

**FACTORS AFFECTING NUTRITIONAL EATING HABITS OF  
MEDICAL STUDENTS AT KAMPALA INTERNATIONAL  
UNIVERSITY – WESTERN CAMPUS AND ITS IMPACT ON THE  
COMMUNITY**

A RESEARCH SUBMITTED AS PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF  
BACHELOR OF MEDICINE AND BACHELOR OF SURGERY AT  
KAMPALA INTERNATIONAL UNIVERSITY

BY

YVES NEZERWA

BMS/0009/81/DF

Supervised by Prof. Yovani BEGUMYA

OCTOBER 2014

## DECLARATION

I, Yves Nezerwa, hereby declare that this research work is entirely as a result of my own effort. This study has, to the best of my knowledge, never been researched in this setting before nor submitted for any other academic qualification or publication in any institution.

Researcher

Yves Nezerwa

Date

28/10/2014

Signature

Yves Nezerwa

## APPROVAL

I hereby certify that Yves Nezerwa conducted this research work entitled “Factors affecting nutritional eating habits of medical students at Kampala International University – Western Campus and its impact on the community” under my supervision and guidance. I, therefore forward it to KIU-WC academic board.

Supervisor

Prof. Yovani Begumya

Date

28/10/2014

Signature

Yovani Begumya

## **ACKNOWLEDGEMENT**

Glory be to God our Father and to His Son Jesus Christ for promises kept, unfailing love and undeserved provision without which I would have not had the strength, perseverance and determination to accomplish this tedious work.

To my friends Anne Horrobin, Ben Withers, Caris Grimes, Ceeya Bolman, Clare Clifton, Chris Page, Catherine Lewer, Gavin Halliday, Geoff Martin, Mbaga Nzabakurana, Steve King, Stuart Anderson and Sylvie Mukamusoni for your encouragements and support.

To my siblings Angélique Uwera, Céline Ihirwe, Eric Ndababonye, Samantha Uwase and my beloved wonderful niece Melissa Bonté, your trust and prayers kept me going.

To KIU administration and all academic staff for their efforts to make our course a success during our stay in the University.

To Prof. Yovani R. Begumya, whose commitment has helped me complete this project.

Lastly I thank the entire body of medical students for their cooperation during data collection.

## **DEDICATION**

I dedicate this research to my beloved father, the late Commander François Nkusi, though you went to be with the Lord, you still live on through us.

To my mother, Cassilde Gahongayire, your love and unceasing support has fueled my resolve during trying times, I hope this will make you proud.

To my wife, Clémentine Uwineza, a gift from above and an oasis to my soul.

## **ABBREVIATIONS**

BDA: BRITIST DIETETIC ASSOCIATION

KIUTH: KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL

KIU-WC: KAMPALA INTERNATIONAL UNIVERSITY – WESTERN CAMPUS

WHO: WORLD HEALTH ORGANIZATION

NCD: NON-COMMUNICABLE DISEASES

FCS: FAMILY CONSUMER SERVICE

FFQ: FOOD FREQUENCY QUESTIONNAIRE

RDI: REFERENCE DAILY INTAKE

## **DEFINITIONS**

**Dichotomous:** where the respondent has two options

**Diet:** the sum of the food consumed by an organism or group

**Nominal-polytomous:** where the respondent has more than two unordered options

**Nutrition:** is the provision, to cells and organisms, of the materials necessary (in the form of food) to support life

**Ordinal-polytomous:** where the respondent has more than two ordered options

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## Chap I INTRODUCTION

### 1.1 BACKGROUND

A healthy diet is one that helps maintain or improve health. It is important for the prevention of many ailments and chronic health risks such as: obesity, heart disease, diabetes, and cancer. *“Whosoever was the father of a disease, an ill diet was the mother”* (George Herbert, 1660)

A healthy diet entails consuming appropriate amounts of all nutrients, and an adequate amount of water. Nutrients can be obtained from many different foods, so there are a wide variety of diets that may be considered healthy diets.

The provision of appropriate and adequate nutrition to students is a matter of major concern in view of cumulative effects of nutrition on a student’s present and future life. Research has shown that a balanced diet is necessary to enable students to learn, to grow and to maintain a good health (Tseng, Rose T L, et al, 1981). The latter is derived from the fact that normal body structure and functions is made and maintained by provision of a balanced diet. Clearly therefore, foods served to students at school or neighboring restaurants and hotels should contribute significantly to the health, growth and well being of students.

A poor diet can have an injurious impact on health, causing deficiency diseases such as scurvy and kwashiorkor; health-threatening conditions like obesity and metabolic syndrome; and such common chronic systemic diseases as cardiovascular disease, diabetes, and osteoporosis.

It is known that the experiences we have in childhood relating to consumption of food affect our perspective on food consumption in later life (*Unkown*). From this, we are able to determine ourselves our limits of how much we will eat, as well as foods we will not eat - which can develop into eating disorders, such as anorexia, bulimia, or orthorexia. This is also true with how we perceive the sizes of the meals or amounts of food we consume daily; people have different interpretations of small and large meals based on upbringing.

While plants, vegetables, and fruits are known to help reduce the incidence of chronic disease, the benefits on health posed by plant-based foods, as well as the percentage of which a diet needs to be plant based in order to have health benefits is unknown. Nevertheless, plant-based food diets in society and between nutritionist circles are linked to health and longevity, as well as contributing to lowering cholesterol, weight loss, and in some cases, stress reduction. Indeed, ideas of what counts as "healthy eating" have varied in different times and places, according to scientific advances in the field of nutrition, cultural fashions, religious proscriptions, or personal considerations.

