

**FACTORS AFFECTING DIETARY PATTERNS AMONG STUDENTS AT
INTERNATIONAL HEALTH SCIENCES UNIVERSITY**

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**A RESEARCH DISSERTATION SUBMITTED TO THE SCHOOL OF NURSING IN
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DECLARATION

I Racheal Nankabirwa declare that this research dissertation entitled “factors affecting dietary patterns among students studying at International Health Sciences University” is my own work and has never been presented to any institution for any award

.....
Signature

.....
Date

APPROVAL

I confirm that this research dissertation entitled “factors affecting dietary patterns among students studying at International Health Sciences University” by Nankabirwa Racheal was done under my supervision.

.....

SIGNATURE

MR. KAJJABWANGU RONALD

SUPERVISOR

.....

DATE

DEDICATION

I dedicate this dissertation to my parents, to my son Jaden and daughter Starsha. I pray that this book gives Jaden and Starsha encouragement in life to be exemplary victorious professional scientists in future.

ACKNOWLEDGEMENT

First and foremost, I thank the almighty God who has seen me through the journey and given me courage, determination and strength to carry on.

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ABBREVIATIONS

BMLS	:	Bachelors in Medical Laboratory Science
DCM	:	Diploma Clinical Medicine
IHSU	:	International Health Sciences University
SPSS	:	Statistical Package for Social Sciences
WHO	:	World Health Organization

OPERATIONAL DEFINITIONS

Consumption –The act of eating or drinking something.

Dietary pattern: This refers to the eating pattern, food preferences, food portion sizes and food variety of students during the period of the study.

Eating pattern: This refers to the number of meals taken per day and the spacing times of the meals.

Food preferences: This refers to the types of food the student prefer in relation to the cost or availability of food items.

Food portion sizes: This refers to the amount of food served in each of the food groups including water intake as per the food guide pyramid.

Food variety: This refers to inclusion of different food groups at meal times.

Fruit – Part of a plant made up of stone, pit or seeds that can be eaten as food. Usually, it tastes sweet.

Pattern –The regular way in which something usually happens or is done.

Perception – A belief or idea you have as a result of how you see or understand something.

Risk – Possibility of causing something bad to happen in the future.

Trend – The general direction in which a situation is changing or developing.

Undergraduate – A university or college student who is studying for his/her first degree

Vegetable – A plant or part of a plant that is eaten as food.

Unhealthy dietary habits-Unhealthy eating which takes the form of overeating before going to bed, eating on the go snacking on energy dense meals, between meals, meal skipping, outdoor eating associated with uncontrolled alcoholic party drinks and consuming fattening desserts after dinner. These habits prevent people from losing weight in the long term.

Unhealthy diet-Any collection of foods that is not regarded as being conducive to maintaining health. Unhealthy foods include fats (especially of animal origin), “fast” foods (which are low in fibre and vitamins), foods high in salt and tropical oils (e.g., fried potato crisps/chips)

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ABSTRACT

Introduction: Poor eating habits is a major public health concern among young adults who experience transition into university life during which; they are exposed to stress and lack of time.

Objectives: The aim of the study was to assess the factors affecting dietary patterns among students at International Health Sciences University. The objectives were; to determine the socio-demographic, individual and institutional related factors affecting the dietary patterns.

Methodology: The study utilized a cross-sectional study design and comprised of 103 students from three faculties at the university. Data collection was by use questionnaires. Stratified random sampling technique and simple random sampling were used to obtain the participants.

Results: Students with healthy diet/patterns (46.6%) were less than those with unhealthy diet/patterns and the healthy dietary patterns included; eating three or more meals a day (49.5%), taking breakfast before classes (64.1%), taking 4 or more glasses of water per day (60.2%), not skipping meals (25.2%), not consuming fats often (87.4%), considering a balanced diet while making food choices (7.8%) and consuming fruits and vegetables. Availability of favourite food within reach ($P=0.032$), availability of fruits and vegetables within reach ($P=0.038$) and food consumed at the food courts around campus ($P=0.000$) had significant association with the dietary patterns of students.

Conclusion and recommendation: 53.4% had unhealthy diet/patterns with the major unhealthy dietary patterns being; not considering a balanced diet while making food choices (92.2%) and skipping meals (74.8%). The major reasons for skipping meals are lack of financial funds and busy schedule. According to the findings, it is recommended that students should be educated about healthy eating behaviours and their benefits.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This section of the research proposal constitutes the back ground of the study, statement of the problem, objectives, research questions, conceptual frame work as well as significance of the study.

1.1. Background

Eating is vital in life and a major determinant of health hence it's important to study this subject from its different perspectives. Most studies in eating and nutrition has focused on physiological aspects, but if dissociated from their relevant social environment, it is believed to produce only limited knowledge. It is for this reason that cultural, psychological and social approach is necessary. Different attitudes towards food may have an effect on overall health and contribute to differences in non-communicable diseases (Rozin et al., 2010).

Poor eating habits is a major public health concern among young adults who experience transition into university life during which; they are exposed to stress and lack of time (Nelson et al., 2008). For the first time in their lives, university students experience independence and freedom from parental supervision (Rozmus et al 2005). In this new environment, different settings may cause questioning of the parental values which are learned in childhood. Rozmus et al suggests that different views and dietary lifestyles are moulded and shaped by these new environmental, social, personal and financial stressors in these surroundings.

This poses a barrier against adoption of healthy behaviours and university students seem to be the most affected by this nutrition transition. Studies from developed countries have shown that young adults living away from home to attend college experience numerous health-related behavioural changes, including the adoption of unhealthy dietary habits (Baldini et al., 2009).

These behaviours are mostly attributed to drastic changes in the environment, available resources, frequent exposure to unhealthy foods and habits leading to higher consumption of high caloric snacks, fast foods, and lower consumption of fruits and vegetables, **i.e.** replacing

their consumption of nutrient-dense foods with energy-dense nutrient-poor foods. In addition to that, skipping meals may also become more frequent (Baldini et al., 2009).

It has been assumed that medical students would practice healthy dietary habits compared to non-medical students. Some studies have found otherwise. A study done in China revealed that medical students exhibited early risk factors for chronic diseases due to poor eating habits. It is alarming one can say how medical students being the most up to date on latest health practices are the least active in implementing that knowledge in their lifestyle. For long, it has been assumed that medical students would practice better healthy dietary habits compared to non-medical students. On a down note however, some studies have found otherwise (Rubina A, 2009)

In northern Italy, the majority of the college students do not consume healthy diets including the required amounts of fruits and vegetables; recommendations for a healthy diet include consuming five-or-more high fruits/ vegetables per day and two-or-fewer servings of food typically high in fats (Ann Super Sanità, 2015).

Their consumption of fruits and vegetables do not meet the recommended daily intake of at least 400 grams of fruit and vegetables according to World Health Organisation. It is therefore important to establish healthy eating behaviour earlier in life because eating behaviour such as fruits and vegetables consumption at this age tracks into adulthood (Glynn & Rosher, 2005).

In British universities, there are four clusters of eating behaviours; risky eating behaviours which are characterised by high snacking, high consumption of convenience and fast foods, and low consumption of fruits and vegetables; mixed eating behaviours characterised by high snacking, high consumption of convenience and fast foods, and moderate consumption of fruits and vegetables; moderate eating behaviours characterised by low snacking, moderate consumption of convenience and fast foods, and low consumption of fruits and vegetables; and favourable eating behaviours characterised by moderate snacking, low consumption of convenience and fast foods, and high consumption of fruits and vegetables (Tanton et al, 2015).

Among university students in Bangladesh, almost all the students reported preference for fast foods, almost half of the students reported to have only two major meals per day and breakfast was skipped by more than half of the students (Bipasha et al, 2013). A study conducted at a Malaysian University noted that; the mushrooming of shopping malls, convenience stores, vending machines and fast food outlets has created an alarming situation for young adults to practice unhealthy eating habits. University students tend to make their own food choices based on cost of food and availability of fast food. They lack knowledge of healthy food choices that may affect eating habits and nutritional status negatively. (Rubina *et al*, 2009).

In southern Nigeria, university students have fairly good eating habits and the majority of students are of normal weight (Nmor et al, 2013).

Data on dietary patterns of university students in Uganda has been impossible to obtain, but data from other studies reveals unhealthy dietary patterns among university students. This study therefore aims to establish the factors affecting dietary patterns among university students.

1.2. Problem Statement

Dietary patterns of young adults have been widely studied and reported in the literature as being associated with obesity, frequent snacking and meal skipping (Isa & Masuri 2011). This is a sensitive population experiencing possibly the last opportunity to receive formal education about nutrition and healthy lifestyles. Influencing this population to incorporate a healthy lifestyle could help decrease the nation's obesity rate and many co morbidities associated with obesity. Students may make poor choices as they begin their university studies and this may continue throughout the university life. The issue of continuity has been confirmed by previous researchers (Cruz, 2000; Isa & Masuri, 2011).

A study conducted among international students in the United States revealed unhealthy dietary patterns; a higher consumption of fried food, meats, sugar salt, convenience food (frozen, cans and ready to eat foods), cereals, bread, dairy products, soda beverages, snacks, and less fruits and vegetables (Alakaam et al, 2015). Data in Ugandan universities is scarce.

International health science University comprises students from different parts of the country and region hence a heterogeneous socio-economic and multicultural society. These differences may influence their dietary habits.

