students are highly likely to be receiving the same amount of food allowance from NSFAS. However, they might likely be in a position to have not achieved the same capability of being food secure or well-nourished. The results suggest that the black students in the study are more food insecure than the coloured students.

4.12 Distribution of Food Insecurity by Gender of the Respondents

Table 4.12 illustrates that 40 (74.1%) female residence students reported 'no food insecurity', while 35 male (64.8%) respondents also reported 'no food security'. The researcher conducted a Chi-square test to determine if there is a significant association between these two variables. The results showed no statistically significant association ($p > 0.05$) between food insecurity status and gender: $\chi 2 = 2.606$; $p = 0.272$.

Table 4.12: Distribution of food insecurity by gender

		Gender of the respondents		Total
		Male n (%)	Female n (%)	n (%)
Food_insecurity_ revised	No food insecurity	35 (64.8)	40 (74.1)	75 (69.4)
	Little food insecurity	11 (20.4)	11 (20.4)	22 (20.4)
	Moderate food insecurity	8 (14.8)	3 (5.6)	11 (10.2)
Total		54 (50.0)	54 (50.0)	108 (100.0)

Source: Survey data

Although there is not enough evidence to suggest that females are more food secure than males, however, the analysis revealed gender differences in moderate food insecurity. This can also be supported by the survey responses regarding consumption of dairy products (e.g. milk, yoghurt, amasi). Slightly more female students (51) reported consuming dairy products than male students
(48); these are viewed as luxurious food items in the life of students, with good nutritional value (Gropper, Smith & Groff, 2009; Mahon & Haas, 2013).

Gender is an internal conversion factor where gender roles between females and males have a significant role in achieving the participants' capability to be food secure or to be well-nourished, based on their social status and the ability to convert resources at their disposal into capabilities and functionings (Bonvin & Laruffa, 2017). Being able to cook has been a role or a skill that has been likely associated with females in certain communities. In the context of the study, the researcher felt that it is essential to highlight this component as it is perceived that young males in university residences can hardly cook at times, which may likely deprive them an opportunity in achieving the capability to be food secure through making home cooked meals.

4.13 Distribution of Food Insecurity Status by Province

In terms of distribution of food insecurity by province, statistically, Eastern Cape (EC) student exhibited the highest incidence of food insecurity, with a rate of 34.5%, a trend that may be explained by the province's status as on eof the most impoverished regions in the countryand many people migrate to cities like Cape Town to improve their livelihoods and earning potential. Of EC students, 23.0% reported 'little food insecurity', while 11.5% reported

'moderate food insecurity'. This is unsurprising as migration is also one of the major causes of food insecurity. This reflects how students from other provinces bring their own socio-economic issues from home into the institution.

Table 4.13: Distribution of food insecurity status by province

Province	Food_insecurity_revised			Total n (%)
	No food insecurity n (%)	Little food insecurity n (%)	Moderate food insecurity n (%)	
Eastern Cape	40 (65.6)	14 (23.0)	7 (11.5)	61 (56.5)
Western Cape	13 (72.2)	3 (16.7)	2 (11.1)	18 (16.7)
KwaZulu-Natal	9 (81.8)	1 (9.1)	1 (9.1)	11 (10.2)
Mpumalanga	7 (87.5)	1 (12.5)	0 (0.0)	8 (7.4)
Limpopo	2 (50.0)	1 (25.5)	1 (25.5)	4 (3.7)
Gauteng	2 (50.0)	2 (50.0)	0 (0.0)	4 (3.7)
North West	1 (100.0)	0 (0.0)	0 (0.0)	1 (0.9)
Northern Cape	1 (100.0)	0 (0.0)	0 (0.0)	1 (0.9)
	75 (69.4)	22 (20.4)	11 (10.2)	108 (100.0)

Source: Survey data

Of 18 WC students, three reported 'little food insecurity', and two reported 'moderate food insecurity'. WC has relatively few people living in poverty, compared to other provinces. The 11 KZN participants had two each reporting 'little' and 'moderate food insecurity', respectively. In KZN, more than half of the population is living in poverty. Of Mpumalanga's eight participants, one reported 'little food insecurity'. Mpumalanga is the third poorest province in South Africa. Of Limpopo's four participants, one each reported 'little' and 'moderate food insecurity', respectively. The province has the highest proportion of people living in poverty in South Africa at 78.9%. Gauteng had four participants, and two reported 'little food insecurity'. The NW and NC province participants reported 'no food insecurity'. It must be noted that these sample sizes are very small for most provinces, so these are indicative findings only.

In looking at the relationship between the two variables using the Chi-squared ($\chi 2$), the results showed no significant relationship between province and food insecurity: $\chi 2(14) = 7.314$, $p = 0.922$ (i.e. $p > 0.05$).

4.14 Distribution of Food Insecurity by NSFAS Funding

Table 14.4 shows that 61 (67.0%) NSFAS-funded residence students indicated they had not experienced any food insecurity, while 19 (20.9%) reported 'little food insecurity', and 11 (12.1%) reported 'moderate food insecurity' in the previous 30 days. This suggests the NSFAS funding is sufficient for two-thirds of students receiving it. However, one-third still have insufficient funds to ensure food security. This may be because of sharing their allowances with people back home.

Table 4.14: Distribution of food insecurity status by NSFAS

		NSFAS Funded?			Total
		Yes n (%)	No n (%)	Not applicable	
Food_ insecurity_ revised	No food insecurity	61 (67.0)	12 (85.7)	2 (66.7)	75 (69.4)
	Little food insecurity	19 (20.9)	2 (14.3)	1 (33.3)	22 (20.4)
	Moderate food insecurity	11 (12.1)	0 (0.0)	0 (0.0)	11 (10.2)
Total		91 (84.3)	14 (13.0)	3 (2.8)	108 (100.0)

Source: Survey data

There was no significant relationship between food insecurity and NSFAS funding, according to the Chi-square test: $\chi 2(4) = 3.182$, $p = 0.528$ (i.e. $p > 0.05$). According to Robeyns (2005), often for capabilities to be achieved the main inputs are financial resources and economic production or political and institutional practices. In the context of students in universities across South Africa, most rely on NSFAS for financial support as are the majority of the participants in the current study (91, 84.3%). This plays a significant role in providing financial resources to participants and assists in achieving their capability to be well- nourished or food secure. The participants then make use of agency through their freedom to choose their own identified functioning and their capabilities. All NSFAS students have the same amount of financial resources at their disposal but different outcomes in relation to their food security status. This section also gives a clear description of the idea of individual endowments at the disposal of the participants.

4.15 Distribution of Food Insecurity by Social Grant History

Funding disadvantaged students mostly lies with NSFAS. However, this section looked at the participants' socio-economic background in relation to government support prior to entering

university, such as being a recipient of any state social grants, including the Foster Care Grant, Child Support Grant and/or Disability Grant. Social grants play a vital role in improving the ability of households to purchase food. However, previous studies have shown no significant influence of social grants on household food security (Waidler & Devereux, 2019), as the grant does not cater for all the household needs.

Table 4.15: Distribution of food insecurity by social grants

		Grant recipient		Total
		Yes	No	n (%)
		n (%)	n (%)	
Food_insecurity_revised	No food insecurity	32 (44.4)	40 (55.6)	72 (69.2)
	Little food insecurity	8 (38.1)	13 (61.9)	21 (20.2)
	Moderate food insecurity	8 (72.7)	3 (27.3)	11 (10.6)
Total		48 (46.2)	56 (53.8)	104 (100.0)

Source: Survey data

Table 4.15 shows food insecurity distribution and recipients' report of having grant aid or not prior to entering university. 'No food insecurity' was experienced by 32 (44.4%) participants who had received grants, and by 40 (55.6%) who did not receive any social grants. Eight (38.1%) participants having previous grants reported 'little food insecurity', with the same number (8, 72.7%) reporting 'moderate food insecurity'. Social grants help to alleviate food insecurity, even if insufficient. A majority of participants in the study (91, 84.3%) are NSFAS recipients, which suggests they are from a disadvantaged background. It is possible that the participants are from families where both parents may beworking but their combined income may likely be below the NSFAS threshold.

The Chi-squared test on the relationship between access to social grants prior entering the university and food insecurity status showed no significant relationship: $\chi 2(2) = 3.759$, $p = 0.153$ (i.e. $p > 0.05$).

4.16 Coping Strategies Utilised by Residence Students to Alleviate Food Insecurity

In an attempt to assess the factors affecting nutritional well-being of the participants, the participants were asked about 'drastic measures' or other coping strategies they used to obtain money for food; they had to choose options relevant to their different circumstances. Table

4.16 reflects the coping strategies that the participants reported.

Table 4.16: Coping strategies of students when running out of money for food

Drastic measures/coping strategies	**Yes**	**No**
	n (%)	**n (%)**
Calling on relatives for help with money to buy food (N = 104)	81 (75.0)	23 (21.3)
Use another student's card (N = 105)	4 (3.7)	101 (93.5)
Stealing money (N =105)	3 (2.8)	102 (94.4)
Stealing food (N = 105)	6 (5.6)	99 (94.3)
Perform more than one job as well as studies (N = 105)	15 (13.9)	90 (83.3)
Exchange sexual favours (N =105)	2 (1.9)	103 (95.4)
None of the above (N = 105)	19 (17.6)	86 (79.6)
Other: Please specify (ask a friend) (N = 105)	3 (2.8)	102 (94.4)

Source: Survey data *% based on total number of respondents

In the sample, 81 (75.0%) participants reported that they resorted to calling their relatives for help with money to buy food when they ran out, while 15 (13.9%) participants reported that they perform more than one job in addition to studying in order to make means to access food in residence. Six (5.6%) students reported that they would resort to taking food from their residence housemates at times, due to lack of access to food in their rooms, while four (3.7%) participants would opt to use another student's card in the dining hall to access food, when they had explored every alternative. Three (2.8%) participants would steal money, and three (2.8%) considered asking a friend for food when they ran out of money. Two participants reported the exchange of sexual favours as a coping strategy when they experienced challenges in accessing food.

4.17 Distribution of Food Insecurity by Coping Strategies

Table 4.17 shows the coping strategies used by students in relation to food insecurity. Students who resort to calling on relatives for help with money had the highest level of 'no food insecurity' (52, 64.2%), 19 (23.5%) reported having 'little food insecurity', and ten (12.3%) had 'moderate food security'. Some students engage in getting more than one job as well as studying. These constitute 11 (73.3%) reporting 'no food insecurity', three (20.2%) reporting 'little food insecurity', and 15 (14.3%) reporting 'moderate food insecurity'. Some students engage in immoral activities as coping strategies; these activities include stealing food, stealing another student's card, stealing money, and exchanging sexual favours.

Table 4.17: Distribution of food insecurity status by coping strategies

		Food_insecurity_revised			Total n (%)
		No food insecurity n (%)	Little food insecurity n (%)	Moderate food insecurity n (%)	
Call on relatives for help with money	Yes	52 (64.2)	19 (23.5)	10 (12.3)	81 (77.9)
None of the above	Yes	17 (16.2)	2 (1.9)	0 (0.0)	19 (18.1)
Performs more than one job as well as studies	Yes	11 (73.3)	3 (20.0)	1 (6.7)	15 (14.3)
Stealing food	Yes	3 (50.0)	1 (16.7)	2 (33.3)	6 (5.7)
Use another student card	Yes	2 (50.0)	1 (25.0)	1 (25.0)	4 (3.8)
Stealing money	Yes	2 (66.7)	1 (33.3)	0 (0.0)	3 (2.9)
Other and please specify	Yes	1 (1.0)	1 (1.0)	1 (1.0)	3 (2.9)
(ask a friend)					
Exchange sexual favours	Yes	0 (0.0)	2 (1.9)	0 (0.0)	2 (1.9)

Source: Survey data

4.18 Monthly Compromises Residence Students Make Due to Running Out of Money

Table 4.18 illustrates the items that students are willing to compromise on due to running out of money before the end of the month. Selection of these compromises appears to reflect what is important in the life of a student. A total of 76 (70.4%) students ~~are able to~~ compromise on money for clothes. A quarter of participants (27, 25.0%) reported compromising on food, thereby exposing themselves to food insecurity and adversely affecting their well-being. It is not clear where the money goes instead of buying food. However, 80 (74.1%) students reported they do not compromise on money for food, which may be due to knowledge and awareness around the importance of food in providing the required daily energy intake needed for the body to function effectively throughout the day.

Table 4.18: Items that students compromise on due to running out of money

Compromise items	Yes	No
	n (%)	n (%)
Clothes	76 (70.4)	31 (28.7)
Social life	61 (56.5)	45 (41.7)
Food	27 (25.0)	80 (74.1)
Toiletries	24 (22.2)	83 (76.9)
Books/stationery	17 (15.7)	90 (83.3)
Transport	10 (9.3)	97 (89.8)
Not applicable	4 (3.7)	103 (95.4)

Source: Survey data *% based on total number of respondents

Compromising on their social life was the second most frequent item, reported by 61 (56.5%) students. Toiletries would be compromised on by 24 (22.2%) students. Toiletries remain a basic necessity for human beings, and this raises questions about students'concerns about their hygiene state and health. Students need toiletries to look good and smell nice among their peers Kumar (2019). Therefore, toiletries are a basic necessity for students living in university residence for socialization among their peers, as well as to create sense of belonging in their community. This is based on the important function that toiletries serve for personal hygiene and well-being, for students they are necessary to maintain a good hygiene more especially students in communal living environments like residences. Therefore, having access to toiletries recognizes the importance of students' well-being and also promotes human dignity and comfort. However, the majority are not willing to sacrifice money for toiletries. Books/stationery would be compromised on by 17 (15.7%) students; this suggests that these are amongst the most important things to students. It is not surprising that transport received the fewest responses; it is expected that residence students will not be spending much money on transport, as they may only do so when going to get groceries.

4.19 Conclusion

This chapter presented the quantitative results of the statistical analysis through descriptive statics, frequencies, and Chi-square tests. The majority (62%) of the participants in the study used a large proportion of their money on food, ranging from R500–R999, and it is highly likely that the quality and quantity of food purchased is reduced, based on high food prices in the market. Toiletries remain a basic necessity for human beings, and this raises questions about their concerned about their hygiene state and health. A quarter of participants (27, 25.0%)

reported compromising on food, thereby exposing themselves to food insecurity and adversely affecting their well-being. It is not clear where the money goes instead of buying food. However, 80 (74.1%) students reported they do not compromise on money for food, which may be due to knowledge and awareness around the importance of food in providing the required daily energy intake needed for the body to function effectively throughout the day. It can also be concluded that income/money still remains the major determinant of food accessibility for most residence students. This means that students with no financial support are vulnerable to food insecurity. The hypotheses of the study were also tested, where some relationships resulted in being non-significant.

Chapter 5

Presentation of the Qualitative Results

5.1 Introduction

This chapter follows the presentation of quantitative results above and the detailed literature review and methodology in previous chapters. This part of the research attempted to address the research question, focusing on *the perceptions of students living in university residence at the University of the Western Cape about food insecurity*. In line with the methodology process outlined in Chapter 3, the qualitative data collected was analysed using thematic analysis and is presented in the form of themes, illustrated by excerpts. The participants were asked to explain how their eating patterns change during stressful periods due to examinations and social pressures, how media influences their body image, and to state reasons for purchasing fast food. The themes emerging from the participants' responses are listed in Table 5.1.

5.2 Presentation of the Themes

Table 5.1: Themes emerging from the data

Themes
• Meal frequency and food consumption patterns. • Overload in academic commitments. • Unwillingness to cook. • Awareness about importance of nutrition and junk food • The use of social media as a reason for low self-esteem and well-being. • The consumption of caffeine-based drinks and alcohol, and the negative effect on student well-being.

Source: Survey responses

5.2.1 Meal frequency and food consumption patterns

Deliens et al. (2014) found that students' eating patterns tend to worsen considerably when they are experiencing high levels of stress, and their food choices are strongly influenced towards unhealthy food. Participants described changes in their eating habits during stressful periods caused by social pressures and examinations; the pressure associated with examinations forced students to eat less than the 'standard' meal frequency for an individual (three times a day) (Mattson et al., 2014). However, in the study the students have indicated the number of times they consume (eat) food per day, as they wish, or based on food

availability. Inconsistency in meal frequency and food consumption was reported by the participants, where they often ate once or twice a day, with some reportedly not eating anything at all throughout the day. Wardle et al. (2000) found an association between stress and appetite, which results in changes in the dietary intake among adults. This literature is validated by the below responses, as participants reported that, during stressful periods, their eating patterns change:

"I change from eating three times a day to one or two times a day."

"I often do not eat anything during the day."

"I eat at most once a day."

There were few participants who reported that they consumed three meals a day; the majority ate only once a day as a result of the sustained pressure from examinations time. Therefore, the participants' responses show that, during these periods, they willingly pay attention more to their studies; it is not clear whether the availability of food influenced this. The participants reported that during the examination period they are focusing more of their time on their studies in preparation for their examination willingly. Savige et al. (2007) state that common unhealthy eating patterns among the youth involve skipping a meal (especially breakfast), snacking and consuming fast food. One participant's response clearly indicated that breakfast had been skipped, an unhealthy eating pattern: *"I eat twice a day, lunch and supper".* These responses imply that most students resort to skipping meals intentionally to pay attention to their studies. This may also indicate a calorie intake gap for these students.

There was also a change in the quality of food consumed by participants at pressure times. Some expressed that they consume a lot of food at these times, with clear indications of unhealthy eating habits affecting the quality of their diet:

"I eat a lot but, in most cases, it is junk food."

"I eat a lot more than usual."

"Three times a day with snacks whilst studying."

Other participants reported eating less:

"I tend to eat less and drink lots of coffee instead."

"I usually eat less food than I usually do."

Still other participants associated stress with an inconsistency in eating patterns, which sometimes results in the participant not eating at all:

"Depends on how stressed I am, sometimes I stress and eat and sometimes I hardly eat. Maybe once a day."

"They become inconsistent as I eat when I have an opportunity to do so, once in seven hours."

Research conducted by Sajwani et al. (2009) has shown that "college life is also a period during which individuals are for the most part exposed to stress and lack of time, posing a barrier to adoption of healthy practices". The responses above confirm that, during examination periods, students are exposed to stress that results in them adopting unhealthy eating practices. Furthermore, Sproesser, Schupp & Renner (2014) argued that individuals who regularly consume more food as a response to stress experienced a decrease in the pleasantness of eating, while those who typically eat less when stressed exhibited a decrease in their appetite.

Some participants reported not eating anything at all throughout the day; this raises concerns that the choice is made based on food being unavailable at the household level. Alternatively, the choice may be a result of other issues, such as not having time to eat or make a meal. The participant may also make this choice due to not have enough to last through the month. In that case, the participant is food insecure based on not having adequate nutritious food to provide the required calories each day.

Furthermore, "what this suggests is that changes in food consumption do occur, even among the less affluent, in countries undergoing urbanisation and economic growth" (UNEP, 2012:24). Students are not immune to global food consumption changes, and they place a major burden on their health and well- being. The participants' responses relate to the food utilisation component of food security as well as problems in relation to agency. This agency refers to the ability or rather capacity of the students to makes choices, take actions, and have control over their own decisions. This sentence also suggests that the participants responses are somehow connected to their ability towards accessibility and utilisation of food, the problems to their personal control or choices. It is not clear if the participants' food consumption patterns were influenced by personal choice or material conditions.

5.2.2 Overload in academic commitments

Reicks et al. (2014) stated that consuming fast food and eating away from home are associated with lower dietary quality and obesity among people. Participants reported inconsistencies

regarding meal frequency and food consumption patterns. However, some participants reported that they opted to purchase fast food rather than cook a meal at their residence. Their responses towards their choice for fast food procurement varied; the most dominant cause for that choice seem to be 'overload in academic commitments':

"Busy with studies, swamped with school work."

Participants expressed a preference for fast food procurement a choice made based on not having time to prepare a cooked meal due to academic commitments, while others were hardly eating at all:

"Class timetable doesn't allow time to cook, so I grab ready-made food."

"No time to prepare food due to academics."

"I usually don't have the time to cook because of school work."

"Time, academics and workload consume lots of time."

The narratives provided by participants above emphasise the amount of time it takes to prepare a home-cooked meal; the alternatives available are ready-made food or fast food. This means that one of the reasons behind the preference for fast food is convenience; however, questions arise about the quality and nutritive value of the convenience food. This also illustrates how some students make a personal choice to prioritise their academic commitments:

"Hardly eat because, I am always at the library".

"Lazy to cook or tired from test preparation."

"Often too busy to cook and always tired from nursing hours."

The fact that students living in university residences indulge in fast food rather than eating home cooked and nutriously balanced meals results in many residence students being food insecure, due to the lack of access to adequate nutritious food. This may have a long-term negative effect on their health and wellbeing, both physically and cognitively, as suggested by Farahbakhsh et al. (2017), who argue that food security is a social determinant of health. for fast food over a cooked meal. According to Voevodin (2012), the time and effort invested in preparing food remains the contributing factor that informs food choice or preference. Indeed, Monsivais, Aggerwal & Drewnowski (2014) emphasise that "[l]imited time available for cooking may be one of the barriers to the adoption of more healthy diets".

According to Birch (1999: 42) the term "preference refers to a selection of an item over another". Food choice decisions are believed to be complex and multifaceted and can lead to different food behaviours (Sobal & Bisogni, 2009). Overload in academic commitments have led students to make decisions around food preferences, as highlighted above. Due to the complex nature of students' agency around food preference, most have reported purchasing fast food, which exposes them to food insecurity. This section also highlights that agency plays a role in students achieving their functionings; through opportunities, their food choice will inform the achievement of those functionings of being well nourished or food secure.

5.2.3 Unwillingness to cook

The choice to purchase fast food as reported by participants has been attributed to many reasons, including unwillingness by residence students to cook. According to Hasan et al. (2019), a participatory approach to cooking and eating is believed to be helpful in the consumption of healthy food, while at the same time lowering intake of unhealthy food in children and adults. It is believed that a home-cooked meal contains more nutrients than a meal served in restaurants or fast food outlets. Monsivais, Aggerwal & Drewnowski (2014) reported that "food preparation habits and skills have been associated with healthier dietary intakes". Many responses indicated an unwillingness to cook, whereas living in self-catering university residences requires cooking. However, some participants had strongly negative feelings associated with cooking: "*I hate cooking*". This hatred for cooking remains an issue to be probed and better understood. Other students said they were too lazy to cook:

> *"Lazy to cook or looking for something quick to eat."*
>
> *"When lazy to cook."*
>
> *"It's cheaper, sometimes I don't have time to cook."*
>
> *"Sometimes I am lazy to cook"*

According to Venkatapuram (2011), while the CA is viewed as mostly centred around individual agency and freedom, it is also important to note the role of external factors in enhancing an individual's capability to be healthy. In the context of this study, it is clear that external factors, like easy access to cheaper fast food, contribute to an increase in fast food consumption, which is unhealthy for students. For students who have never been taught cooking skills, it is really difficult for them to adjust to the new living arrangements at university residences where they are required to cook for themselves.

One participant reported he and his roommate initially agreed to cook together and combine money for groceries, but that arrangement did not last as the roommate always bought takeaways (fast food) when it was his turn to cook because he only knew how to cook eggs and cereal. This caused conflict because the other was not happy with the fact that he was cooking all the time. Thus, lack of cooking skills training contributes to students resorting to fast food, which is not healthy for their well-being. Hence, Hasan et al. (2019) argued for the importance of culinary intervention that has been associated with healthier dietary intake. Interventions like these that could assist residence students by providing cooking skills that could improve their attitudes, perceptions and choices around preparing nutritious home-cooked meals.

According to Sen (1987: 36), "a functioning is an achievement, whereas a capability is the ability to achieve. Therefore, functionings are, in a sense, more directly related to living conditions, since they are different aspects of living conditions. While capabilities, in contrast, are notions of freedom, in the positive sense: what real opportunities you have regarding the life you may lead". For residence students to achieve the functioning of becoming well-nourished, they are presented with opportunities (like culinary interventions skills) to realise their capabilities and the freedom to cook, which will enhance their well- being. This is the kind of capability that requires financial resources and for institutions to offer to students, in order to achieve their chosen functionings in residences, which will in turn improve their living conditions.

5.2.4 Prioritisation of fast food rather than home cooked meals

Soliah, Walter & Jones (2012) discuss the benefits and challenges associated with healthy eating, emphasising the nutritional advantage of home-cooked meals. On the other hand, Falk, Bisogni & Sobal (1996) have shown that "people who live alone often neglect preparing cooked meals because of the effort one has to make in preparing food for one person". Students are not immune to this behaviour as some respondents stated that they would rather choose purchasing fast food due to lack of time:

"Because I am always busy, fast food saves time."

"Don't have time to make food."

"I don't like cooking so I would rather buy something ready-made at the shop."

"No time to cook sometimes."

"It does not require me to cook, so it saves time."

The responses all express reasons related to convenience and time-saving aspects of choosing fast food over cooking at home, and also indicating a lack of prioritization for home-cooked meals due to the students' busy schedules or rather personal preferences. According to Deliens et al. (2014:5), time seems to be an important factor in eating or food practices among students. The students' responses above agree with Deliens et al. (2014); the preparation of food on its own involves a lot of process and time. However, the consequence is that students to take an 'easy way out' in purchasing mostly unhealthy fast food.

Students' lack of prioritising home-cooked meals is a result of them trying to save time, and yet there are consequences associated with this choice in relation to their healthy lifestyle. The choice to purchase fast food in line with the responses from participants below is an indication that some students prefer fast food based on cravings and are rewarding themselves after a difficult day:

"Cravings and as a reward."

"Being lazy to cook and cravings."

"*I like fries.*"

"I eat a lot of junk food, even skip meals sometimes because of not having time to cook and I consume more of energy drinks."

The majority of the participants who made that choice to purchase fast food associated it with laziness to cook at some point in time or certain days at their residences. However, junk food is well known for being low on nutritional value and contains high fat, sugar or salt, associated with health risks that can cause lifestyle diseases and obesity.

5.2.5 Awareness about importance of nutrition and fast food

Adam (2016) cited in Syafiqa et al. (2018:138) states that "students' attentiveness of their dietary intake is crucial as it affects not only physical but also the students' mental development". Participants have some level of understanding regarding the implications of consuming fast food, including its potential negative impacts on their health and some participants seem to find comfort and pleasure therein:

"I tend to consume more junk/luxuries, which comforts me, in the form of chocolates, fizzy drinks, sweets etc."

"For pleasure at eating good food."

However, some participants reported that their fast food consumption behaviour, especially junk food, is mainly due to stress during the examination period; furthermore, it has become a habit:

"I eat a lot of junk; stress eating is habitual."

The respondent above refers to consumption of fast food as "*habitual*", which clearly indicates that there is frequent consumption of fast food during the examination periods. Sajwani et al. (2009:650) found that non-communicable diseases are "strongly associated with unhealthy lifestyle habits, including inappropriate nutrition, lack of exercises, smoking, alcohol consumption, caffeine overuse and improper sleeping habits". This put emphasis on poor nutrition, which includes junk food, and is also a factor that is contribution to non-communicable diseases. The statement as highlights the importance of being aware of the impact of nutrition choices and the significance of making healthy food choices to prevent such diseases.

When participants were asked how their eating patterns changed during examination periods, the general responses centred around consuming junk food and the use of energy drinks to stay up, and that energy drinks contain high concentrations of caffeine, which is not good for the body:

"I eat a lot of junk food and also using energy drink [Score] *to be able to stay up."*

"They change a lot; I eat a lot of junk food."

There seems to be a confirmation of change in eating patterns during examination periods, and students show awareness and knowledge about their consumption of junk food at this time. This raises a lot of concerns around the students' health and their cognitive functioning. The students' awareness of consumption junk food during the examination periods raises concerns because it points to potential health and cognitive risks associated with the choices concerning their diet during this period that is associated with high-stress. The student's health and nutrition is negatively affected by consumption of junk food, the consumption junk food can also affect cognitive functioning, especially concentration and memory and that may lead to mental challenges especially during the exam periods. Poor eating habits can also affect well-being through stress and anxiety attacks during examination periods. Furthermore, Sajwani et

al. (2009:650) suggested that "superior knowledge about healthy lifestyle does not necessarily translate into better practices". The participants being university students residing in university residences do have knowledge and are exposed to healthy lifestyles; however, with such knowledge at their disposal, they are still involved in consumption of junk food:

"I eat quite a lot and I eat too much junk food and mostly takeaways."

"Eat a lot of junk food; I don't cook too often."

"I eat a lot, including junk food."

"I consume a lot of snacks, almost each and every two hours."

According to Wardle et al.'s (2000) study with general practitioners in England, nutritional knowledge is significantly associated with healthy eating. However, among students this is not always the case, as most of the respondents are well aware that consuming a lot of junk food is not associated with healthy eating, yet they persist. Hart and Page (2020) argue that an individual's application of their knowledge and skills towards a balanced healthy diet mostly relies on wider social and environmental factors. Furthermore, Hart and Page (2020: 678) argue that, "if the peer group values unhealthy food practices, then the individual may bow to social pressure and go along with them". It is evident that social pressure and examinations are why the students are not practicing healthy eating, and they use their agency to resort to junk food. It is this agency that leads them to a position where they will fail to achieve their capability to be food secure and well-nourished. Therefore, if capabilities are affected, then the students' functioning is affected as well.

5.2.6 The use of social media as a reason for low self-esteem and well-being

Ghatak and Singh (2019) state that esteem (including self-esteem) is the second highest in Maslow's Hierarchy of Needs theory; it is centred around motivation to do better, confidence, and respect for and from others. Furthermore, Sharma and Sahu (2013) reported that social media enhances confidence by providing a sense of freedom and self-identity. However, the study participants reported feeling the other way around, when expressing their reactions to how the media influences their body image. These responses showed where the participants, displayed signs of low self-esteem, while others lacked confidence in their body image, when comparing with the pictures they see on social media:

"It influences me in a way that I feel pressured to lose weight by what I see on the media."