## **1.2 PROBLEM STATEMENT**

As we know that our eating habits determines not only our well-being and capacity to learn, it is a major factor that shapes our future health for research has shown that a bad eating habits may alter our health and cause some chronic diseases (NCD), which will then have a major impact on ourselves, and the community. It is imperative to insure that in KIU-WC, students are made aware of good nutritional habits and encouraged to follow them in order to gain normal body structure and functions, otherwise; efforts employed for their training wouldn't produce long lasting results as intended.

## **1.3 OBJECTIVE OF THE STUDY**

### **1.3.1 General Objectives**

To determine whether medical students understand the impact their nutritional habits will have on themselves and the community.

### **1.3.2 Specific Objectives**

To achieve the foregoing purpose, the study effort will be directed toward examining the following major areas:

- Types and quality of foods available to students
- Mode of preparation.
- Eating patterns and nutrient intake of students
- To determine what average value and weight of food is taken per meal per student and what determine this

#### **1.4 RATIONALE**

Medical students, being guardian of health, we should not only teach the community about a healthy diet among other public health issues, but also show it by example; thus all of us will benefit a healthy life.

## **Chap II LITERATURE REVIEW**

Human subsistence refers to the types of food humans eat, the technology used in and methods of obtaining or producing food, and the ways in which social groups or societies organize themselves for getting, making, and distributing food. For millions of years, humans probably fed on-the-go, much as other primates do. The lifestyle associated with this feeding strategy is generally organized around small, family-based social groups that take advantage of different food sources at different times of year.

The early human diet probably resembled that of closely related primate species. The great apes eat mostly plant foods. Many primates also eat easily obtained animal foods such as insects and bird eggs. Among the few primates that hunt, chimpanzees will prey on monkeys and even small gazelles. The first humans probably also had a diet based mostly on plant foods. In addition, they undoubtedly ate some animal foods and might have done some hunting. Human subsistence began to diverge from that of other primates with the production and use of the first stone tools. With this development, the meat and marrow (the inner, fat-rich tissue of bones) of large mammals became a part of the human diet. Thus, with the advent of stone tools, the diet of early humans became distinguished in an important way from that of apes.

There are a number of diets and recommendations by numerous medical and governmental institutions that are designed to promote certain aspects of health.

The World Health Organization (WHO) makes the following 5 recommendations with respect to both populations and individuals:

- Achieve an energy balance and a healthy weight
- Limit energy intake from total fats and shift fat consumption away from saturated fats to unsaturated fats and towards the elimination of trans-fatty acids
- Increase consumption of fruits and vegetables, legumes, whole grains and nuts
- Limit the intake of simple sugars
- Limit salt / sodium consumption from all sources and ensure that salt is iodized

Other recommendations include:

- Sufficient essential amino acids ("complete protein") to provide cellular replenishment and transport proteins. All essential amino acids are present in animals. A select few plants (such as soy and hemp) give all the essential acids. A combination of other plants may also provide all essential amino acids. Fruits such as avocado and pumpkin seeds also have all the essential amino acids.
- Essential micronutrients such as vitamins and certain minerals.
- Avoiding directly poisonous (e.g. heavy metals) and carcinogenic (e.g. benzene) substances; and avoiding foods contaminated by human pathogens (e.g. E. coli, tapeworm eggs).

An unhealthy diet is a major risk factor for a number of chronic diseases including: high blood pressure, diabetes, abnormal blood lipids, overweight/obesity, cardiovascular diseases, and cancer.

The WHO estimates that 2.7 million deaths are attributable to a diet low in fruit and vegetable every year. Globally it is estimated to cause about 19% of gastrointestinal cancer, 31% of ischaemic heart disease, and 11% of strokes, thus making it one of the leading preventable causes of death worldwide.

A nutritious diet has four characteristics: adequate, balanced, moderate and varied. A good diet must provide enough nutrients, but not too many. This is where adequate and moderate diets fit in. An adequate diet provides enough of the essential nutrients and calories, whereas a moderate diet avoids excessive amounts of calories and any particular food or nutrient. In the case of calories for example, consuming too many leads to obesity. The concept of moderation allows you to occasionally indulge in foods that some consider harmful, such as French fries, premium ice cream, or chocolate. A balanced diet does not overemphasize certain foods at the expense of others. Lastly, a varied diet is needed – in other words, one that includes many different foods. A varied diet is important because it is more likely to ensure that you get the essential nutrients in the right amounts.

There are also factors influencing food selection. To say that many factors influence food choices is an understatement. In fact, researchers have conservatively enumerated sixteen general categories related to stable food preferences: food characteristics, age, family relations, television, culture, self-concept, socioeconomic status, sex, peer pressure, body weight, race, food familiarity, nutritional knowledge, parental attitudes, food associations, and geography. We could also add religious beliefs, which often restrict certain foods.

These factors interact with one another to produce, over space and time, the world of human food choices. Consequently, making food choices implies more than simply eating whatever “tastes good”. Yet many people, including those who make the food, never consider this aspect of their daily lives. It is important to understand that this process does exist and to explore what it means.