From observation on daily routine of students, some students tend to buy fast foods from different food joints around the university while others eat from university cafeteria, and others can afford to cook in their hostels. In these food outlets, same kind of foods are prepared daily therefore students tend to consume same diet repeatedly, which diet that mainly constitutes unhealthy food and this denies them variety of choices. Some female students have reported to skip meals in order to achieve and maintain their desired body size. These routines can have an impact on the nutritional status of the students since one can't tell whether students are well nourished and healthy or not, which subsequently may lead to decreased immunity, students inadequate cognitive functioning, (i.e.; processing of information and following up with an appropriate response), peptic ulcer disease, low weight, obesity, and cardiovascular diseases.

Therefore, this study seeks to investigate the dietary patterns of the students and the factors affecting them.

1.3. Objectives of the Study

1.3.1 General Objective

To assess the factors affecting dietary patterns among students at International Health Sciences University from May to June, 2017.

1.3.2 Specific Objectives

1. To identify the different dietary patterns of among students at international health Sciences University from May to June, 2017.
2. To determine the prevalence of unhealthy diet among students at international health Sciences University from May to June, 2017.
3. To determine the socio-demographic factors affecting dietary patterns among students at international health Sciences University from May to June, 2017.
4. To examine the individual factors affecting dietary patterns among students at international health Sciences University from May to June, 2017.

5. To establish the institutional related factors affecting dietary patterns among students at the university international health Sciences University from May to June, 2017.

1.4. Research Questions

1. What are the different dietary patterns of students at International Health Sciences University?
2. What is the prevalence of unhealthy diet among students at IHSU?
3. What are the socio-demographic factors that are affecting dietary patterns among students at IHSU?
4. What are the individual factors affecting dietary patterns among students at IHSU?
5. What are the institutional related factors affecting dietary patterns of students at IHSU?

1.5. Significance of the Study

This study will be beneficial to the ministry of health as it will contribute to findings regarding dietary patterns among university students in Uganda, hence help in laying strategies concerning proper dietary patterns of students.

In addition, the findings from this study will benefit the IHSU community as a whole, and the school of Nursing as it will enlighten the students and the entire community on their nutrition status, dietary patterns, and their influences on health.

On the other hand, the study will be a base for further research on dietary patterns and nutritional status, by other researchers at IHSU and other institutions within Uganda and the entire world.

1.6. Theoretical Framework

Dietary patterns of students is the dependent variable while the socio-demographic factors, individual factors, and institutional related factors are the independent variables. This implies that; the dietary patterns of students could be affected by the various socio-demographic factors which include age, sex, religion, ethnicity, course of study and year of study.

The various individual factors; nutritional knowledge, food preferences, social support, peer pressure, body image, and stress affect dietary patterns of students.

The institutional related factors; availability of healthy food, residence of students, teaching schedule, and exam period also affect dietary patterns of students.

1.7. Conceptual Framework

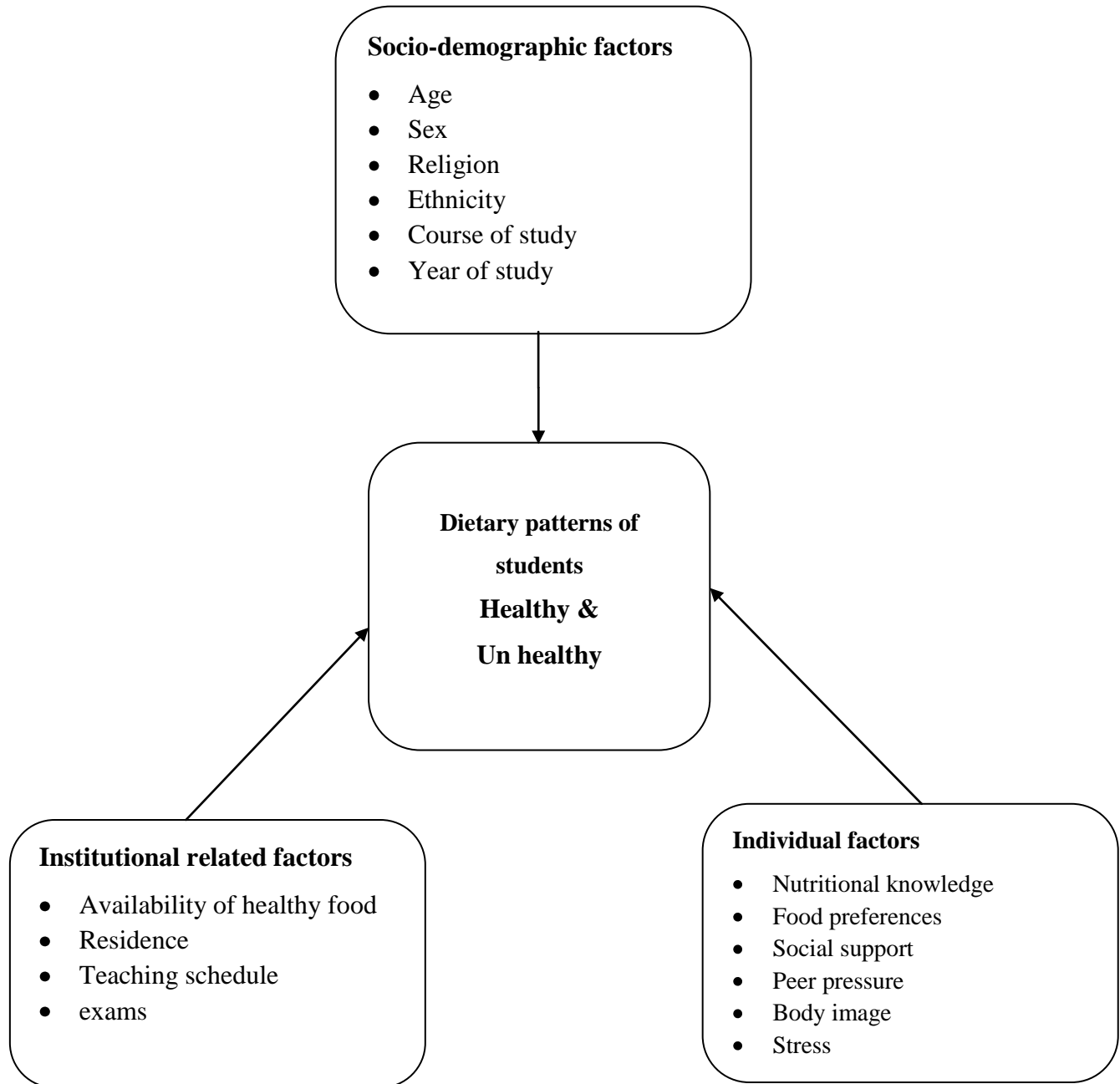


Figure 1: Conceptual framework

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter includes; overview of a healthy diet, dietary patterns of students, socio-demographic, individual, and institutional related factors affecting dietary patterns among students at International Health Sciences University.

2.1. Overview of a healthy diet

Definition

A healthy balanced diet is a diet that contains the proper proportions of carbohydrates, fats, proteins, vitamins, minerals, and water necessary to maintain good health.

Components of a healthy balanced diet

According to WHO (2015), a healthy diet for adults contains; fruits, vegetables, legumes, nuts and whole grains. At least 400g of fruits and vegetables a day, 50g of free sugars, less than 30% of total energy intake from fats (unsaturated fats e.g. from fish, avocado, sunflower, olive oil are preferable to saturated fats e.g. fatty meat, butter, ghee, cheese), less than 5g of salt a day, and use of iodized salt. Water should also be included in the diet.

Importance of a healthy, balanced diet

A balanced adequate and varied diet is an important step towards a happy and healthy lifestyle. Vitamins and minerals in the diet are vital to boost immunity and health development. A healthy diet can protect the human body against certain types of diseases, some types of cancer, and skeletal conditions. Healthy diets can also contribute to an adequate body weight. The benefits of eating a wide variety of foods are also emotional, as variety and colour are important ingredients of a balanced diet (WHO, 2017).

2.2. Dietary patterns of students in university

During a study conducted among international students in the United States, students reported unhealthy dietary patterns. A higher consumption of fried foods, meats, sugar, salt, convenience food (frozen, cans, and ready to eat food), cereals, bread, dairy product, soda beverages, snacks,

deserts and less fruits and vegetables (Alakaam et al, 2015). Similarly, in a study exploring factors affecting dietary habits of Mansoura university students revealed unsatisfactory score level of dietary habits among almost all of the students in relation to meal pattern, eating habits, food choice habits, and food supply practice (Abd El-Mouty, 2016). These studies are consistent with a study at Maltese university which revealed that students tend to indulge in unhealthy rather than healthy food, with white bread, rolls and sandwiches the most consumed snacks, and salads being the least selected snack (Cefai et al, 2011).

A study on social and psychological factors affecting eating habits among university students in a Malaysian medical school found that more than half of the students had regular meals and breakfast, majority of them consumed fruits less than three time a week while 51.5% had fried foods twice or more a week and 59.8% drank water less than 2 liters daily. Most of the students in this study had unhealthy eating habits (Ganasegeran et al, 2012). Also according to a study conducted in a British university, there was a high prevalence of unhealthy eating behavioral patterns. Only 18.6% of the students were grouped within the favorable eating cluster which was characterized by moderate snacking, low consumption of convenience and fast foods, and high consumption of fruits and vegetables (Tanton et al, 2015).

