# CHAPTER 4

# INTERPRETATION OF RESULTS

## 4.1 Introduction

This chapter interprets the results of the data gathered from the questionnaires administered to first-year students in the residences of two HEIs in the Cape Town Metropole area. This study sought to:

* Investigate the food consumption patterns of first-year students living at residence facilities of HEIs in the Cape Town Metropole;
* Identify the factors that cause a change in consumption patterns of first-year students living at residence facilities of HEIs in the Cape Town Metropole; and
* Recommend a balanced diet for healthy living at residence facilities of HEIs based on the findings.

The analysis of results starts with presenting the univariate analysis of demographics to understand the sample. This is followed by a univariate analysis of food availability, food access and frequency of consumption. Furthermore, a summary of statistics in relation to food diversity is presented. The chapter illustrates the patterns of food consumption in a graphical format. The graphical medians of food patterns are followed by logistic regression analysis. The regression first looks at what factors predict a change in food patterns and what factors determine food diversity. Food consumption pattern issues raised by the results will be accordingly addressed in the interpretation of results section. The section will first present the interpretation of results from the demographical perspectives.

## 4.2 Profile of the respondents

This study surveyed 150 respondents (students) from two HEIs in the Cape Town Metropole area. The socio-demographic characteristics of respondents are depicted in Table 4.1, which represents the univariate analysis of gender, age, ethnicity, and monthly allowance of the study sample.

Table 4.1: Demographics of respondents (N=150)

|  |  |  |
| --- | --- | --- |
| **Item** | **Frequency** | **Percent** |
| Gender | Male | 55 | 36.7 |
| Female | 95 | 63.3 |
| Total | 150 | 100.0 |
| Age | 18-21 years | 74 | 49.3 |
| 22-25 years | 67 | 44.7 |
| 26-29 years | 6 | 4.0 |
| 30 and above | 3 | 2.0 |
| Total | 150 | 100.0 |
| Ethnicity | Black | 129 | 86.0 |
| White | 9 | 6.0 |
| Indian | 3 | 2.0 |
| Coloured | 8 | 5.3 |
| Other | 1 | .7 |
| Total | 150 | 100.0 |
| Monthly food allowance |
| Allowance | <R500 | 5 | 3.3 |
| R501-R1000 | 35 | 23.3 |
| R1001-R1500 | 93 | 62.0 |
| R1501-R2000 | 12 | 8.0 |
| >R2001 | 5 | 3.3 |
| Total | 150 | 100.0 |

Females dominated the study as they made up 63% of the sample. The majority of this study’s sample was 25 years old (45%) and younger (49%). Black Africans were the majority of respondents in this study’s sample (86%). This sample showed that they mostly (62%) receive an allowance of between R1 001 and R1 500.

## 4.3 Food availability, access, and frequency of consumption

Alakaam et al. (2015:9) indicate that once students gain their independence, they are likely to adopt eating patterns that are not limited to time (meal any time of the day or night), they consume less varied foods, especially fruits and vegetables. The students in such environments depend more on fast foods with big portions, and as a result, skip other meals of the day such as breakfast. This is mainly attributed to factors that influence the food consumption patterns upon arrival at the residence facilities of HEIs. The dietary habits of human beings are often influenced by a variety of factors that include people’s standing within society, the economy, religion, culture, and the way these factors interact (Kim et al., 2015:190). The consumption of food by students at HEIs is influenced by an array of factors such as the availability of food products for students, affordability, culture and background of the students, and lifestyle adopted by students upon arrival at an HEI (Neff et al., 2009:285). Food availability, food access and frequency of consumption were then explored, and the results are presented in Tables 4.2 and 4.3 below.

Table 4.2: Availability, access, and frequency of food consumption

|  |  |  |
| --- | --- | --- |
| **Do you have funding?** | **Frequency** | **Percent** |
| Funding | Yes | 73 | 48.7 |
| No | 77 | 51.3 |
| Total | 150 | 100.0 |
| **How often do you buy food?** | **Frequency** | **Percent** |
| FrequencyIn purchase | Every day | 14 | 9.3 |
| Once a week | 9 | 6.0 |
| Twice a week | 11 | 7.3 |
| Once a month | 80 | 53.3 |
| Twice a month | 36 | 24.0 |
| Total | 150 | 100.0 |
| **Where do you buy most of your food?** | Frequency | Percent |
| PurchasePlace | Spaza | 6 | 4.0 |
| Supermarket | 113 | 75.3 |
| Restaurant | 7 | 4.7 |
| Fresh produce market | 23 | 15.3 |
| Other Specify | 1 | .7 |
| Total | 150 | 100.0 |
| **How many meals do you eat a day?** | **Frequency** | **Percent** |
| Frequency in Consumption | One | 3 | 2.0 |
| Two | 32 | 21.3 |
| Three | 79 | 52.7 |
| Four | 36 | 24.0 |
| Total | 150 | 100.0 |

The results show that majority of the student have no funding (51%). From this sample group, the students purchased food once a month (53%) this is aligned with Kim et al. (2015:190) that dietary habits are dependent on people’s standing within society, the economy, and the way these factors interact. When this group receives their allowance, they purchase mainly from supermarkets (74%) and encouragingly have three meals per day (53%). These results show that majority of this study’s sample lacks access to food items because this group can only purchase food once a month (53%) and encouragingly, some twice a month (24%). This may be mostly the period when they receive their allowance/funding. It is also apparent that almost half of this study’s sample receives financial aid funding (49%).

## 4.4 Food consumption places, times for meals and changes in food patterns

This section depicts results in which first-year students consume their food including the times of the day when meals are taken. Furthermore, possible eating patterns since the independence of staying alone in the HEI residential facilities.

Table 4.3: Food consumption places, times of the day for meals and changes in food patterns

|  |  |  |
| --- | --- | --- |
| **Place of food consumption** | **Frequency** | **Percent** |
| Residence | 103 | 68.7 |
| Class | 6 | 4.0 |
| Cafeteria | 9 | 6.0 |
| Off-Campus | 26 | 17.3 |
| On-the-Run | 6 | 4.0 |
| Total | 150 | 100.0 |
| **Frequency of meals per day** | **Frequency** | **Percent** |
| 06:00-09:00 | 26 | 17.3 |
| 09:01-12:00 | 46 | 30.7 |
| 12:01-15:00 | 53 | 35.3 |
| 15:01-18:00 | 15 | 10.0 |
| 18:01-21:00 | 9 | 6.0 |
| Total | 149 | 99.3 |
| System | 1 | .7 |
| Total | 150 | 100.00 |
| **Food patterns changes** | **Frequency** | **Percent** |
| Yes | 101 | 67.3 |
| No | 47 | 31.3 |
| 3 | 1 | .7 |
| Total | 149 | 99.3 |
| System | 1 | .7 |
| Total | 150 | 100.0 |

Seemingly, most of the students eat their food in residence (68.7%); eating is spread across time frames with most (35.6%) eating during lunch time 12h00-15h00, followed by those who eat breakfast (30.9%). Most (67.3%) respondents perceive their eating habits to have changed since they started staying at the residence facility.