We will look now at food availability, palatability, cost and convenience, as well as the social, psychological, and nutritional factors leading to food choices. Food availability plays a fundamental role in determining our food choices because we can eat only the food at hand. On palatability, how food is accepted depends on its taste, texture, smell, and temperature. Cost and convenience also influence food choices. At one time or another, many people find themselves facing tight budgets. During such times, people tend to purchase bargain foods or foods that give the best-perceived values. On the other hand, we often purchase items because of the lower price, regardless of any other factor. In students, less time is available for other activities, including food preparation. Convenience, therefore, becomes yet another factor in food selection, especially when income is high or low and time for food preparation is low. One of the strongest social connections to food exists because people have historically shared food; thereby creating a common bond by the food they have eaten together. Another factor affecting food choice is our psychological perception of different foods. Two important aspects of this factor are familiarity for we tend to eat foods similar to those we ate as children simply because they are familiar and food associations with different sensations and experience.

## **Chap III METHODOLOGY**

### **3.1 STUDY DESIGN**

This was a cross-sectional study with the use of food frequency questionnaire (FFQ) with close and open ended-questions, where respondents provided the information on nutritional behaviors in response scale manner like dichotomous, nominal-polytomous and ordinal-polytomous.

### **3.2 SETTING OF STUDY**

The study was carried out in Ishaka Sub/County, Bushenyi District, at the Western Campus of Kampala International University (KIU-WC), and its neighboring areas where students attending this school live.

### **3.3 STUDY POPULATION**

The study targeted medical students only at KIU-WC.

### **3.4 SAMPLE SIZE**

The sample size was 15% (120) of the total number of medical students.

### **3.5 EXCLUSION AND INCLUSION CRITERIA**

The study included only medical students, and other students pursuing other course other than medical were excluded from the study.

### **3.6 DATA COLLECTION**

The methodology that was be used to achieve the study objectives was to collect data using questionnaires to medical students who voluntarily participated in the study.

### **3.7 PROOFING AND DATA ANALYSIS**

Data collected from the study was analyzed using some software such as Microsoft Excel, Epi Info and Statistical Package for Social Scientists (SPSS) in order to present the results in figures and tables.

### **3.8 ETHICAL CONSIDERATIONS**

The study underwent IREC approval and a letter was given entitling us to carry out the study and participants in the study were those who consented to participate freely.

### **3.9 LIMITATION OF STUDY**

During data collection, some questions in the questionnaires were left unanswered, and other questionnaires were not returned.

### **3.10 TIME FRAME**

The study was carried out from the period of August to October 2014.



## Chap IV RESULTS

### 4.1 INTRODUCTION

Presented below are findings and results of sample of 120 respondents, medical students at KIU-WC who responded to a close and open-ended questionnaire in order to assess the topic our research entitled “factors affecting nutritional eating habits of medical students at KIU-WC and its impact on the community”. The data was collected, tabulated and analyzed by the researcher and presented in form of percentage frequency tables, pie charts and narrations.

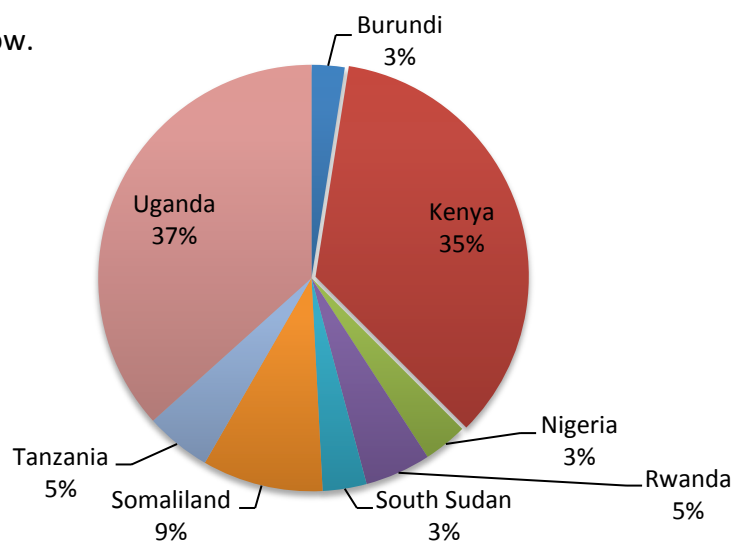
### 4. 2 STUDY FINDINGS AND DATA PRESENTATION

#### 4.2.1 Social demographics

##### a. Country of origin of respondents

For easy analysis, data collected was analyzed with MS Excel and presented using Tables percentages, bar graphs and charts as below.

Country	Number of respondents
Burundi	3
Kenya	42
Nigeria	4
Rwanda	6
South Sudan	4
Somaliland	11
Tanzania	6
Uganda	44
Total	120

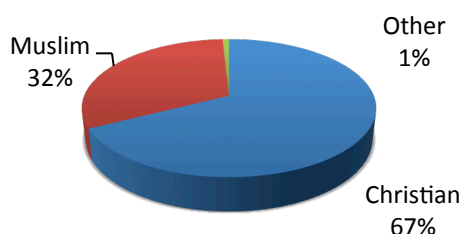


The majority of respondents originate from Uganda (37%) and Kenya (35%).