During a study done at a university in Lebanon, three dietary patterns were identified among the university students namely; a vegetarian/low calorie dietary pattern; a mixed dietary pattern characterized by high consumption of plant-based food, composite dishes, bread, and low consumption of western type food; and a westernized dietary pattern characterized by high consumption of white bread and western food (Salameh et al, 2014). These findings are similar to those from a study among students at a public university in Brazil where four dietary patterns were revealed; “Traditional”, that consisted of roots, legumes, dairy products, meats and eggs, fruit juice and vegetables, “Exam days” that consisted of breads/cereals, sausages and artificial beverage, “Anxiety” which was made up of coffee/tea and fats, and “End of semester” that was characterized by candy/sugar and snacks. Pattern of food consumption was considered inappropriate as majority of students took up the “exam days”, “End of semester” and “anxiety” patterns (Pereira-Santos et al, 2015).

2.3. Socio-demographic factors

2.3.1. Age

During a study conducted among university students in a Malaysian medical school, eating habits score was significantly low among younger students, 18-22 years (Ganasegeran et al, 2012).

Similarly, according to a study among undergraduate students at the University of Ferrara, northern Italy, young students met considerable difficulties in conducting a healthy lifestyle. They had unfavourable dietary habits (Lupi et al, 2015).

Another study of self-reported consumption of fast food meals by university students, older students were more likely to eat fast-food meals compared to their counterparts, hence unhealthy diet among the older students (McLean-Meynsse et al, 2015).

In contrast, during a study conducted in a University in Southern Italy, there was no association between age of the students and their dietary habits (Bagordo et al, 2013).

In comparison to this, according to study of determinants of eating behaviours in university students, age of the students had no significant association with the eating behaviours of students (Deliens et al, 2014). Similarly, according to a study at a public university in Brazil, the age of the students was not found to be significantly associated with the dietary patterns of the students (Pereira-Santos et al, 2015). Consistent with these studies, a study at a university in Zimbabwe revealed no significant association between age and dietary patterns of students (Manwa, 2013).

2.3.2. Sex

According to a study done at a university in Bangladesh, female students preferred healthier food choices compared to male students. Male students were more habituated with fast food consumption compared to female students. All the male students preferred fast food (Bipasha et al, 2013). In comparison, during a study conducted at Maltese university, female students were consistently more conscious of their diet and had healthier dietary habits (Cefai et al, 2012).

In a University in Northern Italy, gender appeared to influence the frequency of consumption of many foods.

Female students demonstrated a healthier diet compared to male university students, with a significant difference, greater amount of vegetables and fresh fruits and non-alcoholic beverages (Lupi et al, 2015).

Similarly, a study done among students at Steve Biko Campus, Durban showed that gender proved to be the most significant socio-demographic variable with nutrient intake (Ntuli, 2005).

On the contrary, during a study among university students in a Malaysian medical school, eating habits score was not significantly associated with gender of the students (Ganasegeran et al, 2012). A study done at Mansoura University revealed that there was no association between the sex and dietary habits of the students (Abd El-Mouty, 2016).

According to a study in a university in Southern Italy, the sex of students was insignificant with the dietary habits of the students (Bagordo et al, 2013). Similarly, a study among international students in the United States showed no significant association between the sex of students and the dietary patterns of students (Alakaam et al, 2015). Consistent with this, during a study at a public university in Brazil, gender was not associated with dietary patterns of the students (Pereira-Santos et al, 2015).

2.3.3. Religion

According to a study done in Mansoura University, majority of the students chose foods that match with their religion irrespective of the dietary value (Abd El-Mounty, 2016).

Similarly, according to a study among International students in the United States, religion had influence on dietary patterns of the students. Muslim students were concerned about consuming Halal foods. Due to the limited access to Halal foods in the United States, they consumed fewer meats, ate less in restaurants and on campus (Alakaam et al, 2015).

During a study conducted at a university in Zimbabwe, religious beliefs were found to have effect on the students' food choices (Manwa, 2013).

On the other hand, during a study conducted among students at Steve Biko Campus, Durban, the religious practices of the students did not prove to be a significant factor to nutrient intake of the students (Ntuli, 2005).

Similarly, according to a study among students residing in dormitory in the University of Agriculture, Abeokuta, religion had no significant association with the dietary patterns of the students (Elijah, 2010).

2.3.4 Ethnicity

During a study conducted among students at Steve Biko Campus, Durban, ethnicity was found to be statistically significant with nutrient intake of the students (Ntuli, 2005).

Similarly, according to a study among international students in the United States, ethnicity was significantly associated with resistance to changes in dietary patterns (Alakaam et al, 2015).

In contrast, a study among students at a Malaysian medical school revealed no significant association between ethnicity and eating habits of the students (Ganasegeran et al, 2012).

Consistent with these findings, a study among students of Ahfad university for women revealed no significant association between ethnicity of students and their dietary habits (Elhassan et al, 2013). In addition, according to a study among students residing in dormitory in the University of Agriculture, Abeokuta, ethnicity was not associated with the dietary patterns of the students (Elijah, 2010).

2.3.5 Course of study

According to study conducted among university students in Nairobi Metropolis, course of study had significant association with dietary habits of the students. Social science students had unhealthy diet compared to science students, $p=0.002$ (Kinyua et al, 2013).

This study is consistent with a study conducted among university students in Malaysia, breakfast and supper intake, diet content, favourite beverage and knowledge of a balanced diet were significantly associated with course of study of the students (kutty et al, 2015).

In addition, according to a study among students of Ahfad University for women, course of study was significantly associated with the nutritional habits of the students. Medicine, health science, and pharmacy students had healthier nutritional habits since they had more nutritional knowledge (Elhassan et al, 2013).

Contrary to these studies, during a study done at a university in Zimbabwe, there was no significant association between the course of study and the dietary patterns of students (Manwa, 2013). According to a study of determinants of eating behaviour in university students, the study discipline/course of study had no significant association with dietary patterns of the students (Deliens et al, 2014).

Similarly, a study among Jazan university students showed no significant difference between faculties regarding nutritional habits of students (Mahfouz et al, 2016).

2.3.6. Year of study

During a study conducted at Mansoura University, there was no significant association between the academic year of the students and their dietary habits (Abd El-Mouty, 2016).

Similarly, according to a study among international students in the United States, the year of study was not associated with dietary habits of the students (Alakaam et al, 2015). Also a study conducted among university students in Malaysia found no significant association between dietary patterns of the students and the year of study (Kutty et al, 2015).

Contrary to these findings, a study of determinants of eating behaviour in university students revealed that the year of study of the students had no significant association with dietary patterns of students (Deliens et al, 2014).

During a study of self-reported consumption of fast-food meals by university students, academic classifications/ academic year was not associated with consumption of fast foods (McClean-Meynsse et al, 2015).

In addition, a study among students of Ahfad university for women revealed no significant association between year of study and nutritional habits of the students (Elhassan et al, 2013).

2.4. Individual Factors

2.4.1. Nutritional Knowledge

During a study conducted among students at Steve Biko Campus, Durban, there was a positive correlation between nutritional knowledge and food frequency intake, particularly foods from the cereal and meat group. There was also an association between poor dietary patterns and poor nutrient knowledge (Ntuli, 2005).

In consistency with these findings, during a study conducted among female undergraduate university students in Nairobi Metropolis, there was no significant association between students' nutritional knowledge and the nutrition status of the students (Kinyua et al, 2013).

Mansoura University, poor knowledge levels regarding healthy diet was significantly associated with poor dietary habits of the students (Abd El-Mouty, 2016).

In contrast, during a study to assess determinants of eating behaviours in university students, it was revealed that dietary knowledge did not influence the eating behaviours of the students (Deliens et al, 2014).

2.4.2. Food preferences

During a study on determinants of eating behaviour among university students, food preferences was found to be associated with the eating behaviours of the students either healthy wise or unhealthy wise (Deliens et al, 2014).

During a study conducted at Mendel University in Brno, students preferred high-fat products (which are unhealthy) compared to low-fat products which are healthier (Hernandez et al, 2016).

A study among nursing students at Technological Educational Institution of Athens revealed that majority of students preferred home-cooked meals which were healthier (Evagelou et al, 2014).

During a study among international students in the United States, students preferred traditional food, which constitutes of a healthy diet (Alakaam et al, 2015).

According to a study among university students in Nairobi Metropolis, food preferences were significantly associated with students' diet. Most students preferred fast foods, high sugar and highly refined snacking products which constitute unhealthy diet (Kinyua et al, 2013).

2.4.3 Social support

During a study of self-reported consumption of fast-food meals by university students, social support was associated with consumption of fast foods. Students whose family's income levels were high reported higher consumption of fast foods as compared to those with low income levels (McLean-Meyinsse et al, 2015).

Similarly, during a study conducted among undergraduates in Ekiti state, Nigeria, social support was significantly associated with dietary habits of students. Students who did not take breakfast attributed it to insufficient feeding allowances (Adesola et al, 2014).

In addition, a study among students at a university in Zimbabwe showed that majority of the students was affected by lack of money which led to missed meals and intake of low nutritional value foods (Manwa, 2013).