"Sometimes I feel like my body is bad compared to the ones I see on social media."

Although the respondents were not all women, these responses show that media influences people's aspirations about how they want to look. This pressurises women to look in a certain way, and their self-esteem and well-being are also affected:

> *"Media portrays an image of how women need to look, which is lean and skinny, so that affects how I want to look"*
>
> *"Mass media influences the way I carry myself physically and mentally. For example, men and women are portrayed in a certain way, will affect how I look at myself."*

Deliens et al. (2014: 5) reported that "students felt that body image is related to the socio-cultural ideal image and is, in turn, related to the media advertisement strategies". This quote validates the participants' responses where the media exerts influence on the students' eating behaviour and also affects their self-concept. This can result in food insecurity through their deliberate choice to starve themselves to stay thin or lose weight.

Through the responses above, there seemed to be a gendered experience from the participants. The responses above show how women are portrayed as lean and skinny and how this is perceived to communicate a message which affects how the respondents look at themselves. Syafiqa et al. (2018) also reported that fast food consumption among university students was relatively high and mostly associated with lifestyle trends, where media has caught the eye of consumers, while overlooking the harmful effects associated with consumption of fast food.

Based on the responses from the UWC participants, it can be concluded that social media influences the way students view their bodies, and that has an effect on their self-esteem and well-being. If a student's self-esteem and well-being are affected, they will not be able to achieve their capabilities as individuals to be able "to do and to be" the individuals they aspire to be, for instance being a graduate, or being well-nourished. The influence of media on how the students view their bodies pressurises changes in students' behaviour towards food through their agency. This agency has expanded the student's freedom to choose the route of losing weight based on internal factors, which in this case refers to feelings that are created by external factors such as social media. The influence of media on how students view their bodies ultimately has an influence on the student's eating behaviour or attitude towards food.

They choose to consume junk food based on convenience, time, and social pressures, and short-term examination pressure. Some of the students tend to study all night and they are 'forced' to choose fast food and snacks, which are not nutritious or good for their body and well-being.

5.2.7 The consumption of caffeine-based drinks and the negative effect on the well-being of students

Josephson & Stine (1976) cited in El-Nimr, Bassiouny & Tayel (2019: 155) defined caffeinism "as a syndrome resulting from excessive ingestion of caffeine and characterized primarily by cardiovascular and central nervous system manifestations". High consumption of caffeinated drinks is also believed to have a negative outcome on an individual's cognitive health. According to Mitchell et al. (2014:136), "caffeine intake varies across different beverages"; however, caffeinated drinks include beverages that contain caffeine such as "carbonated soft drinks, tea, energy drinks, energy shots and water beverages". Pham et al. (2021) suggest that high coffee consumption likely increases the chance of getting dementia. Furthermore, El-Nimr et al. (2019: 159) believe that coffee, tea, and some soft drinks, such as Red Bull, Coca-Cola, Sweet Iced Tea and others, "are well known as nutritional sources of caffeine". The following were responses from participants when asked about what drinks they had throughout the day:

> *"I drank coffee with milk together with sugar."*
>
> *"Reboost energy drink."*
>
> *"Drink* [cold drink] *nothing added"*
>
> *"Score energy drink."*
>
> *"Coca-Cola."*

According to Davoren et al. (2015), consumption of alcohol has been highlighted as a major public health concern faced by universities because it is consumed by and affects all age groups. According to Salanta et al. (2017), reduced parental support and changes in lifestyle are believed to be some of the contributing factors that are putting university students at risk of substance abuse. On the other hand, Chu et al. (2016: 2) believes that "university students are at a specific stage to experience more freedom in making personal choices about their health behaviours than earlier or later in life". Consumption of alcohol is one of those choices that students make, and it often results in binge drinking, exposing students to more social problems. Some participants reported alcohol consumption.

"I drank Coca-Cola twice, then I had wine and gin in the evening."

The responses in this section show that consumption of caffeine-based drinks and alcohol will likely have negative effects on the well-being of the students, as well as on their achievement. According to WCRF (2018:3) "[s]ugar sweetened beverage (SSB) consumption promotes weight gain and contributes to the rising rates of diet-related NCDs globally". It is likely, then, that the high consumption of SSBs among residence students has a negative impact on their well-being. Bleich and Vercammen (2018:23) state that there is evidence from several studies that "the presence of caffeine in energy drinks and other caffeinated SSBs in conjunction with large volumes consumed, can lead to neurological and psychological effects associated with high caffeine consumption". In another study there is reported evidence for an association between frequency of consumption of both cola and energy drinks with physical complaints (e.g. headaches, stomach aches, sleeping problems and low appetite) among boys and girls. In the context of the current study, if students intend to be awake during the night to study, they prefer to do that through consumption of energy drinks, as they believe this helps them stay awake. However, they overlook other health- related consequences associated with this choice.

5.3 Conclusion

This chapter presented the qualitative results in relation to the identified research objectives. The qualitative data was subjected to thematic analysis, utilising Tesch (1992)'s eight steps for presenting and analysing gathered data. The chapter integrated literature to support the claims and, in some instances, used the CA framework context in analysing the results presented. The results demonstrated that students have in-depth knowledge of what constitutes good nutrition and junk food through KAP; however, they lack the ability to translate that knowledge into good use. On the other hand, limited or lack of culinary skills contributed to high consumption of junk food among the students. Chapter 6 will present a more detailed discussion of the findings in relation to the literature and to the CA framework.

Chapter 6

Discussion of the Findings

6.1 Introduction

The main purpose of this mixed-method study was to explore the perceptions and experiences of students' food insecurity in residences at the University of the Western Cape, utilising the Capability Approach framework to understand these perception and experiences. Through the Capability Approach, the researcher gained an understanding of perceived barriers that restrict students' capabilities and functionings, conversion factors, and how students' agency has been enhanced or restricted towards realising their function. Using this approach, the researcher was able to identify different experiences that influenced students' ability to be well-nourished and how their well-being was affected. The following sections in this chapter will present a discussion on the findings presented in Chapters 4 and 5, linking these with literature and the Capability Approach. The discussion of the findings is based on the research objectives of the study formulated in Section 1.6.

6.2 Perceptions of Students

The qualitative data presented in Chapter 5 was collected to answer objective one: exploring students' perceptions about food insecurity. Three qualitative questions were asked of the participants: i) explain how your eating patterns change during stressful periods (examinations, social pressures), ii) how does media influence your body image? and iii) if you do purchase fast food, please explain your reasons why. The responses were grouped into seven themes namely: *meal frequency and food consumption patterns; overload in academic commitments; unwillingness to cook; lack of prioritisation between home-cooked meals and fast food; awareness about importance of nutrition and junk food; the use of social media as a reason for low self-esteem and well-being; the consumption of caffeine-based drinks, alcohol and the negative effect on the well-being of students*. The following discussion of the findings from the seven broad themes that emerged from the analysis shows that there indeed are different perceptions of food insecurity among residence students.

6.2.1 Meal frequency and food consumption patterns

The results showed that there is inconsistent meal frequency amongst residence students; this has been attributed to high levels of stress that students are subjected to during examination periods and social pressures, as well as their food choices which result in consumption of

unhealthy food. Consistent with the finding above, Oliver & Wardle (1998:513) noted that "the majority of young adults perceived their eating patterns to be influenced by stress". A similar trend was found in Sofar, Abd Alla & Hafeez (2019:36), where university students generally skip breakfast due to reasons such as "having no time, not being hungry, not liking breakfast foods, having friends skip breakfast, and breakfast not being available".Kirkpatrick & Tarasuk (2008) found that skipping meals by students was a form of a coping strategy; however, it reduced their food intake and compromised their health and well-being. Students living in self-catering university residences are often disadvantaged compared to their peers residing at home and in catering residences, in relation to food consumption patterns (Hughes et al., 2011).

Lack of time and stress are perceived to be some of the barriers that contribute to inconsistencies regarding meal frequency and food consumption patterns. This was congruent with Sajwani et al. (2009)'s finding that barriers to adoption of healthy eating practices are the result of stress and lack of time to prepare meals. According to Sundaram et al. (2018: 19), "[b]reakfast is the first meal of the day, is predicted to be taken after 7-8 hours of sleep and is mostly skipped by university students". However, based on the participants, it is unclear whether the skipped meal is breakfast, lunch or dinner, since there is an indication of eating once or twice a day.

6.2.2 Overload in academic commitments

This study's findings show that food insecurity among residence students is linked to perceived academic overload; this causes students to refrain from eating, while many opt to purchase fast food. Participants said they chose to purchase fast food due to their busy academic schedule. This is supported by previous research conducted by Broton, Weaver and Mai (2018:11), where students reported that they "do not have enough time to eat because of a busy schedule".

6.2.3 Unwillingness to cook

The study findings suggested that residence students encountered challenges pertaining to their mandatory daily responsibilities, such as cooking a meal in order to eat. Farmer & Cotter (2021) suggested "that cooking represents human flourishing". For students in self- catering residences, cooking is required, but this daily requirement produced a conflict, highlighting their shift from a home environment. The participants described their negative feelings towards cooking and their unwillingness to cook, while many of them admitted not having the skills to

cook. If students are not able to cook for themselves, their health and well-being are compromised by nutrient-poor fast food. They are therefore vulnerable to food insecurity by choice. A number of research studies have focused on university students living off campus and their food preparation behaviours and cooking self-efficacy (Knol et al., 2018), while little is known about the connection between food insecurity and unwillingness to cook. Students from disadvantaged backgrounds have to cook, but those with financial means have the alternative of purchasing fast food. This was similar to a previous study finding that people who spend most of their time cooking were from low-income households (Adam et al., 2015; Begley et al., 2019).

6.2.4 Prioritisation of fast food rather than home-cooked meals

Previous research on cooking at home has been linked with several positive outcomes related to health and well-being (Mills et al., 2016; Mills et al., 2017; Mills et al., 2020). However, the current results highlighted that laziness, cravings, time, and academic commitments were perceived barriers to students preparing home-cooked meals. Research that focused on cooking and the perceptions around home-cooked meals highlighted barriers such as time and money constraints, lack of energy to cook, past cooking failures, perceived lack of enjoyment, and tiredness (Farmer & Cotter, 2021; Mills et al., 2017; Wolfson et al., 2016). Students' preference for fast food was based on convenience; it reveals that accessibility to food based on financial means is not a problem for some of these participants.

6.2.5 Awareness about importance of nutrition and junk food

Previous research on knowledge and awareness amongst teenagers about the unhealthy components of junk food revealed that teenagers had a good knowledge about the dangers of junk food consumption, but were too busy to put the knowledge into practice (Gopal et al., 2012; Story & Resnick, 2000). Due to examinations and social pressures amongst participants, and the fact that junk food is readily available, students are likely to ignore the warnings, despite their knowledge of the harmful effects associated with junk food.

Sapkota & Neupane (2017:151) defined junk food as food that is energy dense containing "high amounts of refined sugar, white flour, trans-fat, polyunsaturated fat, salt, [and] numerous additives"; however, consumption of junk food has been a norm globally. Students in the current study reported their junk food consumption was influenced by pleasure, time, and comfort. However, the participants did not show much of the expected negative impact

on their health and well-being; their perceived stress had been a major influence *towards* consumption of junk food.

6.2.6 The use of social media as a reason for low self-esteem and well-being

The use of social media is associated with both positive and negative impact in people's lives and particularly an individual's self-esteem (Jan, Soomro & Ahmad, 2017); the current study findings support this. The participants reported that they felt they had to lose weight when comparing themselves to images on social media of people who appeared to be living a healthy lifestyle, while others felt bad, and the images affected how they looked at themselves. Some students were motivated towards a healthy lifestyle based on content displayed on social media, while others' confidence levels decreased.

6.2.7 The consumption of caffeine-based drinks, and the negative effect on students' well-being.

Consumption of caffeine-based drinks (including energy drinks) among students in HEIs globally has been highly prevalent; it is associated with a variety of reasons ranging from the need for energy when driving, when studying or faced with major projects, improving concentration, and increasing motivation to work (Maqsood et al., 2020). In the current study, students reported consuming caffeine-based drinks to stay awake and focus on studying for assessments. The findings are consistent with Maqsood et al. (2020:48), who suggested that "caffeine helps students to work over long periods of time, makes them feel less sleepy after having caffeine".

Previous research has identified side effects associated with caffeine, including depression, loss of sleep, bone loss, irritability and signs of aggressiveness (Botella & Parra, 2003; Mahan & Escott-Stump, 2008; Schardt, 2015). As this study's participants consumed caffeine drinks in an attempt to stay awake at night, this suggests that these side effects would also have a negative impact on these students' well-being.

6.3 Experiences of Students

The quantitative data reported in Chapter 4 were collected to answer objective two: describing the experiences of residence students in relation to food insecurity; this data was derived from the questionnaire. This section aimed at understanding the participants' level of awareness and for them to describe their experiences and perceptions of the food insecurity challenges they

encountered during their time at UWC. The participants provided diverse views and insightful experience regarding the topic of inquiry, including critically protective family ties that mitigate the challenges they are exposed to as a result of food insecurity.

The data from the sample suggests that there is prevalence of food insecurity among the students living in UWC residences. About a quarter said they had experienced no available food at least once a month, while about 14% had gone to sleep hungry, and 4.6% had gone 24 hours without food. Previous research studies conducted in South Africa show the prevalence of food insecurity in HEIs ranging from 11%–38% (Rudolph et al., 2018). This prevalence is lower than some US universities; the University of California reported 57%, while Western Oregon University reported 59% (Dubick et al., 2016; Goldrick-Rab et al., 2018). As mentioned in the literature review, the prevalence of food insecurity in HEIs in South Africa tends to be higher compared to the reported 15.8% at household level (StatsSA, 2019).

6.3.1 Demographic profile of the sample and racial profile of UWC residences

The demographic characteristics of the sample showed that 95% of the UWC residence participants were black, while 5% were Coloured. About one-third of black participants had reportedly experienced 'little' or 'moderate food insecurity' during the past 30 days; no Coloured students reported food insecurity. This coincides with research studies conducted on racial inequality in South Africa showing that the majority of black people experience unequal income distribution and poverty (Leibbrant, Woolard, Finn & Agent, 2010). Black students coming from disadvantaged backgrounds will experience more food insecurity, based on disparities in income and financial challenges limiting their access to food.

6.3.2 Measuring food insecurity status

The current study used the Household Hunger Scale and the Dietary Diversity Score to understand students' experiences of food insecurity at the UWC residences. The study made use of SPSS to capture, analyse and present the data and also allowed the different variables to be compared with food insecurity status.

6.3.2.1 Food insecurity by ethnicity

The data analysis revealed no significant differences between food insecurity status and ethnicity. However, as mentioned above, 22 (21.4%) and 11 (10.7%) black residence students

experienced ‘little’ and ‘moderate food insecurity’, respectively. This means that they ran out of food in their household at least once in the previous 30 days (‘little food insecurity’) or they would sleep at night hungry (‘moderate food insecurity’). Kassier & Veldman (2013) contend that the rapid increase in university enrolments, especially of students from disadvantaged communities, means that food insecurity has intensified in South African universities. The finding is also supported by Devereux (2018) who argued that race remains “the strongest predictor of food insecurity among students due to the legacy of apartheid”. UWC residence students are no exception as these findings show that black African students are food insecure compared to Coloured students. However, the low participant numbers of Coloured students make this hard to interpret.

6.3.2.2 Food insecurity by gender

In previous research, gender has been believed to be a fundamental determinant of food insecurity, particularly in terms of the gender-differentiated social roles around preparation and consumption of food (Dodson, Chiweza & Riley, 2012). The sample for this study reflects a 50/50 gender representation based on the sampling strategy for this study. No occurrence of food insecurity in residences was reported by 75 (69.4%) students (35 male; 40 female). Eleven males and eleven females reported ‘little food insecurity’, while eight (14.8%) males and three (5.6%) females reported ‘moderate food insecurity’. There was, however, no statistically significant relationship between gender and food insecurity status of the students living in university residences.

These findings were not consistent with previous research conducted by Maroto et al. (2015), which showed that female students (58%) are at a slightly higher probability of being food secure compared to male students (53%). The fact that slightly more female students in this study reported consuming dairy products, shows that they are in a better position to access food that is rich in nutrients compared to their male counterparts.

6.3.2.3 Food insecurity by NSFAS

The National Students Financial Aid Scheme was set up by government in South Africa to assist students from disadvantaged backgrounds with financing their tertiary studies (Kaiser et al., 2015). The study aimed to look at students funded by NSFAS, and the relationship between NSFAS and participants’ food insecurity status. The majority of the students funded by NSFAS

reported no food insecurity in their households. This may be because students are getting enough food allowance to afford food, or perhaps the students have additional financial support from family members, as indicated in the coping strategies by a majority of the students; lastly, some of the students perform more than one job as well as study.

Students on NSFAS are already exposed to food insecurity on the basis of their financial status (Munro et al., 2013). Sabi et al. (2020) also support the idea that funding plays a pivotal role in determining students' food security status in HEIs in South Africa. "Inefficiency and poor coordination of NSFAS results in delays in disbursement of funds" and allowances to students (Dullah Omar institute, 2020). In addition, some disadvantaged students on NSFAS end up sharing their allowances with their families back home; this increases their vulnerability to food insecurity on campus. Crush (2012:28) notes that "a migrant in the city may sacrifice their own food security in order to remit and ensure that rural relatives have enough to eat". In conclusion, the majority of food-insecure students, accounting 33%, are primamrily NSFAS beneficiaries, based on their socio-economic background, and who are from impoverished families (Sabi, 2019). This conclusion is also based on the data that has been drawn the analysis that has suggested a correlation between food insecurity among students and their status as NSFAS beneficiaries including their socio-economic background as much as the numbers are not that high.

6.3.2.4 Food insecurity by social grants

Social grants and NSFAS are examples of cash transfers that employ the targeting approach towards provision of welfare to the people of South Africa and the disadvantaged students in institutions of higher learning (NSFAS, 2020; Sumarto & Suryahardi, 1999). The study findings show that fewer than half of student participants have been recipients of social grants prior to entering UWC. Both social grant recipients and non-social grant recipients reported vulnerability to food insecurity to a certain degree. The Chi-square analysis showed that there is no statistically significant relationship between access to social grants prior to entering university and food insecurity status.

6.3.2.5 Food insecurity by coping strategies

Households respond differently when it comes to providing safety nets in responding to food insecurity (Gupta et al., 2015). The findings concerning coping strategies displayed a sense of

family responsibility from family members who look after one another in times of need, especially when students are running out of money for food. These kinship networks are an indication of a strong sense of family cohesion and traditional family bonds (Crush, 2012). This also suggests that accessibility to food is not students' main issue, as participants know which resources to tap into when running out of resources for food.

Ellis (2000:13) emphasised that "coping strategies are invoked following a decline in normal sources of food and these are regarded as involuntary responses to disaster or unanticipated failure in major sources of survival". This was also reflected in the coping strategies reported in the study findings, where some of the students resorted to stealing food (6, 5.6%), stealing money (3, 2.8%) and exchanging sexual favours (2, 1.9%). The findings also reveal how some students (15, 13.9%) perform more than one job while studying in an attempt to cope when running out of food. This finding also shows that financial challenges are one of the key issues exposing students to food insecurity.

6.4 Dietary Diversity Recall

The Dietary Diversity Score showed the range of foods eaten by the residence students. As expected, cereals and white tubers (107, 99.1%) were consumed by almost all students, followed by flesh meat, fish, and seafood (70, 64.8%) and other vegetables/fruit (53, 49.1%). These findings suggest that many students are not consuming diversified food that is full of nutrients which may be associated with rising food prices that results in students purchasing cheaper foods that are mostly staple foods. Food-insecure students may resort to purchasing cheaper and mostly processed foods with the aim of eating more food instead of nutrient- dense food (Patton-Lopez et al., 2014).

Concerning the wide consumption of cereal and white tubers, is a clear indication that students consume staple foods such as cereal and bread most of the time, probably based on convenience. Devereux & Waidler (2017) argue that "rising prices of basic food items, also reduce dietary diversity in poor households".

6.5 Students' Monthly Compromises Due to Running out of Money for Food

In addition to investigating students' coping strategies when running out of food, the study also explored what other things students are willing to compromise on in this situation. The findings

revealed that over two-thirds (76, 70.4%) of students would compromise on their clothing expenditure. This is consistent with Jaffrays (2018), who found that teens reportedly chose to buy food more than spending money on clothes.

Just over half (61, 56.5%) the student participants are willing to compromise on their social life. However, (27, 25.0%) of students indicated that they would rather compromise on the money for food, which is concerning for their potential vulnerability to food insecurity. Under a quarter (24, 22.0%) of the students reported to be willing to compromise on toiletries when running out of money for food; this finding shows the extent of students' vulnerability to food insecurity as this choice compromises their health and well- being. (17, 15.7%) of students will compromise on books/stationery if short of food; this suggests severe food insecurity in university residences if students are willing to compromise on obtaining academic materials. Only a few (10, 9.3%) students would compromise on transport; this finding was expected since transport is only essential for students to go the markets.

6.6 The Capability Approach

6.6.1 Findings on capabilities

Robeyns (2005) argues that a capability refers to one's freedom to choose between different ways of living, meaning the opportunities that an individual can use in one way or another to achieve functionings. Learning about cooking and good nutrition can improve residence students' food security and well nourishment by using the knowledge, skills and change behaviour towards healthy food and good nutrition (Peralta, Dudley & Cotton,2016). For students to achieve this, they must obtain cooking skills and expand their knowledge about nutrition; this will motivate them to prioritise home-cooked meals over consuming fast food that is unhealthy for their well-being.

The study findings showed students' unwillingness to cook and the lack of opportunities available for students to achieve their functionings as they had not been presented with opportunities to realise their capabilities. This finding was demonstrated through qualitative data, where students reportedly shown their reluctance or unwillingness to cook and their preferences regarding a cooked meal and purchasing of fast food. Which is the result of bad choices that are undermining their functioings and capabilities. The findings also highlight the choices that students are confronted with concerning home-cooked meals and fast food; freedom of choice resulted in many students choosing fast food that is detrimental to their

health and well-being. Culinary skills interventions will be instrumental in allowing the students to make informed choices about food that is essential for their health and well-being.

The study further showed that overload in academic commitment was perceived as a challenge influencing students' choice of fast food; students' capability to concentrate in class when hungry was also affected. This, therefore, meant this capability was not achieved. A majority of the students in the study reflected the capability to preserve their transport money when running out of food, knowing the importance of being able to travel to the markets to purchase food. However, the findings revealed that students' capability to be healthy has not been achieved, based on students' unwillingness to cook, and this resulted in increasing the odds of fast food consumption in the residence community of UWC.

6.6.2 Findings on functionings

A functioning, according to Sen (2003), refers to a person's achievement: what one becomes or does. The residence students had a variety of capabilities that they needed in order to achieve their desired functioning. Some functionings to be achieved required knowledge, skills, access to resources and financial literacy. The findings in the study suggest that lack of income, lack of timeous access to NSFAS food allowance, and lack of knowledge and awareness had a negative impact on students from disadvantaged backgrounds in achieving their functionings.

6.6.3 Findings on agency/choice

Agency refers to the individual's ability to pursue their valued goals or activities, whereas empowerment focuses on empowering people with the ability to realise the functionings they value most in life for their well-being. This, therefore, means that if students are empowered, their agency will be enhanced to successfully achieve their desired well-being (Drydyk, 2008). Such empowerment includes cooking skills and getting nutritional information from dieticians (Hartmann, Dohle & Siegrist, 2013). The study findings revealed both internal and external limitations among students that influenced their choice to purchase fast food, thus negatively impacting on availability of nutritious food.

The findings in the study revealed that students did not use their capability of knowledge of the importance of good nutrition to use their agency on behalf of the valued goal to achieve the functioning of being healthy and food secure. It is believed that knowledge and awareness did

not translate into practice, as the study revealed that students chose junk food regardless of their extensive knowledge and awareness. This suggests their agency was compromised or restricted. Sen's concept of agency is governed by four conditions: action, reason orientation and deliberation, self-determination, as well as an impact on the world (Conradie, 2013; Crocker & Robeyns, 2010; Ikebuaku, 2022). The current findings revealed some students' self-esteem to have been negatively affected by social media, which also impacts on their self-determination. This shows how residence students' agency may have been negatively affected, such that they are at a disadvantage in terms of their ability to pursue their valued goals of being food secure or well-nourished.

6.6.4 Findings on conversion factors

Hatakka, Thapa & Sæbø (2016) said that, in the Capability Approach, conversion factors are believed to influence the relationship that exists between capabilities and functionings. For Robeyns (2011), "all conversion factors influence how a person can be or is free to convert the characteristics of the resources into a functioning, yet the sources of these factors may differ". Conversion factors can be classified as: personal, social, and environmental; these will be discussed below.

6.6.4.1 Personal conversion factors

Personal conversion factors are "internal to the person, such as metabolism, physical condition, sex, reading skills, or intelligence" (Robeyns, 2011); these personal characteristics affect how a person is able to convert the features of a commodity into a functioning. Personal conversion factors in this study included the students' negative attitudes towards cooking and fast food. In terms of income, the majority of the students were on NSFAS and some on a bursary, while only one was employed.

Regarding gender, the results revealed that females were slightly more food secure than the male participants. This was based on the reported results that slightly more female than male students consumed expensive and nutrient-rich dairy products in their residence. In addition, female students had a slightly greater capability to cook a home meal, based on perceived gender roles in society regarding cooking.

The study findings revealed that personal conversion factors outlined above hindered the

freedom to achieve students' functionings; they influenced how the students' capabilities could be translated into achieved functionings. In addition, the findings mainly highlighted the students' reported attitude and behaviour towards realising their identified functioning. However, the findings in section 5.2.6 highlighted the personal conversion factor focused on the students' mental alertness or mental state.

6.6.4.2 Social conversion factors

For Conradie (2013), social issues like race, culture, and class can be regarded as social conversion factors. The research findings regarding social beliefs revealed a strong sense of family support, where students reached out to their relatives when they ran out of money for food. In addition, the socio-economic background of students forced some of them to send some of their food allowance to families back home as a result of socio-economic challenges there; this resulted in the students' capabilities being hindered, preventing them from realising their functioning of being food secure. Increasing prices of food from the market also hindered achieving this functioning. The study results revealed that almost half (48, 46.2%) of the students had received social grants prior to entering university; these students were part of the welfare system (and continue to be, with NSFAS). This, then, requires the institution to develop a food security policy that will provide a safety net for the students affected by food insecurity, as their socio-economic background shows their vulnerability to the phenomenon.

6.6.4.3 Environmental conversion factors

Environmental conversion factors include infrastructure limitations, particularly focusing on vendors selling food on campus for students. Access to nutritious food around campus remains difficult, as there are no shops selling nutrient-rich food; most sell fast food such as fries. Due to these limitations, most students reportedly consume a lot of takeaways. The study indicated that most students retain their transport money when running out of food; it is therefore believed that the money is mostly used for transport to the markets. The findings concerning purchasing of fast foods highlight the unstable and unreliable food supply available on campus that is predominantly unhealthy and restricts students from having diverse nutritious meals at all times on campus. Lack of access to food allowances on time is another issue that prevents students achieving their food security functioning. The results of the study concerning the environmental conversion factors do not give a clear picture of how students used these environmental factors to enhance their capabilities and functionings.

6.7 Conclusion

This chapter discussed the findings in relation to the literature and the Capability Approach, paying attention to the perceptions and experiences of UWC residence students regarding food insecurity. Most of the findings were consistent with the literature that speaks about students' perceptions and experiences regarding this phenomenon. The complex nature of the Capability Approach provided helpful insight concerning the challenges that restrict students' capabilities and prevent them from achieving certain functionings. Based on the study findings and the literature, it seems clear that more work is needed at HEIs to combat food insecurity and provide a safety net for disadvantaged students to be able to thrive well academically and achieve their capabilities and functionings, such as being well-nourished and graduating.

Chapter 7

Summary, Recommendations and Conclusion

7.1 Introduction

The previous chapters discussed the findings of the research. The main aim of this chapter is to summarise the findings, reach general conclusions and provide recommendations for future research.

7.2 Summary of the Findings

The main aim of this research project was to explore the perceptions and experiences of UWC residence students' food insecurity, and to provide recommendations to policy-makers and student support services on how to assist disadvantaged students dealing with food insecurity. The central research question for the study was:

To what extent does food insecurity have an effect on student well-being?

The sub-research question was as follows:

What are the students' perceptions and experiences in relation to food insecurity?

Chapter 4 presented and interpreted the quantitative results, integrated with literature, to draw meaningful insights from the data in support of the results. The SPSS analysis yielded descriptive statistics as well as Chi-square tests to assess relationships between the identified variables for significance. The fundamental research assumption of the study was: *that students living in campus residences, who were not receiving food vouchers from NSFAS, were food insecure.* The study showed that even about one-third of residence students receiving food vouchers from NSFAS have only 'little' or 'moderate food insecurity'. Students with no NSFAS funding had a lower rate (14%) of food insecurity; however, the numbers are low, and may not indicate the true picture of residence food insecurity. The qualitative results provide more information in this regard. The results were validated by the existing literature which was integrated in the presentation and discussion of the findings in Chapters 4 and 5, and further discussed in Chapter 6.

Part of the method utilised by this study deviated from the original FANTA methodology used in previous studies on this phenomenon (e.g. Van den Berg & Raubenheimer, 2015). These authors found a slightly higher level of food insecurity in their student sample than in the surrounding population (Van den Berg & Raubenheimer, 2015). However, the current study

found the level of food insecurity was relatively low in the sample, as two-thirds (69%) of the students surveyed reported being food secure, and no student claimed to have suffered severe food insecurity. In terms of demographics, 95% of the participants were black, while 5% were Coloured; about one-third of the black students reported some level of food insecurity during the previous 30 days. This reflects the racial inequality in South Africa, where most black people have experienced unequal income distribution and poverty (Van der Berg, 2010); therefore, black students from disadvantaged backgrounds are likely to experience greater food insecurity on campus.