##### b. Religion of respondents

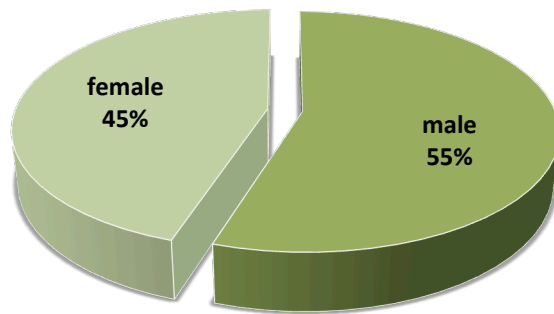
As culture and religion influence our nutritional eating habits, the majority of the respondents come from a Christian religion (67%), followed by Muslims (32%)

Religion	Respondents
Christian	81
Muslim	38
Other	1



### c. Gender of respondents

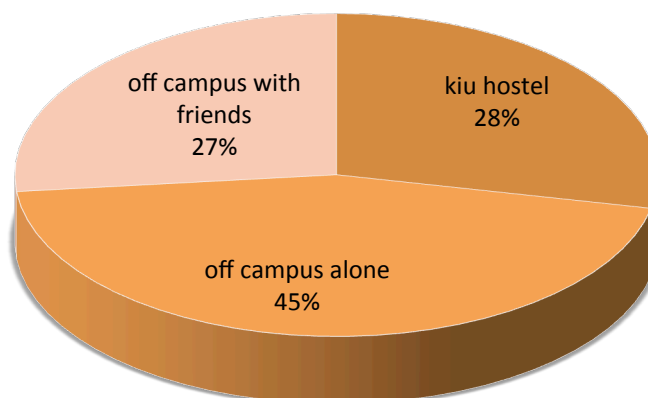
In terms of gender, 66 (55%) were male, and 54 (45%) were female.



### d. Residence of the respondents

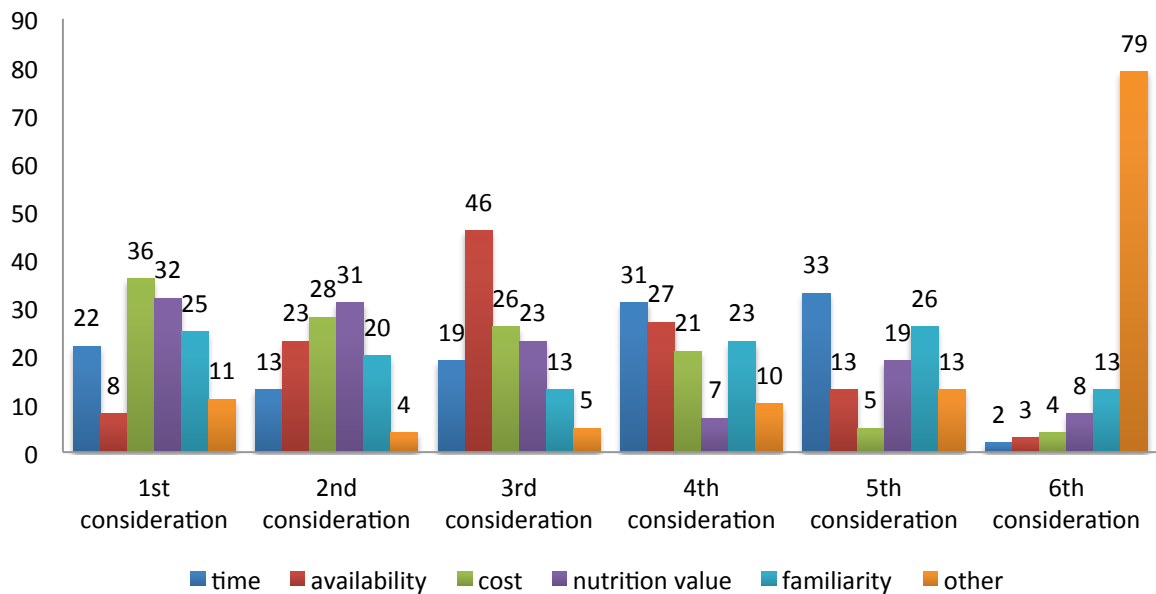
KIU-WC Hostels	Off KIU-WC Hostels	
	Staying alone	Staying with friends
34	54	32

Of the 120 respondents, 34 (28%) reside in KIU-WC hostel and 86 (73%) reside off KIU-WC hostel, where 54 (45%) of those stay alone, while 32 (27%) stay with friends.