On the other hand, a study at Mansoura University revealed no association between social support of the students and their dietary habits (Abd El-Mouty, 2016).

Similarly, according to a study among university students in a Malaysian medical school, social support was not associated with eating habits of the students (Ganasegeran et al, 2012).

Consistent with these findings, a study among students of Ahfad university for women revealed no significant relationship between social support and nutritional status of the students (Elhassan et al, 2013).

2.4.4. Stress

During a study on determinants of eating behaviour in university students, it was revealed that eating behaviours are influenced by stressful periods. Some students tend to eat healthy while others take up unhealthy eating behaviours (Deliens et al, 2014).

In addition, according to a study among undergraduate students in Kuwait, stress was significantly associated with dietary behaviours of students. Stressed female students were more likely to eat fast foods, snacks, and beverages, which constitute unhealthy diet (Ahmed et al, 2014). Similarly, during a study conducted among nutrition students at a public university in Brazil, students reported a reduction in the volume of meals during stressful periods like those of greater academic activity (Pereira-Santos et al, 2015).

2.4.5. Body image

During a study to assess determinants of eating behaviours in university students, body image was found to be significantly associated with eating behaviours of the students, especially the female students (Deliens et al, 2014).

According to a study among undergraduates in Ekiti state, Nigeria, body image was associated with dietary habits of students. Skipping breakfast was attributed to weight control measures (Adesola et al, 2014).

Consistent with these findings, a study among students of Ahfad University for women revealed an association between body image and nutritional habits of the students. Some students reported being on a weight loss diet (Elhassan et al, 2013).

Similarly, according to a study by Blondin et al (2015), body image had significant influence on dietary patterns of the students. The intention to gain or lose weight affected the dietary patterns of the students.

2.5. Institutional related factors

2.5.1. Residence

According to a study among undergraduate students at the University of Ferrara, Northern Italy, the university students who lived at home with their parents had healthier dietary habits as compared to those who lived at campus (Lupi et al, 2015).

Similarly, during a study conducted at the University of Salento in Southern Italy, it was revealed that students living away from home had unhealthy dietary habits as compared to those living at home (Bagordo et al, 2013).

Also according to a study to determine eating behaviour of university students, residency was significantly associated with the eating behaviours of the students. Students living at campus were often prone to unhealthy diet (Deliens et al, 2014).

In contrast with the above findings, a study conducted at the University of Central Florida revealed no significant association between residence of the students and their eating habits (Minnick,2014). Similarly, during a study conducted among students at Steve Biko Campus, Durban, the students' living arrangements did not have a significant influence on their eating habits and nutrient intake (Ntuli, 2005).

Consistent with these findings, according to a study among students at a Malaysian medical school, living arrangement off the students had no significant association with the eating habits of the students (Ganasegeran et al, 2012).

During a study of self-reported consumption of fast-food meals by university students, area of residence of the students showed no association with consumption of fast foods (McLean-Meyinsse et al, 2015).

2.5.2. Availability of healthy food

During a study conducted among students living in the college accommodation of Wollongong University, lack of healthy food was significantly associated with skipping meals (Liang 1992).

According to a study conducted at the University of Central Florida, availability of healthy food was significantly associated with eating habits of the students. Lack of healthy foods was found to influence unhealthy eating habits of the students (Minnick et al, 2014).

According to a study at Mansoura University, the students' poor dietary habits were linked to the fact that all food courts around campus were fast food restaurants that serve energy dense foods (Abd El-Mouty et al, 2016)

During a study among international students in the United States, the availability of only few traditional food ingredients was associated with the unhealthy dietary patterns of the students (Alakaam et al, 2015).

2.5.3. Teaching schedule

During a study conducted among students living in the college accommodation of Wollongong University, too busy schedule was significantly associated with skipping meals (Liang, 1992).

Similarly, a study among international students in the United States revealed that busy schedules were significantly associated with taking up unhealthy dietary patterns and habits (Alakaam et al, 2015).

Consistent with these findings, a study conducted among undergraduates in Ekiti state, Nigeria revealed an association between teaching schedule and dietary habits of students. Skipping breakfast was attributed to busy schedule (Adesola et al, 2014).

2.5.4. Exam period

A study conducted among students at Mendel University showed an association between exam period and unhealthy diet. Majority of the students reported a change in eating habits to unhealthy eating during exam period (Hernandez et al, 2016).

Consistent with these findings, a study on determinants of eating behaviours in university revealed that exam periods influence eating behaviours of the students. Many students tend to take up unhealthy eating behaviour during exam periods (Deliens et al, 2014).

In addition, a study among nutrition students at a public university in Brazil revealed unhealthy diet among students during exam periods (Pereira-Santos et al, 2015).

2.6. Conclusion

According to the above literature, younger students have unhealthy diet compared to their counterparts, male students exhibit unhealthy dietary patterns as compared to female students, ethnicity of the students has no effect of dietary patterns of students and year of study also has no association with dietary patterns of students.

Low income levels are attributed to unhealthy diet; stress and body image also are associated to unhealthy dietary patterns of students.

Students living at home have better dietary patterns than those living at campus, availability of healthy food affects the dietary patterns of the students, busy teaching schedule and exam period lead to unhealthy dietary habits.

CHAPTER THREE

METHODOLOGY

3.0. Introduction

This chapter describes the methodology used in this study. It represents the research study design, sources of data, study area, study population, sample size determination, sampling techniques, study variables, methods and instruments for data collection, data analysis procedures, quality control issues, ethical considerations and plan for dissemination.

3.1. Study design

This study adopted a cross-sectional design. The reason for choosing this study design was to enable the researcher to analyze the factors affecting dietary patterns among students studying at IHSU, and this study design can be used within any required period of time.

Quantitative approach was used to describe numerical findings of data from a big population for generalization.

3.2. Sources of data

In this study, both primary and secondary data sources were used.

Primary data was directly obtained from the students using questionnaires.

Secondary data was obtained from journals, public reports and documents of other researchers.

3.3. Study area

The study was conducted at International Health Sciences University. It is located in Namuwongo, Makindye East division, Kampala district.

It is a private university located at the top floor of international Hospital Kampala at 4686 St. Banabas road. The road distance from the central business district of the city to Namuwongo is approximately 6 kilometers. The coordinates of the university campus are: 0⁰18'19.0"N, 32⁰36'38.0"E (latitude: 0.305278; longitude: 32.610556).

It has three faculties; school of Nursing, school of Allied Health Sciences, and Institute of Health Policy and Management.

3.4. Study population

The accessible population was all students studying at IHSU whose population is approximately 900 students.

The target population was students offering fulltime courses at IHSU. These include; Nursing students, DCM students, BMLS students, and Public health students. It was the target population because it is easily accessible and always present at the university.

3.5. Inclusion and exclusion criteria

3.5.1. Inclusion criteria

The study included all students offering full time courses, present at IHSU at the time of study, and willing to participate in the study

3.5.2. Exclusion criteria

The study excluded students who are not full time students, those not willing to take part in the study, those not around, those who were sick, and those who were not mentally healthy.

3.6. Sample size determination

To determine the sample size the following formula of Kish and Leis Lie formula (1965) was used.

$$n = Z^2 \times pq \div (d)^2 \text{ Where:}$$

n= the required sample size that caters for the inclusion criteria

Z = Standard normal deviate at 90% confidence interval corresponding to 1.96.

q= proportion of the untargeted population.

d = the acceptable margin of error which will be set at 10%

P = assumed true population prevalence that caters for the inclusion criteria which will be set at 50% (so as to get the highest sample size)

According to probability law: $p+q=1$

Therefore, $1-p=q$

$$n = (1.96)^2 \times 0.5 \times (1-0.5) \div (0.1)^2 = 96$$

$$Ss / \{1 + (ss-1)/\text{population}\}$$

$$96 / \{1 + (96-1)/384\} = 77$$

10% of 77 to cater for non-respondents = $7.7 \approx 8$

Sample for the study was $96 + 7 = 103$.

3.7. Sampling technique.

Stratified random sampling technique was used, in order to obtain a sample population that best represents the entire population being studied because it minimizes sample selection bias and ensures certain segments of the population are not over represented or under represented. Simple random sampling was also used. It is a fair way of selecting a sample from a larger population, since every member of the population has an equal chance of getting selected.

3.8. Sampling procedure

A list of students was obtained from the class representatives. Each of the four courses was divided into three sub-population strata i.e. first years, second years, and third years, each with equal number of students. Then simple random sampling was employed to obtain a required sample size of 12 students per stratum. The lottery method was applied. Each of the population members in a stratum was assigned a unique number. The numbers were placed in a bowl and thoroughly mixed. The members were then requested to pick out one number each. 12 members who picked out “number 1” were selected, while ensuring gender equality.

3.9. Study variables

The study variables include; three independent variables and one dependent variable.

The dependent variable is dietary patterns of students

The independent variables are;

Socio-demographic factors of the students which include; age, sex, religion, ethnicity, course of study and year of study.

Individual factors which include; nutritional knowledge, food preferences, social support, body image, stress, and peer pressure.

Institutional related factors which include; availability of healthy food, residence, teaching schedule, and exam periods.

3.10. Data collection techniques

Data collection was by use of self-administered questionnaires. They were used to collect data on; socio-demographic factors, individual factors, and institutional related factors influencing the dietary patterns of the students. Section A of the questionnaire contains socio-demographic factors, section B; dietary patterns of students, section C; individual factors, and section D; institutional related factors.