The study findings revealed only minimal differences in experiences of food insecurity between female and male UWC residence students. These findings are not in unison with the findings discussed in the literature (Croson & Gneezy, 2009; Sraboni et al., 2014; Wardle et al., 2004), which argued that women are more food secure and able to maintain a healthy lifestyle compared to men. This study's results showed no positive relationship between gender and food insecurity. However, more (14.8%) male students reported experiencing 'moderate food insecurity', while only 5.6% of female students reported experiencing 'moderate food insecurity' in their UWC residences over the previous month. This finding agrees with the literature that women are believed to be more food secure, although the numbers of students are small (Sraboni et al., 2014). The different experiences of students have also highlighted the challenges students face in achieving their capabilities and functionings. However, students' coping strategies revealed the importance of their sense of belonging through family ties.

Chapter 5 focused on the presentation of qualitative data; through thematic analysis, themes were presented with relevant quotes from the participants to support the findings and were integrated with literature to validate the findings. Seven themes emerged from the analysis: meal frequency and food consumption patterns; overload in academic commitments; unwillingness to cook; lack of prioritisation between home-cooked meals or fast food; the use of social media as a reason for low self-esteem and well-being; the consumption of caffeine-based drinks, alcohol, and the negative effect on the well-being of students. The students' perceptions in relation to food insecurity showed inconsistency regarding meal frequency and food consumptions patterns, perceived lack of time, high levels of stress, overload in academic commitments, and unwillingness to cook. The participants' awareness and correct knowledge about good nutrition and junk food was insignificant, as the findings revealed that the high consumption of junk food was influenced by factors such as pleasure, time and comfort.

However, students displayed a laziness and unwillingness to cook in their residence. Their attitudes and behaviour towards cooking led to unhealthy practices, such as purchasing of fast food. Kwol et al. (2020) believed that "knowledge positively influences an individual's attitude, and in turn influences practices or behaviour", as per the KAP model.

The use of social media revealed that, apart from food needs, students were impelled to address other needs such as self-esteem (McLeod, 2018). However, the findings also revealed that some students' self-esteem was negatively affected by social media content. Two factors were identified by participants as associated with consumption of caffeine-based drinks: being awake at night to prepare for assessments and the energy to sustain them during those periods. However, caffeine consumption is associated with side effects such as depression, loss of sleep, bone loss, irritability, and signs of aggressiveness (Botella & Parra, 2003; Mahan & Escott-Stump, 2008; Schardt, 2015), thus students' well-being is negatively affected by regular consumption of caffeine-based drinks.

7.3 Limitations of the Study

This study had some limitations encountered while conducting of the study. The results of the current study may not be generalised to other institutional settings, partly due to the demographic characteristics in terms of race of the residence participants; this would not necessarily be the same as other institutions. Another limitation was the sample size and composition that was utilised in the study. The sample excluded first-year residence students at UWC, as well as students staying in private residences or home. The residence inclusion criteria for UWC students are also different from other HEIs, preventing generalising the results. In addition, UWC may have students from different socio-economic circumstances compared to other institutions, and the faculty enrolment pattern may also be different.

The research made use of mixed-research methodology which was mostly dominated by quantitative methods. This missed the opportunity to obtain more in-depth perceptions of the students' food insecurity which could have been achieved through focus groups. This limitation was a result of the 2020 gathering limitations due to Covid-19. There is also limited literature focusing on food insecurity of students living in university residences in South Africa. Lastly, the researcher was not able to reach a substantial number of participants from other races, as the UWC residence students are predominantly black.

7.4 Implications of the Study

The current study employed a sequential explanatory research design that allowed the researcher to have alternative ways of ensuring that the purpose of this research was achieved. A key finding emerging from this research was the need to formulate a food security policy for UWC students, which can underpin intervention programmes aiming to address food insecurity. The study thus has implications for various stakeholders within higher education. These interventions require effort and commitment across various faculties, dieticians, academics, and the Centre of Excellence in Food Security. HEIs, at faculty level, should strengthen their approach to eradicating food insecurity through intervention programmes research that provides a critical mass of research to understand the phenomenon from the different faculties' perspectives and also find ways of sustaining those programmes. Lack of diversified food on campus contributes to the challenge of students being exposed to unhealthy food.

7.5 Recommendations for Future Research

The findings from this study have shown a significant potential to make a major contribution to the existing literature on food insecurity, food security and the Capability Approach. More studies of this nature are needed at other HEIs in South Africa to be able to generalise the findings nationally. Further studies may help to better understand the link between food insecurity and migration of students across the country, especially in institutions situated in big metropolitan areas of South Africa. The researcher also recommends that future research should consider food insecurity and the role of religion (Islam) and availability of halal food on university campuses.

At UWC, there needs to be a coordinated approach led by the Centre of Excellence in Food Security, DVC SDS, Dietetics and Nutrition, deans of various faculties, and student leadership (SRC) to develop a food security policy for UWC students. This will require the stakeholders identified to take the process forward and ensure active participation of student leaders and the students at large. A food security policy should be in place in order to guide the intervention process and find a sustainable approach towards this complex phenomenon and to eliminate the stigma attached to food insecurity, also known as hidden hunger (Mogatosi, 2016). The intervention programme needs to be monitored and evaluated to ensure its sustainability. It is also recommended to develop a comprehensive food security policy for HEI students across South Africa, led by government through DHET, and including the private sector, to assist in eradicating food insecurity. Most students at HEIs come from disadvantaged backgrounds, and

universities need to put measures in place to provide for these students. The faculty of CHS through the Dietetics and Nutrition department should make provision for second- and final-year students as part of their field practicum to create programmes aimed at teaching residence students about good nutrition and food choices, and the preparation of healthy meals. Future comparative studies should be conducted focusing on getting a better understanding of students' choice and decision-making regarding junk and nutritious food.

In addition, the Centre of Excellence should work together with other faculties conducting research around this phenomenon to eliminate repetition of studies around the topic and to create awareness around completed research projects concerning food insecurity for UWC students. The findings of those research projects could be presented at webinars. Administrative assistants working at food distribution centres or food banks around HEI campuses should be trained to better understand the sensitive issues around stigmatisation, dignity and worth of food-insecure students. At UWC, there is a need to decentralise the existing UWC food security programme that is being managed by the office of the DVC SDS; this should be centralised in faculties to include disadvantaged students who shy away from seeking help based on the stigma, ethics of care and socio-economic realities around the issue of food on campus. This is a more sustainable approach that aims to address food insecurity across the institution by creating more access to the most vulnerable students through faculties; this inclusive participation will need faculties to have qualified personnel in each faculty.

7.6 Conclusion

The results of the study have contributed to the body of knowledge on food security in general, on students' functionings and capabilities, and their behaviour and perceptions around their choices of food. The study has also provided meaningful contribution to the methodology and the higher education sector, particularly focusing on the well-being and the development of students living in university residences. Food insecurity is a major issue in many campuses across the country and globally, as it has affected many students and contributed to university drop-out. The study results highlighted the different experiences of students, such as the utilisation component of the dimensions of food security, where students' food choices revealed the challenges associated with knowledge and awareness practices (KAP). Poor student choices result in lack of appropriate utilisation of food, which translated to lack of stability to food. This then results in some students not achieving their desired functionings and capabilities.

Food insecurity is a complex phenomenon that necessitates the development of a food security policy at UWC and the higher education sector in South Africa to combat food insecurity and guide the implementation of existing food security programmes and for sustainability. The study results are important as they highlight the urgent need to address food insecurity in university residences.

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Appendices

Appendix A: Ethical Clearance

OFFICE OF THE DIRECTOR: RESEARCH
RESEARCH AND INNOVATION DIVISION

UNIVERSITY of the WESTERN CAPE

Private Bag X17, Bellville 7535
South Africa
T: +27 21 959 4111/2948
F: +27 21 959 3170
E: research-ethics@uwc.ac.za
www.uwc.ac.za

25 March 2019

Mr U Sigodi
Institute for Social Development
Faculty of Economics and Management Science

Ethics Reference Number: HS18/10/35

Project Title: Exploring perceptions and experiences of students' food insecurity in residences at the University of the Western Cape (UWC) and Cape Peninsula University of Technology (CPUT).

Approval Period: 20 March 2019 – 20 March 2020

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report in good time for annual renewal.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

HSSREC REGISTRATION NUMBER – 130416-049

Appendix B: Permission to Conduct Research

REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT THE UNIVERSITY OF THE WESTERN CAPE ISSUED RETROSPECTIVELY

This serves as acknowledgement that you have obtained and presented the necessary ethical clearance and your institutional permission required to proceed with the project referenced below:

Name of Researcher
UNATI SIGODI

Research topic
Exploring perceptions and experiences of students' food insecurity in residences at the University of the Western Cape (UWC) and Cape Peninsula University of Technology (CPUT)

Period permission is valid for
NOT APPLICABLE

Reference code
UWCRP190521US

Ethics reference
University of the Western Cape HS18/10/35

You are required to engage this office in advance if there is a need to continue with research outside of the stipulated period. The manner in which you conduct your research must be guided by the conditions set out in the annexed agreement: *Conditions to guide research conducted at the University of the Western Cape*.

Please be at liberty to contact this office should you require any assistance to conduct your research or require access to either staff or student contact information.

Yours sincerely

DR AHMED SHAIKJEE
DEPUTY REGISTRAR

UNIVERSITY OF THE WESTERN CAPE
ACADEMIC ADMINISTRATION
19 MAY 2021
This document contains a qualified electronic signature and date stamp. To verify this document contact the University of the Western Cape at researchperm@uwc.ac.za.

Appendix C: Permission to Access Residence

UNIVERSITY of the WESTERN CAPE

DIVISION of STUDENT DEVELOPMENT AND SUPPORT
RESIDENTIAL SERVICES
learn. become. thrive

Tel: (021) 959 2569/3557/2108
Address: Private Bag X17, Bellville 7535, Republic of South Africa

Email Placement & Administration: resservices1@uwc.ac.za
Email ResLife: reslife@uwc.ac.za
Email Student Housing: studenthousing@uwc.ac.za

25 April 2019

Mr U Sigodi: 3059757 Master
Student
Institute for Social Development
Faculty of Economics and Management Science

Dear Mr Sigodi

RE: PERMISSION TO CONDUCT RESEARCH AT UWC RESIDENCES

As per your request, we acknowledge that you have obtained all the necessary permissions and ethics clearances and are welcome to conduct your research as outlined in your proposal and communication with us. Please note that while we give permission to enter residences to conduct such research (i.e. surveys) students residing at the University residences are not compelled to participate and may decline to participate should they wish to. Should you require any further assistance in conducting your research with regards to gaining access to university residences please do let us know so that we can facilitate such where possible.

Project title: "Exploring perceptions and experiences of students' food insecurity in residences at the University of the Western Cape (UWC)." together with the dossier of supporting documents. Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above-mentioned research project.

Approval Period: 20 March 2019 – 20 March 2020

Ethics Reference Number: HS18/10/35

Wishing you the best in your study.

Yours Sincerely

Mark Seale

Appendix D: Information Sheet

Private Bag X17, Bellville 7535, Cape Town, South Africa
Telephone :(021) 959 3858/6 Fax: (021) 959 3865
E-mail: pkippie@uwc.ac.za or mdinbabo@uwc.ac.za

INFORMATION SHEET

Project Title:

Exploring perceptions and experiences of students' food insecurity in residences at the University of the Western Cape (UWC).

What is this study about?

This research study is conducted by Unati Sigodi a master student from the University of the Western Cape. You have been invited to participate in this study because of your lived experiences as a student living on residences on campus. The purpose of this study is to explore the perceptions and experiences of students living on university residences in relation to food insecurity, and also looking at possible strategies to improve their well-being.

What will I be asked to do if I agree to participate?

You will be asked to take part in a research study by completing a quantitative survey questionnaire, which is about your experiences and perceptions of food insecurity in your residence community where you stay. The completing of this questionnaire will take approximately 10 to 15 minutes of your time at most. The researcher will randomly select 12 participants per residence and that will comprise of 6 females and 6 males. The researcher will explain in detail the purpose of this study conducted and if you are willing to participate, you will then sign a consent form indicating your willingness to participate in the study.

Would my participation in this study be kept confidential?

Participation in this study is voluntary and your personal information will be kept confidential, and whatever discussion in the interview will not be shared outside the premises. The researcher will only be able to share the information discussed with the supervisor only. The

researcher will be the only person who will have an insight into your identifying information for the purpose of verifying information and research findings. The interviews will be stored in a computerized programme with a secret password only known by the researcher and will be permanently destroyed at the end of this project. As mentioned above your name will be replaced with a code, and the interview will be transcribed using the very same code and this will be kept in lockable safe place. At the end of this project the researcher will write a thesis (an academic document) which will also avoid the mentioning of your name.

What are the risks of this research?

There are no risks involved in this study. However, if you have encountered problems during the completion of the survey questionnaire that might have triggered emotions, the researcher will refer you to trained personnel for the needed support. In cases where you feel that you want to withdraw from participating in the study, you may choose not to continue participating in the study at any time during the process. In any time during the research process, there is any potential of risk or disclosure of harm to yourself, the researcher is legally compelled to report those incidents if they make arise.

What are the benefits of this research?

There are no personal benefits attached for participating in this study. However, this study will enable the researcher to discover perceptions and experiences of student living on campus residences in relation to food insecurity. This study will then assist in highlighting the necessary needed support for students in relation to hunger in institutions of higher learning. Furthermore, this study could also provide a platform for development of policies to assist students affected by food insecurity, prevention, and intervention strategies to curb such challenges. It is also a wish that the findings of this study help students in eliminating the challenges and help them thrive well academically.

Do I have to be in this research and may I stop participating at any time?

As mentioned above, your participation in this study is completely voluntary. You may choose not to participate anymore at any point in time. There are, however, no risks or any intimidations that one may encounter due to discontinuity on this study. You will not be penalized or lose anything in the process of opting out in the study.

Is any assistance available if I am negatively affected by participating in this study?

This study will avoid any negative impact into the lives of the participants. The researcher will refer participants for outside intervention should there be any kind of negative impact caused by this study. Although the researcher is committed to ethical research practices, the nature of the questions may evoke difficult feelings. Should any person need counselling or dealing with potential trauma accrued from the research, they will be referred to CSSS (Centre for Student Support Services) and Student Counselling for CPUT students to request an appointment to see a psychologist or counsellor.

The contact details are as follows:
Centre for Student Support Services
CSSS: 021 959 2299.
Email: csss@uwc.ac.za
After hours UWC Counselling Helpline: 0800222333.

Student Counselling

Student-Counselling Bellville Campus

Email: Student-Counselling@cput.ac.za

Contact number: 021 959 6182

What if I have questions?

This research study is being conducted by Unati Sigodi from the Institute for Social Department at the University of the Western Cape. Should you have any questions relating to this study the contact person is Unati at 073 740 9751. However, if there are any further questions which may relate to this study, your rights as a participant or you have experienced and observed problems during the time of the research process, please contact the person below

Supervisor:

Professor S. Devereux
University of the Western Cape
Robert Sobukwe Road
Private Bag X17
Bellville
7535
S.Devereux@ids.ac.uk

This research project has received ethical approval from the Humanities & Social Sciences Research Ethics Committee of the University of the Western Cape, Tel. 021 959 2988, email: research-ethics@uwc.ac.za.

Appendix E: Informed Consent Letter

Private Bag X17, Bellville 7535, Cape Town, South Africa
Telephone :(021) 959 3858/6 Fax: (021) 959 3865
E-mail: ***pkippie@uwc.ac.za*** *or* *mdinbabo@uwc.ac.za*

CONSENT LETTER

Title of Research Project: Exploring perceptions and experiences of students' food insecurity in residences at the University of the Western Cape (UWC).

I have been informed about the purpose of this study in the language that I understand. The researcher has responded to all my questions that I had during the time when the study was introduced to me. My participation in this study is voluntary, as I am fully aware of what my participation in this study entails. I have also been informed that my identity and that of the other participants will be protected at all times. I have also been informed that due to any personal reasons that may arise throughout the research process, my participation may be withdrawn. I have been enlightened that I am not obligated to share the reasons for my withdrawal, and can freely do so without feeling intimidated for any kind of loss. If there is any potential threat to harm or place any of the participants at risk, the researcher is legally bound to report the incident without hesitating. In conclusion I have read and understood the information sheet provided to me by the researcher and aware of my rights in participating in the study conducted.

_____ I agree to participate in completing this quantitative questionnaire

Participant's name……...

Participant's signature…….

Witness's signature……...

Date……

This research project has received ethical approval from the Humanities & Social Sciences Research Ethics Committee of the University of the Western Cape, Tel. 021 959 2988, email: research-ethics@uwc.ac.za

Appendix F: Interview Questionnaire

Private Bag X17, Bellville 7535, Cape Town, South Africa
Telephone :(021) 959 3858/6 Fax: (021) 959 3865
E-mail: ***pkippie@uwc.ac.za*** *or* *mdinbabo@uwc.ac.za*

Student Questionnaire

Project Title: Exploring perceptions and experiences of students' food insecurity in residences at the University of the Western Cape (UWC) and Cape Peninsula University of Technology (CPUT).

INTERVIEW INFORMATION

Name of Interviewer:	
Date of Interview:	
Location of Interview:	
Consent Form:	
Information Sheet:	

Questionnaire

This questionnaire consists of 5 sections.
Section 1: consists of socio-demographic and socio-economic.
Section 2: Factors affecting nutritional well-being
Section 3: Consists of 24 hour dietary recall
Section 4: Food security questionnaire

Answer all questions in the spaces allocated.

SECTION 1 SOCIO -DEMOGRAPHIC AND SOCIO-ECONOMIC INFORMATION

1. In what year of study are you now?

	1st year
	2nd year
	3rd year
	4th year
	Honours
	Masters
	PhD

2. How old are you (in years)?

3. Please indicate your gender
   Male ☐ Female ☐

4. Please indicate your ethnicity (optional)
   Black ☐ White ☐ Coloured ☐ Indian ☐ Asian ☐ Other ☐

5. Please indicate your nationality
   South African ☐ Other ☐ Specify .....

6. What is your place of birth or province are you from?

Eastern Cape ☐
Free State ☐
Gauteng ☐
Limpopo ☐
Mpumalanga ☐
North West ☐
Northern Cape ☐
KwaZulu Natal ☐
Western Cape ☐
Other ☐
Specify…….

7. Which language do you speak most of the times at home?

English	1	
IsiXhosa	2	
Afrikaans	3	
IsiNdebele	4	
IsiZulu	5	
Sesotho	6	
Setswana	7	
Xitsonga	8	
SiSwati	9	
Tshivenda	10	
Other:	11	Specify……..

8. Please indicate your current form of accommodation (during academic semester)

Residence on campus ☐ Sharing/double ☐ single room ☐
Squatting ☐ Staying with a partner ☐

9. If staying on campus residence, please indicate which residence you are currently staying at.

UWC residences	
Chris Hani	
Basil February	
Eduardo Dos Santos	
Liberty	
Ruth First	
Coline Williams	
Disa	
Gorvalla	
Hector Peterson Residence	

10. Indicate the Faculty where you are **currently** registered as a student.

UWC Faculties	
Arts	
Community and health Sciences	
Dentistry	
Economic and Management Sciences	
Education	
Law	
Natural Sciences	

11. How are your university fees paid for?

☐ Bursary

☐ Parent/Guardian

☐ Other family member

☐ Student loan

☐ Employment

☐ Work study

☐ Other (please specify)_____

12. Where do you get most of the money for your living expenses from? (choose one option)

☐ Bursary

☐ Parent/Guardian

☐ Other family member

☐ Student loan

☐ Employment

☐ Work study

☐ Other (please specify)_____

13. What is your marital status

Married ☐ Single ☐ Living together ☐

14. Does your partner earn an income which contributes to your living expense?

Yes ☐ No ☐ Not applicable ☐

15. Are you currently receiving an income on a part time or full-time basis
    Yes ☐ No ☐ Not applicable ☐

16. How much money do you have available per month as an allowance / pocket money for living expenses? (choose one option)
    ☐<R100
    ☐ R100-R499
    ☐ R500- R999
    ☐ R1000- R1999
    ☐ R2000-R2999
    ☐ R3000-R3999
    ☐>R4000

17. How much money do you spend on **food** per month? (choose one option)
    ☐ Nothing, or included in accommodation / living at home
    ☐<R50
    ☐ R50-R99
    ☐ R100-R499
    ☐ R500- R999
    ☐ R1000- R1999
    ☐ R2000-R2999
    ☐ R3000-R3999
    ☐>R4000

18. Do you think you have enough food in a month?

Enough and good quality food	
Enough but not good quality food	
Not enough, but it is okay	
Not enough, I sometimes go hungry	
Not enough, I am always hungry	

19. Are you currently funded by NSFAS?

Yes ☐ No ☐ Not applicable ☐

20. Do you receive food allowance from NSFAS?

Yes ☐ No ☐ Not applicable ☐

21. For your NSFAS food allowance, do you receive it in any one of the following options?

Cash in your bank account ☐

Pick and Pay food vouchers ☐

Dining hall allowance ☐

Other ☐

22. How often do you receive your NSFAS food allowance?

Once per semester ☐

Twice per semester ☐

On a monthly basis ☐

Once in two months ☐

23. How much are you receiving for your NSFAS food allowance?

☐ R500

☐ R1000-R1499

☐ R1500- R1999

☐ R2000- R2500

☐ R2500-R2999

☐ R3000-R3999

☐ R4000- R4999

☐ R5000

☐ > R5000

24. Do you share your pick n pay or fundi card with anyone else, perhaps people at home?

Yes ☐ No ☐

25. If yes, with who?

_____

26. How much money on your Pick n Pay or Fundi card that you send home?

R_____

27. Were you a social grant recipient prior to entering university?

Yes ☐ No ☐

28. If yes, which one?

_____

SECTION 2 FACTORS AFFECTING NUTRITIONAL WELL-BEING

29. How many main meals (breakfast, lunch and supper) do you consume daily?

None	1	2	3

30. How many times do you consume fruit and vegetables per week? (choose one option)

☐ Never

☐ 1-2 times per week

☐ 3-4 times per week

☐ 5-6 times per week

☐ ≥7

31. What sources of **dairy** do you consume (such as milk, yoghurt, cheese, buttermilk, amasi)? (please specify)

_____

32. Do you drink alcohol?

Yes ☐ No ☐

33. If YES, how many times do you drink alcohol per week? (choose one option)

☐ Never

☐ 1-2 times per week

☐ 3-4 times per week

☐ 5-6 times per week

☐ ≥7

34. How much do you spend on alcohol per week?

☐ R 0

☐ R1- R49 per week

☐ R50- R99 per week

☐ R100- R499 per week

☐ ≥R500

35. After a night out consuming alcohol what food do you tend to eat? (select all the appropriate options)

- ☐ I do not eat
- ☐ Take-aways (e.g.: McDonalds, KFC)
- ☐ Snacks (chips, chocolates, samosas)
- ☐ Street food
- ☐ Anything that I find in the fridge (left-overs)
- ☐ Other (please specify): _____

36. During stressful periods (examinations, social pressures) please explain how your eating patterns change?

_____

_____

37. I am satisfied with my body image (choose one option)

	Strongly agree
	Agree
	Disagree
	Strongly disagree

38. My religion restricts the food choices I have available to me (choose one option)

	Strongly agree
	Agree
	Disagree
	Strongly disagree

39. Media (magazines, internet etc.) influences the way in which I view my body (choose one option)

	Strongly agree
	Agree
	Disagree
	Strongly disagree

40. If you, 'agree' or 'strongly agree", how does media influence your body image?

_____

_____

41. If you want to lose weight, please indicate the preferred method/s you would use (select all the appropriate options)

	Reducing fat consumption
	Exercise
	Eat smaller meals
	Skipping meals
	Special diet (LCHF, detox, Gluten-free)
	Self-induced vomiting
	Calorie Restriction
	Not applicable

42. How many times per week do you purchase **fast food**? (choose one option)

☐ Never

☐ 1-2 times per week

☐ 3-4 times per week

☐ 5-6 times per week

☐ ≥7

43. If you do purchase fast food, please specify your reason/s why

_____

44. How many times per week do you purchase **sweetened beverages**? (choose one option)

☐ Never

☐ 1-2 times per week

☐ 3-4 times per week

☐ 5-6 times per week

☐ ≥7

45. Have you ever smoked tobacco products?

☐ Yes, and I am currently still smoking

☐ Yes, only occasionally (<1x/day)

☐ Yes, but I stopped smoking

☐ No, have never smoked

46. If your answer is yes, how much do you spend on tobacco products per week?

☐ R 0

☐ R1- R49 per week

☐ R50- R99 per week

☐ R100- R499 per week

☐ ≥R500

47. I have enough money to pay for textbooks, transport and stationery (choose one option)

	Strongly agree
	Agree
	Disagree
	Strongly disagree

48. At the end of the month what do you compromise on due to running out of money (select all appropriate options)

	Food
	Clothes
	Social life
	Toiletries
	Books/stationery
	Transport
	Not applicable

49. Who prepares most of your meals for you? (choose one option)

- ☐ Yourself
- ☐ The residence canteen
- ☐ Parent/Guardian
- ☐ Take away outlets/ restaurants
- ☐ Other (please specify): _____

50. My concentration levels are hindered as a result of being hungry (choose one option)

	Strongly agree
	Agree
	Disagree
	Strongly disagree

51. When I don't have money to purchase food, I become anxious and resort to alternative measures to obtain food. (choose one option)

	Strongly agree
	Agree
	Disagree
	Strongly disagree

52. I shall or have resorted to drastic measures to obtain money for food, such as:.(choose all relevant options)

	Call on relatives for help with money to buy food
	Use another student's card
	Taking money
	Taking food
	Performs more than one job AS WELL as studies
	Exchange sexual favours
	None of the above
	Other: please specify

SECTION 3 - DIETARY RECALL

The following section is a recall based on the diet consumed in one day (24 hours). To ensure that the most accurate recall is given, we request that you base your answers on your dietary intake yesterday.

Please state what you ate yesterday (Breakfast, Morning Snack, Lunch, Afternoon snack, Dinner and late night snack.)

Please be as honest as possible.

Please indicate the ingredients that make up each meal (yesterday) and we request that you are as detailed as possible.
Quantities/amounts do not apply

Breakfast	Snack	Lunch	Snack	Dinner	Snack	Other

What did you drink during the day?
(If beverages such as coffee or tea are consumed, please indicate if you add anything to it, such as milk, sugar, sweetener, creamer, etc.)

***Please review your answers to ensure that everything that was consumed has been included**

SECTION 4 FOOD SECURITY QUESTIONNAIRE

HUNGER SCALE

No.	Question	Response Option
Q1	In the past [4 weeks/30 days], was there ever no food to eat of any kind in your house because of lack of resources to get food?	0 = No (Skip to Q2) 1 = Yes
Q1a	How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1–2 times) 2 = Sometimes (3–10 times) 3 = Often (more than 10 times)
Q2	In the past [4 weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food?	0 = No (Skip to Q3) 1 = Yes
Q2a	How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1–2 times) 2 = Sometimes (3–10 times) 3 = Often (more than10 times)
Q3	In the past [4 weeks/30 days], did you or any household member go a whole day and night without eating anything at all because there was not enough food?	0 = No (Skip to the next section) 1 = Yes
Q3a	How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1–2 times) 2 = Sometimes (3–10 times) 3 = Often (more than 10 times)

53. Do you regard yourself as Food insecure?

Yes ☐ No ☐

54. If your answer above is: Yes, would you like to form part of the Focus Groups to elaborate more about your view of being food insecure?