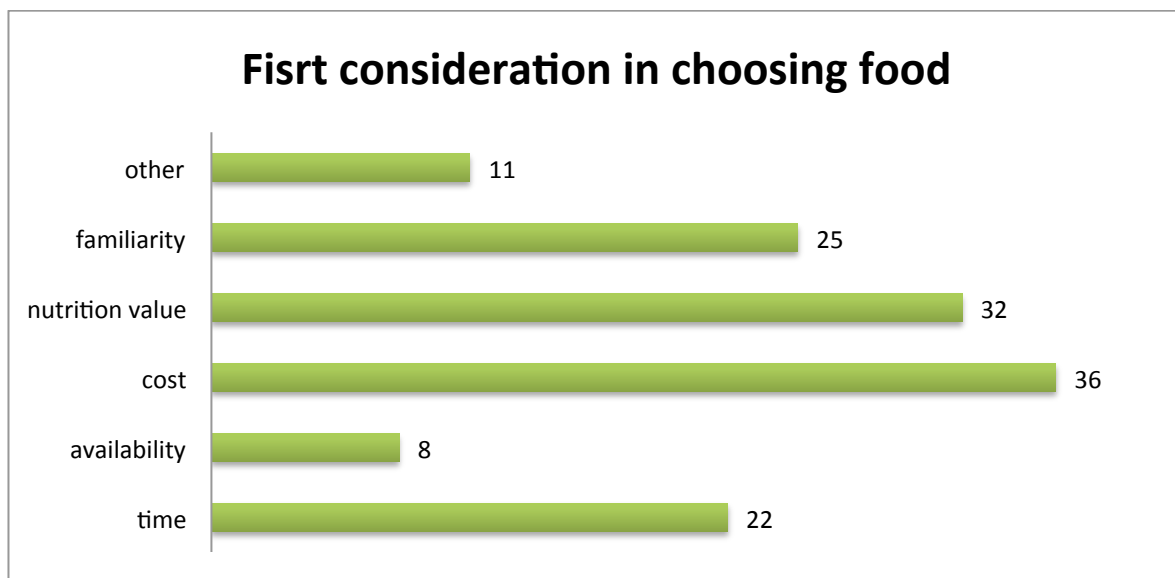


#### 4.2.2 Factors affecting nutritional habits

##### a. What medical students in KIU-WC consider when buying food



Among the respondents, 36 of them, the biggest number (27%) consider cost of food as the first consideration to buy food, then nutrition value comes next with 32 respondents (24%).

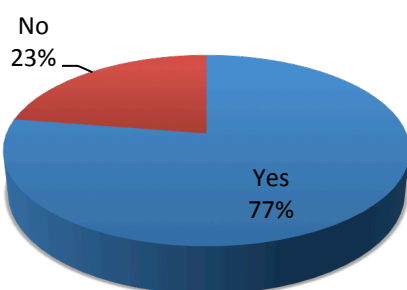


### **b. Eating frequency and cooking**

Frequency	Number of respondents	Percentage
Once	7	5.8
Twice	35	29.2
Thrice	63	52.5
More	15	12.5

The majority of respondents (52.5%) eat thrice, followed by those who eat twice per day (29.2%), then some who eat more than three times a day (12.5%), and lastly those who eat once a day (5.8%).

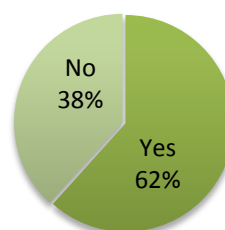
In terms of cooking for themselves, 93 respondents (77%) reported that they cook some of the meals, while 27 respondents (23%) don't cook at all.



### **c. Views on restaurants and hotels**

Respondents were asked about their views on the quantity, quality and diversity of foods they find in restaurants and hotels in neighboring area.

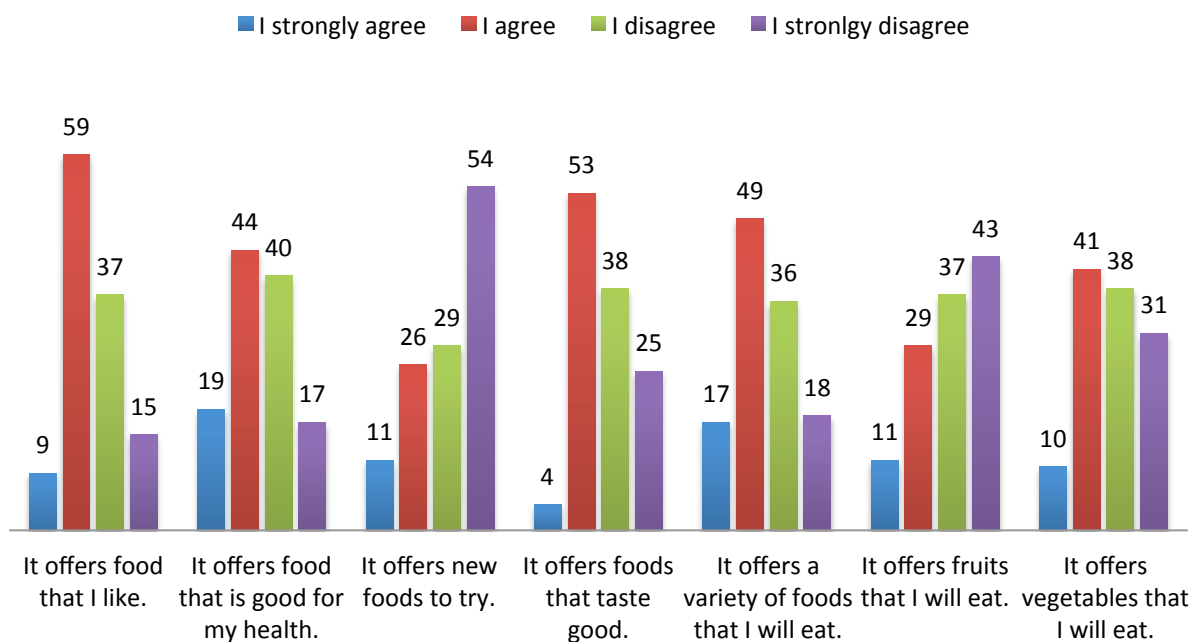
Is food served in restaurants / hotels enough?		Percentage
Yes	74	62
No	46	38



62% of respondents reported that the food served in hotels and restaurants was enough while 38% said it was not.

When asked of their opinions of food served in terms of quality and diversity, here were the responses.