3.11. Data analysis and presentation

The data collected at the end of the study was analysed by the researcher.

The research responses were classified and summarized basing on the information provided to the researcher by the respondents. Data analysis was done using quantitative data analysis tools. Quantitative data from questionnaires were entered and analyzed using SPSS version 16.0

Data was run in percentages and frequencies and results presented using bar graphs, pie charts, and frequency tables for univariate analysis.

With the bi-variate data analysis, Pearson's chi-square tests was run and results presented in tables showing the level of relationship between the dependent and independent variables with P values <0.05 considered statistically significant and P values >0.05 not statistically significant. The factors that have association in the bivariate analysis were analysed using multivariate analysis.

3.12. Quality control issues

Data was collected with the help of research assistants who were trained on the various tools to be used during data collection. The research assistants were proficient in English as it is the common language spoken and understood by the students at IHSU.

The research tools (questionnaires) were pre-tested on a few students at Kampala International University in order to find out if majority of the respondents are able to answer the questions in the questionnaire correctly. Pretesting can help determine the strengths and weaknesses of the questionnaire so that the questionnaire can have a reliable question format, good wording and order, hence yield better results.

3.13. Ethical considerations

The research was only done after obtaining approval from the research committee of International Health Sciences University, whereby the researcher was issued an introductory letter that introduces the researcher to the study area. The introduction letter was presented to the dean of students.

Respondent's consent was sought and a consent form signed before getting involved in the study. Respondents were interviewed on a one-to-one basis and questionnaires were anonymous to ensure a high degree of confidentiality and privacy.

All data collected will strictly be used for academic purposes and findings will not be discussed in public. There was voluntary entry into the study and all participants had the right to drop out of the study if they wished to at any time.

3.14. Plan for dissemination

Results from the study will be presented to International Health Sciences University for further use by those will conduct similar studies, and copies will be distributed to the different faculties.

CHAPTER FOUR

RESULTS

4.0. Introduction

This chapter presents the findings of the study, analysis and interpretation. The findings have been presented in tables, pie charts and bar graphs for univariate analysis and with bivariate analysis, chi square tests were done. P values less than 5% considered significant.

4.1. Univariate analysis of socio-demographic characteristics

The age of most respondents was ranging from 18-25 years 61(59.2%), the males were 57(55.3%) and the females 44.7%. the majority of students were Christians (80.6%), majority of students were Ugandans (88.3%). In this study, 25.2% of the students were from Nursing, 25.2% from DCM, 25.2% from BMLS, and 24.3% from public health. There were 33.0% first years, 33.0% second years, and 34.0% third years.

Table 1: demographic characteristics of the respondents

Characteristic	Frequency	Percentage (%)
Age 18-25	61	59.2
26-35	39	37.9
Above 35	3	2.9
Total	103	100
Sex Male	57	55.3
Female	46	44.7
Total	103	100
Religion Christian	83	80.6
Muslim	20	19.4
Total	103	100
Ethnicity Ugandan	91	88.3
Eritrean	3	2.9
South Sudanese	2	1.9
Somali	2	1.9
Kenyan	2	1.9
Others	3	2.9
Total	103	100
Course of study Nursing	26	25.2
DCM	26	25.2
BMLS	26	25.2
Public Health	25	24.3
Total	103	100
Year of study 1 st year	34	33.0
2 nd year	34	33.0
3 rd year	35	34.0
Total	103	100

4.2. Dietary patterns of the students

The different dietary patterns of the students were assessed.

Table 1 shows the different dietary patterns of the students.

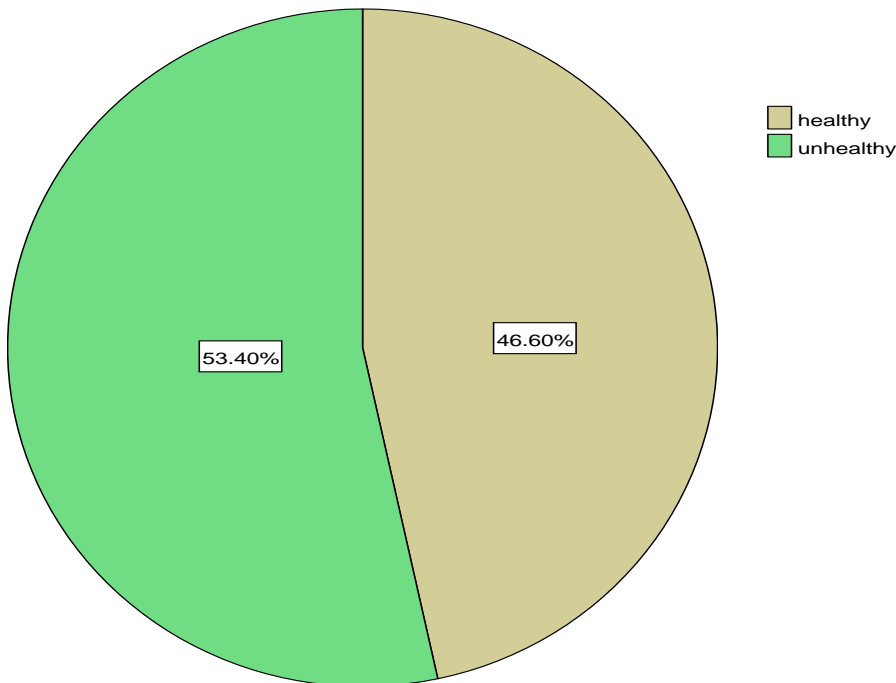
Table 2: Dietary patterns of the students

Variables	Frequency	percentage
How many meals do you take on a day during class days? One	17	16.5
Two	35	34.0
Three	40	38.8
More than three	11	10.7
How many meals do you take on a day during weekends? one	13	12.6
Two	18	17.5
Three	44	42.7
More than three	28	27.2
Do you take breakfast before your daily classes? Yes	66	64.1
No	37	35.9
What is your average daily water intake? 1-3 glasses	41	39.8
4-6 glasses	32	31.1
6-8 glasses	20	19.4
More than 8 glasses	10	9.7
Do you sometimes skip meals? yes	77	74.8
No	26	25.2
Do you consume foods from these food groups often? Cereals and whole grains	29	28.2
Vegetables	24	23.3
Fruits	27	26.2
Proteins	10	9.7
Fats	13	12.6
What do you consider most when making food choices? Cost of food	56	54.4
Favourite meals	18	17.5
Balanced diet	8	7.8
Foods available	13	12.6
Time available	8	7.8
Do you consume a variety of fruits in a week? Yes	53	51.5
No	50	48.5
Do you consume a variety of vegetables in a week? Yes	55	53.4
No	48	46.6
What is your favourite beverage? Soda	20	19.4
Coffee	14	13.6
tea	31	30.1
Beer	12	11.7
Others	26	25.2
Total	103	100

The dietary patterns were dichotomized in to unhealthy and healthy diet/patterns. Every unhealthy diet/patterns scored 1mark, the least score per respondent being 0 and the highest score being 10, regarding the different 10 dietary patterns above.

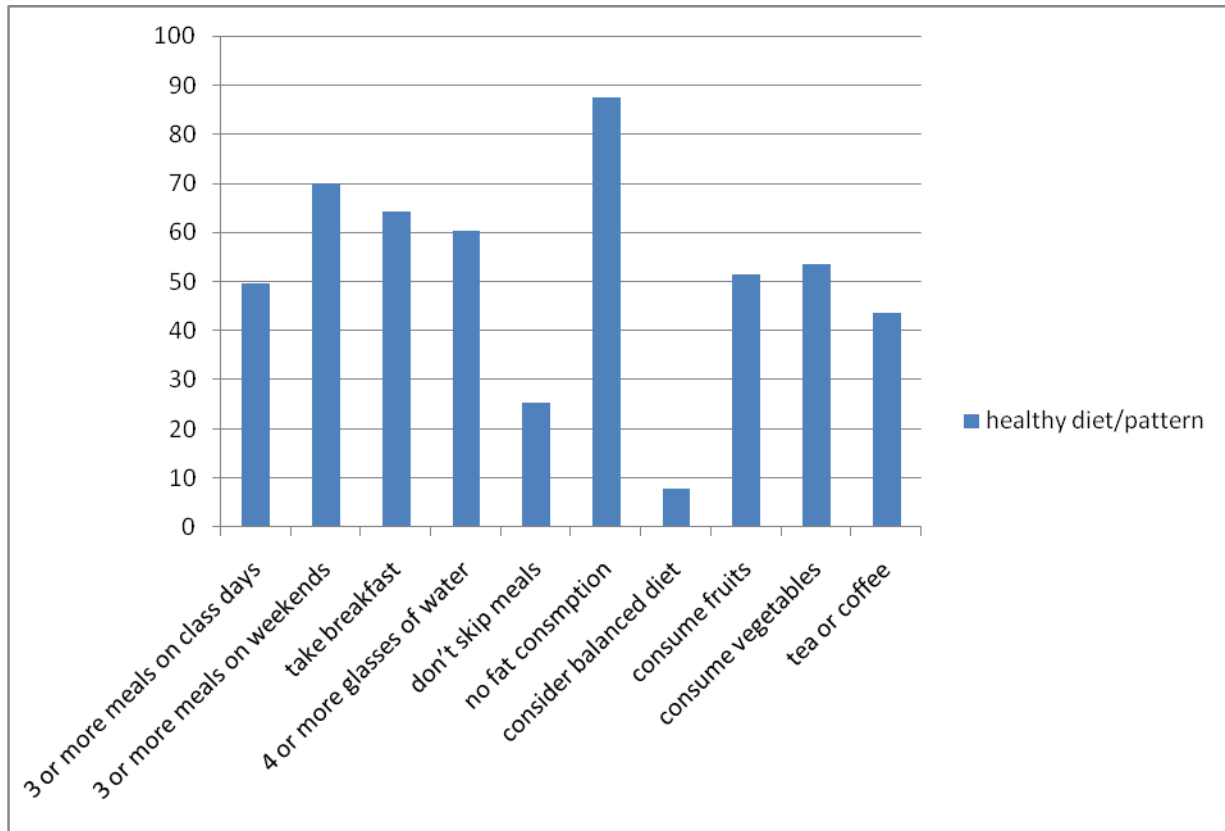
48(46.6%) of the students have healthy diet/patterns while 55(53.4%) have unhealthy diet/patterns.