## 4.5 Meals mostly consumed by first-year students

Freeland-Graves and Nitzke (2013) articulate that food consumption patterns are based on culture, norms, values, and the race of that particular community. This is given credence by the complexity of culture in relation to differences in societies in terms of knowledge, beliefs, morals, and customs in relation to food, eating and nutrition (Madiba, 2006). Furthermore, Fieldhouse (2013:25) indicates that culture is the strongest determinant of food choices within a particular society. Scaglioni et al. (2018:711) added that food choices often enable reflection of the societies in terms of dietary history, at the same time it determines the quality and acceptability of the food consumed within the community. Savage et al. (2017:24) refer that the cultural values, norms, and race surrounding the campus may lead to a particular food and eating habits of members of a particular community because there are hardly any inborn taste preferences at birth, but rather the development of certain likes and dislikes for certain types of food as people are socialised into specific cultural cuisines. Also, different cultures bring in different taste preferences in food due to social and cultural upbringing. Demeritt (2020) emphasises that mealtime habits and nutrition emanate from the cultural background of people, although, cost, convenience and snacking are similar, thereby suggesting that societal products will be dependent on the types of foods offered by the area. The students’ change in lifestyles was found to be among the factors that lead to newly-adopted eating patterns while away from home. Table 4.4 reveals results from the sample of the most-consumed foods by first-year students in the Cape Town Metropole area. In measuring the total meals consumed by first-year students, the number of total frequencies and percentages of cases under observation goes beyond 150 (sample size) and 100% as the analysis considers multiple responses (students were allowed to choose from a variety of food items they consume).

Table 4.4: Mostly consumed foods by 1st-year students in the Cape Town Metropole area

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Food Item** | **1-2 times a day** | **2-3 Times a week** | **4-5 Times a week** | **1-2 Times a month** |
| Food Item | Freq. | Total sample  | Freq. | Total sample | Freq. | Total sample | Freq. | Total sample |
| Banana | 69 | 46 | 28 | 18.67 | 30 | 20 | 22 | 14.67 |
| Brown bread | 64 | 42.67 | 34 | 22.67 | 22 | 14.67 | 30 | 20 |
| Full cream milk | 59 | 39.33 | 36 | 24 | 36 | 24 | 19 | 12.67 |
| Cornflakes | 59 | 39.33 | 49 | 32.67 | 19 | 12.67 | 22 | 14.67 |
| Processed foods e.g. potato chips | 57 | 38 | 37 | 24.67 | 26 | 17.33 | 29 | 19.33 |
| Biscuits | 57 | 38 | 49 | 32.67 | 24 | 16 | 20 | 13.33 |
| Sweets and Chocolates | 56 | 37.33 | 40 | 26.67 | 37 | 24.67 | 16 | 10.67 |
| Cold meat (polony, viennas) | 53 | 35.33 | 33 | 22 | 35 | 23.33 | 29 | 19.33 |
| Powdered milk | 51 | 34 | 29 | 19.33 | 42 | 28 | 28 | 18.67 |
| White meat (chicken, pork fish) | 49 | 32.67 | 58 | 38.67 | 28 | 18.67 | 15 | 10 |
| Deep fried foods, e.g. french fries | 49 | 32.67 | 41 | 27.33 | 25 | 16.67 | 34 | 22.67 |
| Fast foods | 49 | 32.67 | 47 | 31.33 | 23 | 15.33 | 30 | 20 |
| Carbonated sugary drinks e.g. Colas | 49 | 32.67 | 54 | 36 | 21 | 14 | 25 | 16.67 |
| Potatoes | 48 | 32 | 49 | 32.67 | 33 | 22 | 19 | 12.67 |
| Rice | 45 | 30 | 54 | 36 | 31 | 20.67 | 20 | 13.33 |
| Bread rolls | 44 | 29.33 | 44 | 29.33 | 31 | 20.67 | 31 | 20.67 |
| Buns | 43 | 28.67 | 46 | 30.67 | 19 | 12.67 | 42 | 28 |
| Weetbix | 40 | 26.67 | 49 | 32.67 | 28 | 18.67 | 33 | 22 |
| Boiled | 39 | 26 | 58 | 38.67 | 29 | 19.33 | 24 | 16 |
| Yoghurt | 38 | 25.33 | 55 | 36.67 | 36 | 24 | 21 | 14 |
| Fried | 38 | 25.33 | 52 | 34.67 | 36 | 24 | 24 | 16 |
| Oats | 38 | 25.33 | 47 | 31.33 | 23 | 15.33 | 42 | 28 |
| Scrambled | 35 | 23.33 | 45 | 30 | 35 | 23.33 | 34 | 22.67 |
| Whole-wheat bread | 35 | 23.33 | 34 | 22.67 | 28 | 18.67 | 53 | 35.33 |
| Peanuts | 33 | 22 | 31 | 20.67 | 26 | 17.33 | 59 | 39.33 |
| Maize meal porridge | 33 | 22 | 51 | 34 | 18 | 12 | 47 | 31.33 |
| Carrots | 32 | 21.33 | 56 | 37.33 | 47 | 31.33 | 14 | 9.33 |
| Evaporated milk | 32 | 21.33 | 14 | 9.33 | 9 | 6 | 95 | 63.33 |
| Maize meal pap | 31 | 20.67 | 46 | 30.67 | 33 | 22 | 40 | 26.67 |
| Rusk | 31 | 20.67 | 38 | 25.33 | 13 | 8.67 | 68 | 45.33 |
| Cheese | 30 | 20 | 45 | 30 | 38 | 25.33 | 37 | 24.67 |
| Scones | 30 | 20 | 26 | 17.33 | 29 | 19.33 | 65 | 43.33 |
| Pasta | 29 | 19.33 | 57 | 38 | 33 | 22 | 31 | 20.67 |
| Pastries e.g. cakes and pizza | 29 | 19.33 | 49 | 32.67 | 24 | 16 | 47 | 31.33 |
| Sour milk | 29 | 19.33 | 45 | 30 | 20 | 13.33 | 56 | 37.33 |
| Strawberry | 28 | 18.67 | 23 | 15.33 | 34 | 22.67 | 65 | 43.33 |
| Pumpkin | 28 | 18.67 | 57 | 38 | 25 | 16.67 | 40 | 26.67 |
| Ice Cream | 27 | 18 | 52 | 34.67 | 31 | 20.67 | 40 | 26.67 |
| Grapes | 26 | 17.33 | 37 | 24.67 | 45 | 30 | 41 | 27.33 |
| Spinach | 25 | 16.67 | 43 | 28.67 | 36 | 24 | 46 | 30.67 |
| Macaroni | 24 | 16 | 63 | 42 | 32 | 21.33 | 31 | 20.67 |
| Bran flake | 24 | 16 | 39 | 26 | 29 | 19.33 | 56 | 37.33 |
| Butternut | 23 | 15.33 | 57 | 38 | 34 | 22.67 | 36 | 24 |
| Mango | 23 | 15.33 | 28 | 18.67 | 31 | 20.67 | 68 | 45.33 |
| Poached | 23 | 15.33 | 24 | 16 | 24 | 16 | 79 | 52.67 |
| Red meat (beef, lamb, mutton, goat meat) | 22 | 14.67 | 56 | 37.33 | 17 | 11.33 | 55 | 36.67 |
| Peach | 21 | 14 | 44 | 29.33 | 33 | 22 | 52 | 34.67 |
| Custard | 20 | 13.33 | 38 | 25.33 | 35 | 23.33 | 57 | 38 |
| Sugar dried beans | 20 | 13.33 | 20 | 13.33 | 18 | 12 | 91 | 60.67 |
| Baked beans | 19 | 12.67 | 46 | 30.67 | 44 | 29.33 | 41 | 27.33 |
| Spaghetti | 17 | 11.33 | 56 | 37.33 | 31 | 20.67 | 44 | 29.33 |
| Maize Rice | 17 | 11.33 | 31 | 20.67 | 31 | 20.67 | 70 | 46.67 |
| Low fat milk(pasteurized) | 16 | 10.67 | 33 | 22 | 26 | 17.33 | 75 | 50 |
| Rice Krispies | 16 | 10.67 | 41 | 27.33 | 20 | 13.33 | 73 | 48.67 |
| Dried meat (biltong) | 16 | 10.67 | 16 | 10.67 | 18 | 12 | 100 | 66.67 |
| Omelette | 16 | 10.67 | 41 | 27.33 | 14 | 9.33 | 79 | 52.67 |
| Sweet potatoes | 15 | 10 | 37 | 24.67 | 32 | 21.33 | 65 | 43.33 |
| Dumpling | 15 | 10 | 35 | 23.33 | 24 | 16 | 76 | 50.67 |
| Peas | 14 | 9.33 | 46 | 30.67 | 44 | 29.33 | 45 | 30 |
| Watermelon | 14 | 9.33 | 20 | 13.33 | 29 | 19.33 | 86 | 57.33 |
| Samp | 12 | 8 | 24 | 16 | 25 | 16.67 | 89 | 59.33 |
| Low fat milk (unpasteurized) | 12 | 8 | 24 | 16 | 24 | 16 | 90 | 60 |
| Total | 2036 | 1357.33 | 2557 | 1704.67 | 1773 | 1182 | 2911 | 1940.67 |
| Cochran's chi2(61) Prob >  | 560.34330.0000 | 280.95510.0000 | 173.46050.0000 | 1024.6820.0000 |