Opinion on food offered in hotels / restaurants	I strongly agree	I agree	I disagree	I strongly disagree
It offers food that I like.	9	59	37	15
It offers food that is good for my health.	19	44	40	17
It offers new foods to try.	11	26	29	54
It offers foods that taste good.	4	53	38	25
It offers a variety of foods that I will eat.	17	49	36	18
It offers fruits that I will eat.	11	29	37	43
It offers vegetables that I will eat.	10	4	43	31

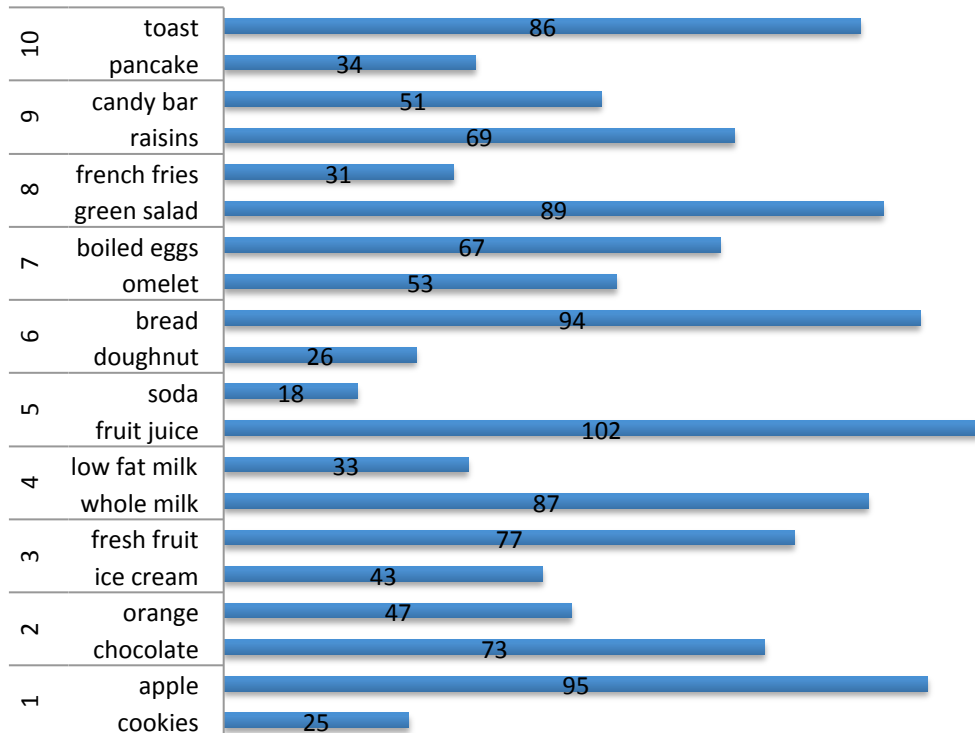


59 respondents (49%) agree to like foods offered, while 37 respondents (31%) disagree; whether the food is good for health, 44 (37%) agree against 40 (33%) who disagree. About new foods to try, 54 (45%) strongly disagree and 29 (24%) disagree, the same with fruits, 43 (36%) strongly disagree and 37 (31%) disagree also.

### 4.2.3 Nutritional preferences and knowledge

#### a. Preferred foods

%		Which one would you choose over the other?				%
79	95	Apple	vs.	Cookies	25	21
39	47	Orange		Chocolate	73	61
64	77	Fresh fruit		Ice cream	43	36
28	31	Low fat milk		Whole milk	89	72
15	18	Soda		Fruit juice	102	85
78	94	Bread		Doughnut	26	22
56	67	Boiled eggs		Omelet	53	44
31	31	French fries		Green salad	89	74
43	51	Candy bar		Raisins	69	57
72	86	Toast		Pancake	34	28

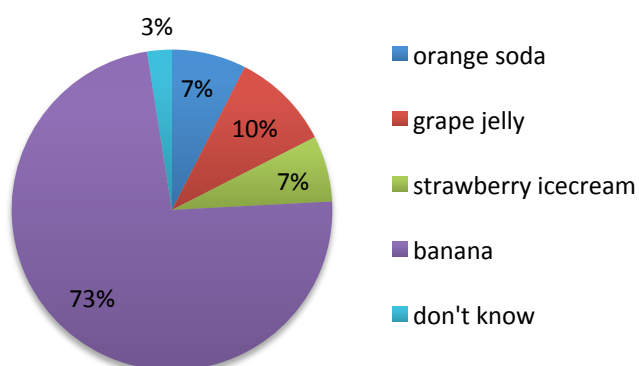


The above table and chart show the way respondents feel about certain food. In some instances, they would prefer a more healthier fruit juice (85%) to a soda (15%), and in others they majority chose whole milk rich in fats (72%) to low fat milk (28%), or chocolate (61%) known to be rich in highly refined sugars to an orange fruit (39%)

When asked about which fruits and their derivatives, the responses were as follows