Figure 2: Dietary patterns categorization



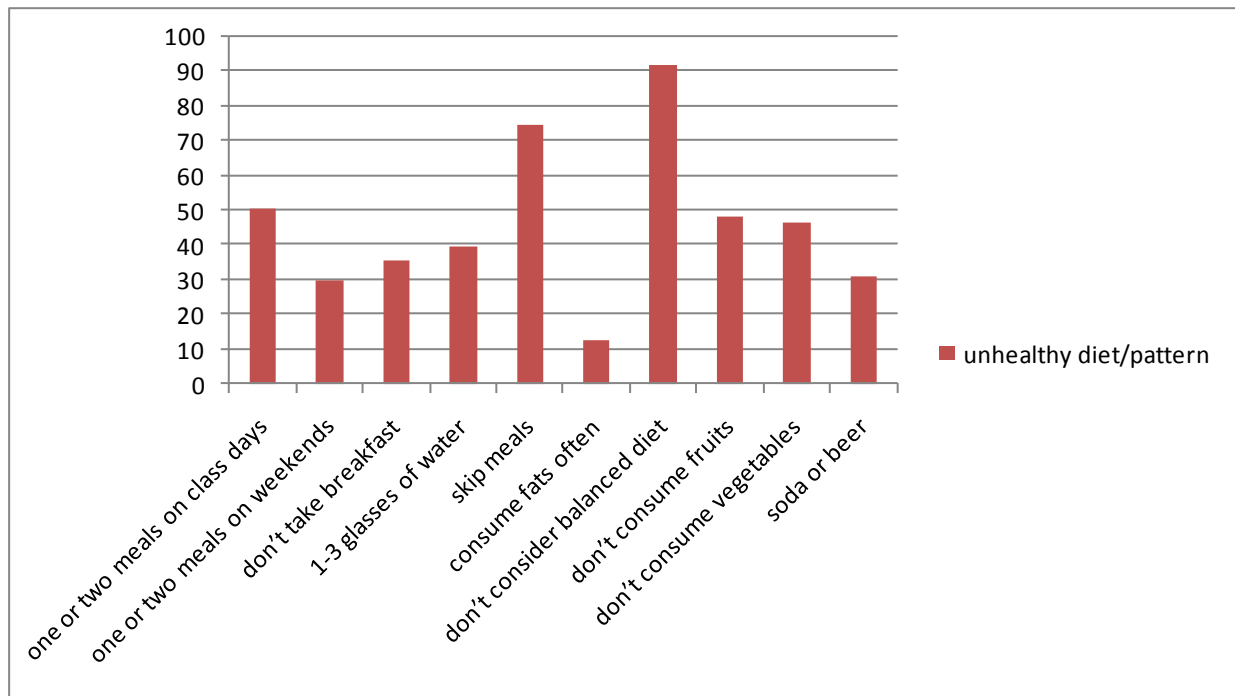
Students who scored 0-4 were considered to have healthy diet/patterns as their dietary patterns consisted of majorly healthy diet/patterns which included; three or more meals a day (49.5%); consuming three or more meals a day during weekends (69.9%); taking breakfast (64.1%); taking 4-6, 6-8 and more than 8 glasses of water per day (60.2%); not skipping meals (25.2%); not consuming fats often (87.4%); considering a balanced diet while making food choices (7.8%); consuming fruits (51.5%) and vegetables (53.4%); and having tea or coffee as a favourite beverage (43.7%).

Figure 3: Healthy dietary patterns



Respondents with score 5-10 were considered to have unhealthy diet/pattern. These had their dietary patterns consisting of majorly unhealthy diet/pattern which included; consuming one or two meals a day during class days(50.5%); consuming one or two meals a day during weekends (30.1%); not taking breakfast (35.9%); taking 1-3 glasses of water a day (39.8%); skipping meals (74.8%); consuming fats often (12.6%); not considering a balanced diet while making food choices (92.2%); not consuming fruits (48.5%), not consuming vegetables (46.6%); and having soda or beer as a favourite beverage (31.1%)

Figure 4: Unhealthy dietary patterns



4.3. Univariate analysis of individual factors

Table 3: Individual factors affecting dietary patterns of the students where N=103

Variable	Frequency	Percentage
Do you watch TV programs on nutrition education? Yes	45	43.7
No	56	54.4
Do you read nutrition books? yes	36	35.0
No	67	65.0
What do you prefer to eat? Traditional foods	62	60.2
Fast foods	29	28.2
Snacks	5	4.9
Exotic foods	7	6.8
Do you have enough money for your feeding? yes	51	49.5
No	52	50.5
Do you have a desire to lose or gain weight? yes	35	34.0
No	68	66.0
Often do you get stressed at IHSU? Never stressed	13	12.6
Occasionally stressed	58	56.3
Always stressed	32	31.1
Do you eat according to what your peers are eating? yes	23	22.3
No	80	77.7

Less than half of the respondents 45(43.7%) watch TV programs on nutrition education. Only 36(35.0%) respondents read nutrition books. Majority 62(60.2%) prefer to eat traditional food. 51(49.5%) have enough money for their feeding during school time, 35(34.0%) have a desire to lose or gain weight and majority 58(56.3) occasionally get stressed while at IHSU. Of the 103 students, 23(22.3%) students eat according to what their peers are eating.

4.4. Univariate analysis of institutional related factors

Table 4: Institutional related factors affecting dietary patterns of students

Variable		Frequency	Percentage(%)
Where do you reside?	Hostel	39	37.9
	Home	64	62.1
Are your favourite foods available within your reach?	Yes	83	80.6
	No	20	19.4
Are fruits and vegetables available within your reach?	Yes	86	83.5
	No	17	16.5
What foods do you usually consume at the food courts around campus?			
	Traditional foods	50	48.5
	Fast foods	27	26.2
	Snacks	21	20.4
	Exotic foods	5	4.9
Does the teaching schedule affect your food intake?	Yes	48	46.6
	No	55	53.4
Do your eating habits change during exam period?	yes	76	73.8
	No	27	26.2

When asked where they reside, 39(37.9%) of the respondents reported that they reside in hostel and 64(62.1%) reside at home. Regarding availability of healthy food, 83(80.6%) have their favourite foods available within their reach, 86(83.5%) have fruits and vegetables available within their reach, and 50(48.5%) usually consume traditional foods at the food courts around campus. 48(46.6%) of the respondents think the teaching schedule affects their food intake and 76(73.8%) of the respondents change their eating habits during exam period.

4.5. Bivariate analysis of socio-demographic factors

Table 5: Association between socio-demographic factors and dietary patterns of the students

Variable	Frequency	Healthy diet/pattern	Unhealthy diet/pattern	P value
Age				
18-25	61	31	30	
26-35	39	16	23	0.290
Above 35	3	1	2	
Sex				
Male	57	26	31	
Female	46	22	24	0.845
Total	103	48	55	
Religion				
Christian	83	38	45	
Muslim	20	10	10	0.805
Ethnicity				
Ugandan	91	40	51	
Eritrean	3	2	1	
S. Sudanese	2	2	0	
Somali	2	1	1	0.348
Kenyan	2	2	0	
Others	3	1	2	
Course of study				
Nursing	26	13	13	
DCM	26	10	16	
BMLS	26	11	13	0.634
Public health	25	14	11	
Year of study				
1 st year	34	14	20	
2 nd year	34	19	15	0.898
3 rd year	35	15	20	

Age (P=0.290), sex (P=0.845), religion (P=0.805), ethnicity (P=0.348), course of study (P=0.634) and year of study (P=0.898) were not significantly associated with the dietary patterns of the students.