Food items of food items were cross-tabulated to monitor if there is an association between the types of food patterns one eats and the frequency of such food items. Therefore, Cochran’s chi2 measures an association of having a probability of below 0.05 implying a statistical significance. The various foods are grouped into seven groups and the frequency of consumption of various foods. Table 4.4 above reveals the results sorted in descending order. The food items consumed by at least a third of respondents, 1 to 2 times a day (most-consumed foods) are in descending order: banana (46%), brown bread (43%), full cream milk (39%), cornflakes (39%), biscuits (38%), cold meat (Polony, Vienna’s, 35%), powdered milk (34), processed foods such as potato chips 38%), potatoes (32%) and carbonated sugary drinks (33%); then again potatoes (33%), rice (36%), bread rolls (29%), buns (31%), Weetabix (33%), boiled egg (39%), yoghurt (37%), fried foods (35%), oats (32%), scrambled eggs (30%), carrots (37%) and maize meal pap (34%) are consumed 2-3 times per week. Items such as cheese (25%), evaporated milk (63%), rusks (45%), scones (43%), strawberries (43%), mango (45%), poached eggs (53%), dried sugar beans (61%), dried meat (67%), dumplings (51%), omelette (53%), samp (59%), watermelon (57%) and sweet potatoes (43%) are consumed 1 to 2 times a month. This suggests that the least-consumed foods (1 to 2 times a month) are mostly regarded as luxuries by students. Food items that are much easier to make (such as eggs, bread, cereal) are the most-consumed items. This could be due to accessibility and affordability. These established food item groups are statistically significant with 0.0000 significance on the probability of food items consumed by students. The section that follows discusses results of food consumption and patterns by their diversity scores.

## 4.6 Food diversity scores

Ronquest-Ross et al. (2015:1) observed that food consumption in South Africa is affected by food availability, accessibility, and choice. Ronquest-Ross et al. explain that dietary patterns or food intake choices are influenced by factors such as geography, seasons of the year, education levels, demographics, disposable income, government and other support services, urbanisation, globalisation, marketing, religion, culture, ethnicity, social networks, time, and the consumer. Ronquest–Ross et al. observe that since 1994, certain changes occurred in South Africa, which dramatically affected food consumption patterns, and are continuing to grow due to shifts in food availability, accessibility, and choices. These changes include the growth of supermarkets, rising urbanisation, and growing capital incomes. The authors go further and state that the demand for high-value foods such as dairy, meat, fresh fruit, vegetables, processed, packaged, and prepared food have doubled and therefore it is of the utmost importance that consumers are aware of what they are consuming. The study computed total diversity scores for the whole list of foods (diversity) and each of the seven groups. The scores are summarised in Table 4.5 below.

Table 4.5: Summary statistics for total food diversity scores

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Observation** | **Mean** | **Std. Dev** | **Min** | **Max** |
| Diversity | 150 | 143.2533  | 23.76512 | 81 | 209 |
| Meat | 150 | 9.193333  | 2.481331 | 4 | 16 |
| Eggs | 150 | 11.32  | 2.906415 | 5 | 20 |
| Dairy | 150 | 22.71333  | 5.283045 | 12 | 40 |
| Cereal | 150 | 55.34 | 10.57148 | 26 | 86 |
| Legumes | 150 | 8.413333 | 2.544072 | 2 | 16 |
| Fruit and Vege | 150 | 20.66667 | 5.315126 | 7 | 36 |
| Junk Food | 150 | 15.60667 | 4.242477 | 0 | 24 |

The categories were recorded to reflect the order in frequency of consuming food items. The total score is that higher scores mean more frequent consumption of such food items. As such, most foods that are mostly consumed by students are cereals, dairy, fruit and vegetables as well as eggs.

### 4.6.1 Graphical medians of diversity scores by demographics

Alakaam et al. (2015) report that the availability of food refers to the consistent accessibility of food within close proximity of a person’s area of residence. Furthermore, Bridle-Fitzpatrick (2015:205) states that the availability or lack thereof of food introduces a host of challenges as many students from outside the university’s geographical location find it difficult to get food ingredients considered to be traditional and familiar to them. In addition, Madiba (2006:11) and El Ansari et al. (2012:30) expanded that the influence of food on consumption patterns is further compounded by the student’s ability to afford the type of food that can be both nutritious and filling at the same time. This section illustrates food patterns diversity scores of first-year students in the Cape Town Metropole area. The information revealed in Figures 4.1 to 4.9 following is unique to this study and cannot be generalised, nor are there sources to support/dispute the findings.

Mapping of food patterns was done by graphing the (optionally weighted) medians of each variable according to the values of the listed recoded items. Figure 4.1 presents the weighted medians of diversity score by a set of demographics.



Figure 4.1: Medians of diversity by demographics

It can be observed that females and older students (22 to 25, and 26 to 29) as well as Black Africans have higher frequency consumption of the listed 62 food items, as they fall above the median line.

### 4.6.2 Graphical medians of diversity scores by affordability

This section illustrates the weighted medians of diversity scores by affordability. The results are represented in Figure 4.2 below



Figure 4.2: Medians of diversity by affordability

Figure 4.2 show that those with lower income (sic strangely so), those with no funding, those who purchase food frequently, and those who purchase food from fresh produce markets and restaurants have greater access to multiple food items (more diverse diet) than their counterparts.

### 4.6.3 Graphical medians of diversity scores by accessibility

This section depicts medians of diversity scores by accessibility.



Figure 4.3: Medians of diversity by eating patterns

Figure 4.3 shows that those who eat a few meals a day, those who do not eat off-campus, those who eat during mid-morning and lunchtime, and those who confirm their eating patterns never changed after moving into residence at campus, have higher diversity scores. They consume the majority of the foods more frequently than their counterparts.