Yes ☐ No ☐

55. If your answer is YES for 53 and 54, could kindly provide your email address below so that we may communicate further with you, about the focus groups that will be conducted:

_____

END OF QUESTIONNAIRE **Thank you for your participation in this study.**

This research project has received ethical approval from the Humanities & Social Sciences Research Ethics Committee of the University of the Western Cape, Tel. 021 959 2988, email: research-ethics@uwc.ac.za

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Chapter 1 1. Introduction and Background 1.1 Introduction Many countries are unable to meet the growing and diversifying demand for higher education (Van der Wende, 2003). According to the World Bank (2000), the number of students in institutions of higher learning (HEIs) globally doubled in size, from 40 million in 1975 to more than 80 million in 1995. In South Africa, especially in the past few years, the higher education and training sector has experienced significant challenges, particularly concerning student funding. The National Student Financial Aid Scheme (NSFAS) shortfall in 2020/2021 resulted in some students who receive food vouchers not having access to their allowances. This had a negative impact on students' food security and raised concerns around their academic performance. Food insecurity for students who reside in HEIs remains a major concern in South Africa. This chapter provides a background to this study exploring perceptions and experiences of residence students' regarding food insecurity at UWC. This chapter outlines how restructuring the higher education system increased access to institutions, leading to a much-needed diversified population of students. However, it also increased demand for funding, with many students coming from disadvantaged backgrounds (Council on Higher Education [CHE], 2010: 1). 1.2 Background to the Study The increase in university access in South Africa exacerbated socio-economic inequalities within the student population in universities, resulting in 'the crisis in access to higher education', due to financial and other challenges faced by the sector. In addition, students from marginalised and poorly resourced educational environments and socio-economic backgrounds found higher learning challenging and, as a result, were more likely to experience academic failure (McGhie, 2007). The prevalence of food insecurity has been a major challenge in previously disadvantaged South African universities. The new higher education policy improved the quality of education and reduced perceptions of inadequacy in higher education held in the labour market; however, the challenge of resources requires urgent attention, particularly in historically disadvantaged institutions (HDI), which have limited ability to contribute to the social and

economic development of students. This study explored perceptions and experiences in relation to food insecurity among residence students at UWC. 1.3 Preliminary Literature Review Food security is a fundamental human right and is an essential determinant of well-being (Collins, 2008: 252). In developed countries, inadequate income is the key determinant of hunger and food insecurity, which is the limited or questionable access to safe, nutritiously satisfactory foods (Che & Chen, 2001: 11). Due to the physical and psychosocial consequences of not having enough access to food, food insecurity is an important public health and social issue, even in developed countries; lack of financial resources is a strong indicator of personal and household food insecurity (Rainville & Brink, 2001). According to the Food and Agriculture Organization (FAO), "food insecurity is a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life" (FAO , 2011:9). For Van der Merwe (2011: 6). The prevalence and increase of food insecurity in urban areas is a cause for concern , needing to be addressed through concrete and clear policies that will be effectively implemented as strategies. Three key dimensions to urban household food security can be identified. These are "food availability, food access and food utilisation " (Van der Merwe, 2011:2). Unlike rural residents, urban residents must purchase most of their food. "Urban food security is therefore highly dependent on money " (Van der Merwe, 2011:2), thus needing efficient and stable income- generation. 1.4 Statement of the Research Problem Food insecurity among students in HEIs, particularly residence students, is an emerging phenomenon. There is a distinct student group that is vulnerable to food insecurity. Furlong (2017) reported that "students at UWC live in makeshift conditions and go to bed on empty stomachs." Despite the fact that UWC has initiated a few projects aiming at tackling this phenomenon, it seems to persist, affecting virtually every category of students whether funded or not funded. Hence food insecurity may have a large impact on students' well-being and academic success. 1.5 Research Questions 1.5.1 Central research question - To what extent does food insecurity have an effect on student well-being? 1.5.2 Secondary research question - What are students' perceptions and their experiences in relation to food insecurity? 1.6 Aim of the Research The main aim of this research was to explore perceptions and experiences of food insecurity of university students living in campus residences. 1.7 Research Objectives The objectives of this research were as follows: ? To explore perceptions of students about food insecurity. ? To describe experiences of students concerning food insecurity. ? To provide recommendations to policymakers and student development/support service on possible options/ways of formulating such policy to assist disadvantaged students and HEIs to deal with food insecurity among students living on campus residences. 1.8 Rationale of the Study This study is a response to the broader developmental intervention agenda of the World Food Programme (WFP, 2018: 57), towards achieving their "strategic objectives such as (i) ending hunger by protecting access to food, (ii) improve nutrition and (iii) achieve food security ". This is in line with Sustainable Development Goals (SGDs) 2 (zero hunger), 3 (good health and well-being), and 4 (quality education). Achieving food security in HEIs aims to balance the realisation of human rights (creating conducive living conditions for students), and the increasing demand for access and success of disadvantaged students in higher education (CHE, 2014; Uduku, 2010). Food insecure students are likely to experience challenges relating to poor health, inability to concentrate in class, and poor academic performance, resulting in high dropout rates especially those from low income households (Bruening et al., 2018 ; Farahbakhsh et al., 2015 ; Maroto, 2013; Maroto et al., 2015). Little research has been done focusing on students living in university residence in South Africa and globally; therefore, the current research represents a significant gap in the research. Universities need more information to address food insecurity and create sustainable intervention programmes guided by an informed policy perspective. The National School Nutrition Programme (NSNP) has increased concentration and attendance levels among learners; however, most students funded by NSFAS still experience inadequate funding (DBE, 2009; DHET, 2020). This is despite the idea that all NSFAS recipients are food secure, which ignores their socio-economic background and pre-existing inequalities. The study's findings could influence the development of food security policy intervention programmes for UWC students. 1.9 Conceptual Framework Figure 1 .1: A stylised non-dynamic representation of a person's capability set and their social and personal context Source: (Robeyns, 2005) 1.10 Significance of the Study The findings of this study could be used as an early tracking system in the drive to achieve the United Nations (UN) SDGs in HEIs across South Africa and Africa. The study findings could further be utilised to develop intervention programmes and inform universities about useful coping strategies that assist in addressing food insecurity among residence students. The findings of the study can also contribute to the knowledge and practices of food safety by students in HEIs, as well food insecurity indicators. This study also contributes significantly to the literature on knowledge, attitude and practices (KAP) of students in relation to food choices and their behaviour. The findings of the study can also provide practitioners, administrators, researchers and policymakers with useful insights in food insecurity of the students from a residence community perspective. 1.11 Thesis Outline The thesis consists of seven chapters. 1.11.1 Chapter 1 This chapter introduced the study, giving a preliminary literature review and statement of the research problem. The chapter presented the research questions, and the aims and research objectives . Furthermore, the rationale of the study was discussed, and the conceptual framework was presented. 1.11.2 Chapter 2 This chapter provides a review of the existing literature on food security in HEIs globally and in South Africa, looking closely at the experiences of students regarding the phenomenon and the institutional support at their disposal. The second part of the chapter focuses on the theoretical framework (the Capability Approach) adopted for the study, the motivation for selecting the framework, and its strengths and weaknesses. 1.11.3 Chapter 3 This chapter presents the research methodology employed throughout the research project and the methods of data analysis utilised in this mixed-method, sequential explanatory research study. The justification of the research design is presented. The chapter highlights the philosophical view of the chosen realism paradigm and links the quantitative and qualitative research approaches in the study. The chapter also provides a description of the methods of data collection, data collection instruments and procedures, trustworthiness of the data collected, data analysis , limitations and ethical considerations adopted in the study . 1.11.4 Chapter 4 Chapter 4 presents the quantitative results using descriptive statistics and Chi-squared analysis. This chapter reflects on the results, supported by literature, to ascertain the meaning and practical implications of the results. 1.11.5 Chapter 5 This chapter presents qualitative results using thematic analysis which employed Tesch's (1992) eight steps that assisted in development of themes from the data. This chapter also presented and integrated literature to substantiate the claims from the empirical data and make meaning of it under each theme developed. 1.11.6 Chapter 6 The chapter presents a discussion of the food insecurity findings of the study , discussing the practical implications related to the CA perspective. 1.11.7 Chapter 7 The chapter summarises the research project by drawing from key study findings, then presents the significance of the research study , its limitations, implications, and conclusions. The chapter also presents recommendations for future research. Chapter 2 2. Literature Review and Theoretical Framework 2.1 Introduction Food security remains a global concern. The United Nations Declaration of Human Rights recognised food as a fundamental human right, where people have a right to an adequate healthy life including the right to food (UN, 2010). This universally recognised right for people should be enforced by countries, together with their government, to address the issue of food security. However, food insecurity continues to be growing public health problem and one of the major issues affecting student well-being in institutions of higher in South Africa , Africa and globally. Several studies have shown a prevalence of food insecurity among the student population in South Africa , associated with prostitution, theft, selling of personal items, and surviving on one meal a day (Dispatch Live, 2015). This chapter aims to unpack the complexity of food security, looking at its concepts, dimensions, food insecurity indicators (in particular, how they assist in measuring food insecurity), and reviewing previous studies on the topic

of food insecurity in order to draw lessons from what has been done to assist in the context of this study. Although South Africa is middle-income country, its state of inequality has led to many challenges in providing services to its citizens and ensuring that all people have adequate access to food, through its targeted social welfare programmes. This is due to the growing population, socio-economic issues, disparities in income, unemployment, and the growing demand for higher education with its associated funding challenges. Despite the growing concern from recent studies and the need to look deeper into the issue of food insecurity among students in HEIs, little has been done in terms of policy formulation and addressing the issue in practice. 2.2 Concept of Food Security Food security is an essential determinant of well-being (Collins, 2008). D'Haese et al. (2011: 12) characterise food security as "a circumstance that exists when all individuals, consistently, have physical, social, and monetary access to adequate, safe, and nutritious food that meets their dietary needs and food inclinations for a functioning and solid life". This definition focuses on food security from a human rights perspective, as a realisation right where people in authority should make a commitment to ensuring that people are food secure and their well- being is protected. The FAO (2008) sees food security as resulting from four key elements of a food system: (i) food availability, (ii) food stability, (iii) food accessibility, and (iv) food utilisation. According to Berry et al. (2015), this is best considered as a linked pathway from production to consumption, through distribution to processing, recognised in a number of domains rather than in four 'elements'. 2.3 Dimensions of Food Security Figure 2.1: A conceptual overview of dimensions of food security Source: U. Sigodi Figure 2.1 shows how various dimensions of food security are related. Riely et al. (1999) state that food availability is accomplished when adequate amounts of food are consistently accessible by all people in a household or country. This dimension concerns the 'supply side' of the food system, particularly food production, in terms of how much stock is available and the ability to finance the stock of food (FAO, 2008). This includes domestic production, food imports, the marketplace and food aid. In the context of university students, the marketplace is where food is available for them; however, lack of financial security provides limitations to accessing food. This emphasises that food availability on its own does not ensure food security (FAO, 2008). According to Burchi and De Muro (2012), food availability is mainly focused on the lack of stability between food and population, taking into consideration supply, demand and fluctuation of food prices. Food accessibility is a measure of the ability to secure entitlements (Sen, 1984), which are described as a set of legal, political, economic, and social resources. This dimension covers access by people to satisfactory assets to procure proper foods for a nutritious diet (Garcia- Díez et al., 2021). Food accessibility by households is determined by food production, market purchase and other sources, including transfers (e.g. food aid). In the context of the current study, this dimension speaks to financial resources that will assist students in having access to food. For students to satisfy the food accessibility dimension requires full and equal distribution of economic resources such as funding in the form of bursaries, NSFAS and other available relief grants. From a personal level in the context of students, this includes the number of meals that a student has access to per day or month. From a community-level perspective, this entails looking at the market (accessible to students?) and retail food prices (affordable?). According to FAO (2021), an individual's income and other necessary expenses are an essential determinant of accessibility to food and an affordable healthy diet. Food utilisation is commonly understood as the way the body makes the most of various nutrients in the food. Garcia-Díez et al. (2021:2) state that this dimension is mostly focused on the "biological use of food through adequate nutrition, drinking water, sanitation, and medical care, to achieve a state of nutritional well-being in which all physiological needs are satisfied". Sufficient energy and nutrient intake by individuals are the result of good care and feeding practices, food preparation, diversity of the diet and intra-household distribution of food (Gross, Schultink & Kielman, 1998). Combined with good biological utilisation of food consumed, this determines the nutritional status of individuals. The FAO (2013:8) argues that food utilisation is achieved "through having adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being, where all physiological needs are met". Food utilisation reflects concerns about whether individuals make good use of the food they can access. For this study, this dimension required the researcher to look at the diet being consumed by the students and whether it is sufficient and comprises different food groups. Food utilisation requires proper monitoring of changes in diet and consumption patterns in order to be able to observe nutritional status of an individual (FAO, 2013). Food stability is the fourth dimension; it alludes to the idea of stable food availability over time. According to Garcia-Díez et al. (2021), this refers to a condition where a person, household, or population has stable access to adequate food at all times; this is deemed food security. The FAO (2008) argues that food stability alludes to vulnerability in the condition of an individual or family. Food stability includes all three other dimension of food security, having a particular focus on availability and accessibility of food, ensuring that the food intake is constantly adequate, and checking for any instability that would render an individual food insecure. It ensures that no negative shocks have an impact on an individual or household, if something is not in place (FAO, 2008). For example, if a student loses funding, that may have a negative impact on the students' income and will cause instability in their ability to access food. 2.4 Food Security Indicators Several studies have expressed the difficult challenges in measuring food insecurity due to the complex nature of the phenomenon. According to Labadarios et al. (2009: 6), as food insecurity is able to exhibit "itself in several pathways, it may then be regarded as a multi-dimensional phenomenon", as discussed above. There have been challenges with regard to measuring food security status in South Africa; this is due to limited information about food security, data inconsistencies and limitations encountered due to variation in data from the population in general (Dube, 2013). Several methods have been used in South Africa to measure food security including the Household Food Insecurity Access Scale (HFIAS), Household Dietary Diversity Score (HDDS), the October Household Survey (OHS) and several more (Chitiga- Mabugu et al., 2013; Coates, Swindale & Bilinsky, 2007; Drimie & Ruysenaar, 2010; Hoddinott & Yohannes, 2002; Dube, 2013; StatsSA, 2011). Labadarios et al. (2009) believe that food insecurity has several determinants that may occur at different levels, including (i) national level, (ii) regional level, (iii)local level, and (iv) household level. The current study uses the HFIAS, and IDDS, and to look at food insecurity access at household level in the context of university residence students. These methods assisted the researcher in looking at food insecurity from the consumption perspective, looking at the socio- demographics, dietary intake, drastic measures and food expenditure of the participants in the study. Coates et al. (2007: 1) support the use of the HFIAS based on the suggestion that "the experience of food insecurity causes predictable reactions and responses that can be captured and quantified through a survey and summarised in a scale". The IDDS is used to measure food insecurity based on the assumption that the more diverse a diet consumed by a person, the healthier it is, provided that it contains healthy food groups (Hoddinott & Yohannes, 2002). Ruel (2002) states that dietary diversity can be characterised as the quantity of different types of foods or food groups consumed in a stipulated timeframe. 2.5 Food Insecurity: Concept and Definition According to the FAO, "food insecurity is a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life" (2011a:9). This definition sees food insecurity as occurring when access to food is not secured, and it is mostly concerned with safety and nutrition. Safety remains important for provision of food security in people's lives; if the food is unsafe, people remain food insecure as this compromises their health and development. Payne-Sturges et al. (2018) emphasise the role of financial resources when defining food insecurity, while Hickey, Shields and Henning (2019) see food insecurity occurring at different levels during a period of time (e.g. a year). Food insecurity has a critical effect on life experiences and can prompt various economic, well-being and social challenges (Gorton, Bullen &

Mhurchu, 2010). 2.5.1 An overview of food insecurity in higher education institutions (HEIs) globally In a US study, Payne-Sturges et al. (2018) found that 48% students in a state-funded university experienced food insecurity, and about 22% experienced hunger. The difference is because some may have had access to at least some food to eat, even if not nutritious. Students experiencing hunger indicates disrupted eating patterns and insufficient food intake. Hunger refers to a feeling of discomfort or weakness caused by lack of food, coupled with the desire to eat (Feeding America, 2014). Considerable evidence shows that students from disadvantaged households are adversely affected by food insecurity, which has a significant effect on their mental health and functioning. Other findings reported that the prevalence of food insecurity among university students exceeds that of the US population in general (Goldrick-Rab et al., 2018; Henry, 2017). Woerden et al . (2019) reported that systematic reviews in the US estimate the prevalence of food insecurity among the US college students to be between 33% and 51%, compared to US households at 11.8%. Furthermore, Henry (2017) found that food insecurity is increasing and is closely associated with "silence, stigma, shame and facelessness" among food-insecure students in a study conducted in Texas. In Australia, Hughes et al. (2011) found that 46% of students have experienced some form of food and financial insecurity. The increase in food insecurity is linked with increasing enrolment of 'non-white' and first-generation students at tertiary institutions in the US. According to the Centre for Law and Social Policy (CLASP) (2015), white student numbers have declined from 2000, with a slight increase in non-white numbers, particularly Hispanic students, a trend projected to continue. Morris et al. (2016) found that undergraduate students in four US public institutions reported a higher prevalence of food insecurity, particularly among African-Americans who were on student financial aid compared to those staying at home. A study at California State University Sacramento found that 23% of high-performing students from low-income families have experienced having to go a day in a month without food (Dubick, Mathews & Cady, 2016). A Western Oregon University study reported that approximately 59% of the student respondents were food insecure and had low academic performance (Dubick et al., 2016). Furthermore, food insecurity has been reported across a range of students, including students of colour, students deemed to be financially independent, and those receiving financial support from government (Bruening et al., 2017) 2.5.2 Food insecurity at HEIs South Africa Rudolph et al. (2018) report that food insecurity at South African HEIs is extremely high. Munro et al. (2013) showed that University of KwaZulu-Natal (UKZN) students are adversely affected by food insecurity, particularly those funded by NSFAS. These students qualify for funding due to their disadvantaged backgrounds; they are thus highly unlikely to afford a nutritious/healthy diet on a daily basis. Dominguez-Whitehead (2015) reported that UKZN students had gone to sleep without consuming food, having exhausted their financial aid. Furthermore, some students had participated in stealing food from their residence housemates (Dominguez-Whitehead, 2015). Thus, food insecurity and hunger amongst HEI students is not a myth (Mogatosi, 2016). UKZN is particularly affected, having 53% of its students from economically disadvantaged communities (Kassier & Veldman, 2013). South African HEIs have significantly increased access for previously disadvantaged students (Munro et al., 2013); however, these students are the most vulnerable to food insecurity. Kassier and Veldman (2013) showed that over 12% of NSFAS students were found to be food insecure, with most participants experiencing food deprivation toward mid-year. Sabi et al. (2018) posit that food insecurity in South Africa threatens the country's economic development and graduate entry into the labour market. Universal human rights provide that individuals in a society should have access to enough nourishment to promote their active participation daily life (Labadarios et al., 2011). Munro et al . (2013) reiterate that beyond human rights, it is logical important to ensure that all students at HEIs have their basic needs met so that they have a reasonable possibility of thriving academically. Bruening et al. (2017) reported that various studies conducted in South African universities have revealed similar or lower rates of food insecurity compared to national rates. Van den Berg & Raubenheimer (2015), in a University of the Free State (UFS) study, reported that the "level of food insecurity found in the sample was only marginally higher than that in the surrounding population ". Rudolph et al. (2018) showed that food security amongst South African HEI students ranges from 11% to 38.3%. According to StatsSA (2019), about 15.8% of households in South Africa reported inadequate access to food , and 5.5% of those households described their food access as severely inadequate. Most students at HEIs face financial challenges, particularly those on financial aid; some share some of their food allowances with others at home (Gwacela, 2013; Kassier & Veldman, 2013; Van den Berg & Raubenheimer, 2015). Students from disadvantaged backgrounds carry many issues as they transition to university; some are heading families while also facing their academic commitments. According to StatsSA (2017), 21.3% (17 million) of South African households experienced hunger in 2017 , and more than 60% of those households were found in the urban areas . 2.6 Food Insecurity in South Africa Van den Berg and Raubenheimer (2015) reported that South Africa is regarded as food secure at national level , based on food produced in the country; however, this is not the case at household level (Altman, Hart & Jacobs, 2009; Hendriks, 2005). According to Labadarios et al. (2009), "household food security is defined as the availability of food in one's home and one has access to it". South Africa's existing socio-economic inequality is shown by approximately 17.9% of black African-headed households reporting vulnerability to food insecurity, whereas Coloured households were reported to be at 13.5% (StatsSA, 2019). The socio-economic inequality in South Africa is also shown in a study conducted in Limpopo which projected levels of food insecurity among rural households of around 52% (De Cock, et al., 2013). In addition, Naicker (2015) reported a 70% household food insecurity rate among informal settlements, which expose those households to health hazards, chronic disorders and mental health issues. 2.7 Causes of Food Insecurity There are many causes of food insecurity across the world; however, for the current study, the researcher will focus on urbanisation and migration, and population growth. 2.7.1 Urbanisation and migration The relationship between migration and urbanisation and food security globally, and the impact on development in Africa, have been widely discussed. People move to urban areas for economic reasons and the lack of state support in uplifting the rural economy. According to Crush (2012), South Africa has the highest proportion of urban dwellers (60-70%) in the SADC region. Urbanisation involves people moving from rural to urban areas (McGranahan & Satterthwaite, 2014), while migration is about movement of people from one residential area to another, which may be internal or international (Stats SA, 2006). This study will only refer to internal migration. Crush (2012) reports high levels of food insecurity among migrants; contributing factors are inadequate access to land and capital and informal employment opportunities. HEI students are not immune to such conditions, as many students migrate from rural areas to the Western Cape to further their studies. Migration plays a critical role in the lives of these students, who are challenged with food insecurity in their residences and resort to seeking employment opportunities in an attempt to manage university life. 2.7.2 Population growth Another factor that contributes to food insecurity in South Africa is population growth. According to the United Nations [UN] (2015), Africa has the fastest growing population globally; it is currently around 1.1 billion, with future predictions that it may reach 2.4 billion by 2050. Similarly, the HEI sector is also growing. According to Klemencic & Fried (2007), there has been a significant increase in numbers, as HEI studies are becoming a universal aspiration. In South Africa, this revolves around government goals to increase access to HEIs, to bolster the workforce and increase participation in the market. However, massification of higher education has its own challenges, including the financial burden on the public budget in South Africa and other African countries (Dunrong, 2007). 2.8 Gender Differences in Food Security and Choices According to the World Food Programme (WFP) (2018: 6), "food preferences, taboos and consumption patterns have different impacts on the nutritional status of family members according to their sex and age, with boys being given preference in some contexts and girls in others ". Gender also impacts food insecurity in the context of students living in university residence, as it influences their food preferences and consumption patterns, negatively or positively. Wardle et al. (2004) argue that gender differences in food choices may relate to some women's desire to control their weight and have healthy eating habits, compared to some men (Bellows, Alcaraz, & Hallmark, 2010). Wardle et al. (2004 :104) highlight that "women were more likely than men to report avoiding high-fat foods, eating fruit and fibre, and limiting salt " as well. Sraboni et al . (2014) argues that , in households that are controlled by women, the food tends to be rich in calories, with a more diverse diet in that household. However, on campus, both male and female students hold responsibility for cooking and the choices

around their diet. 2.9 Food Consumption Patterns among Students Various factors impact on food consumption patterns, including one's physical context, traditions, and religion (Abdalla & Taha, 2015), which can influence food insecurity among university students. However, Abdalla and Taha (2015) believe that food consumption patterns are mostly influenced by financial resources, which dictate dietary diversity. The availability of financial resources such as bursaries, NSFAS and funds from home significantly influences the dietary diversity that students can access. According to Sundaram, Ghazi & Elnajeh (2018:19), "poor food consumption pattern and breakfast habit result in poor nutritional status and increased risks of diseases in students ". Skipping of certain meals such as breakfast can result in nutrient deficiency; in students, intake is mostly influenced by inconsistent patterns in food intake, based on convenience or lack of time for preparation. According to Merdol (2001) cited in Ozdogan, Ozcelik & Surucuoglu (2010), skipping breakfast is associated with fatigue, headache, and attention and perception deficits. Skipping breakfast on a regular basis may thus have a negative impact on students' well-being and academic performance. 2.10 The Impact of Food Insecurity on Student Well-being Several studies conducted on the impact of food insecurity on student well-being have indicated dire consequences globally. In a Malaysian study, Mohd Abu Bakar et al. (2019) found three consequences of food insecurity: physical and mental health problems, and reduced academic achievement. In US students, van Woerden et al. (2018) found a strong association between food insecurity and stress, anxiety and depression, and low academic performance. In a quantitative University of Hawai'i study, Chaparro et al. (2009: 2097) found food insecurity was linked with "behavioural and attention problems, ranging from absenteeism, tardiness and psychosocial dysfunction". According to Kozicky (2019), in a compiled report at the University of British Columbia (UBC), food insecurity has a negative effect on students' physical and mental state as a result of nutritional deficiency and stress. Food insecurity forces students to look for alternative work while registered full-time. In addition, Chaparro et al. (2009) and Hickey et al . (2019) reported that students resort to buying cheap food based on convenience, hiding inadequate food from family, friends, and fellow students, and skipping meals due to inadequate funds/resources. In a study conducted at the University of Witwatersrand, Rudolph et al. (2018) revealed a correlation between food insecurity and students' academic performance , impacting student drop-out rate by approximately 60%. Considering the abovementioned studies, food insecurity remains a critical component having a negative outcome on students' physical and emotional well-being. Students' basic needs must be addressed by HEIs, with collaboration from civil society and government, to provide a safety net for the population of students affected by food insecurity. 2.11 Food Insecurity and Institutional Support Payne-Sturges et al. (2018) state that much is reported about the prevalence of food insecurity among the general population in developed countries even at household level, but little has been done among university students. This section looks at the available support programmes for HEI students internationally and in South Africa. 2.11.1 International experience with institutional support programmes The Supplemental Nutrition Assistance Programme (SNAP) is a federal government and state- driven programme that enables households to have financial means to access nutritional food (Jimenez, 2019). However, individuals entering college were excluded. However, a 1980 amendment provided for identified students to have access to SNAP, based on various eligibility criteria. This led some universities to advocate for students to have access to food available from campus-based vendors, through SNAP outreach, meal swipe donation programme, and food voucher programmes (Jimenez, 2019), potentially using an electronic benefit transactions (EBT) system. In addition, due to the prevalence of food insecurity at universities in Canada, UBC initiated food banks in 2005 in an attempt to eradicate food insecurity among its students (Kozicky, 2019). The students who benefited from this programme were also referred to budgeting and food skills workshops, and it operated as a safety net for student to access food when in need (Kozicky, 2019). Similarly, the University of California launched a Global Food Initiative in all its campuses in 2014, based on the prevalence of food insecurity among its students (Martinez, Maynard & Ritchie, 2016). This programme was driven by staff, students, and postgraduate students, and also aimed at providing financial literacy and life skills training to students. 2.11.2 South African experience with institutional support programmes In South Africa, the impact of food insecurity in rural and urban households is known to have a negative impact on health; yet, there is little focus on students' food insecurity and increasing mental health challenges related to food insecurity in HEIs. According to Firfirey & Carolisen (2010), poverty is recognised at national level; however, minimal intervention is being done. As a result, historically black universities take initiatives to eradicate food insecurity and promote learning through the Gender Equity Unit Food Programme (GEUFP). In their first year, the GEUFP focussed on collecting non-perishable foods. The programme would sustain students for one year, on condition students retained 60% average in their academic performance. The UWC has several programmes to combat the impact of food insecurity among its students. The Ikamva Lethu fund was initiated by the 2015/2016Student Representative Council (SRC). There is also the Fairy Godmother initiative at UWC; students in need of social support email the "Fairy Godmother" stating their need, and they are assisted. UWC has also entered into a partnership with Tiger Brands for the Nutrition and Wellness Project to assist students affected by food insecurity. The programme is managed through the Student Development and Support office, where staff check whether the students qualify based on their funding status; they are eligible if they have no funding (NSFAS or bursary). In addition, the School of Public Health established a food programme for students, where they would provide breakfast on campus twice a week (Mogatosi, 2016). The Residential Services (RS) programme called the SREP (Skills Resources Exchange Programme) is an initiative of the Central Housing Committee (CHC) and RS through the portfolio of the Gender and Security Officer. According to Khan (2014), it was initiated due to number of residence students experiencing food insecurity. The SREP is administered from the Res Life offices, and there are several criteria for recruiting students. The students are allowed to access the programme twice per semester; they are given a food hamper containing sufficient nutritional food, including non-perishable foods, to last two weeks. The SREP programme is a skills exchange programme where beneficiaries must attend when they have time outside their academics, and the RS office also monitors their academic performance. A total of 281 students benefited from SREP in 2017, with 352 hampers provided. The University of Witwatersrand (Wits) initiated a food bank, providing a monthly food pack to students to the value of R430.00, including corned beef, rice, lentils, beans and peanuts. Wits also implemented the Masidlaleni Daily Meal Project, which provided hot lunch to 900 students per day. According to Vakil (2017), the institution also ran the Wits Inala, which promoted food self-sufficiency among students by cultivating food gardens on campus. Lastly, Holy Trinity Catholic church run an SVP (St Vincent de Paul) Soup Kitchen at Wits and also offer lunch to students from Monday to Friday (Vakil, 2017). UFS initiated a No Student Hungry bursary programme, where beneficiaries were provided with a daily allowance (R30) to purchase meals at selected food outlets on campus. This initiative was established by former Vice-Chancellor Jonathan Jansen; the allowance was loaded onto student cards and could be used at campus shops and restaurants (Meko & Jordaan, 2016). The University of Cape Town (UCT) had a similar programme ; it was named UCT Lunch Voucher, and residence students were provided a R25 voucher, which they could use to purchase food from vendors on campus during lunchtime (Spertus-Melhus, 2016). 2.11.3 The role of NSFAS in addressing food insecurity The NSFAS is a government entity of the Department of Higher Education and Training . It was established through Act No 56 of 1999, with the intention of providing loans and bursaries to students studying in government-funded HEIs (Morcucci & Johnstone, 2016). Munro et al. (2013) posit that NSFAS was established by parliament to mitigate the financial challenges experienced by the children of the poor and the working class from disadvantaged communities; however, it has been faced with numerous challenges in funding students in recent years. Students are selected based on the NSFAS means test. In the years before the #FeesMustFall campaign (late 2015), NSFAS provided funding to students whose annual family income was R122 000 and below. However, due to the students' demands and continued annual fee increases by universities, the income threshold component was questioned for excluding those students termed the 'missing middle'. The threshold for NSFAS funding was thus changed to R350 000 per annum. This allowed more students to qualify for funding; however, this has created further funding challenges in the higher education sector. According to Morcucci and Johnstone (2009), "NSFAS uses a combination of proxies and income to determine eligibility for funding and the size of the award"; thus NSFAS assesses the expected contribution from the student's family, with the rest to be covered by the scheme. The full cost of study per student differs because of the different programmes they choose and the university where they study. The overall allocation of funding is based on the projected programme cost, accommodation, book allowance and meal allowance. However, non- residence students are not eligible for food allowances. Each award, however, constitutes only a fraction of the cost of a university degree , which leaves poor students still struggling. UWC reported that NSFAS was funding 21,796 (13,036 female; 8,760 male) full-time students (DHET, 2018). 2.12 Conceptual Framework for Food Insecurity Figure 2.12: A conceptual framework of dimensions of food insecurity Source: U. Sigodi 2.12.1 Lack of availability of food Abbade (2017) states that food insecurity at household level involves lack of availability of food , people