4.6. Bivariate analysis of individual factors

Table 6: Association between individual factors and dietary patterns of the students

Variable	Frequency	Healthy diet/pattern	Unhealthy diet/pattern	P value
Watch TV on nutrition education? yes	45	21	24	0.722
No	56	27	29	
Do you read nutrition books? Yes	36	17	19	0.927
No	67	31	36	
What do you prefer to eat? Traditional foods	62	24	38	0.110
Fast foods	29	17	12	
Snacks	5	3	2	
Exotic foods	7	4	3	
Have enough money for your feeding yes	51	27	24	0.238
No	52	21	31	
Have a desire to lose or gain weight yes	35	20	15	0.147
No	68	28	40	
Often do you get stressed at IHSU? Never stressed	13	6	7	0.964
Occasionally stressed	58	27	31	
Always stressed	32	15	17	
Eat according to your peers yes	23	12	11	0.637
No	80	36	44	

Watching TV programs on health education (P=0.722), reading nutrition books (P=0.927), food preference (P=0.110), having enough money for feeding (P=0.238), desire to lose or gain weight (P=0.147), getting stressed (P=0.964) and eating according to what peers are eating (P=0.637) had no significant association with the dietary patterns of the students.

4.7. Bivariate analysis of institutional related factors

Table 7: Association between institutional factors and dietary patterns of the students

	Frequency	Healthy diet/pattern	Unhealthy diet/pattern	P values
Where do you reside?				
Hostel	39	18	21	
Home	64	30	34	0.944
Are your favourite foods available within your reach?				
Yes	83	43	40	
No	20	5	15	0.032
Are fruits and vegetables available within your reach?				
Yes	86	44	42	
No	17	4	13	0.038
What foods do you usually consume at the food courts around campus?				
Traditional foods	50	31	19	
Fast food	27	12	15	
Snacks	21	5	16	0.000
Exotic foods	5	0	5	
Does the teaching schedule affect your food intake?				
Yes	48	21	27	
No	55	27	28	0.590
Do your eating habits change during exam period?				
Yes	76	36	40	
No	27	12	15	0.792

Availability of favourite food within reach (P=0.032), availability of fruits and vegetables within reach (P=0.038) and food consumed at the food courts around campus (P=0.000) had significant association with the dietary patterns of students. Residence (0.944), teaching schedule (P=0.590) and change of eating habits during exams (P=0.795) were not significantly associated with the dietary patterns of the students.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.0 Introduction

In this section, the findings of the study are discussed in relation to the literature and the aims and objectives of the study.

The aim of this study was to determine the dietary patterns of the students at IHSU and the factors affecting them. This study assessed the dietary patterns of the students as well as the factors affecting them.

5.1 Dietary patterns of the students

During class days, majority of the students eat three meals a day (38.8%), and a good number of them eat two meals a day (34.0%). On the weekends, majority of the students eat three meals per day and almost half of them eat more than three meals per day (69.9%). These findings are consistent to those of a study at a Malaysian medical school where more than half of the students had regular meals (Ganasegeran et al, 2012). Most of the students (64.1%) take breakfast before daily classes and 39.8% take 1-3 glasses of water daily. Similarly, a study by Ganasegeran et al (2012) reported an average daily water intake of less than 2litres among medical students at a Malaysian Medical school. More than half of the students (74.8%) skip meals sometimes and lunch is the most skipped meal. Majority skipped meals because of financial insufficiencies and busy schedule. These findings are not consistent with those by Kumar et al (2014) where breakfast was the most skipped meal.

Cereals and whole grains (28.2%), vegetables and fruits are the most consumed food groups while proteins and fats are the least consumed food groups. These finding differ from those of a study by Alakaam et al (2015) where students consumed less fruits and vegetables. In this study, most of the students (54.4%) consider cost of food when making food choices. This is supported by the fact that University students tend to make their own food choices based on cost of food and availability of food (Gan WY, 2011). Half of the students (51.5) consume a variety of fruits in a week. More than half (53.4%) of the students consume a variety of vegetables in a week .According to WHO, adequate fruit and vegetable intake entails a consumption of at least 400g of fruits and vegetables per day. Similar to the findings of this current study, students of the

department of nursing sciences at the University of Fort Hare did not meet the recommendations for intake of vegetables and fruits (Van den Berg, 2012). Tea (30.1%) was the highest considered favourite beverage and beer the least favourite. In contrast, according to Kathryn et al (2004), students regularly drank soda and other sugared beverages one or more times per day.

5.1.1 Healthy diet/patterns

Studies suggest that the majority of college/university students do not consume healthy diets including the required amounts of fruits and vegetables. Recommendations for a healthy diet include; consuming five or more high fruits/vegetables per day and two or fewer servings of food typically high in fats (USDHHS, 2005). According to this study, students with healthy diet/patterns (46.6%) were less than those with unhealthy diet/patterns and the healthy dietary patterns included; eating three or more meals a day (49.5%), taking breakfast before classes (64.1%), taking 4 or more glasses of water per day (60.2%), not skipping meals (25.2%), not consuming fats often(87.4%), considering a balanced diet while making food choices (7.8%), consuming fruits and vegetables and having tea or coffee as favourite beverage. Similarly, according to a study conducted in a British University, the healthy eating behavioural patterns were less than the unhealthy with only 18.6% of the students grouped within the favourable eating cluster which was characterized by moderate snacking, low consumption of convenience and fast foods, and high consumption of fruits and vegetables (Tanton et al, 2015).

5.1.2. Unhealthy diet/patterns

Unhealthy diet/patterns is a major public health concern among adults who experience transition into university life (Rubina A, 2009). Although these behaviours of students are considered temporary, as part of university life, unhealthy habits picked up at this stage generally persist in older adult life (Silima K, 2004). Some common unhealthy eating patterns among young adults include; meal skipping, poor consumption of fruits and vegetables, eating away from home, snacking and fast food consumption (Shi Z, 2009).

Similarly, this study revealed unhealthy diet/patterns among the students. More than half (53.4%) of the students had unhealthy diet/patterns and the unhealthy dietary patterns included; eating less than three meals a day (50.5%), not taking breakfast before classes (35.9%), water intake of 1-3 glasses per day (39.8%), skipping meals (74.8%), consuming fats (12.6%), not

considering a balanced diet while making food choices (92.2%), not consuming fruits and vegetables and having soda or beer as a favourite beverage. Consistent with these findings, a study among students at a public university in Brazil revealed unhealthy dietary patterns as majority of the students took up dietary patterns that consisted of breads, sausages, artificial beverages, fats, candy/sugar and snacks (Pereira-Santos et al, 2015).

5.2. Socio-demographic factors

Age, sex, religion, ethnicity, course of study, and year of study had no significant association with the dietary patterns of the students. Similarly, according to Deliens et al (2014), Elijah(2010), Ntuli(2005) and Manwa (2013), age, sex, religion, ethnicity, and course of study had no significant association with the dietary patterns of the students. A study conducted among university students in Malaysia, a study at Mansoura University, and Afhad University for women found no significant association between year of study and dietary habits of students (Kutty et al, 2015; Abd El-Mouty, 2016 & Elhassan et al, 2013)

On the contrary, at a Malaysian medical school, eating habits of the students were significantly poor among younger students (Ganasegeran et al, 2012); according to Bipasha et al (2013), female students preferred healthier food choices; and at Steve Biko Campus, Durban, ethnicity was found to be statistically significant with nutrient intake of the students (Ntuli, 2005).According to a study done in Mansoura University, majority of the students chose foods that match with their religion irrespective of the dietary value (Abd El-Mounty, 2016). According to a study conducted among university students in Nairobi Metropolis, course of study had significant association with dietary habits of the students. Social science students had unhealthy diet compared to science students, $p=0.002$ (Kinyuaet a, 2013).

5.3. Individual Factors

In this study, Majority of the respondents don't watch TV programs on nutrition education and majority don't read nutrition books but Watching TV programs on nutrition education and reading nutrition books were not significantly associated with the dietary patterns of the students. Similarly, during a study to assess determinants of eating behaviours in university students, it was revealed that dietary knowledge did not influence the eating behaviours of the students (Deliens et al, 2014).

In contrast, Ntuli (2005) and Abd El-Mouty (2016) reported a significant association between poor dietary patterns and poor nutritional knowledge.

What the students prefer to eat had no significant association with the dietary patterns of the students. These findings are inconsistent with those of a study on determinants of eating behaviour among university students, food preferences was found to be associated with the eating behaviours of the students either healthy wise or unhealthy wise (Deliens et al, 2014) and a study among international students in the United States, students preferred traditional food, which constitutes of a healthy diet (Alakaam et al, 2015).

Social/financial support had no significant association with the dietary patterns of the students. These findings are similar to those of a study at Mansoura University which revealed no association between social support of the students and their dietary habits (Abd El-Mouty, 2016). On the other hand, Manwa (2013) and Adesola et al (2014) reported that social support was significantly associated with dietary habits of the students. Students who did not take breakfast attributed it to insufficient feeding allowances.

Desire to lose or gain weight was not significantly associated with the dietary patterns of students. On the contrary, according to Deliens et al (2012), Adesola et al (2014), Elhassan et al (2013) and Blondin et al (2015), the intention to gain or lose weight affected the dietary patterns of the students, especially the female students. Skipping breakfast was attributed to weight control measures.

Getting stressed had no significant association with the dietary patterns of students. Contrary to these findings, Deliens et al (2014) and Perreira-Santos (2015) revealed that eating behaviours of students are influenced by stressful periods. Some students tend to eat healthy while others take up unhealthy eating behaviours.

Eating according to what your peers are eating had no significant association with the dietary patterns of students. Deliens et al (2014) reported otherwise; Peer pressure is an influencing factor of individual food choices among university students.

5.4. Institutional Factors

The residence of the students had no significant association with the dietary patterns of the students. On the contrary, Lupi et al (2015), Bagordo et al (2013) and Deliens et al (2014) cited a significant association between residence of students and dietary patterns of the students. Students living at campus were often prone to unhealthy diet as compared to those living at home.