### 4.6.4 Food consumption scores of panel 1

Analysis was then done by sub-group (food groups 1 to 7) given seven panels. Under each panel the analysis variables are grouped into three- the demographics, availability and accessibility characteristics as analysed above. Hereunder, the food consumption scores of panel 1 are discussed.



Figure 4.4: Panel 1 (Group 1 foods)

In Panel 1 (group 1 foods), access is not affected by gender, the age (30 years and above) access to more of such foods, and so is the case for Black Africans. On the other hand, surprisingly, those with the least allowance (<R500), and those with no funds have greater access to these food groups than their peers. In addition, a higher frequency of purchasing food and buying from other sources is associated with higher access to food items. Lastly, paradoxically, these foods are accessed mainly by those who eat less frequently, who eat in class and residence, who eat in the mornings, and who confirm that their eating patterns have not changed.

### **4.6.5 Food consumption scored of panel** 2

This section discusses food consumption scores for panel 2.



Figure 4.5: Panel 2 (Group 2 foods)

In panel 2 (group 2 foods), it was observed that access to food is not affected by gender, mature students (26 to 29), or ethnicity. Those with the least allowance (<R500 and R1501 to R2000) purchase food from most types of markets other than from the spaza shops twice a week.

### **4.6.6 Food consumption scores of panel 3**

Hereunder, food consumption scores of panel 3 are discussed.



Figure 4.6: Panel 3 (Group 3 foods)

Panel 3 (group 3 foods) shows that access is greatly affected by gender as male students access more of these foods than females. Here it is observed that the older students, mostly Coloureds and with the most allowance (˃R2001), purchase food every day and mostly from restaurants. This group eats once to twice a day mostly at cafeterias and does not seem to perceive that their eating patterns to have changed.

### 4.6.7 Food consumption scores of panel 4

Food consumption scores of panel 4 are discussed hereunder.



Figure 4.7: Panel 4 (Group 4 foods)

Seemingly, panel 4 (group 4 foods) foods are mostly consumed by Black, older (30+), females. This group receives a monthly allowance ˃R500, as a result, purchase food twice a week mostly from fresh produce markets. This group eats twice to three times a day in class and at residential facilities. The group confirms that their eating patterns have not changed since they transitioned into living on their own at residential facilities.

### 4.6.8 Food consumption scores of panel 5

This section discusses the food consumption scores of panel 5.



Figure 4.7: Panel 5 (Group 5 foods)

Panel 5 shows the dominance of male students in these kinds of foods. This group is mostly between the ages of 26 to 29 years, Coloured, with an allowance of R1501-R2000 per month. This group purchases food twice a week, but at times daily, from other than spazas (cafeteria), they mostly eat in class and cafeterias twice a day, and no change in eating patterns was recorded.

### 4.6.9 Food consumption scores of panel 6

Food consumption scores of panel 6 are discussed hereunder.



Figure 4.8: Panel 6 (Group 6 foods)

Medians of consumption in panel 6 (group 6 foods) show that mature (26 to 29 years) females dominated this category. This group purchases food from restaurants and fresh produce markets mostly twice a week. The group receives a monthly allowance of R1501-R2000. They eat two to three times per day mostly on the road between 09:00 and 12:00 and do not perceive their eating patterns to have changed.

### 4.6.10 Food consumption scores of panel 7

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This section discusses food consumption scores of panel 7.



Figure 4.9: Panel 7 (Group 7 foods)

Panel 7 (group 7 foods) is mostly dominated by females between the ages of 20 to 25 years, mostly Coloured, with an allowance of ˃R500. This group purchases food from spaza shops mostly every day, or two to three times a day. They mostly consume their foods from cafeterias and residential facilities between 09:00 to 12:00 and are unsure if their eating patterns have changed or not.

## 4.7 Food consumption patterns regression analysis

Claasen et al. (2016) observed that the food environment in South Africa changed drastically from the 1990s. The change in the food environment has been inspired by traders, foreign direct investment, and transnational food and beverage industries, including supermarket retailers and fast-food chains.The food environmental changes resulted in the availability of non-healthy but affordable food items in the country (Claasen et al., 2016:1).

This study conducted a regression analysis to assess the factors that explain (i) change of eating patterns and (ii) diversity of food consumed. The change in eating patterns was recorded to have no change (equal to 0), while the diversity of foods was recorded to have a change (equal to 1). From there, food diversity was computed in such a way that five categories emerged; these were recorded as the least diversity to the highly diversified consumption profile. The tables below (Tables 4.6 and 4.7) present these two dependent variables, which were estimated using ordered logistic regression given the ordinal nature of the two dependent variables. An individual needs to have at least six of the seven food groups consumed within a week to be considered diversified, having more food items from each list (at least two) within one week makes one most diversified; and the least diversified individual is one who has less than three of the seven food items within a week, and the scaled slide in-between.

Table 4.6: Change in eating patterns

|  |
| --- |
| **Do you consider your eating pattern to have changed (pattern) after moving to the university** |
| **Item** | **Freq.** | **Percent** |
|  No  | 2,914 | 31.76 |
|  Yes  | 6,262 | 68.24 |
|  Total  | 9,176 | 100.00 |
| **Diversity categories** |
| **Item** | **Freq.** | **Percent** |
|  least diversified  | 744 | 8.00 |
| Category 2  | 3,286 | 35.33 |
| Category 3  | 4,030 | 43.33 |
| Category 4  | 1,178 | 12.67 |
|  Most diversified  | 62 | 0.67 |
|  Total  | 9,300 | 100.00 |

The relationship between food environments and diet was studied by Larson and Story (2009) focusing on the periods between 1999 and 2009. In their study, they observed that there is a strong correlation between social, physical, and macro environments on food choices. Larson and Story (2009:59) acknowledged that many studies identified close relationships between food environments and food choices. Even so, their study concluded that most studies regarding food consumption patterns had methodological limitations that lead to questioning their credibility on guiding environmental interventions and policies**.** Claasen et al*.*(2016:6)supported that future research on food environments needs to address the study design and require multilevel investigations that include diverse subgroups such as age, gender, and socio-economic status. Therefore, a regression model analysis was performed to assess the diverse subgroups in their food consumption and patterns. Table 4.7 below presents the first regression results. The model is sound given the pseudo-R-square of nearly 32% and log-ratio that is statistically significant at a 95% confidence interval.