having inadequate purchasing power , being unable to circulate food properly, and their inability to make use of food. The food availability dimension is mostly concerned with sufficient quantity and quality of food that is being supplied by the market to consumers; in the case of students and nationally, lack of availability is not the problem. South Africa is food secure at national level, but with high household food insecurity prevalence, mostly connected with socio-economic factors (Pereira, Cuneo & Twine, 2014), including income inequality (StatsSA, 2014). 2.12.2 Lack of accessibility to food This dimension is characterised by financial resources in attaining food, food production at household level and market purchase, plus the distribution component. According to Abbade (2017), the food accessibility dimension comprises economic access (EA) and physical access (PA) to food. High levels of unemployment lead to poor EA (Crush et al., 2012). Abbade (2017) argues that PA is mostly centred around logistical infrastructure, retailers and grocery stores, while EA is facilitated by South Africa government social grants. In the context of the current study, if students do not have NSFAS funding, the EA component may result in students lacking access to food, making it difficult to maintain an adequate diet and improve their well- being. 2.12.3 Lack of utilisation of food The dimension of food utilisation is concerned mostly with how food is properly used, how it is processed and stored, nutritional knowledge, and adequate sanitation (FAO, 2013). The assessment of food utilisation at individual level involves looking closely at dietary diversity. Students living in self-catering university residences face a lack of food preparation skills; this results in procurement and consumption of nutritionally inadequate food items. In some cases, students face conflicts of cultural practices, where they cannot consume certain food items based on cultural beliefs; this results in lack of utilisation of adequate nutritious food. 2.12.4 Lack of stability to food The concept of food stability considers the three dimensions of food security collectively, with the aim of preventing vulnerability at individual, household, and national level (FAO, 2013). For individuals and households to achieve the capability of being 'food secure', they require adequate access to food at all material times . The food access dimension is the driver in achieving food security in its broader context. The EA component ensures that people will have PA to food that is nutritious to improve their well-being (Abbade, 2017). This, therefore, means that households need to have some source of income through employment or social grants. For students, fulfilling this dimension requires adequate funding from government in the form of bursaries and NSFAS. However, if this fails, students find themselves in a situation of food instability. 2.13 Knowledge, Awareness and Practice (KAP) of Nutritious Food by University Students Globally Van den Berg and Raubenheimer (2015) reported that South African students had shown a lack of nutrition knowledge in general, while other studies pointed out poor shopping and financial management skills among food-insecure UFS students. According to Kwol et al. (2020), the knowledge, attitude and practice (KAP) model argues that knowledge provides positive motivation to an individual's attitude and in turn prompts changes in their behaviour or practice. KAP has been used in previous studies to better understand what measures must be taken to improve student food insecurity (FAO, 2014). Bano et al. (2013) argue that the primary objective of any university is to widen students' scope of knowledge; thus, improving student's lives through nutrition attitudes and practices remain critically important for students to make sound, healthy and diet-conscious decisions. At the core of the KAP framework lies the issue of behavioural learning; students' positive knowledge should yield positive results through their awareness of what constitutes junk food and a healthy diet. In the study context, the researcher assessed students' level of nutrition awareness and also why they consume junk food, regardless of their awareness. The rationale behind the KAP in relation to this study was also to look at the factors that influence the students' food choices. 2.14 The Capability Approach Robeyns (2005: 94) states that the Capability Approach (CA) is "a broad normative framework for the evaluation and assessment of individual well-being and social arrangements, the design of policies, and proposals about social change in society ". The CA is a tool for the conceptualisation and evaluation of issues like well-being, in regard to one's capabilities to function (Sen, 1985). This approach has been utilised in different fields including development studies and social strategy, among others (Robeyns, 2005). According to Sen (1985), well- being refers to the accomplishment of functionings that individuals regard worthy. The CA primarily centres on what people can be or turn into (Robeyns, 2005); thus the CA's main focus is on a person's capabilities. The use of the CA as a framework to analyse food insecurity enables the researcher to better understand what constitutes a person's well-being and what is lacking in people achieving well-being (Burchi & De Muro, 2016). Chiappero-Martinetti & Venkatapuram (2014: 709) state that the CA is helpful in "describing and analysing individual well-being or quality of life in terms of real possible opportunities that will assist in achieving various outcomes in relation to 'beings and doings' that make up a good or flourishing life." The connection between food security and the CA is centred on improving student well-being, using the lens of the CA to look at students' real opportunities available to achieve the capability of being well-nourished; it also looks at the capability set for students to choose from in order to achieve their desired functionings. According to Chiappero-Martinetti and Venkatapuram (2014: 709), the CA values individual values and opportunities, as well as their freedom of choice; well-being is considered to be intrinsically multidimensional". For food security to be met, several dimensions have to be met, including accessibility, availability, utilisation, and stability of food. Therefore, to be able to analyse students' well-being using the CA lens, the researcher must look at the real opportunities available to students from the capability set (the basket of capabilities). The CA approach states that an individual's freedom to convert commodities into functionings sometimes relies on the available social and political opportunities and how people respond to those opportunities (Nambiar, 2013). The use of CA in this study assisted the researcher to look at the different nutritional factors and information relating to how residence students live, what they are able to do and be (Gasper, 2007). The core concepts of the CA are discussed below. 2.14.1 Capabilities A capability refers to one's freedom to choose between different ways of living (Robeyns, 2005). It consists of a combination of potential functionings. The term capability has been used synonymously with the term capability set, which equates to a person's opportunity set (Robeyns, (2005). Given the presence of freedom, an individual can exercise their ability to work towards what they deem valuable, described by Sen as agency (Sen, 2003). In terms of freedom and choice, freedom allows an individual to determine and choose what he/she wants to do or become. Sen identified five freedoms which contribute to the capability to live freely. These include social opportunities, economic facilities, political freedom, protective security and transparency guarantees (Sawyer, 2007: 29). Chiappero-Martinetti and Venkatapuram (2014) posit that an individual's capability consists of combined internal (e.g. biology, knowledge and skills) and external factors (e.g. social material and environmental factors). In applying the concept to this study, the researcher assessed whether food insecurity has a negative effect on the concentration level of students (biology) and whether knowledge and awareness about nutrition also contribute to residence students being well nourished. External factors relating to social material and environmental factors were also assessed. The students have freedom to choose from their basket of capabilities, such as being food secure, and being able to live a nutritious and healthy lifestyle. 2.14.2 Functionings A functioning, according to Sen (2003), refers to a person's achievement: what one becomes or does. An example of a functioning is being adequately nourished. This relates to what one becomes, which Sen (2003) refers to as 'beings. When functionings are what one does, this is referred to as 'doings'. Functionings are achieved through the conversion of resources available to an individual (Nambiar, 2013). Functionings are hindered or promoted by various factors such as social, political, and economic institutions, among others. In the context of the study, the functioning needing to be realised is becoming well-nourished or food secure for residence students. However, many factors influence this: funding, financial dynamics in the context of the student and family at home, NSFAS and bursary allowance, etc. This approach allows the researcher to analyse the factors inhibiting the achievement of this functioning. 2.14.3 Agency/choice Sen (1999:18) defined "agency as the ability to pursue goals that one values and has reason to value ". For Sen, agency enables people to expand their freedoms /choice and choice is a principal determinant of individual initiative and social effectiveness (Sen, 1999:18). According to Nambiar (2013), agency and freedom/choice are social rather than institutional constructs. The concepts of agency and choice allow the researcher to look at the ability of students to pursue their most valued functionings. Looking at the capability set or basket of opportunities that students have, ideally, they have freedom of choice to pursue the goals that they value the most, such as being well-nourished, being a graduate, being food secure, etc. Agency and choice allow the researcher to study students' preferences in relation to food, whether influenced by internal or external limitations. Their choice might be influenced by external constraints relating to availability, accessibility, and utilisation of food. 2.14.4 The idea of individual endowments In the CA, individual endowment refers to the resources available to individuals (Chiappero- Martinetti & Venkatapuram, 2014); these include biological and mental features , as well as private means (e.g. income, wealth, physical assets). Some public goods and services are also instrumental in creating capabilities (Chiappero-Martinetti & Venkatapuram, 2014). According to Burchardt (2010), time and income are regarded as resources

that are available to individuals for personal care. The idea of individual endowments assists the researcher to consider time and income as resources available to students towards achieving their functionings. Daily, students must make use of their time to focus on their studies; the researcher examined how they do this during assessment periods and everyday life, to achieve their capabilities and functionings (e.g. being food secure and well-nourished), and their freedom of choice regarding achieving a valuable functioning. The CA concept assists in looking at income as a resource available to residence students (is it sufficient and utilised to achieve a valuable functioning?). Income in the context of the study relates to NSFAS allowance, bursaries or any money coming to the student on a monthly basis. 2.14.5 Conversion factors Goerne (2010) defines conversion factors as social structures that assist in understanding the structural effects within the CA, as they influence what capabilities can be converted to functionings. Namibiar Invalid source specified. provided three categories of conversion factors: personal, social, and environmental factors. Personal factors are internal aspects of the person (e.g. intelligence); social conversion factors include public policies and social norms, among other factors (Nussbaum, 2003), and environmental conversion factors (e.g. geographical location) also influence how one utilises resources. Bonvin & Laruffa (2017) state that the conversion factor is the most important concept in the CA as it provides a central focus on capabilities and functionings, rather than material resources or rights . According to Sen (1999: 86–87), "individuals differ in their ability to convert resources into capabilities and functionings and also that individual capabilities may be enhanced in other ways than only through the increase of material resources possessed by a given person ". This concept assists the researcher to understand the personal, social and environmental conversion factors that influence residence students when faced with social pressures, assessments, and their food choices in relation to food insecurity. These conversion factors help the researcher understand how students make those choices and transform them into functionings. For example, students are unable to achieve the functioning of being food secure or well-nourished if they are unable to cook food supplied or accessed through their allowances (personal conversion factor). Thus, the desired functioning cannot be achieved. The characteristic of social conversion factors includes gender practices in a society, social norms, social hierarchies, and government policies (Nambiar, 2013). For students living in self- catering residences, it is expected that they cook for themselves. However, some students come from an environment where they have had no experience of cooking (e.g. a helper cooks, or male children do not cook). Therefore, they come to tertiary institutions with instilled gender practices, making it difficult for them to adapt in the residence. Thus, if affordable, they purchase fast food, making the functioning of being well-nourished difficult to achieve. Environmental conversion factors relate to "provision of public goods, climate, and infrastructural facilities" Nambiar (2013:4). For the current study, the relevant environmental conversion factors include geographical location of markets, malls, and transportation, as they may constrain the achievement of the desired functioning. The procurement of food items from markets and malls relies on students' income availability, which may also constrain food security overall. In conclusion, these conversion factors assist the researcher to understand the constraints that hinder the holistic achievement of the desired functionings. 2.14.6 Operationalising the CA framework Chiappero-Martinetti and Roche (2009) argue that research application of the CA will vary considerably based on research aims and objectives. In this current study, application of the CA will provide a plurality of views to understand the analysis of the quantitative and qualitative data. The quantitative data will enable the researcher to look at the food insecurity indicators in comparison to the dimensions of food security , through the application of the CA. The researcher will also be able to look at the environmental contexts, socio-economic background, geographical, cultural, and institutional variables that are within the CA, to give a broader perspective on food-insecure students. The CA, therefore, will assist the researcher to use the statistical analysis of students at an individual level (e.g., gender, age, race/ethnicity), as households and as subgroups, which can affect the processing of resources into capabilities. This enables the researcher to measure well-being in terms of capabilities in contrast with resources such as income, basic needs and utilities (Chiappero-Martinetti & Venkatapuram, 2014). 2.14.7 Relevance of CA in understanding food security Burchi and De Muro (2016) reported that the CA application to food security was developed by Jean Dreze & Amartya Sen in 1989 in Hunger and Public Action. According to Ravallion (1991), for Dreze & Sen (1989), the most crucial capability to be achieved is being healthy and alive, which speaks directly to nourishment; being nourished facilitates access to basic education, health care, etc., which themselves improve nutrition. Burchi and De Muro (2016) state that the CA considers food factors such as quality, utilisation and social responsibility, and the interaction with other basic capabilities such as health and education. This approach assists the researcher to examine the underlying causes of food insecurity and the well-being of students in the context of this study. The underlying causes of food insecurity in this context include urbanisation and migration, and population growth. Using the CA to analyse students' food insecurity allows understanding of the students' capability set (opportunities) and their social and personal context as residence students. The UWC is a social institution where residence students live; applying the CA approach highlights that UWC has social and legal norms which residence students must abide by. All UWC residences are self-catering, so each corridor has a kitchen for students to cook their own meals. Students' behaviour differs concerning food preparation; some students are able to cook for themselves, while others have never cooked a meal before, which changes their behaviour around home-cooked meals. Relevant environmental factors include the availability of fast- food shops on campus; these may contribute to the students' behaviour towards a cooked meal and even lack of cooking skills. Making use of the CA allows the researcher to understand the social context of the students' situation in relation to food insecurity and also provides a basket of capabilities from which students have the freedom to achieve their capabilities. The CA is also relevant in looking at social influences on decision-making among students, informing their choices relating home-cooked meals or fast food. Therefore, the CA allows the researcher to assess whether students' choice of means of nourishment is based on personal, social, or environmental factors. Using the CA framework to analyse food insecurity can assist in assessing the role of education, the health component, and other basic capabilities that will translate into students' well-being and the attainment of the functioning of being food secure/well-nourished. 2.14.8 Strengths of the CA framework Dean (2009) argues that one of the CA's extraordinary qualities is that it emphasises the importance of functionings that are not saleable. For Nussbaum (2011), the CA encourages the inception of an individual as a 'being' who is not naturally skilled, but considerably important and having human dignity. The CA is also strong in placing freedom on people, regardless of their background, to develop themselves according to their skills and interests (Gasper, 2007). Another appealing quality of the CA is that it expresses that individuals ought to be equal, taking account of respect for freedom (Gasper, 2007). Kinghorn (2010) views the strength of the CA being that it "focuses on the ability of individuals to lead a life that they have reason to value ". 2.14.9 Criticism of the CA as a framework The CA is believed to be too individualistic as Sen ignored the use of collective capabilities and that excludes collective freedoms (Fredian, 2010). In addition, Comin (2001) argues that the CA does not provide practitioners and researchers practical guidelines on how capabilities are identified and assessed. Gasper (2007:351), furthermore, states that "the capability concept concerns attainable opportunities and it lacks an explicit time-dimension". According to Cohen (1993), there is no knowledge of whether an individual's capability set is better or worse than others, and this information is believed to be unavailable. Gasper (2007) also points out that the capability concept cannot be practically operationalised in terms of standard human values , because the CA's call for effective equality of freedom is more difficult to interpret than the attainment of basic freedoms. 2.15 Conclusion The chapter consisted of two parts; firstly, the existing literature concerning food insecurity in tertiary institutions was reviewed, as well as challenges experienced by HEIs from the global to the local context. The second part focused on the theoretical framework (CA) adopted for the study and how its lens could be used to analyse perceptions and experiences of students in relation to food insecurity. The following chapter provides a detailed description of the research methodology utilised throughout the research study in reaching its intended objectives and research aims. Chapter 3 3. Research Methodology 3.1 Introduction This chapter gives a detailed description of the research methodology applied in this study. It describes how data were collected and analysed to answer the study's research questions and objectives. The chapter explains the research design, and justifies the research paradigm and methodology. The study used a mixed-methods approach, as it was relevant to the identified research problem. The sampling criteria are described, followed by a detailed explanation of the data collection instruments used and the data collection process. The methods of data analysis are also discussed, followed by the trustworthiness of the qualitative data . Finally, the chapter concludes by highlighting the limitations of the research process and the ethical issues involved. Commented [SD1]: Another

good chapter, but long. 3.2 Research Design Creswell (2008) defined a research design as the procedure to direct research, including the techniques and precise strategies utilised to achieve a defined outcome. Research designs are plans, assisting the researcher to navigate the many choices for conducting the research (Creswell, 2009). When designing research, it is imperative to recognise the sort of proof required to answer the research question convincingly. The function of a research design is to guarantee that the evidence obtained enables researchers to answer the fundamental inquiry as unequivocally as possible. Nachmias and Nachmias (2008) say the "the importance of research design derives from its role as a critical connection between the theories and arguments that inform the research and the empirical data collected". This study sought to explore perceptions and experiences of food insecurity of university students living in campus residences at UWC. The researcher chose to conduct a study focusing on university students based on the prevalence of food insecurity and the consequences among HEI students. Universities are a microcosm of society, and students' struggles must not be overlooked as they impact on the country's economy; student hunger is also an under-studied aspect of food insecurity. The study used a self-administered questionnaire, with both closed and open-ended questions, to collect data on students' food insecurity in UWC campus residences. The researcher applied a qual-QUANT complementary approach (Morgan, 1998 as cited in Ulin, Robinson & Tolley, 2004), using two food security indicators (the HFIAS and IDDS) and open-ended questions to explore students' perceptions and experiences of food insecurity in university residences. In a qual-QUANT design, a smaller qualitative study helps guide the formation of questions in the larger (principal) quantitative data collection. The research design for the current study was a sequential explanatory design providing the researcher different ways of ensuring that the purpose of this research was achieved. This was aimed at gaining insight into the participants' lived experiences, by exploring and describing their perceptions and experiences of food insecurity. 3.2.1 Justification for methodology Fouche & Delport (2011:66) argue that "human sciences research mostly utilizes both the qualitative and quantitative methodologies", based on their complementary strengths and weaknesses. Hanson et al. (2005) emphasise that mixed methods encourage the use of multiple methods and collection of data, allowing triangulation, which seeks convergence and corroboration of the findings from the different methods (Shank & Brown, 2007). Johnson & Onwuegbuzie (2004) state that the goal of mixed-method research is to draw strength from the different approaches, with an attempt to minimise weaknesses of each approach. Furthermore, Scott & Morrison (2007) believe that mixed-method research facilitates an improved combination of both an outsider and insider perspective in the research process. 3.3 Research Paradigm Guba & Lincoln (1994) define a paradigm as a basic set of beliefs that guides how research studies must be conducted, particularly in relation to human social problems. Alternatively, Kuhn (1996) characterises a paradigm as a set of theories or hypotheses and linked assumptions shared among a network of researchers. Guba & Lincoln (1994) identified four research paradigms that provide assumptions about the world: critical theory, constructivism, positivism and lastly realism. This study used the realism paradigm, described further below. 3.3.1 Justification for realism paradigm Guba & Lincoln (1994) state that realism is a research philosophy that believes there is a real world to discover regardless of its imperfection that is apprehensible. The realism paradigm is placed between positivism and interpretivism (Blumberg, Cooper & Schindler., 2011). According to Saunders et al. (2009:114), from the view of a realist, "there are social processes and forces that are beyond the control of humans, which affect their beliefs and behaviour". Therefore, this paradigm assisted the researcher to investigate students' interpretations of food insecurity and their understanding of their experiences, to identify the contributing factors to their attempt to give meaning to their situations. This paradigm was appropriate to answering the research question: "What are students' perception and their experiences in relation to food insecurity?" because it is specifically looking at the social aspects of real-life problems faced by the students. Furthermore, it was appropriate as it sought to describe and explain complex social science phenomena, including food insecurity. 3.4 Sampling Criteria The sample for this research project was drawn from residence students at UWC. The residence population of UWC is approximately 3,500. The study employed a stratified random sampling procedure to access a sample comprising 50% female and 50% male students residing in university-owned or -controlled residences. The study aimed at a sample size of

student participants living in the nine university residences. The equal gender representation signifies that gender is a significant factor in exploring food insecurity among students. According to Ackoff (1953), stratified random sampling is where the population is divided into subgroups, with a random sampling out of each subgroup to be representative of that target population. However, the size of the population informed the use of probability sampling (Daniel, 2012), as the population of residence students was too big for this research project. For the current study, the sample comprised six females and six males from each residence, making 12 participants purposively chosen from each of the nine residences sampled. The collected data contained 108 completed self-administered questionnaires from the targeted residences; there were no unreturned questionnaires. The target population ranged from second-year to postgraduate students, based on the assumption that first years at the time of data collection would not have sufficient experiences in relation to food insecurity on campus at the time. Table 3.1: Sample of residences and their numbers of participants Name of the residence Frequency Percentage (n) (%) Basil February 12 11.1 Chris Hani 12 11.1 Coline Williams 12 11.1 Disa 12 11.1 Eduardo Dos Santos 12 11.1 Gorvalla 12 11.1 Hector Petersen 12 11.1 Liberty 12 11.1 Ruth First 12 11.1 Total 108 100.0 Source: Survey data 3.6 Data Collection 3.6.1 Data collection instruments Burns & Grove (2011) describe data collection as the systematic gathering of information relevant to the specific objectives of the study. The researcher made use of a self-administered questionnaire, comprising 54 questions; this was completed by 108 students residing at UWC residences. The questionnaire had four sections (see Appendix …): Section 1: socio- demographic and socio-economic questions; Section 2: questions related to factors affecting students' nutritional and well-being; Section 3: 24-hour dietary recall (the Dietary Diversity Score [DDS]), aimed at recording the different food groups that students consumed in their residences; and lastly Section 4: the Household Hunger Scale (HHS), to measure household food insecurity (Ballard et al., 2011). The questionnaire had both closed and open-ended questions that assisted the researcher in better understanding residence students' food insecurity, in line with the aims and objectives of the research study. The instrument allowed the researcher to collect data pertaining to different sources of food, income sources, monthly expenditure (from beverages to non-food items), and also to procuring goods and services. The instrument also allowed the collection of social protection information, such as whether students were recipients of social grants prior to entering university, to understand the socio-economic profile of the students. The instrument also allowed students to express their views on food choices in relation to fast food and cooked meals, recorded their coping strategies when they ran out of money for food, as well as their awareness of nutrition. Devereux and Tavener-Smith (2019) identified the Dietary Diversity Score (DDS) and the Household Food Insecurity Access Scale (HFIAS) as the most-used indicators for the assessment of food insecurity. In describing the students' experiences of food insecurity in UWC residences, the DDS and the Household Hunger Scale (derived from the HFIAS) were used. These indicators enabled the researcher to answer objective two: Describe experiences of the students about food insecurity. Both indicators mentioned above assisted the researcher to make conclusions about food insecurity status and experiences among residence students. 3.6.2 Dietary Diversity Score (DDS) Arimond et al. (2010) view dietary diversity as the number of foods consumed across a period of time and within food groups; it is recognised as the key dimension to assess dietary quality. Hoddinott and Yohannes (2002) believe that a diversified diet is a strong indicator of food security in a household, and is associated with high levels of food consumption. There are 12 different food groups used to calculate the dietary diversity score per household (FAO, 2010). The researcher made use of a dietary

diversity recall schedule based on diet consumed in the previous 24 hours. The students were asked to recall the ingredients of each meal consumed in the previous 24 hours (see Table 3.2). Table 3.2: Dietary diversity recall (24 hours) chart Breakfast Snack Lunch Snack Dinner Snack Other Source: FAO (2010) Table 3.3 shows the classification of

food groups used for the DDS when the questionnaire is administered from a household level. The present study used the IDDS, as students had to recall the ingredients of the meals they had consumed, whether inside or outside their residences (FAO, 2010). Table 3.3: Different food groups for Dietary Diversity Score Household Dietary Diversity Score (HDDS) Individual Dietary Diversity Score (IDDS) Cereals Cereals, white tubers Tubers and roots Vitamin A-rich vegetables/fruits Legumes, nuts, and seeds Dark green leafy vegetables Milk and milk products Other vegetables/fruit Eggs Organ meat Fish Flesh meat, fish, seafood Meat Eggs Sweets Legumes, nuts Oils and Fats Milk Vegetables Fruits Spices, condiments and beverages Source: FAO (2010) and Arimond et al. (2010) 3.6.3 Household Food Insecurity Access Scale (HFIAS) The HFIAS was developed in 2006 by the Food and Nutrition Technical Assistance Project (FANTA) with the intention of providing researchers with a valid tool for measuring food insecurity in developing countries (Coates et al., 2007). The HFIAS consists of nine occurrence questions and nine frequency-of-occurrence questions (Ballard et al., 2011). The occurrence questions "were designed to represent varying levels of food insecurity" based on conditions that have occurred during the past four weeks (Ballard et al., 2011:3). The HFIAS occurrence questions are shown in Table 3.4. Table 3.4: HFIAS occurrence questions No. HFIAS occurrence questions 1. In the past four weeks, did you worry that your household would not have enough food? 2. In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources? 3. In the past four weeks, did you or any household member have to eat a limited variety of foods due to lack of resources? 4. In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food? 5. In the past four weeks, did you or any household member have to eat smaller meals than you felt you needed because there was not enough food? 6. In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food? 7. In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food? 8. In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food? 9 In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food? Source: Ballard et al. (2011) The last three occurrence questions are perceived as being central to the experience of food insecurity cross-culturally (Ballard et al., 2011), and this resulted in the adoption of the Household Hunger Scale (HHS), which has a specific focus on insufficient food supply and intake and their physical consequences (Ballard et al., 2011) (see Table 3.5). The Household Hunger Scale (HHS) is employed in this study due to its cross-cultural applicability. 3.6.4 Diary as a research tool for data collection method In methodology literature, a research diary is described as a tool that enables a researcher to record decisions taken during the research process and also serves a way to reflect on those processes (Gibbs, 2007). Starks & Trinidad (2007) posit that during the data analysis phase, the research diary is an important instrument for analysis through making judgements about coding and analysing themes. Hence the researcher made use of a diary to assist in providing the credibility and trustworthiness of the data collected. Through making use of the diary to record observations, the researcher was able to note relevant issues for participants (e.g. some rooms had no refrigerator). The researcher could also note clarifications made by the participant and observations of the student's room and their dress. These were recorded according to the questionnaire number to preserve anonymity. The diary also assisted in making further observations when participants were answering the structured qualitative questions. 3.6.5 Data collection procedures The researcher obtained permission to collect data from the Humanities and Social Science Research Ethics Committee of the UWC; permission was obtained from the director of residential services for access to residences and to interview students in their rooms. The researcher went door to door at all the identified university residences. The researcher would knock on a student's door, introduce himself and then state the purpose of the visit. If the student was willing to partake in the study, an information sheet (see Appendix …) was provided, as well as the consent form (see Appendix …), and the participant's rights were explained. Once the consent form was signed, the interview continued in the participant's room, where the participants completed the questionnaires. The researcher remained present to clarify any questions. Completing the questionnaire took up to 30 minutes, and most of the participants who gave consent completed the questionnaire successfully. Some students would look at the questionnaire and ask to the researcher to come back at another time. In these cases, the questionnaire was not left with the student. Due to the sampling technique, the researcher would continue door to door till 12 participants for that residence had been completed in terms of gender representation. The data collection was from 19:00 till 22:00 during weekdays and 11:00 till 15:00 on weekends. This was to allow sports participants and those students undertaking extra-mural activities to come back, and most students were usually cooking at those times. The completed questionnaires were kept in a box in the researcher's room, and when all 108 were completed, the researcher began with a process of grouping them by residence. This was then followed by double-checking whether the information and all the questions were correctly completed and understood. There were no administrative errors, and all the information was completed correctly as per the participants' views and understanding of the questions asked in the questionnaire. 3.7 Data Analysis Data analysis involves reducing the data to manageable proportions and identifying different patterns and themes in the data (Majesky, 2008). The researcher made use of the Statistical Package for Social Sciences (SPSS) to analyse the quantitative data in order to answer the research aims and objectives. It was also used to test significant relationships between variables. Marshall & Rossman (2006) state that qualitative data gathered should be re-read repeatedly to get an in-depth understanding of the information recorded. In this manner, possible themes or patterns start to emerge from the data. According to Polit & Beck (2008), in qualitative research it is important that researchers are able to familiarise themselves with the data gathered, to ensure accuracy in the captured and transcribed data. According to Babbie & Mouton (2011), qualitative data is analysed by ascertaining patterns and themes in order to make meaning out of it; thus, thematic analysis was used to analyse the qualitative data. The researcher first transcribed the qualitative data from the three open-ended questions in the questionnaire. This was followed by a process of clustering the transcribed data to facilitate creating themes from those clustered responses. 3.7.1 Methods of data analysis The quantitative data was captured, cleaned and organised for statistical analysis using IBM SPSS Statistics 26. The SPSS analysis yielded descriptive statistics and allowed for the presentation of the results in graphs, frequency distributions and cross-tabulations. The researcher used Chi-squared tests to assess the relationships between variables (e.g. gender, race) and food insecurity status. 3.7.2 Dietary Diversity Score (DDS) For the IDDS, students were asked to recall the ingredients that made up the meals they had consumed over the previous 24 hours. They listed these ingredients, and for each group, if a student did not consume anything in that group, then it was scored a zero (0). The score was one (1) for any ingredient or food item that was consumed from a group. The IDDS was then calculated by adding the score for each of the nine groups. 3.7.3 Household Hunger Score (HHS) Table 3.5: HHS occurrence questions and response options No. Question Response Option Q1 In the past [4 weeks/30 days], was there ever no food to eat of any kind in your house because of lack of resources to get food? 0 = No (Skip to Q2) 1 = Yes Q1a How often did this happen in the past [4 weeks/30 days]? 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times) Q2 In the past [4weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food? 0 = No (Skip to Q3) 1 = Yes Q2a How often did this happen in the past [4 weeks/30 days]? 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times) Q3 In the past [4 weeks/30 days], did you or any household member go a whole day and night without eating anything at all because there was not enough food? 0 = No (Skip to the next section) 1 = Yes Q3a How often did this happen in the past [4 weeks /30days]? 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times) Source: Ballard et al. (2011) To calculate the HHS, the frequency-of-occurrence is coded as a 0 for every case where participants reported no occurrences. If participants responded with a Yes, this response is coded as 1. In this case, the participant is required to choose from the frequency-of-occurrence options, selecting 1, 2 or 3 (Ballard et al., 2011) (see Table 3.5). For each question, the scores are calculated as follows (example from Q1 – first question on the questionnaire): If Q1 = 0, the score is 0 (proceed to next question). If Q1a = 1 or 2, the score is 1 If Q1a = 3, the score is 2 The total score is the sum for the three questions. According to Ballard et al. (2011), the potential scores for the HHS range from 0 to 6. Scores of 0-1 indicate little or no food insecurity; scores of 2-3 indicate moderate food insecurity, and scores of 4-6 indicate severe food insecurity.