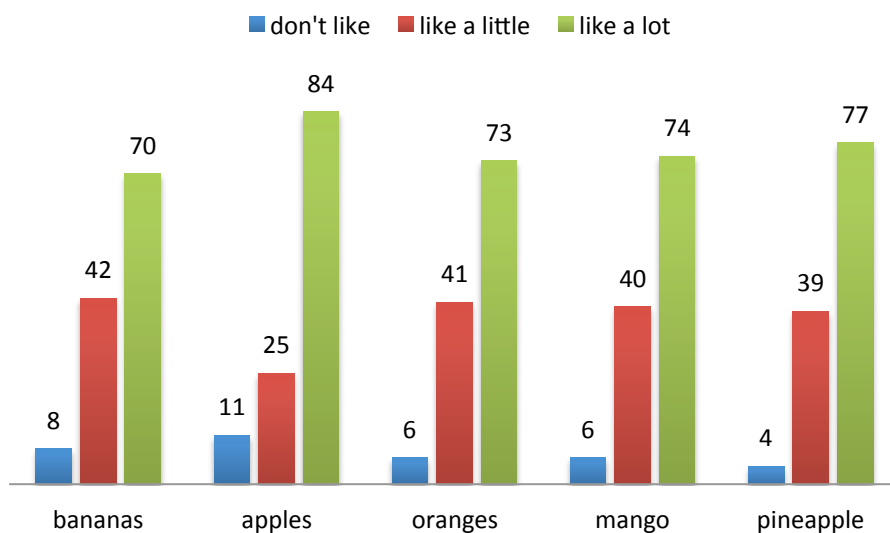
Fruit / derivative	Number of respondents	%
Orange soda	9	7
Grape jelly	12	10
Strawberry ice cream	8	7
Banana	88	73
Don't know	3	3

Most respondents (73%) said they would choose a banana



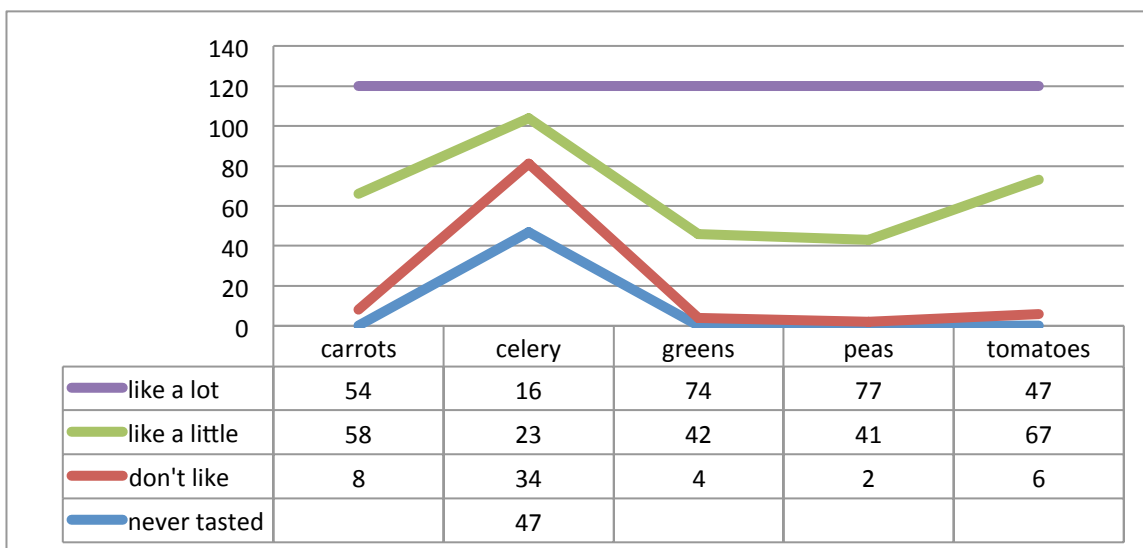
On their opinions on natural fruits alone, they responded as per the following table and chart.

Opinions on fruits					
	Bananas	Apples	Oranges	Mango	Pineapple
Don't like	8	11	6	6	4
I like a little	42	25	41	40	39
I like a lot	70	84	73	74	77