Table 4.7: Food consumption pattern regression analysis

|  |
| --- |
| Ordered logistic regression Number of observations = 150 |
|  LR chi2(33) = 3651.62 |
|  Prob > chi2 = 0.0000 |
| Log likelihood = -3909.3967 Pseudo R2 = 0.3184 |
|  Dep Var: pattern  | Odds Ratio | Std. Err. | Z | P>z | [95% Conf. Interval] |
|  Gender  |  |  |  |  |  |  |
|  2. Female  | 1.157801 | .0763762 | 2.22 | 0.026 | 1.01738 | 1.317603 |
|  Age  |  |  |  |  |  |  |
|  2. 22-25 years  | 1.52921 | .1058482 | 6.14 | 0.000 | 1.335208 | 1.751399 |
|  3. 26-29 years  | .2221852 | .0431268 | -7.75 | 0.000 | .1518778 | .3250395 |
|  4. 30 and above  | .0064724 | .0018867 | -17.29 | 0.000 | .0036554 | .0114602 |
| Ethnic Group |  |  |  |  |  |  |
|  2. White  | .4728793 | .0618824 | -5.72 | 0.000 | .3658976 | .6111406 |
|  3. Indian  | 2.630642 | .6024818 | 4.22 | 0.000 | 1.679251 | 4.12105 |
|  4. Coloured  | 14.08582 | 2.49292 | 14.95 | 0.000 | 9.957171 | 19.92639 |
|  5. Other  | 2.55e+09 | 7.18e+12 | 0.01 | 0.994 | 0 | . |
|  Allowance  |  |  |  |  |  |  |
|  2. R501-R1000  | .1570289 | .0265874 | -10.93 | 0.000 | .112683 | .2188271 |
|  3. R1001-R1500  | .2041792 | .0343917 | -9.43 | 0.000 | .1467696 | .2840449 |
|  4. R1501-R2000  | .0538169 | .0137985 | -11.40 | 0.000 | .0325592 | .0889536 |
|  5. >2001  | .0474025 | .0127598 | -11.33 | 0.000 | .0279688 | .0803393 |
| Availability of funding |  |  |  |  |  |  |
|  2. no  | 1.411413 | .1213204 | 4.01 | 0.000 | 1.19258 | 1.6704 |
| Frequency in purchasing food |  |  |  |  |  |  |
|  2. Once a week  | 3.203576 | 4.31438 | 7.70 | 0.000 | 2.28712 | 44.87258 |
|  3. Twice a week  | 3.082885 | .6226895 | 5.57 | 0.000 | 2.075053 | 4.580209 |
|  4. Once a month  | .0433986 | .0084773 | -16.06 | 0.000 | .0295941 | .0636422 |
|  5. Twice a month  | .0703699 | .0130332 | -14.33 | 0.000 | .0489482 | .1011667 |
| Places of purchase |  |  |  |  |  |  |
|  2. Supermarket  | 337.2952 | 89.42037 | 21.96 | 0.000 | 200.6079 | 567.1166 |
|  3. Restaurant  | 1.05e+11 | 7.05e+13 | 0.04 | 0.970 | 0 | . |
| 4. Fresh produce market  | 380.5071 | 113.7003 | 19.88 | 0.000 | 211.8425 | 683.4589 |
| Frequency of food consumption per day |  |  |  |  |  |  |
|  2. Two  | 2.62e+08 | 3.88e+08 | 13.08 | 0.000 | 1.44e+07 | 4.78e+09 |
|  3. Three  | 3.80e+08 | 5.66e+08 | 13.25 | 0.000 | 2.04e+07 | 7.06e+09 |
|  4. Four  | 1.07e+07 | 1.54e+07 | 11.28 | 0.000 | 644946.1 | 1.79e+08 |
| Physical locations of food consumption |  |  |  |  |  |  |
|  2. Class  | .4361675 | .0856962 | -4.22 | 0.000 | .2967653 | .6410522 |
|  3. Cafeteria  | .0230138 | .0042515 | -20.42 | 0.000 | .0160229 | .0330549 |
|  4. Off-Campus  | .0185722 | .0031556 | -23.46 | 0.000 | .0133117 | .0259115 |
|  5. On-the-Run  | .0651845 | .0118541 | -15.01 | 0.000 | .0456404 | .0930979 |
| Time of meals per day |  |  |  |  |  |  |
|  2. 09:01-12:00  | 5.957711 | .6538322 | 16.26 | 0.000 | 4.804673 | 7.387458 |
|  3. 12:01-15:00  | 2.772775 | .2629129 | 10.76 | 0.000 | 2.302524 | 3.339066 |
|  4. 15:01-18:00  | .0140989 | .0027996 | -21.46 | 0.000 | .0095535 | .020807 |
|  5. 18:01-21:00  | 6.229026 | .9984917 | 11.41 | 0.000 | 4.549623 | 8.528347 |
|  fitted  | 1.37e+22 | 2.67e+22 | 26.05 | 0.000 | 2.95e+20 | 6.33e+23 |
| Diversity category | .8337215 | .0636925 | -2.38 | 0.017 | .717783 | .9683868 |
|  Category 1  | 22.77352 | 1.572073 |  |  | 19.69231 | 25.85473 |

It is important to note that the first category under each factor explanatory is taken as the reference category, therefore does not appear on the list; the marginal effects are seen later. The results show that being female compared to being male, the odds of pattern changing (Yes) versus not changing (No) are 1.16 times greater, given that all the other variables in the model are held constant. This means females are more likely to have a change in eating patterns than male students. The older the student, the less likely one has eating pattern changes as the odds ratio associated with higher age groups decrease (except for the 22- to 25-year-old category).

All other ethnic groups, except whites, have higher odds of having eating pattern changes (compared to Black Africans). The odds are much higher with Coloured categories where they are more than 14 times more likely to have pattern changes compared to Blacks. The higher the income category, the lower the odds of having an eating pattern change (all odds ratios are less than 1). An individual with no funding is 1.411 odds higher of having pattern changes than those with funding. Also, those who buy once or twice a week have higher odds of pattern changes compared to those buying daily; and those who purchase monthly, have the least likelihood of eating pattern changing.

## 4.8 Effects of eating patterns (delta-method)

According to Steyn et al. (2014), the South African population commonly consumes street foods and fast foods; with 33.5% consuming street food and 35% consuming fast food at least once a week. However, socio-economic status seems to be one of the major influencing factors that play a role in fast food and street food consumption. Steyn et al. (2014) gave reference to a national representative cross-sectional survey that established similarities amongst fast food consumption patterns of South Africans, with 21.4% of Black, 26.8% of Coloureds, 30.1% of Indian, and 28.3% of White South Africans consuming fast foods twice or three times per month. Claasen et al. (2016:9) note that street food is commonly bought by young people who normally do not cook; being 45.3% Black South Africans, 22.4% Coloureds, 15.2% Indian and 9.6% White South Africans.Seemingly,fruits and carbonated drinks are the most frequently consumed street food among all ethnicgroups.Steyn et al. (2014:8) explicated those vendors in the city areas are convenient specifically for students who had little time to prepare a meal. People who have difficulty consuming regular meals at home often substituted home-cooked meals for ready-to-eat street foods that are easily accessible and affordable.

Table 4.8 depicts the marginal effects of eating pattern change using a Delta method of comparison. According to Ramirez-Villegas and Jarvis (2010:3), the Delta method is a simple downscaling method based on the sum of interpolated anomalies to high-resolution surfaces. The method assumes that changes in the food patterns are only relevant at course scales and that relationships between variables are maintained in the future.