However, when the researcher began analysing the data, he realised that the results were only reflecting the first two categories (scores from 0-3). The results did not reveal anything on severe food insecurity, while the moderate food insecurity category had low numbers of participants. The researcher then decided to split the low food insecurity categories in order to get a more granular sense of food insecurity from the responses. This deviates from the FANTA methodology. In the presentation of the results, the variable appears as: food_insecurity_revised. Scores range from 0-3 (see Table 3.6). This is derived by summing the FS scores for the three occurrences as follows: FS1+FS2+FS3 = Total. This gives a better indication of which category each student falls under in relation to food insecurity. Table 3.6: Revised food insecurity indicator scores Scores Food insecurity indicator 0 No food insecurity 1 Little food insecurity 2 Moderate food insecurity 3 Severe food insecurity 3.7.4 Thematic analysis Thematic analysis allows a researcher to pinpoint or examine patterns or themes in data (Daly, Kellehear & Gliksman, 1997). For Braun & Clarke (2006), it is a method mostly used for identifying, analysing, describing, and reporting themes that are found within collected qualitative data . Thematic analysis has six phases: familiarisation with the data, generating initial codes, searching for themes among codes, reviewing themes, defining, and naming themes, and producing the final report (Clarke, 2006). De Vos et al. (2011) identified themes as recurring ideas and patterns of beliefs that link individuals and their natural settings together . Qualitative data analysis is further defined as largely an inductive process of organising data into categories and identifying patterns or relationships among the categories (McMillan & Schumacher 2006). However, thematic analysis is not immune to challenges, as its flexibility may result in inconsistency and lack of coherence during the process of developing themes from the data gathered (Holloway & Todres, 2003). The qualitative data analysis was conducted by implementing the eight steps of Tesch (1992): 1. The researcher carefully read through the qualitative responses and got a sense of the whole dataset. 2. The researcher read through the qualitative responses repeatedly to understand the underlying meaning of the data; he selected responses from each participant and wrote down thoughts that came into mind. 3. After going through the transcript, the researcher clustered similar responses together. 4. The researcher abbreviated the topics as codes and wrote the codes next to the appropriate segment of the text. The researcher then observed how the data was organised to check if new categories or codes emerged. 5. The researcher found the most descriptive wording for the topics and converted them into categories. 6. A final decision was made on the abbreviation for each category and the codes were arranged alphabetically. 7. The data material belonging to each category was put together in one place and preliminary analysis was performed. 8 . Recoding of the data was done if necessary. 3.8 Trustworthiness of the Qualitative Data Lincoln and Guba (1985) believed that trustworthiness shows that the research has been conducted in a clear, consistent way, which is described in sufficient detail for readers to find the study credible. This criterion is mostly concerned with acceptability and usefulness of the research process (Lincoln & Guba, 1985). 3.8.1 Credibility Tobin and Begley (2004) described credibility as a criterion that addresses the 'fit' between views of the participants and how those views are presented by the researcher. Credibility in the study was achieved through the engagement between the researcher and the participants when they were responding to the qualitative questions. This allowed the researcher to explain to the participants what the questions were looking for without imposing his views on the participant's response. The researcher engaged thoroughly with the transcript to provide a clear demonstration of the links between the data collected and the interpretation. 3.8.2 Transferability The aspect of transferability in trustworthiness is mostly concerned with the applicability of the findings of the research to other settings and target populations (Korstjens & Moser, 2018). The researcher achieved transferability through providing a thorough description of the participants' experiences of food insecurity and the researcher's observations during the research process. 3.8.3 Dependability Dependability refers to the reliability of data and the ability of the collected data to be audited; it requires considerable evidence in relation to decisions concerning the theoretical and methodological processes of the study (Koch, 1994). This means that any reader may be able to audit and arrive to the same conclusion as the researcher. In this study, the supervisor has audited the transcript as a means of inspecting the data and confirming that it was worthy to continue with interpretations and findings. 3.8.4 Confirmability Tobin and Begley (2004) state that confirmability is a criterion of worthiness of qualitative research that is mostly concerned with demonstrating how the researcher came to their interpretations and conclusions. This is achieved through an audit trail ascertaining whether credibility, transferability and dependability have been achieved (Guba & Lincoln, 1989). In the context of this study, the researcher had audit trails containing dates and times of when data were collected and transcripts of the qualitative responses, which confirms the truthfulness and reliability of the data collection and its processes. 3.9 Limitations of the Study The study's limitations mostly related to the methodology that was employed throughout the research process (Shiu et al., 2009). The researcher used stratified random sampling, which excluded some students from participating. The residence student population (about 3,500) was too big for a mini-thesis project. First-year students were excluded from participating, as they would have had too short a time on campus for them to contribute meaningfully. Off-campus students were also excluding from participating the study. This therefore meant that results may not be generalisable to the general population of UWC students. Covid-19 regulations also did not allow the researcher to conduct focus groups at UWC. This meant that the researcher had to complete the research project with the data collected using the questionnaire as it contained both quantitative and qualitative questions. The supervisor confirmed that the data collected allowed the researcher to continue with the mixed-method approach for the study as planned. The study findings are limited to UWC students, living in campus residences that are owned and managed by the institution, and can therefore not be generalised to students in other HEIs, or to the broader population. 3.10 Ethical Considerations In line with UWC ethical principles, regulations and guidelines, the researcher adhered to the ethical standards that regulate the protection of research participants from any potential harm from the research process. The proposal was approved by Senate and the Research Ethics Committee. The data collection instruments were approved by the UWC Research Ethics Committee confirming that the research instruments are in line with university regulations. The researcher obtained informed consent from the participants, and their signatures confirmed that they were not coerced into partaking in the research project. Their confidentiality was ensured, since their names were not included in the consent forms (Devlin, 2006). The researcher also informed the participants that they could withdraw from completing the questionnaire at any stage in the process. In ensuring confidentiality, the researcher did not request any information regarding participants' identification, and their anonymity was preserved throughout the research process (Terre Blanche, 2006). Where participants had questions regarding the research process, the information sheet each participant received contained contact details of the researcher, the supervisor and also the contact number of where they would be referred in case they felt they needed psychological intervention due to the nature of the questions asked. The information sheet contained all the relevant information on the purpose of the study, the role of the researcher , and how the data collected will be communicated with the supervisor through the research process. The data will be stored at the UWC Institute for Social Development and with the researcher and will be destroyed after five years. 3.11. Conclusion This research made use of a mixed-methods approach which utilised elements of quantitative and qualitative techniques in collecting primary data through a self-administered questionnaire. The methods of data collection and analysis were described extensively. The study employed the required ethical standards throughout the research process. The next chapter will present findings that emerged from the quantitative data analysis. Chapter 4 Presentation of the Quantitative Results 4.1 Introduction This chapter presents the quantitative results of the study using descriptive statistics. The chapter begins by outlining the demographic profile of the participants , then reports on the Chi- square analyses utilised to determine significant relationships between variables. 4.2 Demographic Outline of the Sample The total sample size was N=108, out of a sampling frame of ±3,500 residence students at UWC in 2020.1 The sample had a 50% gender balance (54 females; 54 males). This was a deliberate sampling strategy after the researcher opted to use random stratified sampling strategy in this study. The participants' gender is very important in understanding food insecurity dimensions, especially concerning accessibility and utilisation of food. This is based on understanding that males and females have different approaches and behaviour in relation to food security. Male respondents ranged in age from X to Y (15-24 years: 44.4%; 25-34 years: 5.6%). Female students ranged in age from X to Y (15-24 years: 44.4%; 25-34: 4.6%; 35-44 years: 0.9%) (see Table 4.1). The mean age of the sample is 21.94 (SD: 3.117) years. The age distribution is as expected in a student sample.

Concerning race, 95% of the respondents were African (black), while 5% were Coloured, with no white or Indian students (see Table 4.1). According to the UWC residence admission policy, students must reside outside a 60 km radius to be considered for residence placement, and in most cases, white, Indian, and Coloured students live in close proximity to the institution. Therefore, the majority of the student population of living in UWC residences black African and are mostly from outside the 60 km radius. Table 4.2 shows the race distribution of UWC residence students. Table 4.1: Demographic characteristics of the sample 1 Reslife systems administrator, an employee of one of the departments of Student Development and Support (SDS) at UWC, (Personal communication, 2021). Variable n % Gender of the respondents Male Female Age of the respondents (Males) (15 – 24) (25 – 34) (35 – 44) Age of the respondents (Females) (15 – 24) (25 – 34) (35 – 44) Race Black Coloured White Indian Source: Survey data 54 54 48 6 0 48 5 1 103 5 0 0 50 50 44 5.6 0.0 44 4.6 0.9 95 5 0 0 Table 4.2: Race of students living in university residences in 2020 at UWC Race Number Percentage (n) (%) African 2,986 85.4 Coloured 477 13.6 White 8 0.2 Indian 7 0.2 Asian 3 Other 16 Total 3,497 0.08 0.4 100 Source: Personal communication (2021) 4.3 Study Level of the Participants Table 4.3 shows the study level of the student participants at the time of data collection. The largest group (38.0%) were doing third year, 35.2% were doing second year, 18.5% doing their fourth year of study; 4.6% were doing Masters, while 3.7% were in their honour's year. Table 4.3: Study level of the participants Study level Number Percentage (n) % 2nd year 38 35.2 3rd year 41 38.0 4th year 20 18.5 Honours 4 3.7 Masters 5 4.6 Total 108 100.0 Source: Survey data 4.4 Student Distribution per Faculty Table 4.4 shows the distribution of the participants in terms of the faculties they are enrolled in at UWC. The largest group (24.1%) came from Economic and Management Sciences (EMS), while 23.1% came from Natural Sciences. The third highest number of participants (18.5%) came from Community and Health Sciences (CHS), with Arts and Humanities having 15.7%. Education and Law had 8.3% and 7.4% participants, respectively, while Dentistry had 2.8%. All seven faculties of UWC were thus fairly represented in the study. The distribution was similar to enrolment numbers per faculty, except that there is a decline in the sample enrolments for Arts and Humanities, and an increase in representation of the Natural Sciences and CHS students. Table 4.4: Comparison between sample enrolment and enrolment numbers per faculty Faculty Sample Enrolment by faculty n (%) n (%) Economic and Management Sciences 26 (24.1) 5,762 (24.0) (EMS) Natural sciences (NS) 25 (23.1) 4,005 (16.6) Community and Health Sciences (CHS) 20 (18.5) 3,669 (15.3) Arts and Humanities (A&H) 17 (15.7) 4,534 (18.9) Education 9 (8.3) 2,871 (12.0) Law 8 (7.4) 2,432 (10.1) Dentistry 3 (2.8) 737 (3.1) Total 108 (100) 24.019 (100) Source: Survey data and personal communication from the deputy registrar (7/07/2021) 4.5 Pocket Money for Living Expenses Table 4.5 shows the reported results from the participants concerning pocket money for living expenses. For the purpose of the study, living expenses refers to the necessary items such as food, toiletries, clothing and other essential items for daily functioning in the life of a student. A majority of the participants (65, 60.2%) reported having R1 000–R1 999 of pocket money for living expenses per month. This group of participants reportedly have sufficient monthly pocket money to put them above the maximum cut-off point in terms of national poverty lines. The upper- (UBPL) and lower-bound (LBPL) poverty lines provide a range for understanding poverty levels of households. According to StatsSA (2020), the UBPL in 2020 was R1,268.00, and the LBPL was R840. These participants are thus above both the LBPL and the UBPL, which suggests they are able to afford the cost of food and non-food items that are essential for their health and well-being. Those above the UBPL are assumed to be able to afford the minimum lifestyle desired by most South Africans. The second largest group (19; 17.6%) reported receiving R2 000–R 2999 monthly for living expenses, while 17 (15.7%) reported having R500–R999 available for their monthly living expenses. This means most of these 17 participants fall below the LBPL (R840 in 2020), while some are also below the food poverty line (FPL). According to StatsSA (2020: 3), the food poverty line (FPL) "refers to the amount of money that an individual will need to afford the minimum required daily energy intake" per capita in a month; in 2020 that amount was R585. This is what is referred to as the threshold of absolute deprivation, where this is the amount of money required to purchase the minimum quantity of food by a family to get the necessary needed energy on a daily basis. What was concerning were the four participants (3.7%) who reported receiving only R100– R499 per month for living expenses, meaning they are unable to meet the minimum basic needed items. In national terms, this level of income comes with severe challenges regarding availability and accessibility of food in most households. Thus, these students are exposed or vulnerable to food insecurity. The smallest groups of participants (2, 1.9%; 1, 0.9%, respectively) reported their available pocket money for living expenses in a month to be R3 000–R3 999 and >R4 000. These participants are able to afford a lifestyle that is desired by most South Africans with only a few able to afford this. Table 4.5: Pocket money for living expenses Pocket money for living Frequency expenses (n) Percentage (%) R100 – R499 4 3.7 R500 – R999 17 15.7 R1 000 – R1 999 65 60.2 R2 000 – R2 999 19 17.6 R3 000 – R3 999 2 1.9 >R4 000 1 0.9 Total 108 100.0 Source: Survey data 4.6 Money Spent on Food per Month by Participants A majority of the participants (67, 62.0%) reported that they spend R500–R999 monthly solely on food, while 28 (25.9%) of the participants spend from R1,000–R1,999 on food. This group of are reportedly above the three poverty lines identified by StatsSA (2020) and are presumably able to afford a nutritious and healthy diet conducive to their well-being. A further 12 (11.1%) participants reported spending R100–R499 on food per month, and one (0.9%) participant reported spending R50–R99 on food in a month. The reported amount spent on food by these 13 participants is below the FPL; they can barely afford the amount of food contained in the urban household food basket. According to the Food Price Monitor (2020: 1), the National Agricultural Marketing Council (NAMC) of South Africa reported that the cost of a "28-item urban food basket amounted to R875.95 during the month of January 2020". Table 4.6: Money spent on food per month Money spent on food in a Frequency month (n) Percentage (%) R50 – R99 1 0.9 R100 – R499 12 11.1 R500 – R999 67 62.0 R1 000 – R1 999 28 25.9 Total 108 100.0 Source: Survey data These results raise concerns regarding the dimensions of food security, in particular food accessibility, availability and, most importantly, nutrition. It is highly likely that the quantity and dietary quality of food for students is compromised. Mkhawani et al. (2016) posit that the rising food prices in South Africa pose a serious threat to food security, both at national and household level. Students are a microcosm of our societies and are not immune to those threats which have a negative effect on their health and progress academically. According to Mkhawani et al. (2016:69), "poor households are usually food insecure, because they spend a large fraction of their income on food". The majority (62%) of the participants in the study use a large proportion of their money on food, ranging from R500–R999, and it is highly likely that the quality and quantity of food purchased is reduced, based on high food prices in the market. This section assisted the researcher in getting an understanding whether students or participants are able to utilise or convert the money available for food into valuable functionings. Looking at the results, 87.9% of the participants are spending more than R500 monthly on food, and the question arises about whether it is nutritious food that is able to assist participants is achieving the functioning of being nourished. However, Bonvin and Laruffa (2017) argue that most people in societies are "functioning poorly without being income poor", in line with Balestrino (1996) who said people may face problems in converting their income into valuable functionings. 4.7 Source of Income for Participants The source of income for the participants is presented in Table 4.7. The majority (90, 84.1%) of the participants are funded by the government through NSFAS. Thus, most participants come from households with a combined income below the threshold of R350 000 per annum. Table 4.7: Source of income Source of income Bursary Parent/guardian Other family member Student loan (NSFAS) Employment Total Frequency (n) 6 8 2 90 1 107 Percentage (%) 5.6 7.5 1.9 84.1 0.9 99.1 Source: Survey data According to NSFAS-DHET guidelines (2020), the breakdown of funding per student is as follows: Students staying at university residences are eligible to get a maximum amount of R5 200 for book allowance, the actual cost of accommodation, and lastly the maximum allowance for meals (food allowance) is R15 000, which is paid directly to the students' bank account. This differs from the previous system, where the Financial Aid office would distribute Pick n Pay vouchers to students at an amount determined by the office. The new NSFAS system was an attempt to diversify accessibility and utilisation of food among students. Students are now able to access a variety of options from the market using cash. This system allows students to use agency to expand their food choices – which may include nutritious or junk food. Six (5.6%) participants have bursaries to finance their studies, while eight (7.5%) are financed by their parent or guardian. This is very small proportion of the parents who have the means to finance their children's education. A further two (1.9%) participants have their tuition fees paid by a family member, while one (0.9%) participant is working while studying to finance their studies. This therefore confirms that the majority of the students participating in the study are from a poor socio-economic background, as reported by Letseka (2007), and are vulnerable to food insecurity as they are dependent on the state for the provision of welfare throughout their academic period. 4.8 Students Concentration Levels are Hindered when Hungry Participants responded to a question concerning their concentration levels being hindered as a result of being hungry. This question was raised to get better understanding of whether students are able to concentrate when feeling hungry during the specified times. According to Sabi et al. (2020), food insecurity is believed to have a

"negative impact on the socio-psychological state of the individual and lower his or her self-esteem, actualisation and well-being, based on the assumed adverse effect it has on human physiology and health". Most participants indicated that they are unable to concentrate or focus in class when they are hungry. Table 4.8 shows that 20 (18.5%) participants strongly agreed that their concentration levels are hindered when they are hungry, while 46 (42.6%) agreed with the statement. On the other hand, 17 (15.7%) strongly disagreed, meaning their concentration levels are not hindered when they are hungry, and 25 (23.1%) disagreed. Table 4.8: Students' concentration levels are hindered when hungry Concentration levels Frequency Percentage are hindered when hungry (n) (%) Strongly agree 20 18.5 Agree 46 42.6 Disagree 25 23.1 Strongly disagree 17 15.7 Total 108 100.0 Source: Survey data 4.9 Measuring Food Insecurity Status – the Household Hunger Scale Ballard et al. (2011) state that the Household Hunger Scale (HHS) is designed to represent varying levels of food insecurity while at the same time reflecting three domains perceived as central to the experience of food insecurity cross-culturally: 1) anxiety about household food supply, 2) insufficient quality (including variety, preferences, and social acceptability), and 3) insufficient food supply and intake and the physical consequences. According to Ballard et al. (2011:5), it is important to know that the HHS's primary focus is "on the food quantity dimension of food access and does not measure dietary quality". Table 4.9: Frequencies of occurrence of HHS conditions No. Questions No n (%) Rarely n (%) Yes Sometimes n (%) Often n (%) Σ Q1a Σ Q2a Σ Q3a n (%) Q1 In the past [4 weeks/30 days], was there ever no food to eat of any kind in your house because of lack of resources to get food? 82 (75.9) 14 (13.0) 12 (11.1) 0 (0.0) 26 (24.1) Q2 In the past [4 weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food? 93 (86.1) 5 (4.6) 10 (9.3) 0 (0.0) 15 (13.9) Q3 In the past [4 weeks/30 days], did you or any household go a whole 102 (95.3) 3 (2.8) 2 (1.9) 0 (0.0) 5 (4.6) day and night without eating anything at all because there was not enough food? Table 4.9 shows the frequencies and percentages of occurrences of food insecurity conditions on the HHS. About a quarter (26, 24.1%) of the students reported that they "had no food to eat of any kind in their households because of lack of resources to get food". Of these, 12 (11.1%) students reported that this has occurred 3–10 times, while 14 (13.0%) reported that this has occurred 1–2 times. The great majority (82, 75.9%) reported that they have not experienced this condition of food insecurity in the past 30 days. In terms of going "to sleep at night hungry because there was not enough food", 15 (13.9%) student participants reported this experience. Ten (9.3%) confirmed that this occurred "sometimes" in the past 30 days, while five (4.6%) had experienced this "rarely" (1–2 times) in the past 30 days. In terms of going "a whole day and night without eating anything at all because there was not enough food", this was experienced by five (4.6%) students. Of these, two (1.9%) said it occurred "sometimes", and three (2.8%) experienced it "rarely". The mean HHS score for males (1.15) was higher than that for females (1.06). 4.10 Dietary Diversity Score (24-hour recall) The Dietary Diversity Score (24-hour recall) shows the distribution of foods taken by participants over the previous 24 hours. Cereal and white tubers have the highest contribution at 99.1%. Cereal and tubers are staple foods and a good source of carbohydrates and energy for humans, as they provide nutritional and health benefits (Chandrasekara & Kumar, 2016). Only one participant did not take cereal or white tubers within the 24-hour period. Flesh meat, fish and seafood was eaten by 70 (64.8%) participants, while 53 (49.1%) had eaten 'other vegetables/fruits'. Milk and cheese were consumed by 44 (40.7%) participants, 42 (38.8%) participants ate Vitamin A-rich vegetables/fruits. Eggs were eaten by 23 (21.3%) participants, while 16 (14.8%) participants ate legumes and nuts. Dark green leafy vegetables were eaten by 13 (12%) participants and seven (6.5%) had eaten organ meat. Table 4.10: Dietary recall of diet consumed and not consumed in the past 24 hours Dietary recall based on diet consumed in Yes No past 24 hours n (%) n (%) Cereal, white tubers 107 (99.1) 1 (0.9) Flesh meat, fish, seafood 70 (64.8) 38 (35.2) Other vegetables/fruit 53 (49.1) 55 (50.9) Milk, cheese 44 (40.7) 64 (59.3) Vitamin A-rich vegetables/fruits 42 (38.9) 66 (61.1) Eggs 23 (21.3) 85 (78.7) Legumes, nuts 16 (14.8) 92 (85.2) Dark green leafy vegetables 13 (12.0) 95 (88.0) Organ meat (liver, kidney, heart, or brain) 7 (6.5) 101 (93.5) Source: Survey data Therefore, foods regarded as basic, cheaper, and readily available are widely consumed by students. Shifting from a varied diet rich in micronutrients to one that is derived predominantly from high carbohydrates staples is common response to declines in income (FAO, 2012). This is because most staple foods (e.g. rice, maize, cassava) are much cheaper than fruits, vegetables and animal source foods. However, when staples are eaten on their own or with very small amounts of other foods, the result is a poor quality, monotonous diet that is likely to be nutritionally inadequate in protein, fats, and micronutrients (Thompson 2009), resulting in poor health outcomes (FAO, 2012). In addition, an increase in food prices will cause a decrease in dietary quality, followed by a decrease in quantity if necessary. However, food price spikes can also increase overnutrition. This may be true in cities where street foods are cheap and easily accessible to people. Most street foods are high in starch and fat, but low in protein and micronutrients; this contributes to a burden of food insecurity, and also results in obesity (Doak, 2005). 4.11 Proportionate Distribution of Food Insecurity by Ethnicity of Respondents This section analyses and discusses the distribution of food insecurity according to ethnicity of the respondents. Table 4.11 shows that 75 (69.4%) students reported 'no food insecurity' in their experience; five (6.7%) of these respondents were Coloured, and 70 (93.3%) were black. In terms of 'little food insecurity', 22 (20.4%) participants reported that there were incidences in the past 30 days where they would go to sleep at night hungry because there was not enough food in their place of stay; all 22 respondents were black. Eleven (10.2%) students reported 'moderate food insecurity' in the past 30 days, when they would go a day and night without eating anything at all because there was not enough food; all 11 of those students were black. Table 4.11: Distribution of food insecurity status by ethnicity Ethnicity of the respondents Black n (%) Coloured n (%) Total n (%) y_revised Food_insecurit No food insecurity 70 (68.0) 5 (100) 75 (69.4) Little food insecurity 22 (21.4) 0 (0.0) 22 (20.4) Moderate food insecurity 11 (10.7) 0 (0.0) 11 (10.2) Total 103 (100) 5 (100) 108 (100.0) Source: Survey data Food_insecurity_revised refers to the variable food insecurity status. It was changed based on the deviation from the FANTA methodology when capturing data as explained in Chapter 3, along with the rationale behind the deviation. The researcher then conducted a significance test to investigate whether there is a significant relationship between food insecurity status and ethnicity. Chi-squared analysis showed no significant relationship: $\chi2(2) = 2.307$; $p = 0.316$. The p-value is 0.316, which is above the significance threshold of $p < 0.05$. In the context of this study, ethnicity is a personal conversion factor, which is inherent to the participants (Bonvin & Laruffa, 2017), which has an influence in the conversion of resources into capabilities and valuable functionings. The different disadvantaged social groups may control the same amount of resources but may not be able to attain the same outcomes in terms of their capabilities (Bonvin & Laruffa, 2017). Both black and Coloured students are highly likely to be receiving the same amount of food allowance from NSFAS. However, they have not achieved the same capability of being food secure or well-nourished. 4.12 Proportionate Distribution of Food Insecurity by Gender of the Respondents Table 4.12 illustrates that 40 (74.1%) female residence students reported 'no food insecurity', while 35 male (64.8%) respondents also reported 'no food security'. The researcher conducted a Chi-square test to determine if there is a significant association between these two variables. The results showed no statistically significant association ($p > 0.05$) between food insecurity status and gender: $\chi2 = 2.606$; $p = 0.272$. Table 4.12: Distribution of food insecurity by gender Gender of the respondents Male n (%) Female n (%) Total n (%) Food_insecurity_r evised No food insecurity 35 (64.8) 40 (74.1) 75 (69.4) Little food insecurity 11 (20.4) 11 (20.4) 22 (20.4) Moderate food insecurity 8 (14.8) 3 (5.6) 11 (10.2) Total 54 (50.0) 54 (50.0) 108 (100.0) Source: Survey data Although there is not enough evidence to suggest that females are more food secure than males, the gender differences in 'moderate food insecurity' (see Table 4.12) suggest that males are more vulnerable to food insecurity than females. This can also be supported by the survey responses regarding consumption of dairy products (e.g. milk, yoghurt, amasi). Slightly more female students (51) reported consuming dairy products than male students (48); these are viewed as luxurious food items in the life of students, with good nutritional value (Gropper, Smith & Groff, 2009; Mahon & Haas, 2013). Gender is an internal conversion factor where gender roles between females and males have a significant role in achieving the participants' capability to be food secure or to be well- nourished, based on their social status and the ability to convert resources at their disposal into