Availability of favourite foods within reach had a significant association with unhealthy diet/patterns. Majority of the students whose favourite foods were not available within their reach had unhealthy diet/patterns. These findings are similar to those by Liang (1992) where lack of healthy food was significantly associated with skipping meals. Lack of healthy foods was found to influence unhealthy eating habits of the students (Minnick et al, 2014).

The mushrooming of shopping malls, convenience stores, vending machines and fast food outlets has created an alarming situation for young adults to practice unhealthy eating habits. University students tend to make their own food choices based on cost of food and availability of fast food (Rubina et al, 2009).

In this study, there was significant association between availability of fruits and vegetables within reach and unhealthy diet/habits. Majority of the respondents who did not have fruits and vegetables available within their reach had unhealthy diet/patterns. This is related to the fact that dietary changes of university students are mostly attributed to drastic change in the environment and resources available, frequent exposure to unhealthy foods and habits leading to higher consumption of high caloric snacks, fast food and lower consumption of fruits and vegetables (Azadbakht, 2013).

The food usually consumed at the food courts around campus had significant association with unhealthy diet/patterns. Majority of students who consumed snacks at the food courts around campus had unhealthy diet/patterns and all the students who consumed exotic foods at the food courts around campus had unhealthy diet/patterns. A similar study by AbdEl-Mouty et al (2016)

reported that poor dietary habits were linked to the fact that all food courts around campus were fast food restaurants that serve energy dense foods.

The teaching schedule at the university had no significant association with the dietary patterns of the students. Inconsistent with the findings of this study, Liang (1992) reported that too busy schedule was significantly associated with skipping meals. Similarly, Adesola et al (2014) reported that skipping meals by students was attributed to a busy schedule.

In this study, exam periods had no significant association with the dietary patterns of the students. Contrary to these findings, Deliens et al (2014) reported that many students tend to take up unhealthy eating behaviour during exam periods. Similarly, Hernandez et al (2016) and Perreira-Santos et al (2015) revealed association between exam period and unhealthy diet of students. Majority of the students reported a change in eating habits to unhealthy eating during exam period

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0. Introduction

This chapter presents the conclusions and recommendations for the study.

6.1. Conclusions

The study revealed that more than half of the students (53.4%) had unhealthy diet/patterns with the major unhealthy dietary patterns being; not considering a balanced diet while making food choices (92.2%) and skipping meals (74.8%). The major reasons for skipping meals are lack of financial funds and busy schedule.

Socio-demographic factors and individual factors of the students did not have significant association with the dietary patterns of the students.

Availability of healthy food had significant association with the dietary patterns of the students. Majority of the students with healthy diet/patterns have favourite food available within their reach and fruits and vegetables available within their reach, while those who usually consume snacks and those who usually consume exotic foods at the food courts around campus had unhealthy diet/patterns.

6.2. Recommendations

To the university;

1. Students should be educated about healthy eating behaviors and incorporate courses on healthy lifestyles and nutrition.
2. The university administration should confirm that appropriate healthy food is available in the food courts around the university, including fruits and vegetables.
3. A cafeteria should be made available where food would be sold at a cheaper rate to the students.

To the government

1. A national investigation into the financial aid received by underprivileged students should be done
2. In addition, the government should consider the amount available to students on financial aid, in order to improve their capacity to afford more wholesome and nutritious foods that promote a feeling of mental wellbeing and physical health.
3. Theory-based intervention research should be undertaken to provide a clearer understanding of how and why university students make healthy or unhealthy lifestyle choices, and what programmes, as well as what changes the programme would be more suitable to.

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APPENDIX 1
CONSENT FORM

I am Nankabirwa Racheal a final year student at International Health Sciences University offering a Bachelor’s degree on Nursing Science. I am conducting a research study entitled“entitled factors affecting dietary patterns among students studying at International Health Sciences University”.

You are kindly requested to spare some few minutes to fill this questionnaire. Your participation is voluntary and if you feel that you do not want to continue, you can drop out at any time. All the information you provide shall be confidential and your identity will not be revealed to anyone. There is no harm that you will sustain by participating in this study.

The benefit of this study is that it will generate information that may be needed to improve the dietary patterns of students at IHSU. The information generated from this study shall be used for academic purposes only and not for commercial purpose.

If you accept to participate in this study, then you can continue by signing below.

Signature of the participant..... Date.....

Signature of the interviewer..... Date.....

APPENDIX II: QUESTIONNAIRE

SECTION A: SOCIO-DEMOGRAPHIC FACTORS: tick where appropriate

- 1) How old are you?years old.
- 2) What is your sex?
Male Female.....
- 3) What is your religion?
Christian..... Muslim..... Others (specify).....
- 4) What is your ethnicity?
Ugandan..... Eritrean..... South Sudanese..... Somali..... Kenyan.....
Others (specify).....
- 5) What is your course of study?
Nursing..... DCM..... BMLS..... Public health.....
- 6) Year of study: 1st year..... 2nd year..... 3rd year.....

SECTION B: DIETARY PATTERNS

a) Eating pattern

- 7) Averagely, how many meals do you take on a day during the class days (Monday to Friday)?
One..... Two..... Three..... more than three.....
- 8) Averagely, how many meals do you take on a day during the weekend (Saturday & Sunday)?
One..... Two..... Three..... More than three
- 9) At what time do you have adequate time for eating on a day?
Morning.....Mid-day.....Evening.....All of the above.....
- 10) Do you take breakfast before your daily classes?
Yes..... No.....
- 11) What is your average daily water intake?
1-3 glasses..... 4-6 glasses.....6-8 glasses.....More than 8 glasses.....
- 12) (i) Do you sometimes skip meals? Yes..... No
- (ii) If yes which meals; breakfast..... lunch.....Supper.....
- (iii) Why do you miss them?
.....

b) Food choice pattern. Tick where appropriate

- 13) In your daily diet, how often do you consume foods from this food groups?

1-daily, 2- weekly, 3- occasionally, 4- never

Indicate 1, 2, 3 or 4 against the foods below

Cereals & whole grains..... b) Vegetables c) Fruits..... d) Proteins..... e) Fats.....

14) What do you consider most when making food choices?

1) Cost of food 2) Favourite meals 3) Balanced diet 4) Foods available for purchase 5) time available

15) Do you consume a variety of fruits in a week?

Yes..... No.....

16) How many times do you consume fruits in a week?

Never =1.....Once =2..... Twice =3.....More than three times.....

17) Do you consume a variety of vegetables in a week?

Yes No.....

18) How many times do you consume vegetables in a week?

Never =1..... Once =2..... Twice =3....., More than three times =4.....

19) What is your favourite beverage?

Soda..... Coffee..... Tea..... Beer..... others (specify).....

SECTION C: INDIVIDUAL FACTORS: Tick where appropriate

20) Do you watch T.V programs on nutrition education?

Yes..... No.....

21) Do you read nutrition books for leisure?

Yes..... No.....

22) What do you prefer to eat? You can tick more than one

1) Traditional foods..... 2) Fast foods..... 3) Snacks..... 4) Exotic foods.....

23) Do have enough money for your feeding during school time?

Yes..... No.....

24) Do you have a desire to lose or gain weight?

Yes..... No.....

25) Often do you get stressed at IHSU?

Never stressed occasionally stressed..... Always stressed

26) Do you eat according what your peers are eating?

Yes..... No.....

SECTION D: INSTITUTIONAL RELATED FACTORS: Tick where appropriate

28) Where do you reside?

Hostel..... Home.....

29) Are your favourite foods available within your reach?

Yes..... No.....

30) Are fruits and vegetables available within your reach?

Yes No.....

31) What foods do you usually consume at the food courts around campus?

Traditional foods..... Fast foods..... Snacks..... Exotic foods.....

32) Do you think the teaching schedule affects your food intake?

Yes..... No.....

33) Does your eating habits change during exam period?

Yes..... No.....

Thanks for your participation

APPENDIX III: INTRODUCTORY AND CORRESPONDENCE LETTER



making a difference in health care

Office of the Dean, School of Nursing

Kampala, 28th June 2017

TO: THE REGISTRAR
INTERNATIONAL HEALTH SCIENCES UNIVERSITY
P.O. BOX 7782, KAMPALA - UGANDA



Dear Sir/Madam,

RE: ASSISTANCE FOR RESEARCH

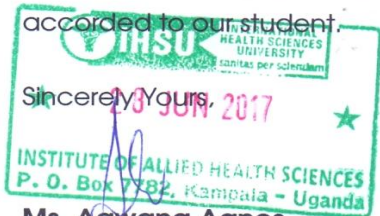
Greetings from International Health Sciences University.

This is to introduce to you **Nankabirwa Racheal** Reg. No. **2013-BNS-FT-020** who is a student of our University. As part of the requirements for the award of a Bachelors degree in Nursing of our University, the student is required to carry out research in partial fulfillment of the award.

The topic of research is: **Factors Affecting Dietary Patterns Among Students Studying at International Health Sciences University.**

This therefore is to kindly request you to render the student assistance as may be necessary for the research.

I, and indeed the entire University are grateful in advance for all assistance that will be accorded to our student.



Ms. Agwang Agnes
Dean, School of Nursing

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