Table 4.8: Marginal effects of eating patterns (Delta-method)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | Margin | Std. Err. Z | P>z | [95% Conf. | Interval] |
| Gender |   |   |   |   |   |
| 1. Male | 0.626 | .0082014 76.35 | 0.000 | 0.610 | 0.642 |
| 2. Female | 0.714 | .0055749 128.12 | 0.000 | 0.703 | 0.725 |
| Age |   |   |   |   |   |
| 1. 18-21 years | 0.680 | .0066807 101.77 | 0.000 | 0.667 | 0.693 |
| 2. 22-25 years | 0.728 | .006896 105.53 | 0.000 | 0.714 | 0.741 |
| 3. 26-29 years | 0.445 | .0269126 16.53 | 0.000 | 0.392 | 0.498 |
| 4. 30 and above | 0.243 | .0297995 8.16 | 0.000 | 0.185 | 0.302 |
| Ethnic Group |   |   |   |   |   |
| 1. Black | 0.664 | .0049367 134.53 | 0.000 | 0.654 | 0.674 |
| 2. White | 0.680 | .019113 35.58 | 0.000 | 0.642 | 0.717 |
| 3. Indian | 0.760 | .0283635 26.80 | 0.000 | 0.705 | 0.816 |
| 4. Coloured | 0.843 | .0159117 52.97 | 0.000 | 0.812 | 0.874 |
| 5. Other | 1.000 | 7.82e-06 1.3e+05 | 0.000 | 1.000 | 1.000 |
| Allowance |   |   |   |   |   |
| 1. >500 | 0.786 | .0206943 37.99 | 0.000 | 0.746 | 0.827 |
| 2. R501-R1000 | 0.632 | .0101067 62.55 | 0.000 | 0.612 | 0.652 |
| 3. R1001-R1500 | 0.650 | .0064463 100.84 | 0.000 | 0.637 | 0.663 |
| 4. R1501-R2000 | 0.890 | .0094248 94.45 | 0.000 | 0.872 | 0.909 |
| 5. >2001 | 0.799 | .0234403 34.10 | 0.000 | 0.753 | 0.845 |
| Availability of funding |   |   |   |   |   |
| 1. yes | 0.783 | .0060502 129.48 | 0.000 | 0.772 | 0.795 |
| 2. no | 0.581 | .0074902 77.55 | 0.000 | 0.566 | 0.596 |
| Frequency in food purchase |   |   |   |   |   |
| 1. Every day | 0.383 | .0187409 20.42 | 0.000 | 0.346 | 0.419 |
| 2. Once a week | 0.929 | .0103978 89.31 | 0.000 | 0.908 | 0.949 |
| 3. Twice a week | 0.770 | .0177594 43.34 | 0.000 | 0.735 | 0.805 |
| 4. Once a month | 0.695 | .0061204 113.51 | 0.000 | 0.683 | 0.707 |
| 5. Twice a month | 0.681 | .0098197 69.34 | 0.000 | 0.662 | 0.700 |
| Types of markets used to purchase food products |   |   |   |   |   |
| 1. Spaza | 0.791 | .0202629 39.01 | 0.000 | 0.751 | 0.830 |
| 2. Supermarket | 0.684 | .0051474 132.82 | 0.000 | 0.674 | 0.694 |
| 3. Restaurant | 1.000 | 2.72e-06 3.7e+05 | 0.000 | 1.000 | 1.000 |
| Fresh produce market | 0.527 | .0140511 37.47 | 0.000 | 0.499 | 0.554 |
| Frequency in food consumption |   |   |   |   |   |
| 1. One | 0.247 | .0296621 8.31 | 0.000 | 0.188 | 0.305 |
| 2. Two | 0.729 | .0101864 71.56 | 0.000 | 0.709 | 0.749 |
| 3. Three | 0.674 | .006599 102.18 | 0.000 | 0.661 | 0.687 |
| 4. Four | 0.697 | .0095558 72.93 | 0.000 | 0.678 | 0.716 |
| Physical location of food consumption |   |   |   |   |   |
| 1. Residence | 0.717 | .0052252 137.19 | 0.000 | 0.707 | 0.727 |
| 2. Class | 0.316 | .0249845 12.63 | 0.000 | 0.267 | 0.365 |
| 3. Cafeteria | 0.425 | .026365 16.12 | 0.000 | 0.373 | 0.477 |
| 4. Off-Campus | 0.679 | .0114845 59.16 | 0.000 | 0.657 | 0.702 |
| 5. On-the-Run | 0.662 | .0233961 28.28 | 0.000 | 0.616 | 0.708 |
| Times of the day for meals |   |   |   |   |   |
| 1. 06:00-09:00 | 0.671 | .0115743 57.98 | 0.000 | 0.648 | 0.694 |
| 2. 09:01-12:00 | 0.674 | .0086089 78.31 | 0.000 | 0.657 | 0.691 |
| 3. 12:01-15:00 | 0.753 | .0072196 104.25 | 0.000 | 0.738 | 0.767 |
| 4. 15:01-18:00 | 0.504 | .0167158 30.13 | 0.000 | 0.471 | 0.536 |
| 5. 18:01-21:00 | 0.603 | .0209904 28.71 | 0.000 | 0.561 | 0.644 |

Table 4.8 shows the marginal effects derived from the regression above. The margins show the probabilities of each category explaining a change in eating patterns. In that regard, we can be able to compare which category has the greatest influence on pattern change. The probability of male students changing pattern is 62.6%, compared to females at 71.4%; while the probability under age categories is higher for 22 to 25 years olds (72.8%) followed by 19 to 21-year-olds (68%), then 26 to 29 years (44.5%) and 30 and above (24.3%).

## 4.9 Diversity of food consumption regression analysis

The regression results below show the factors that explain the diversity of food eaten by each student. The identified factors explain nearly 12% of the variation.