capabilities and functionings (Bonvin & Laruffa, 2017). 4.13 Proportionate Distribution of Food Insecurity Status by Province In terms of distribution of food insecurity by province, Eastern Cape (EC) students presented the highest number with food insecurity; this could be supported by the fact that the province is among the poorest in the country and many people migrate to cities like Cape Town to improve their livelihoods and earning potential. Of EC students, 23.0% reported 'little food insecurity', while 11.5% reported 'moderate food insecurity'. This is unsurprising as migration is also one of the major causes of food insecurity . This reflects how students from other provinces bring their own socio-economic issues from home into the institution. Table 4.13: Distribution of food insecurity status by province Food_insecurity_revised Total Province No insecurity n (%) food Little insecurity n (%) food Moderate food insecurity n (%) n (%) Eastern Cape 40 (65.6) 14 (23.0) 7 (11.5) 61 (56.5) Western Cape 13 (72.2) 3 (16.7) 2 (11.1) 18 (16.7) KwaZulu-Natal 9 (81.8) 1 (9.1) 1 (9.1) 11 (10.2) Mpumalanga 7 (87.5) 1 (12.5) 0 (0.0) 8 (7.4) Limpopo 2 (50.0) 1 (25.5) 1 (25.5) 4 (3.7) Gauteng 2 (50.0) 2 (50.0) 0 (0.0) 4 (3.7) North West 1 (100.0) 0 (0.0) 0 (0.0) 1 (0.9) Northern Cape 1 (100.0) 0 (0.0) 0 (0.0) 1 (0.9) 75 (69.4) 22 (20.4) 11 (10.2) 108 (100.0) Source: Survey data Of 18 WC students, three reported 'little food insecurity', and two reported 'moderate food insecurity'. WC has relatively few people living in poverty, compared to other provinces. The 11 KZN participants had two each reporting 'little' and 'moderate food insecurity', respectively. In KZN, more than half of the population is living in poverty. Of Mpumalanga's eight participants, one reported 'little food insecurity'. Mpumalanga is the third poorest province in South Africa. Of Limpopo's four participants, one each reported 'little' and 'moderate food insecurity', respectively. The province has the highest proportion of people living in poverty in South Africa at 78.9%. Gauteng had four participants, and two reported 'little food insecurity'. The NW and NC province participants reported 'no food insecurity'. It must be noted that these sample sizes are very small for most provinces, so these are indicative findings only. In looking at the relationship between the two variables using the Chi-squared ($\chi 2$), the results showed no significant relationship between province and food insecurity: $\chi 2(14) = 7.314$, $p = 0.922$ (i.e. $p > 0.05$). 4.14 Proportionate Distribution of Food Insecurity by NSFAS Funding Table 14.4 shows that 61 (67.0%) NSFAS-funded residence students indicated they had not experienced any food insecurity, while 19 (20.9%) reported 'little food insecurity', and 11 (12.1%) reported 'moderate food insecurity' in the previous 30 days. This suggests the NSFAS funding is sufficient for two-thirds of students receiving it. However, one-third still have insufficient funds to ensure food security. This may be because of sharing their allowances with people back home. Table 4.14: Distribution of food insecurity status by NSFAS NSFAS Funded? Yes n (%) No n (%) Not applicable Total y_revised Food_insecurit No food insecurity 61 (67.0) 12 (85.7) 2 (66.7) 75 (69.4) Little food insecurity 19 (20.9) 2 (14.3) 1 (33.3) 22 (20.4) Moderate food insecurity 11 (12.1) 0 (0.0) 0 (0.0) 11 (10.2) Total 91 (84.3) 14 (13.0) 3 (2.8) 108 (100.0) Source: Survey data There was no significant relationship between food insecurity and NSFAS funding, according to the Chi-square test: $\chi 2(4) = 3.182$, $p = 0.528$ (i.e. $p > 0.05$). According to Robeyns (2005), often for capabilities to be achieved the main inputs are financial resources and economic production or political and institutional practices. In the context of students in universities across South Africa, most rely on NSFAS for financial support as are the majority of the participants in the current study (91, 84.3%). This plays a significant role in providing financial resources to participants and assists in achieving their capability to be well-nourished or food secure. The participants then make use of agency through their freedom to choose their own identified functioning and their capabilities. All NSFAS students have the same amount of financial resources at their disposal but different outcomes in relation to their food security status. This section also gives a clear description of the idea of individual endowments at the disposal of the participants. 4.15 Proportionate Distribution of Food Insecurity by Social Grant History Funding disadvantaged students mostly lies with NSFAS. However, this section looked at the participants' socio-economic background in relation to government support prior to entering university such as being a recipient of any state social grants, including the Foster Care Grant , Child Support Grant and/or Disability Grant . Social grants play a vital role in improving the ability of households to purchase food . However, previous studies have shown no significant influence of social grants on household food security (Waidler & Devereux, 2019), as the grant does not cater for all the household needs. Table 4.15: Distribution of food insecurity by social grants Grant recipient Yes n (%) No n (%) Total n (%) _revised Food_insecurity No food insecurity 32 (44.4) 40 (55.6) 72 (69.2) Little food insecurity 8 (38.1) 13 (61.9) 21 (20.2) Moderate food insecurity 8 (72.7) 3 (27.3) 11 (10.6) Total 48 (46.2) 56 (53.8) 104 (100.0) Source: Survey data Table 4.15 shows food insecurity distribution and recipients' report of having grant aid or not prior to entering university. 'No food insecurity' was experienced by 32 (44.4%) participants who had received grants, and by 40 (55.6%) who did not receive any social grants. Eight (38.1%) participants having previous grants reported 'little food insecurity', with the same number (8, 72.7%) reporting 'moderate food insecurity'. Social grants help to alleviate food insecurity, even if insufficient. A majority of participants in the study (91, 84.3%) are NSFAS recipients, which suggests they are from a disadvantaged background. It is possible that the participants are from families where both parents are working but their combined income is below the NSFAS threshold. The Chi-squared test on the relationship between access to social grants prior entering the university and food insecurity status showed no significant relationship: $\chi 2(2) = 3.759$, $p = 0.153$ (i.e. $p > 0.05$). 4.16 Drastic Measures/Coping Strategies Utilised by Residence Students to Alleviate Food Insecurity In an attempt to assess the factors affecting nutritional well-being of the participants, the participants were asked about 'drastic measures' or other coping strategies they used to obtain money for food; they had to choose options relevant to their different circumstances. Table 4.16 reflects the drastic measures that the participants reported. Table 4.16: Coping strategies of students when running out of money for food Drastic measures/coping strategies Yes No n (%) n (%) Calling on relatives for help with money to buy food 81 (75.0) 23 (21.3) Use another student's card 4 (3.7) 101 (93.5) Stealing money 3 (2.8) 102 (94.4) Stealing food 6 (5.6) 99 (94.3) Performs more than one job as well as studies 15 (13.9) Exchange sexual favours 2 (1.9) None of the above 19 (17.6) Other: Please specify (ask a friend) 3 (2.8) 90 (83.3) 103 (95.4) 86 (79.6) 102 (94.4) Source: Survey data *% based on total number of respondents In the sample, 81 (75.0%) participants reported that they resorted to calling their relatives for help with money to buy food when they ran out, while 15 (13.9%) participants reported that they perform more than one job in addition to studying in order to make means to access food in residence. Six (5.6%) students reported that they would resort to taking food from their residence housemates at times, due to lack of access to food in their rooms, while four (3.7%) participants would opt to use another student's card in the dining hall to access food, when they had exhausted all other options. Three (2.8%) participants would steal money, and three (2.8%) considered asking a friend for food when they ran out of money. Two participants reported the exchange of sexual favours as a coping strategy when they experienced challenges in accessing food. The highest proportion of students resort to calling their relatives for help with money to buy food; this emphasizes the significant role of family ties during stressful times in the life of residence students. It can also be concluded that income/money still remains the major determinant of food accessibility for most residence students. This means that students with no financial support are vulnerable to food insecurity. Bonvin and Laruffa (2017) state that the conversion factor is the most important concept in the capability approach as it provides reasons with a central focus on capabilities and functionings rather than material resources or rights . According to Robeyns (2005), there are different kinds of conversion factors, namely: personal, social and environmental conversion factors . The participants have resorted to employing these conversion factors (see Table 4.16) as a means of achieving the desired capabilities and functionings in an attempt to alleviate food insecurity. 4.17 Proportionate Distribution of Food Insecurity by Drastic Measures/Coping Strategies Table 4.17 shows the coping strategies used by students in relation to food insecurity . Students who resort to calling on relatives for help with money had the highest level of 'no food insecurity' (52, 64.2%), 19 (23.5%) reported having 'little food insecurity', and ten (12.3%) had 'moderate food security'. Some students engage in getting more than one job as well as studying. These constitute 11 (73.3%) reporting 'no food insecurity', three (20.2%) reporting 'little food insecurity', and 15 (14.3%) reporting 'moderate food insecurity'. Some students engage in immoral activities as coping strategies; these activities include stealing food, stealing another student's card, stealing money, and exchanging sexual favours. Table 4.17: Distribution of food insecurity status by coping strategies Food_insecurity _revised No food insecurity n (%) Little food insecurity n (%) Moderate insecurity n (%) food Total n (%) Call on relatives for help with money Yes 52 (64.2) 19 (23.5) 10 (12.3) 81 (77.9) None of the above Yes 17 (16.2) 2 (1.9) 0 (0.0) 19 (18.1) Performs more than one job as well as studies Yes 11 (73.3) 3 (20.0) 1 (6.7) 15 (14.3) Stealing food Yes 3 (50.0) 1 (16.7) 2 (33.3) 6 (5.7) Use another student card Yes 2 (50.0) 1 (25.0) 1 (25.0) 4 (3.8) Stealing money Yes 2 (66.7) 1 (33.3) 0 (0.0) 3 (2.9) Other and please specify (ask a friend) Yes 1 (1.0) 1 (1.0) 1 (1.0) 3 (2.9) Exchange sexual favours Yes 0 (0.0) 2 (1.9) 0 (0.0) 2 (1.9) Source: Survey data 4.18 Monthly Compromises Residence Students Make Due to Running Out of Money Table 4.18 illustrates the items that students are willing to compromise on due to running out of money before the end of the month. Selection of these compromises appears to reflect what is important in the life of a student. A total of 76 (70.4%) students are able to compromise on money for clothes. A quarter of participants (27, 25.0%) reported compromising on food, thereby exposing themselves to food insecurity and adversely affecting their well-being. It is not

clear where the money goes instead of buying food. However, 80 (74.1%) students reported they do not compromise on money for food, which may be due to knowledge and awareness around the importance of food in providing the required daily energy intake needed for the body to function effectively throughout the day. Table 4.18: Items that students compromise on due to running out of money Compromise items Yes No n (%) n (%) Clothes 76 (70.4) 31 (28.7) Social life 61 (56.5) 45 (41.7) Food 27 (25.0) 80 (74.1) Toiletries 24 (22.2) 83 (76.9) Books/stationery 17 (15.7) 90 (83.3) Transport 10 (9.3) 97 (89.8) Not applicable 4 (3.7) 103 (95.4) Source: Survey data *% based on total number of respondents Compromising on their social life was the second most frequent item, endorsed by 61 (56.5%) students. Toiletries would be compromised on by 24 (22.2%) students. Toiletries remain a basic necessity for human beings, and this raises questions about their concerned about their hygiene state and health. Students need toiletries to look good and smell nice among their peers Kumar (2019). Therefore, toiletries are a basic necessity for students living in university residence for socialization among their peers, as well as to create sense of belonging in their community. However, the majority are not willing to sacrifice money for toiletries. Books/stationery would be compromised on by 17 (15.7%) students; this suggests that these are amongst the most important things to students. It is not surprising that transport received the fewest responses; it is expected that residence students will not be spending much money on transport, as they may only do so when going to get groceries. 4.19 Conclusion This chapter presented the quantitative results of the statistical analysis through descriptive statics, frequencies, and Chi-square tests. The results presented for most part of the chapter conformed to findings of previous studies Chapter 5 Presentation of the Qualitative Results 5.1 Introduction This chapter follows the presentation of quantitative results above and the detailed literature review and methodology in previous chapters. This part of the research attempted to address the research question, focusing on the perceptions of students living in university residence at the University of the Western Cape about food insecurity. In line with the methodology process outlined in Chapter 3, the qualitative data collected was analysed using thematic analysis and is presented in the form of themes, illustrated by excerpts. The participants were asked to explain how their eating patterns change during stressful periods due to examinations and social pressures, how media influences their body image, and to state reasons for purchasing fast food. The themes emerging from the participants' responses are listed in Table 5.1. 5.1 Presentation of the Themes Table 5.1: Themes emerging from the data Themes ? Meal frequency and food consumption patterns. ? Overload in academic commitments. ? Unwillingness to cook. ? Awareness about importance of nutrition and junk food ? The use of social media as a reason for low self-esteem and well-being. ? The consumption of caffeine-based drinks and alcohol, and the negative effect on student well-being. Source: Survey responses 5.2.1 Meal frequency and food consumption patterns UNEP (2012) argues that "food consumption patterns vary widely between countries and among different cultures". Deliens et al. (2014) found that students' eating patterns tend to worsen considerably when they are experiencing high levels of stress, and their food choices are strongly influenced towards unhealthy food. Participants described changes in their eating habits during stressful periods caused by social pressures and examinations; the pressure associated with examinations forced students to eat less than the 'standard' meal frequency for an individual (three times a day) (Mattson et al., 2014). However, people have their preferred time to consume food per day, as they wish, or based on food availability. Inconsistency in meal frequency and food consumption was reported by the participants, where they often ate once or twice a day, with some reportedly not eating anything at all throughout the day. Wardle et al. (2000) found an association between stress and appetite, which results in changes in the dietary intake among adults. This literature is validated by the below responses, as participants reported that, during stressful periods, their eating patterns change: "I change from eating three times a day to one or two times a day." "I often do not eat anything during the day." "I eat at most once a day." There were few participants who reported that they consumed three meals a day; the majority ate only once a day as a result of the sustained pressure from examinations time. Therefore, the participants' responses show that, during these periods, they willingly pay attention more to their studies; it is not clear whether the availability of food influenced this. Savige et al. (2007) state that common unhealthy eating patterns among the youth involve skipping a meal (especially breakfast), snacking and consuming fast food. One participant's response clearly indicated that breakfast had been skipped, an unhealthy eating pattern: "I eat twice a day, lunch and supper". These responses imply that most students resort to skipping meals intentionally to pay attention to their studies. This may also indicate a calorie intake gap for these students. There was also a change in the quality of food consumed by participants at pressure times. Some expressed that they consume a lot of food at these times, with clear indications of unhealthy eating habits affecting the quality of their diet: "I eat a lot but, in most cases, it is junk food." "I eat a lot more than usual." "Three times a day with snacks whilst studying." Other participants reported eating less: "I tend to eat less and drink lots of coffee instead." "I usually eat less food than I usually do." Still other participants associated stress with an inconsistency in eating patterns, which sometimes results in the participant not eating at all: "Depends on how stressed I am, sometimes I stress and eat and sometimes I hardly eat. Maybe once a day." "They become inconsistent as I eat when I have an opportunity to do so, once in seven hours." Research conducted by Sajwani et al. (2009) has shown that "college life is also a period during which individuals are for the most part exposed to stress and lack of time, posing a barrier to adoption of healthy practices". The responses above confirm that, during examination periods, students are exposed to stress that results in them adopting unhealthy eating practices. Furthermore, Oliver and Wardle (1998) have shown that, when stress, some people eat less, while others eat more. Some participants reported not eating anything at all throughout the day; this raises concerns that the choice is made based on food being unavailable at the household level. Alternatively, the choice may be a result of other issues, such as not having time to eat or make a meal. The participant may also make this choice due to not have enough to last through the month. In that case, the participant is food insecure based on not having adequate nutritious food to provide the required calories each day. According to Sundaram et al. (2018: 19), "[b]reakfast is the first meal of the day, is predicted to be taken after 7-8 hours of sleep and is mostly skipped by university students". However, based on the participants, it is unclear whether the skipped meal is breakfast, lunch or dinner, since there is an indication of eating once or twice a day. Furthermore, "what this suggests is that changes in food consumption do occur, even among the less affluent, in countries undergoing urbanisation and economic growth" (UNEP, 2012:24). Students are not immune to global food consumption changes, and they place a major burden on their health and well- being. The participants' responses relate to the food utilisation component of food security as well as problems in relation to agency. It is not clear if the participants' food consumption patterns were influenced by personal choice or material conditions. 5.2.2 Overload in academic commitments Reicks et al. (2014) stated that consuming fast food and eating away from home are associated with lower dietary quality and obesity among people. Participants reported inconsistencies regarding meal frequency and food consumption patterns. However, some participants reported that they opted to purchase fast food rather than cook a meal at their residence. Their responses towards their choice for fast food procurement varied; the most dominant cause for that choice seem to be 'overload in academic commitments': "Busy with studies, swamped with school work." Participants expressed a preference for fast food procurement a choice made based on not having time to prepare a cooked meal due to academic commitments, while others were hardly eating at all: "Class timetable doesn't allow time to cook, so I grab ready-made food." "No time to prepare food due to academics." "I usually don't have the time to cook because of school work." "Time, academics and workload consume lots of time." The narratives provided by participants above emphasise the amount of time it takes to prepare a home-cooked meal; the alternatives available are ready-made food or fast food. This means that one of the reasons behind the preference for fast food is convenience; however, questions arise about the quality and nutritive value of the convenience food. This also illustrates how some students make a personal choice to prioritise their academic commitments: "Hardly eat because, I am always at the library". "Lazy to cook or tired from test preparation." "Often too busy to cook and always tired from nursing hours." The procurement of fast food results in many residence students being food insecure, where they are not eating adequately nutritious food; this may have a long-term negative effect cognitively and academically. According to Farahbakhsh et al. (2017), food security is a social determinant of health. Given the responses from the participants, there seems to be a prevalence of food insecurity among UWC residence students, as a result of their preference for fast food over a cooked meal. According to Voevodin (2012), the time and effort invested in preparing food remains the contributing factor that informs food choice or preference. Indeed, Monsivais, Aggerwal & Drewnowski (2014) emphasise that "[l]imited time available for cooking may be one of the barriers to the adoption of more healthy diets". According to Birch (1999: 42) the term "preference refers to a selection of an item over another". Food choice decisions are believed to be complex and multifaceted and can lead to different food behaviours (Sobal & Bisogni, 2009). Overload in academic commitments have led students to make decisions around food preferences, as highlighted above. Due to the complex nature of students' agency around food preference, most have reported purchasing fast food, which exposes them to food insecurity. This section also highlights that agency plays a role in students achieving their functionings; through opportunities, their food choice will inform the achievement of those functionings of being well nourished or food secure. 5.2.3 Unwillingness to cook The choice to purchase fast food as reported by participants has been attributed to many reasons, including unwillingness by residence students to cook.

This may because they are not used to cooking for themselves and perhaps some have never prepared a meal before. According to Hasan et al. (2019), a participatory approach to cooking and eating is believed to be helpful in the consumption of healthy food, while at the same time lowering intake of unhealthy food in children and adults. It is believed that a home-cooked meal contains more nutrients than a meal served in restaurants or fast food outlets. Monsivais, Aggerwal & Drewnowski (2014) reported that "food preparation habits and skills have been associated with healthier dietary intakes". Many responses indicated an unwillingness to cook, whereas living in self-catering university residences requires cooking. However, some participants had strongly negative feelings associated with cooking: "I hate cooking". This hatred for cooking remains an issue to be probed and better understood. Other students said they were too lazy to cook: "Lazy to cook or looking for something quick to eat." "When lazy to cook." "It's cheaper, sometimes I don't have time to cook." "Sometimes I am lazy to cook" According to Venkatapuram (2011), while the CA is viewed as mostly centred around individual agency and freedom, it is also important to note the role of external factors in enhancing an individual's capability to be healthy. In the context of this study, it is clear that external factors, like easy access to cheaper fast food, contribute to an increase in fast food consumption, which is unhealthy for students. For students who have never been taught cooking skills, it is really difficult for them to adjust to the new living arrangements at university residences where they are required to cook for themselves. One participant reported he and his roommate initially agreed to cook together and combine money for groceries, but that arrangement did not last as the roommate always bought takeaways (fast food) when it was his turn to cook because he only knew how to cook eggs and cereal. This caused conflict because the other was not happy with the fact that he was cooking all the time. Thus, lack of cooking skills training contributes to students resorting to fast food, which is not healthy for their well-being. Hence, Hasan et al. (2019) argued for the importance of culinary intervention that has been associated with healthier dietary intake. Interventions like these that could assist residence students by providing cooking skills that could improve their attitudes, perceptions and choices around preparing nutritious home-cooked meals. According to Sen (1987: 36), "a functioning is an achievement, whereas a capability is the ability to achieve. Therefore, functionings are, in a sense, more directly related to living conditions, since they are different aspects of living conditions. While capabilities, in contrast, are notions of freedom, in the positive sense: what real opportunities you have regarding the life you may lead". For residence students to achieve the functioning of becoming well- nourished, they are presented with opportunities (like culinary interventions skills) to realise their capabilities and the freedom to cook, which will enhance their well-being. This is the kind of capability that requires financial resources and for institutions to offer to students, in order to achieve their chosen functionings in residences, which will in turn improve their living conditions. 5.2.4 Lack of prioritisation between home-cooked meals and fast food Soliah, Walter & Jones (2012) discuss the benefits and challenges associated with healthy eating, emphasising the nutritional advantage of home-cooked meals. On the other hand, Falk, Bisogni & Sobal (1996) have shown that "people who live alone often neglect preparing cooked meals because of the effort one has to make in preparing food for one person". Students are not immune to this behaviour as some respondents stated that they would rather choose purchasing fast food due to lack of time: "Because I am always busy, fast food saves time." "Don't have time to make food." "I don't like cooking so I would rather buy something ready-made at the shop." "No time to cook sometimes." "It does not require me to cook, so it saves time." According to Deliens et al. (2014:5), time seems to be an important factor in eating or food practices among students. The students' responses above agree with Deliens et al. (2014); the preparation of food on its own involves a lot of process and time. However, the consequence is that students to take an 'easy way out' in purchasing mostly unhealthy fast food. Students' lack of prioritising home-cooked meals is a result of them trying to save time, and yet there are consequences associated with this choice in relation to their healthy life style. The choice to purchase fast food in line with the responses from participants below is an indication that some students prefer fast food based on cravings and are rewarding themselves after a difficult day: "Cravings and as a reward." "Being lazy to cook and cravings." "I like fries." "I eat a lot of junk food, even skip meals sometimes because of not having time to cook and I consume more of energy drinks." The majority of the participants who made that choice to purchase fast food associated it with laziness to cook at some point in time or certain days at their residences. However, junk food is well known for being low on nutritional value and contains high fat, sugar or salt, associated with health risks that can cause lifestyle diseases and obesity. 5.2.5 Awareness about importance of nutrition and junk food Adam (2016) cited in Syafiqa et al. (2018:138) states that "students' attentiveness of their dietary intake is crucial as it affects not only physical but also the students' mental development". The current study's participants appear to have knowledge and awareness of consuming junk food, and some participants seem to find comfort and pleasure therein: "I tend to consume more junk/luxuries, which comforts me, in the form of chocolates, fizzy drinks, sweets etc." "For pleasure at eating good food." However, some participants reported that their fast food consumption behaviour, especially junk food, is mainly due to stress during the examination period; furthermore, it has become a habit: "I eat a lot of junk; stress eating is habitual." The respondent above refers to consumption of junk food as as "habitual", which clearly indicates that there is frequent consumption of junk food during the examination periods. Sajwani et al. (2009:650) found that non-communicable diseases are "strongly associated with unhealthy lifestyle habits, including inappropriate nutrition, lack of exercises, smoking, alcohol consumption, caffeine overuse and improper sleeping habits". When participants were asked how their eating patterns changed during examination periods, the general responses centre around consuming junk food and the use of energy drinks to stay up, and that energy drinks contain high concentrations of caffeine, which is not good for the body: "I eat a lot of junk food and also using energy drink [Score] to be able to stay up." "They change a lot; I eat a lot of junk food." There seems to be a confirmation of change in eating patterns during examination periods, and students show awareness and knowledge about their consumption of junk food at this time. This raises a lot of concerns around the students' health and their cognitive functioning. Furthermore, Sajwani et al. (2009:650) suggested that "superior knowledge about healthy lifestyle does not necessarily translate into better practices". The participants being university students residing in university residences do have knowledge and are exposed to healthy lifestyles; however, with such knowledge at their disposal, they are still involved in consumption of junk food: "I eat quite a lot and I eat too much junk food and mostly takeaways." "Eat a lot of junk food; I don't cook too often." "I eat a lot, including junk food." "I consume a lot of snacks, almost each and every two hours." According to Wardle et al.'s (2000) study with general practitioners in England, nutritional knowledge is significantly associated with healthy eating. However, among students this is not always the case, as most of the respondents are well aware that consuming a lot of junk food is not associated with healthy eating, yet they persist. Hart and Page (2020) argue that an individual's application of their knowledge and skills towards a balanced healthy diet mostly relies on wider social and environmental factors. Furthermore, Hart and Page (2020: 678) argue that, "if the peer group values unhealthy food practices, then the individual may bow to social pressure and go along with them". It is evident that social pressure and examinations are why the students are not practicing healthy eating, and they use their agency to resort to junk food. It is this agency that leads them to a position where they will fail to achieve their capability to be food secure and well-nourished. Therefore, if capabilities are affected, then the students' functioning is affected as well. 5.2.6 The use of social media as a reason for low self-esteem and well-being Ghatak and Singh (2019) state that esteem (including self-esteem) is the second highest in Maslow's Hierarchy of Needs theory; it is centred around motivation to do better, confidence, and respect for and from others. Furthermore, Sharma and Sahu (2013) reported that social media enhances confidence by providing a sense of freedom and self-identity. However, the study participants reported feeling the other way around, when expressing their reactions to how the media influences their body image. These responses showed where the participants, displayed signs of low self-esteem, while others lacked confidence in their body image, when comparing with the pictures they see on social media: "It influences me in a way that I feel pressured to lose weight by what I see on the media." "Sometimes I feel like my body is bad compared to the ones I see on social media." Although the respondents were not all women, these responses show that media influences people's aspirations about how they want to look. This pressurises women to look in a certain way, and their self-esteem and well-being are also affected: "Media portrays an image of how women need to look, which is lean and skinny, so that affects how I want to look" "Mass media influences the way I carry myself physically and mentally. For example, men and women are portrayed in a certain way, will affect how I look at myself." Deliens et al. (2014: 5) reported that "students felt that body image is related to the socio- cultural ideal image and is, in turn, related to the media advertisement strategies". This quote validates the participants' responses where the media exerts influence on the students' eating behaviour and also affects their self-concept. This can result in food insecurity through their deliberate choice to starve themselves to stay thin or lose weight. Through the responses above, there seemed to be a gendered experience from the participants. The responses above show how women are portrayed as lean and skinny and how this is perceived to communicate a message which affects how the respondents look at themselves. Syafiqa et al. (2018) also reported that fast food consumption among

university students was relatively high and mostly associated with lifestyle trends, where media has caught the eye of consumers, while overlooking the harmful effects associated with consumption of fast food. Based on the responses from the UWC participants, it can be concluded that social media influences the way students view their bodies, and that has an effect on their self-esteem and well-being. If a student's self-esteem and well-being are affected, they will not be able to achieve their capabilities as individuals to be able "to do and to be" the individuals they aspire to be, for instance being a graduate, or being well-nourished. The influence of media on how the students view their bodies pressurises changes in students' behaviour towards food through their agency. This agency has expanded the student's freedom to choose the route of losing weight based on internal factors, which in this case refers to feelings that are created by external factors such as social media. The influence of media on how students view their bodies ultimately has an influence on the student's eating behaviour or attitude towards food. They choose to consume junk food based on convenience, time, and social pressures, and short-term examination pressure. Some of the students tend to study all night and they are 'forced' to choose fast food and snacks, which are not nutritious or good for their body and well-being. 5.2.7 The consumption of caffeine-based drinks and alcohol, and the negative effect on the well-being of students Josephson & Stine (1976) cited in El-Nimr, Bassiouny & Tayel (2019: 155) defined caffeinism "as a syndrome resulting from excessive ingestion of caffeine and characterized primarily by cardiovascular and central nervous system manifestations ". High consumption of caffeinated drinks is also believed to have a negative outcome on an individual's cognitive health. According to Mitchell et al. (2014:136), "caffeine intake varies across different beverages"; however, caffeinated drinks include beverages that contain caffeine such as "carbonated soft drinks, tea, energy drinks, energy shots and water beverages". Pham et al. (2021) suggest that high coffee consumption likely increases the chance of getting dementia. Furthermore, El-Nimr et al. (2019: 159) believe that coffee, tea, and some soft drinks, such as Red Bull, Coca-Cola, Sweet Iced Tea and others, "are well known as nutritional sources of caffeine". The following were responses from participants when asked about what drinks they had throughout the day: "I drank coffee with milk together with sugar." "Reboost energy drink." "Drink [cold drink] nothing added" "Score energy drink." "Coca-Cola." According to Davoren et al. (2015), consumption of alcohol has been highlighted as a major public health concern faced by universities because it is consumed by and affects all age groups. According to Salanta et al. (2017), reduced parental support and changes in lifestyle are believed to be some of the contributing factors that are putting university students at risk of substance abuse. On the other hand, Chu et al. (2016: 2) believes that "university students are at a specific stage to experience more freedom in making personal choices about their health behaviours than earlier or later in life". Consumption of alcohol is one of those choices that students make, and it often results in binge drinking, exposing students to more social problems. Some participants reported alcohol consumption. "I drank Coca-Cola twice, then I had wine and gin in the evening." "Hennessy." The responses in this section show that consumption of caffeine-based drinks and alcohol will likely have negative effects on the well-being of the students, as well as on their achievement. According to WCRF (2018:3) "[s]ugar sweetened beverage (SSB) consumption promotes weight gain and contributes to the rising rates of diet-related NCDs globally ". It is likely, then, that the high consumption of SSBs among residence students has a negative impact on their well-being. Bleich and Vercammen (2018:23) state that there is evidence from several studies that "the presence of caffeine in energy drinks and other caffeinated SSBs in conjunction with large volumes consumed, can lead to neurological and psychological effects associated with high caffeine consumption ". In another study there is reported evidence for an association between frequency of consumption of both cola and energy drinks with physical complaints (e.g. headaches , stomach aches, sleeping problems and low appetite) among boys and girls. In the context of the current study , if students intend to be awake during the night to study, they prefer to do that through consumption of energy drinks, as they believe this helps them stay awake. However, they overlook other health-related consequences associated with this choice. 5.3 Conclusion This chapter presented the qualitative results in relation to the identified research objectives. The qualitative data was subjected to thematic analysis, utilising Tesch (1992)'s eight steps for presenting and analysing gathered data. The chapter integrated literature to support the claims and, in some instances, used the CA framework context in analysing the results presented. The results demonstrated that students have in-depth knowledge of what constitutes good nutrition and junk food through KAP; however, they lack the ability to translate that knowledge into good use. On the other hand, limited or lack of culinary skills contributed to high consumption of junk food among the students. Chapter 6 will present a more detailed discussion of the findings in relation to the literature and to the CA framework. Chapter 6 Discussion of the Findings 6.1 Introduction The main purpose of this mixed-method study was to explore the perceptions and experiences of students' food insecurity in residences at the University of the Western Cape , utilising the Capability Approach framework to understand these perception and experiences. Through the Capability Approach, the researcher gained an understanding of perceived barriers that restrict students' capabilities and functionings, conversion factors, and how students' agency has been enhanced or restricted towards realising their function. Using this approach, the researcher was able to identify different experiences that influenced students' ability to be well-nourished and how their well-being was affected. The following sections in this chapter will present a discussion on the findings presented in Chapters 4 and 5, linking these with literature and the Capability Approach. The discussion of the findings is based on the research objectives of the study formulated in Section 1 .6. 6.2 Perceptions of Students The qualitative data presented in Chapter 5 was collected to answer objective one: exploring students' perceptions about food insecurity. Three qualitative questions were asked of the participants: i) explain how your eating patterns change during stressful periods (examinations, social pressures), ii) how does media influence your body image? and iii) if you do purchase fast food, please explain your reasons why . The responses were grouped into seven themes namely: meal frequency andf food consumption patterns; overload in academic commitments; unwillingness to cook; lack of prioritisation between home-cooked meals and fast food; awareness about importance of nutrition and junk food; the use of social media as a reason for low self-esteem and well-being; the consumption of caffeine-based drinks, alcohol and the negative effect on the well-being of students. The following discussion of the findings from the seven broad themes that emerged from the analysis shows that there indeed are different perceptions of food insecurity among residence students. 6.2.1 Meal frequency and food consumption patterns The results showed that there is inconsistent meal frequency amongst residence students; this has been attributed to high levels of stress that students are subjected to during examination periods and social pressures, as well as their food choices which result in consumption of unhealthy food. Consistent with the finding above, Oliver & Wardle (1998:513) noted that "the majority of young adults perceived their eating patterns to be influenced by stress". A similar trend was found in Sofar, Abd Alla & Hafeez (2019:36), where university students generally skip breakfast due to reasons such as "having no time, not being hungry, not liking breakfast foods, having friends skip breakfast, and breakfast not being available". Kirkpatrick & Tarasuk (2008) found that skipping meals by students was a form of a coping strategy; however, it reduced their food intake and compromised their health and well-being. Students living in self-catering university residences are often disadvantaged compared to their peers residing at home and in catering residences, in relation to food consumption patterns. Lack of time and stress are perceived to be some of the barriers that contribute to inconsistencies regarding meal frequency and food consumption patterns. This was congruent with Sajwani et al. (2009)'s finding that barriers to adoption of healthy eating practices are the result of stress and lack of time to prepare meals . 6.2.2 Overload in academic commitments This study's findings show that food insecurity among residence students is linked to perceived academic overload; this causes students to refrain from eating, while many opt to purchase fast food. Participants said they chose to purchase fast food due to their busy academic schedule. This is supported by previous research conducted by Broton, Weaver and Mai (2018:11), where students reported that they "do not have enough time to eat because of a busy schedule". 6.2.3 Unwillingness to cook The study findings suggested that residence students encountered challenges pertaining to their mandatory daily responsibilities, such as cooking a meal in order to eat. Farmer and Cotter (2021) suggested "that cooking represents human flourishing". For students in self-catering residences, cooking is required, but this daily requirement produced a conflict, highlighting their shift from a home environment. The participants described their negative feelings towards cooking and their unwillingness to cook, while many of them admitted not having the skills to cook. If students are not able to cook for themselves, their health and well-being are compromised by nutrient-poor fast food. They are therefore vulnerable to food insecurity by choice. A number of research studies have focused on university students living off campus and their food preparation behaviours and cooking self-efficacy (Knol et al., 2018), while little is known about the connection between food insecurity and unwillingness to cook. Students from disadvantaged backgrounds have to cook, but those with financial means have the alternative of