Table 4.9: Diversity of food consumption by each student

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Dep Var: Diversity Category** | **Odds Ratio** | **Std. Err.** | **Z** | **P>z** | **[95% Conf. Interval]** |
| Gender |   |   |   |   |   |   |
|  2. Female | 0.851 | 0.041 | -3.310 | 0.001 | 0.774 | 0.936 |
| Age |   |   |   |   |   |   |
|  2. 22-25 years | 0.793 | 0.038 | -4.830 | 0.000 | 0.722 | 0.871 |
|  3. 26-29 years | 1.889 | 0.209 | 5.730 | 0.000 | 1.520 | 2.347 |
|  4. 30 and above | 0.072 | 0.014 | -13.140 | 0.000 | 0.048 | 0.106 |
| Ethnic Group |   |   |   |   |   |   |
|  2. White | 0.744 | 0.071 | -3.090 | 0.002 | 0.616 | 0.897 |
|  3. Indian | 0.488 | 0.076 | -4.600 | 0.000 | 0.359 | 0.662 |
|  4. Coloured | 0.377 | 0.038 | -9.780 | 0.000 | 0.310 | 0.459 |
|  5. Other | 0.226 | 0.070 | -4.810 | 0.000 | 0.123 | 0.414 |
| Allowance |   |   |   |   |   |   |
|  2. R501-R1000 | 0.390 | 0.047 | -7.800 | 0.000 | 0.308 | 0.494 |
|  3. R1001-R1500 | 0.341 | 0.040 | -9.130 | 0.000 | 0.271 | 0.430 |
| 4. R1501-R2000 | 0.182 | 0.027 | -11.630 | 0.000 | 0.136 | 0.242 |
| 5. >2001 | 0.457 | 0.080 | -4.460 | 0.000 | 0.324 | 0.645 |
| Availability of funding |   |   |   |   |   |   |
| 2. no | 1.605 | 0.086 | 8.870 | 0.000 | 1.446 | 1.782 |
| Frequency in purchasing food  |   |   |   |   |   |   |
| 2. Once a week | 0.783 | 0.109 | -1.750 | 0.079 | 0.595 | 1.029 |
| 3. Twice a week | 1.847 | 0.224 | 5.060 | 0.000 | 1.457 | 2.343 |
| 4. Once a month | 0.262 | 0.026 | -13.690 | 0.000 | 0.216 | 0.317 |
| 5. Twice a month | 0.341 | 0.035 | -10.380 | 0.000 | 0.278 | 0.418 |
| Types of markets used to purchase food |   |   |   |   |   |   |
| 2. Supermarket | 4.538 | 0.593 | 11.580 | 0.000 | 3.513 | 5.862 |
| 3. Restaurant | 8.615 | 1.449 | 12.800 | 0.000 | 6.195 | 11.981 |
| Fresh produce market | 7.617 | 1.040 | 14.870 | 0.000 | 5.829 | 9.954 |
| Frequency of meals in a day |   |   |   |   |   |   |
| 2. Two | 4.141 | 0.721 | 8.160 | 0.000 | 2.944 | 5.824 |
| 3. Three | 5.131 | 0.895 | 9.380 | 0.000 | 3.646 | 7.221 |
| 4. Four | 1.576 | 0.281 | 2.560 | 0.011 | 1.112 | 2.235 |
| Physical location when consuming food |   |   |   |   |   |   |
| 2. Class | 2.422 | 0.351 | 6.110 | 0.000 | 1.824 | 3.216 |
| 3. Cafeteria | 0.861 | 0.086 | -1.490 | 0.136 | 0.707 | 1.048 |
| 4. Off-Campus | 0.333 | 0.020 | -17.980 | 0.000 | 0.295 | 0.375 |
| 5. On-the-Run | 0.542 | 0.075 | -4.400 | 0.000 | 0.412 | 0.712 |
| Times of the day for meal consumption |   |   |   |   |   |   |
| 2. 09:01-12:00 | 1.682 | 0.116 | 7.560 | 0.000 | 1.470 | 1.924 |
| 3. 12:01-15:00 | 1.051 | 0.067 | 0.770 | 0.439 | 0.927 | 1.191 |
| 4. 15:01-18:00 | 0.611 | 0.055 | -5.520 | 0.000 | 0.513 | 0.728 |
| 5. 18:01-21:00 | 2.531 | 0.287 | 8.180 | 0.000 | 2.026 | 3.161 |
| Eating Patterns |   |   |   |   |   |   |
| 2. No | 1.349 | 0.065 | 6.210 | 0.000 | 1.227 | 1.482 |
| Category 1  | -2.176 | 0.240 |   |   | -2.646 | -1.705 |
| Category 2 | 0.569 | 0.241 |   |   | 0.098 | 1.041 |
| Category 3 | 3.101 | 0.240 |   |   | 2.630 | 3.572 |
| Category 4 | 6.342 | 0.270 |   |   | 5.812 | 6.872 |

Females are less likely to have higher level diversity compared to males, all other factors held constant.

## 4.10 Margins of diversity of food consumption regression

Table 4.10 below shows the margins based on the above regression.

Food diversity has been categorised into 5 (from least diverse =1 to most diverse=5. The margins are percentages/ proportions. For the last one, one can say that those who have eating pattern changes have 5% (0.05) chances of being under the least diverse category, 41% chances of being in category 2 of diversity; 46% being in category 3, 8% of being in category 4 and 0% of being in the most diverse category. This means those who said yes, their eating patterns have changed are highly likely to have a moderately diversified diet (2 = -3 diverse categories where there are higher proportions). On the other hand, those who said no eating pattern changes are likely to be in category 3 of diversity (0.50), followed by category 2 (0.35).