purchasing fast food. This was similar to a previous study finding that people who spend most of their time cooking were from low-income households (Adam et al., 2015; Begley et al., 2019). 6.2.4 Lack of prioritisation between home-cooked meals or fast food Previous research on cooking at home has been linked with several positive outcomes related to health and well-being (Mills et al., 2016; Mills et al., 2017; Mills et al., 2020). However, the current results highlighted that laziness, cravings, time and academic commitments were perceived barriers to students preparing home-cooked meals. Research that focused on cooking and the perceptions around home-cooked meals highlighted barriers such as time and money constraints, lack of energy to cook, past cooking failures, perceived lack of enjoyment, and tiredness (Farmer & Cotter, 2021; Mills et al., 2017; Wolfson et al., 2016). Students' preference for fast food was based on convenience; it reveals that accessibility to food based on financial means is not a problem for some of these participants. 6.2.5 Awareness about importance of nutrition and junk food Previous research on knowledge and awareness amongst teenagers about the unhealthy components of junk food revealed that teenagers had a good knowledge about the dangers of junk food consumption, but were too busy to put the knowledge into practice (Gopal et al., 2012; Story & Resnick, 2000). Due to examinations and social pressures amongst participants, and the fact that junk food is readily available, students are likely to ignore the warnings, despite their knowledge of the harmful effects associated with junk food. Sapkota and Neupane (2017:151) defined junk food as food that is energy dense containing "high amounts of refined sugar, white flour, trans-fat, polyunsaturated fat, salt, [and] numerous additives"; however, consumption of junk food has been a norm globally. Students in the current study reported their junk food consumption was influenced by pleasure, time and comfort. However, the participants did not show much of the expected negative impact on their health and well-being; their perceived stress had been a major influence towards consumption of junk food. 6.2.6 The use of social media as a reason for low self-esteem and well-being The use of social media is associated with both positive and negative impact in people's lives and particularly an individual's self-esteem (Jan, Soomro & Ahmad, 2017); the current study findings support this. The participants reported that they felt they had to lose weight when comparing themselves to images on social media of people who appeared to be living a healthy lifestyle, while others felt bad, and the images affected how they looked at themselves. Some students were motivated towards a healthy lifestyle based on content displayed on social media, while others' confidence levels decreased. 6.2.7 The consumption of caffeine-based drinks, alcohol and the negative effect on students' well-being. Consumption of caffeine-based drinks (including energy drinks) among students in HEIs globally has been highly prevalent; it is associated with a variety of reasons ranging from the need for energy when driving, when studying or faced with major projects, improving concentration, and increasing motivation to work (Maqsood et al., 2020). In the current study, students reported consuming caffeine-based drinks to stay awake and focus on studying for assessments. The findings are consistent with Maqsood et al. (2020:48), who suggested that "caffeine helps students to work over long periods of time, makes them feel less sleepy after having caffeine". Previous research has identified side effects associated with caffeine, including depression, loss of sleep, bone loss, irritability and signs of aggressiveness (Botella & Parra, 2003; Mahan & Escott-Stump, 2008; Schardt, 2015). As this study's participants consumed caffeine drinks in an attempt to stay awake at night, this suggests that these side effects would also have a negative impact on these students' well-being. 6.3 Experiences of Students The quantitative data reported in Chapter 4 were collected to answer objective two: describing the experiences of residence students in relation to food insecurity; this data was derived from the questionnaire. This section aimed at understanding the participants' level of awareness and for them to describe their experiences and perceptions of the food insecurity challenges they encountered during their time at UWC. The participants provided diverse views and insightful experience regarding the topic of inquiry, including critically protective family ties that mitigate the challenges they are exposed to as a result of food insecurity. The data from the sample suggests that there is prevalence of food insecurity among the students living in UWC residences. About a quarter said they had experienced no available food at least once a month, while about 14% had gone to sleep hungry, and 4.6% had gone 24 hours without food. Previous research studies conducted in South Africa show the prevalence of food insecurity in HEIs ranging from 11%–38% (Rudolph et al., 2018). This prevalence is lower than some US universities; the University of California reported 57%, while Western Oregon University reported 59% (Dubick et al., 2016; Goldrick-Rab et al., 2018). As mentioned in the literature review, the prevalence of food insecurity in HEIs in South Africa tends to be higher compared to the reported 15.8% at household level (StatsSA, 2019). 6.3.1 Demographic profile of the sample and racial profile of UWC residences The demographic characteristics of the sample showed that 95% of the UWC residence participants were black, while 5% were Coloured. About one-third of black participants had reportedly experienced 'little' or 'moderate food insecurity' during the past 30 days; no Coloured students reported food insecurity. This coincides with research studies conducted on racial inequality in South Africa showing that the majority of black people experience unequal income distribution and poverty (Van der Berg, 2010). Black students coming from disadvantaged backgrounds will experience more food insecurity, based on disparities in income and financial challenges limiting their access to food. 6.3.2 Measuring food insecurity status The current study used the Household Hunger Scale and the Dietary Diversity Score to understand students' experiences of food insecurity at the UWC residences. The study made use of SPSS to capture, analyse and present the data and also allowed the different variables to be compared with food insecurity status. 6.3.2.1 Food insecurity by ethnicity The data analysis revealed no significant differences between food insecurity status and ethnicity. However, as mentioned above, 22 (21.4%) and 11 (10.7%) black residence students experienced 'little' and 'moderate food insecurity', respectively. This means that they ran out of food in their household at least once in the previous 30 days ('little food insecurity') or they would sleep at night hungry ('moderate food insecurity'). Kassier & Veldman (2013) contend that the rapid increase in university enrolments, especially of students from disadvantaged communities, means that food insecurity has intensified in South African universities. The finding is also supported by Devereux (2018) who argued that race remains "the strongest predictor of food insecurity among students due to the legacy of apartheid". UWC residence students are no exception as these findings show that black African students are food insecure compared to Coloured students. However, the low participant numbers of Coloured students make this hard to interpret. 6.3.2.2 Food insecurity by gender In previous research, gender has been believed to be a fundamental determinant of food insecurity, particularly in terms of the gender-differentiated social roles around preparation and consumption of food (Dodson, Chiweza & Riley, 2012). The sample for this study reflects a 50/50 gender representation based on the sampling strategy for this study. No occurrence of food insecurity in residences was reported by 75 (69.4%) students (35 male; 40 female). Eleven males and eleven females reported 'little food insecurity', while eight (14.8%) males and three (5.6%) females reported 'moderate food insecurity'. There was, however, no statistically significant relationship between gender and food insecurity status of the students living in university residences. These findings were not consistent with previous research conducted by Maroto et al. (2015), which showed that female students (58%) are at a slightly higher probability of being food secure compared to male students (53%). The fact that slightly more female students in this study reported consuming dairy products, shows that they are in a better position to access food that is rich in nutrients compared to their male counterparts. 6.3.2.3 Food insecurity by province The study investigated food insecurity status of the participants by province of birth in line with the understanding that migration is one of the causes of food insecurity across households, nationally and globally. In the current study, the students are regarded as internal migrants from other cities and rural areas, who came to UWC to find better education to improve their livelihoods. A previous study conducted by Crush (2012: 29) on internal migrants reported that "dietary diversity was found to be poorer amongst internal migrants and that was an indication that migration may have improved food access but did not guarantee that food shortages will not occur". However, data analysis found no significant relationships between food insecurity status and province of birth. Although the South African provinces have different rates of food insecurity, this was only partially reflected in the data. This may be due to the very low numbers of participants coming from some provinces. The student participants most affected by food insecurity came from the Eastern Cape. This finding is supported by Letseka (2007). who argues that most students in South African universities come from previously disadvantaged backgrounds. The findings support the existence of what is known as urban food insecurity, which also affects students, and Battersby (2011) suggests a failure in the market and formal safety nets as reasons for its existence. However, based on the findings and the sample, the respective findings cannot be generalised to the population of each entire province. 6.3.2.4 Food insecurity by NSFAS The National Students Financial Aid Scheme was set up by government in South Africa to assist students from disadvantaged backgrounds with financing their

tertiary studies (Kaiser et al., 2015). The study aimed to look at students funded by NSFAS, and the relationship between NSFAS and participants' food insecurity status. The majority of the students funded by NSFAS reported no food insecurity in their households. This may be because students are getting enough food allowance to afford food, or perhaps the students have additional financial support from family members, as indicated in the coping strategies by a majority of the students; lastly, some of the students perform more than one job as well as study. Students on NSFAS are already exposed to food insecurity on the basis of their financial status (Munro et al., 2013). Sabi et al. (2020) also support the idea that funding plays a pivotal role in determining students' food security status in HEIs in South Africa. However, "inefficiency and poor coordination of NSFAS results in delays in disbursement of funds" and allowances to students (Dullah Omar institute, 2020). In addition, some disadvantaged students on NSFAS end up sharing their allowances with their families back home; this increases their vulnerability to food insecurity on campus. Crush (2012:28) notes that "a migrant in the city may sacrifice their own food security in order to remit and ensure that rural relatives have enough to eat". In conclusion, food-insecure students are mostly NSFAS beneficiaries, based on their socio- economic background, and who are from impoverished families (Sabi, 2019). 6.3.2.5 Food insecurity by social grants Social grants and NSFAS are examples of cash transfers that employ the targeting approach towards provision of welfare to the people of South Africa and the disadvantaged students in institutions of higher learning (NSFAS, 2020; Sumarto & Suryahardi, 1999). The study findings show that fewer than half of student participants have been recipients of social grants prior to entering UWC. Both social grant recipients and non-social grant recipients reported vulnerability to food insecurity to a certain degree. The Chi-square analysis showed that there is no statistically significant relationship between access to social grants prior to entering university and food insecurity status. 6.3.2.6 Food insecurity by coping strategies Households respond differently when it comes to providing safety nets in responding to food insecurity (Gupta et al., 2015). The findings concerning coping strategies displayed a sense of family responsibility from family members who look after one another in times of need, especially when students are running out of money for food. These kinship networks are an indication of a strong sense of family cohesion and traditional family bonds (Crush, 2012). This also suggests that accessibility to food is not students' main issue, as participants know which resources to tap into when running out of resources for food. Ellis (2000:13) emphasised that "coping strategies are invoked following a decline in normal sources of food and these are regarded as involuntary responses to disaster or unanticipated failure in major sources of survival". This was also reflected in the coping strategies reported in the study findings, where some of the students resorted to stealing food (6, 5.6%), stealing money (3, 2.8%) and exchanging sexual favours (2, 1.9%). The findings also reveal how some students (15, 13.9%) perform more than one job while studying in an attempt to cope when running out of food. This finding also shows that financial challenges are one of the key issues exposing students to food insecurity. 6.4 Dietary Diversity Recall The Dietary Diversity Score showed the range of foods eaten by the residence students. As expected, cereals and white tubers (107, 99.1%) were consumed by almost all students, followed by flesh meat, fish, and seafood (70, 64.8%) and other vegetables/fruit (53, 49.1%). These findings suggest that students are not consuming diversified food that is full of nutrients which may be associated with rising food prices that results in students purchasing cheaper foods that are mostly staple foods. Food-insecure students may resort to purchasing cheaper and mostly processed foods with the aim of eating more food instead of nutrient-dense food (Patton-Lopez et al., 2014). Concerning the wide consumption of cereal and white tubers, is a clear indication that students consume staple foods such as cereal and bread most of the time, probably based on convenience. Devereux & Waidler (2017) argue that "rising prices of basic food items, also reduce dietary diversity in poor households". 6.5 Students' Monthly Compromises Due to Running out of Money for Food In addition to investigating students' coping strategies when running out of food, the study also explored what other things students are willing to compromise on in this situation. The findings revealed that over two-thirds (76, 70.4%) of students would compromise on their clothing expenditure. This is consistent with Jaffrays (2018), who found that teens reportedly chose to buy food more than spending money on clothes. Just over half (61, 56.5%) the student participants are willing to compromise on their social life. However, a small cohort (27, 25.0%) of students indicated that they would rather compromise on the money for food, which is concerning for their potential vulnerability to food insecurity. Under a quarter (24, 22.0%) of the students reported to be willing to compromise on toiletries when running out of money for food; this finding shows the extent of students' vulnerability to food insecurity as this choice compromises their health and well- being. A small cohort (17, 15.7%) of students will compromise on books/stationery if short of food; this suggests severe food insecurity in university residences if students are willing to compromise on obtaining academic materials. Only a few (10, 9.3%) students would compromise on transport; this finding was expected since transport is only essential for students to go the markets. 6.6 The Capability Approach 6.6.1 Findings on capabilities Robeyns (2005) argues that a capability refers to one's freedom to choose between different ways of living, meaning the opportunities that an individual can use in one way or another to achieve functionings. Learning about cooking and good nutrition can improve residence students' to be food secure and well nourished by using the knowledge, skills and change behaviour towards healthy food and good nutrition. For students to achieve this, they must obtain cooking skills and expand their knowledge about nutrition; this will motivate them to prioritise home-cooked meals over consuming fast food that is unhealthy for their well-being. The study findings showed students' unwillingness to cook and also the lack of opportunities available for students to achieve their functionings as they had not been presented with opportunities to realise their capabilities. The findings also highlight the choices that students are confronted with concerning home-cooked meals and fast food; freedom of choice resulted in many students choosing fast food that is detrimental to their health and well-being. Culinary skills interventions will be instrumental in allowing the students to make informed choices about food that is essential for their health and well-being. The study further showed that overload in academic commitment was perceived as a challenge influencing students' choice of fast food; students' capability to concentrate in class when hungry was also affected. This, therefore, meant this capability was not achieved. A majority of the students in the study reflected the capability to preserve their transport money when running out of food, knowing the importance of being able to travel to the markets to purchase food. However, the findings revealed that students' capability to be healthy has not been achieved, based on students' unwillingness to cook, and this resulted in increasing the odds of fast food consumption in the residence community of UWC. 6.6.2 Findings on functionings A functioning, according to Sen (2003), refers to a person's achievement: what one becomes or does. The residence students had a variety of capabilities that they needed in order to achieve their desired functioning. Some functionings to be achieved required knowledge, skills, access to resources and financial literacy. The findings in the study suggest that lack of income, lack of timeous access to NSFAS food allowance, and lack of knowledge and awareness had a negative impact on students from disadvantaged backgrounds in achieving their functionings. 6.6.3 Findings on agency/choice Agency refers to the individual's ability to pursue their valued goals or activities, whereas empowerment focuses on empowering people with the ability to realise the functionings they value most in life for their well-being. This, therefore, means that if students are empowered, their agency will be enhanced to successfully achieve their desired well-being (Drydyk, 2008). Such empowerment includes cooking skills and getting nutritional information from dieticians. The study findings revealed both internal and external limitations among students that influenced their choice to purchase fast food, thus negatively impacting on availability of nutritious food. The findings in the study revealed that students did not use their capability of knowledge of the importance of good nutrition to use their agency on behalf of the valued goal to achieve the functioning of being healthy and food secure. It is believed that knowledge and awareness did not translate into practice, as the study revealed that students chose junk food regardless of their extensive knowledge and awareness. This suggests their agency was compromised or restricted. Sen's concept of agency is governed by four conditions: action, reason orientation and deliberation, self-determination, as well as an impact on the world (Conradie, 2013; Crocker & Robeyns, 2010; Ikebuaku, 2022). The current findings revealed some students' self- esteem to have been negatively affected by social media, which also impacts on their self- determination. This shows how residence students' agency may have been negatively affected, such that they are at a disadvantage in terms of their ability to pursue their valued goals of being food secure or well-nourished. 6.6.4 Findings on conversion factors Hatakka, Thapa & Sæbø (2016) said that, in the Capability Approach, conversion factors are believed to influence the relationship that exists between capabilities and functionings. For Robeyns (2011), "all conversion factors influence how a person can be or is free to convert the characteristics of the resources into a functioning, yet the sources of these factors may differ". Conversion factors can be classified as: personal, social, and environmental; these will be discussed below. 6.6.4.1 Personal conversion factors Personal conversion factors are "internal to the person, such as metabolism, physical condition, sex, reading skills, or intelligence" (Robeyns, 2011); these personal characteristics affect how a person is able to convert the features of a commodity into a functioning. Personal conversion factors in this study included the students' negative attitudes towards cooking and fast food. In terms of income, the majority of the students were on NSFAS and

some on a bursary, while only one was employed. Regarding gender, the results revealed that females were slightly more food secure than the male participants. This was based

on the reported results that slightly more female than male students consumed expensive and nutrient-rich dairy products in their residence. In addition, female students had a slightly greater capability to cook a home meal, based on perceived gender roles in society regarding cooking. The study findings revealed that personal conversion factors outlined above hindered the freedom to achieve students' functionings; they influenced how the students' capabilities could be translated into achieved functionings. In addition, the findings mainly highlighted the students' reported attitude and behaviour towards realising their identified functioning. However, the findings in section 5.2.6 highlighted the personal conversion factor focused on the students' mental alertness or mental state. 6.6.4.2 Social conversion factors For Conradie (2013), social issues like race, culture, and class can be regarded as social conversion factors . The research findings regarding social beliefs revealed a strong sense of family support, where students reached out to their relatives when they ran out of money for food. In addition, the socio-economic background of students forced some of them to send some of their food allowance to families back home as a result of socio-economic challenges there; this resulted in the students' capabilities being hindered, preventing them from realising their functioning of being food secure. Increasing prices of food from the market also hindered achieving this functioning. The study results revealed that almost half (48, 46.2%) of the students had received social grants prior to entering university; these students were part of the welfare system (and continue to be, with NSFAS). This, then, requires the institution to develop a food security policy that will provide a safety net for the students affected by food insecurity, as their socio-economic background shows their vulnerability to the phenomenon. 6.6.4.3 Environmental conversion factors Environmental conversion factors include infrastructure limitations, particularly focusing on vendors selling food on campus for students. Access to nutritious food around campus remains difficult, as there are no shops selling nutrient-rich food; most sell fast food such as fries. Due to these limitations, most students reportedly consume a lot of takeaways. The study indicated that most students retain their transport money when running out of food; it is therefore believed that the money is mostly used for transport to the markets. The findings concerning purchasing of fast foods highlight the unstable and unreliable food supply available on campus that is predominantly unhealthy and restricts students from having diverse nutritious meals at all times on campus. Lack of access to food allowances on time is another issue that prevents students achieving their food security functioning. The results of the study concerning the environmental conversion factors do not give a clear picture of how students used these environmental factors to enhance their capabilities and functionings. 6.7 Conclusion This chapter discussed the findings in relation to the literature and the Capability Approach , paying attention to the perceptions and experiences of UWC residence students regarding food insecurity. Most of the findings were consistent with the literature that speaks about students' perceptions and experiences regarding this phenomenon. The complex nature of the Capability Approach provided helpful insight concerning the challenges that restrict students' capabilities and prevent them from achieving certain functionings. Based on the study findings and the literature, it seems clear that more work is needed at HEIs to combat food insecurity and provide a safety net for disadvantaged students to be able to thrive well academically and achieve their capabilities and functionings, such as being well-nourished and graduating. Chapter 7 Summary, Recommendations and Conclusion 7.1 Introduction The previous chapters discussed the findings of the research. The main aim of this chapter is to summarise the findings , reach general conclusions and provide recommendations for future research. 7.2 Summary of the Findings The main aim of this research project was to explore the perceptions and experiences of UWC residence students' food insecurity, and to provide recommendations to policy-makers and student support services on how to assist disadvantaged students dealing with food insecurity. The central research question for the study was: To what extent does food insecurity have an effect on student well-being? The sub-research question was as follows: What are the students' perceptions and experiences in relation to food insecurity? Chapter 4 presented and interpreted the quantitative results, integrated with literature, to draw meaningful insights from the data in support of the results. The SPSS analysis yielded descriptive statistics as well as Chi-square tests to assess relationships between the identified variables for significance. The fundamental research assumption of the study was: that students living in campus residences, who were not receiving food vouchers from NSFAS, were food insecure. The study showed that even about one-third of residence students receiving food vouchers from NSFAS have only 'little' or 'moderate food insecurity'. Students with no NSFAS funding had a lower rate (14%) of food insecurity; however, the numbers are low, and may not indicate the true picture of residence food insecurity. The qualitative results provide more information in this regard. The results were validated by the existing literature which was integrated in the presentation and discussion of the findings in Chapters 4 and 5, and further discussed in Chapter 6. Part of the method utilised by this study deviated from the original FANTA methodology used in previous studies on this phenomenon (e.g. Van den Berg & Raubenheimer, 2015). These authors found a slightly higher level of food insecurity in their student sample than in the surrounding population (Van den Berg & Raubenheimer, 2015). However, the current study found the level of food insecurity was relatively low in the sample, as two-thirds (69%) of the students surveyed reported being food secure, and no student claimed to have suffered severe food insecurity. In terms of demographics, 95% of the participants were black, while 5% were Coloured; about one-third of the black students reported some level of food insecurity during the previous 30 days . This reflects the racial inequality in South Africa, where most black people have experienced unequal income distribution and poverty (Van der Berg, 2010); therefore, black students from disadvantaged backgrounds are likely to experience greater food insecurity on campus. The study findings revealed only minimal differences in experiences of food insecurity between female and male UWC residence students. These findings are not in unison with the findings discussed in the literature (Croson & Gneezy, 2009; Sraboni et al., 2014; Wardle et al., 2004), which argued that women are more food secure and able to maintain a healthy lifestyle compared to men. This study's results showed no positive relationship between gender and food insecurity. However, more (14.8%) male students reported experiencing 'moderate food insecurity', while only 5.6% of female students reported experiencing 'moderate food insecurity' in their UWC residences over the previous month. This finding agrees with the literature that women are believed to be more food secure, although the numbers of students are small (Sraboni et al., 2014). The different experiences of students have also highlighted the challenges students face in achieving their capabilities and functionings. However, students' coping strategies revealed the importance of their sense of belonging through family ties. Chapter 5 focused on the presentation of qualitative data; through thematic analysis, themes were presented with relevant quotes from the participants to support the findings and were integrated with literature to validate the findings. Seven themes emerged from the analysis: meal frequency and food consumption patterns; overload in academic commitments; unwillingness to cook; lack of prioritisation between home-cooked meals or fast food; the use of social media as a reason for low self-esteem and well-being; the consumption of caffeine- based drinks, alcohol, and the negative effect on the well-being of students. The students' perceptions in relation to food insecurity showed inconsistency regarding meal frequency and food consumptions patterns, perceived lack of time, high levels of stress, overload in academic commitments, and unwillingness to cook. The participants' awareness and correct knowledge about good nutrition and junk food was insignificant, as the findings revealed that the high consumption of junk food was influenced by factors such as pleasure, time and comfort. However, students displayed a laziness and unwillingness to cook in their residence. Their attitudes and behaviour towards cooking led to unhealthy practices, such as purchasing of fast food. Kwol et al. (2020) believed that "knowledge positively influences an individual's attitude , and in turn influences practices or behaviour", as per the KAP model . The use of social media revealed that, apart from food needs, students were impelled to address other needs such as self-esteem (McLeod , 2018). However, the findings also revealed that some students ' self-esteem was negatively affected by social media content. Two factors were identified by participants as associated with consumption of caffeine-based drinks: being awake at night to prepare for assessments and the energy to sustain them during those periods. However, caffeine consumption is associated with side effects such as depression, loss of sleep, bone loss, irritability, and signs of aggressiveness (Botella & Parra, 2003; Mahan & Escott- Stump, 2008; Schardt, 2015), thus students' well-being is negatively affected by regular consumption of caffeine-based drinks. 7.3 Limitations of the Study This study had some limitations encountered while conducting of the study. The results of the current study may not be generalised to other institutional settings, partly due to the demographic characteristics in terms of race of the residence participants; this would not necessarily be the same as other institutions. Another limitation was the sample size and composition that was utilised in the study. The sample excluded first-year residence students at UWC, as well as students staying in private residences or home. The residence inclusion criteria for UWC students are also different from other HEIs, preventing generalising the results. In addition, UWC may have students from different socio-economic circumstances compared to other institutions, and the faculty enrolment pattern may also be different. The research made use of mixed-research methodology which was mostly dominated by quantitative methods. This missed the opportunity to

obtain more in-depth perceptions of the students' food insecurity which could have been achieved through focus groups. This limitation was a result of the 2020 gathering limitations due to Covid-19. There is also limited literature focusing on food insecurity of students living in university residences in South Africa. Lastly, the researcher was not able to reach a substantial number of participants from other races, as the UWC residence students are predominantly black. 7.4 Implications of the Study The current study employed a sequential explanatory research design that allowed the researcher to have alternative ways of ensuring that the purpose of this research was achieved. A key finding emerging from this research was the need to formulate a food security policy for UWC students, which can underpin intervention programmes aiming to address food insecurity. The study thus has implications for various stakeholders within higher education. These interventions require effort and commitment across various faculties, dieticians, academics, and the Centre of Excellence in Food Security . HEIs, at faculty level, should strengthen their approach to eradicating food insecurity through intervention programmes research that provides a critical mass of research to understand the phenomenon from the different faculties' perspectives and also find ways of sustaining those programmes. HEIs should also consider students' perceptions and experiences concerning the food products they sell to students and the implications for the students' health and well-being. The study findings have shown that there is a need for HEIs to have shops or vendors that provide nutritious food that is student friendly and affordable, and also to re-visit the issue of self- catering residences. Lack of diversified food on campus contributes to the challenge of students being exposed to unhealthy food. 7.5 Recommendations for Future Research The findings from this study have shown a significant potential to make a major contribution to the existing literature on food insecurity, food security and the Capability Approach. More studies of this nature are needed at other HEIs in South Africa to be able to generalise the findings nationally. Further studies may help to better understand the link between food insecurity and migration of students across the country, especially in institutions situated in big metropolitan areas of South Africa. The researcher also recommends that future research should consider food insecurity and the role of religion (Islam) and availability of halal food on university campuses. At UWC, there needs to be a coordinated approach led by the Centre of Excellence in Food Security , DVC SDS, Dietetics and Nutrition, deans of various faculties, and student leadership (SRC) to develop a food security policy for UWC students. This will require the stakeholders identified to take the process forward and ensure active participation of student leaders and the students at large. A food security policy should be in place in order to guide the intervention process and find a sustainable approach towards this complex phenomenon and to eliminate the stigma attached to food insecurity, also known as hidden hunger (Mogatosi, 2016). The intervention programme needs to be monitored and evaluated to ensure its sustainability. It is also recommended to develop a comprehensive food security policy for HEI students across South Africa , led by government through DHET, and including the private sector, to assist in eradicating food insecurity. Most students at HEIs come from disadvantaged backgrounds, and universities need to put measures in place to provide for these students. The faculty of CHS through the Dietetics and Nutrition department should make provision for second- and final-year students as part of their field practicum to create programmes aimed at teaching residence students about good nutrition and food choices, and the preparation of healthy meals. Future comparative studies should be conducted focusing on getting a better understanding of students' choice and decision-making regarding junk and nutritious food. In addition, the Centre of Excellence should work together with other faculties conducting research around this phenomenon to eliminate repetition of studies around the topic and to create awareness around completed research projects concerning food insecurity for UWC students. The findings of those research projects could be presented at webinars. Administrative assistants working at food distribution centres or food banks around HEI campuses should be trained to better understand the sensitive issues around stigmatisation, dignity and worth of food-insecure students. At UWC, there is a need to decentralise the existing UWC food security programme that is being managed by the office of the DVC SDS; this should be centralised in faculties to include disadvantaged students who shy away from seeking help based on the stigma, ethics of care and socio-economic realities around the issue of food on campus. This is a more sustainable approach that aims to address food insecurity across the institution by creating more access to the most vulnerable students through faculties; this inclusive participation will need faculties to have qualified personnel in each faculty. 7.6 Conclusion The results of the study have contributed to the body of knowledge on food security in general , on students' functionings and capabilities, and their behaviour and perceptions around their choices of food. The study has also provided meaningful contribution to the methodology and the higher education sector, particularly focusing on the well-being and the development of students living in university residences. Food insecurity is a major issue in many campuses across the country and globally, as it has affected many students and contributed to university drop-out. The study results highlighted the different experiences of students, such as the utilisation component of the dimensions of food security, where students' food choices revealed the challenges associated with knowledge and awareness practices (KAP). Poor student choices result in lack of appropriate utilisation of food, which translated to lack of stability to food. This then results in some students not achieving their desired functionings and capabilities. Food insecurity is a complex phenomenon that necessitates the development of a food security policy at UWC and the higher education sector in South Africa to combat food insecurity and guide the implementation of existing food security programmes and for sustainability. The study results are important as they highlight the urgent need to address food insecurity in university residences.