Table 4.10: Margins of diversity of food consumption regression

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Margin | Std. Err. | Z | P>z | Margin | Std. Err. | Z | P>z | Margin | Std. Err. | Z | P>z | Margin | Std. Err. | z | P>z | Margin | Std. Err. | z | P>z |
| Allowance |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| >500 | 0.02 | 0.00 | 8.40 | 0.00 | 0.19 | 0.02 | 11.23 | 0.00 | 0.56 | 0.01 | 87.84 | 0.00 | 0.22 | 0.02 | 11.62 | 0.00 | 0.01 | 0.00 | 6.05 | 0.00 |
| R501-R1000 | 0.04 | 0.00 | 16.06 | 0.00 | 0.36 | 0.01 | 33.47 | 0.00 | 0.49 | 0.01 | 53.82 | 0.00 | 0.10 | 0.01 | 19.51 | 0.00 | 0.00 | 0.00 | 7.35 | 0.00 |
| R1001-R1500 | 0.05 | 0.00 | 20.96 | 0.00 | 0.39 | 0.01 | 55.67 | 0.00 | 0.47 | 0.01 | 70.06 | 0.00 | 0.09 | 0.00 | 26.97 | 0.00 | 0.00 | 0.00 | 7.69 | 0.00 |
| R1501-R2000 | 0.09 | 0.01 | 11.23 | 0.00 | 0.51 | 0.02 | 32.90 | 0.00 | 0.35 | 0.02 | 20.15 | 0.00 | 0.05 | 0.00 | 10.91 | 0.00 | 0.00 | 0.00 | 6.33 | 0.00 |
| >2001 | 0.04 | 0.00 | 7.43 | 0.00 | 0.33 | 0.03 | 12.65 | 0.00 | 0.51 | 0.02 | 29.14 | 0.00 | 0.11 | 0.01 | 8.43 | 0.00 | 0.01 | 0.00 | 5.44 | 0.00 |
| Availability of funding |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Yes | 0.06 | 0.00 | 20.77 | 0.00 | 0.43 | 0.01 | 53.68 | 0.00 | 0.43 | 0.01 | 57.30 | 0.00 | 0.07 | 0.00 | 23.70 | 0.00 | 0.00 | 0.00 | 7.58 | 0.00 |
| No | 0.04 | 0.00 | 19.05 | 0.00 | 0.34 | 0.01 | 45.74 | 0.00 | 0.51 | 0.01 | 73.66 | 0.00 | 0.11 | 0.00 | 26.55 | 0.00 | 0.01 | 0.00 | 7.66 | 0.00 |
| Frequency of food purchase |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Every day | 0.02 | 0.00 | 10.26 | 0.00 | 0.21 | 0.01 | 14.75 | 0.00 | 0.56 | 0.01 | 87.66 | 0.00 | 0.20 | 0.01 | 14.09 | 0.00 | 0.01 | 0.00 | 6.64 | 0.00 |
| Once a week | 0.02 | 0.00 | 8.69 | 0.00 | 0.25 | 0.02 | 13.24 | 0.00 | 0.55 | 0.01 | 64.96 | 0.00 | 0.16 | 0.01 | 11.04 | 0.00 | 0.01 | 0.00 | 6.06 | 0.00 |
| Twice a week | 0.01 | 0.00 | 9.98 | 0.00 | 0.13 | 0.01 | 13.00 | 0.00 | 0.53 | 0.01 | 50.47 | 0.00 | 0.31 | 0.02 | 17.18 | 0.00 | 0.02 | 0.00 | 6.83 | 0.00 |
| Once a month | 0.07 | 0.00 | 21.62 | 0.00 | 0.46 | 0.01 | 63.40 | 0.00 | 0.40 | 0.01 | 58.53 | 0.00 | 0.06 | 0.00 | 24.15 | 0.00 | 0.00 | 0.00 | 7.56 | 0.00 |
| Twice a month | 0.05 | 0.00 | 16.76 | 0.00 | 0.41 | 0.01 | 37.65 | 0.00 | 0.45 | 0.01 | 45.55 | 0.00 | 0.08 | 0.00 | 18.90 | 0.00 | 0.00 | 0.00 | 7.32 | 0.00 |
| Types of markets used for purchasing food |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Spaza | 0.19 | 0.02 | 9.64 | 0.00 | 0.59 | 0.01 | 77.36 | 0.00 | 0.19 | 0.02 | 10.44 | 0.00 | 0.02 | 0.00 | 7.82 | 0.00 | 0.00 | 0.00 | 5.50 | 0.00 |
| Supermarket | 0.05 | 0.00 | 22.16 | 0.00 | 0.40 | 0.01 | 61.04 | 0.00 | 0.46 | 0.01 | 74.27 | 0.00 | 0.09 | 0.00 | 28.45 | 0.00 | 0.00 | 0.00 | 7.72 | 0.00 |
| Restaurant | 0.03 | 0.00 | 8.46 | 0.00 | 0.27 | 0.02 | 12.96 | 0.00 | 0.54 | 0.01 | 51.95 | 0.00 | 0.15 | 0.01 | 10.47 | 0.00 | 0.01 | 0.00 | 5.97 | 0.00 |
| Fresh produce market | 0.03 | 0.00 | 14.43 | 0.00 | 0.29 | 0.01 | 26.85 | 0.00 | 0.53 | 0.01 | 67.88 | 0.00 | 0.14 | 0.01 | 19.42 | 0.00 | 0.01 | 0.00 | 7.31 | 0.00 |
| Frequency of food consumption per day |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| One | 0.15 | 0.02 | 6.85 | 0.00 | 0.58 | 0.01 | 41.94 | 0.00 | 0.24 | 0.03 | 8.35 | 0.00 | 0.03 | 0.00 | 5.98 | 0.00 | 0.00 | 0.00 | 4.71 | 0.00 |
| Two | 0.04 | 0.00 | 15.37 | 0.00 | 0.36 | 0.01 | 31.44 | 0.00 | 0.50 | 0.01 | 54.01 | 0.00 | 0.10 | 0.01 | 18.66 | 0.00 | 0.00 | 0.00 | 7.28 | 0.00 |
| Three | 0.03 | 0.00 | 19.41 | 0.00 | 0.31 | 0.01 | 47.70 | 0.00 | 0.52 | 0.01 | 80.86 | 0.00 | 0.12 | 0.00 | 29.29 | 0.00 | 0.01 | 0.00 | 7.73 | 0.00 |
| Four | 0.10 | 0.01 | 18.70 | 0.00 | 0.53 | 0.01 | 57.23 | 0.00 | 0.32 | 0.01 | 32.39 | 0.00 | 0.04 | 0.00 | 17.33 | 0.00 | 0.00 | 0.00 | 7.25 | 0.00 |
| Physical location when consuming food |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Residence | 0.04 | 0.00 | 20.56 | 0.00 | 0.35 | 0.01 | 56.15 | 0.00 | 0.50 | 0.01 | 80.18 | 0.00 | 0.11 | 0.00 | 29.83 | 0.00 | 0.00 | 0.00 | 7.75 | 0.00 |
| Class | 0.02 | 0.00 | 6.89 | 0.00 | 0.19 | 0.02 | 9.08 | 0.00 | 0.56 | 0.01 | 82.45 | 0.00 | 0.22 | 0.02 | 9.34 | 0.00 | 0.01 | 0.00 | 5.36 | 0.00 |
| Cafeteria | 0.04 | 0.00 | 10.23 | 0.00 | 0.38 | 0.02 | 19.37 | 0.00 | 0.48 | 0.02 | 30.84 | 0.00 | 0.09 | 0.01 | 11.47 | 0.00 | 0.00 | 0.00 | 6.33 | 0.00 |
| Off-Campus | 0.11 | 0.01 | 18.38 | 0.00 | 0.55 | 0.01 | 57.48 | 0.00 | 0.31 | 0.01 | 29.19 | 0.00 | 0.04 | 0.00 | 16.33 | 0.00 | 0.00 | 0.00 | 7.18 | 0.00 |
| On-the-Run | 0.07 | 0.01 | 7.67 | 0.00 | 0.47 | 0.03 | 18.29 | 0.00 | 0.40 | 0.03 | 15.41 | 0.00 | 0.06 | 0.01 | 7.73 | 0.00 | 0.00 | 0.00 | 5.39 | 0.00 |
| Times of the day for meals |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 06:00-09:00 | 0.06 | 0.00 | 16.24 | 0.00 | 0.42 | 0.01 | 37.78 | 0.00 | 0.44 | 0.01 | 43.40 | 0.00 | 0.08 | 0.00 | 18.08 | 0.00 | 0.00 | 0.00 | 7.26 | 0.00 |
| 09:01-12:00 | 0.03 | 0.00 | 17.55 | 0.00 | 0.32 | 0.01 | 36.52 | 0.00 | 0.52 | 0.01 | 70.65 | 0.00 | 0.12 | 0.01 | 23.87 | 0.00 | 0.01 | 0.00 | 7.58 | 0.00 |
| 12:01-15:00 | 0.05 | 0.00 | 19.35 | 0.00 | 0.41 | 0.01 | 50.18 | 0.00 | 0.45 | 0.01 | 59.19 | 0.00 | 0.08 | 0.00 | 23.28 | 0.00 | 0.00 | 0.00 | 7.54 | 0.00 |
| 15:01-18:00 | 0.09 | 0.01 | 13.82 | 0.00 | 0.51 | 0.01 | 39.73 | 0.00 | 0.35 | 0.01 | 24.47 | 0.00 | 0.05 | 0.00 | 13.34 | 0.00 | 0.00 | 0.00 | 6.82 | 0.00 |
| 18:01-21:00 | 0.02 | 0.00 | 9.21 | 0.00 | 0.24 | 0.02 | 13.84 | 0.00 | 0.55 | 0.01 | 71.50 | 0.00 | 0.17 | 0.01 | 11.95 | 0.00 | 0.01 | 0.00 | 6.26 | 0.00 |
| Change in eating patterns |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Yes | 0.05 | 0.00 | 22.27 | 0.00 | 0.41 | 0.01 | 60.09 | 0.00 | 0.46 | 0.01 | 71.29 | 0.00 | 0.08 | 0.00 | 27.83 | 0.00 | 0.00 | 0.00 | 7.71 | 0.00 |
| No | 0.04 | 0.00 | 17.97 | 0.00 | 0.35 | 0.01 | 41.60 | 0.00 | 0.50 | 0.01 | 68.40 | 0.00 | 0.11 | 0.00 | 24.34 | 0.00 | 0.00 | 0.00 | 7.57 | 0.00 |

## 4.11 Chapter summary

This chapter discussed the results obtained from the first-year students at HEI residential facilities in the Cape Town Metropole area. The results showed that demographics play a major role in the change in consumption patterns of first-year students at two HEIs in the Cape Town Metropole area. Univariate analysis of the demographics was conducted on the results followed by the food consumption and accessibility including the most consumed foods by first-year students at residential facilities of HEIs. The analysis further included the graphical presentation of medians of diversity scores by demographics, affordability, and accessibility. The analysis included the food consumption scores grouped by food choice categories; these are labelled as panels from 1 to 7. A regression analysis was further conducted from the results to determine the strength of the obtained data and to understand the relationships between the food consumption variables. The margins of the diversity of food consumption patterns were further conducted on the regression analysis. From there, conclusions were drawn. The following Chapter (Chapter 5) provides discussions and concludes this research. The chapter further provides recommendations and possible future research.