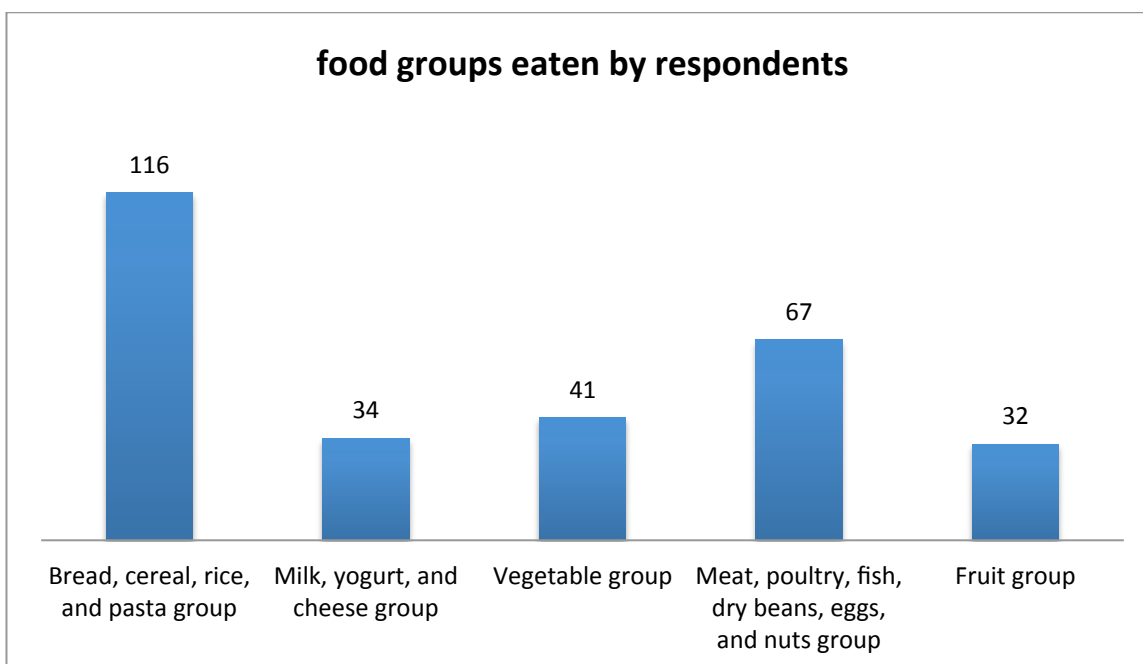


The bigger number of respondents likes the fruits mentioned and those are available locally.

About vegetables, the opinions were as following



We asked the respondents from which food group composed their meals in the last week.



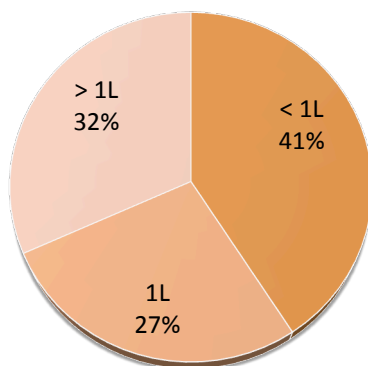
Almost all respondents (97%) had their meals composed of carbohydrates, 67 respondents (56%) had proteins rich products in their meals, 41 respondents (34%) took vegetables, 34 respondents (28%) had milk products and only 32 respondents (27%) took fruits.



## **b. Water consumption**

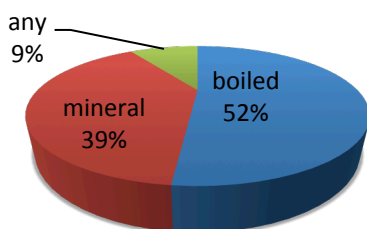
We also inquired about the quality and the quantity of water consumption.

Water drunk/day	Number of respondents	%
< 1L	49	41
1L	33	27
> 1L	38	32



49 respondents (41%) reported that they drink less than one liter of water per day, 38 respondents (32%) said that they drink more than one liter per day while 33 respondents (27%) drink just one liter of water per day.

Type of water	Number of respondents	%
Boiled	62	52
Mineral / bottled	47	39
Any	11	9

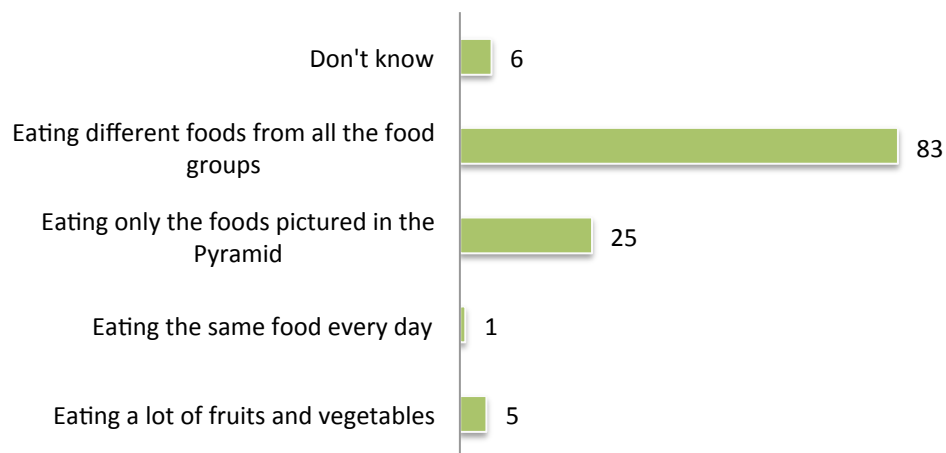


62 respondents (52%) drink boiled water, 47 respondents (39%) reported that they take mineral / bottled water and 11 respondents (9%) said that they drink any, be it boiled, non-boiled or mineral.

### c. Nutritional knowledge

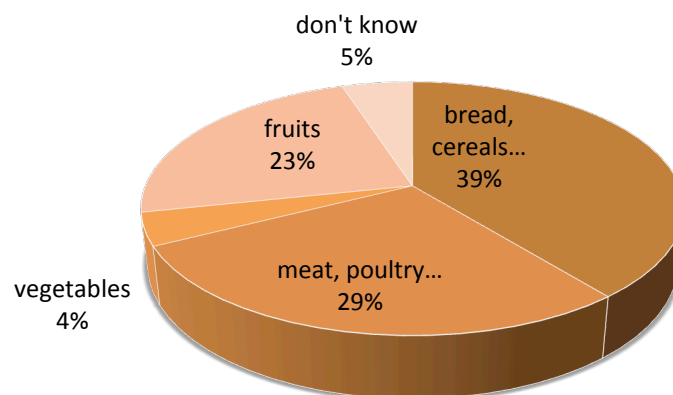
We asked medical students who participated in this study what “a balanced diet” is?

	Number of respondents	%
Eating a lot of fruits & vegetables	5	4
Eating the same food every day	1	1
Eating only the foods pictured in pyramid	25	21
Eating different foods from all the food groups	83	69
Don't know	6	5



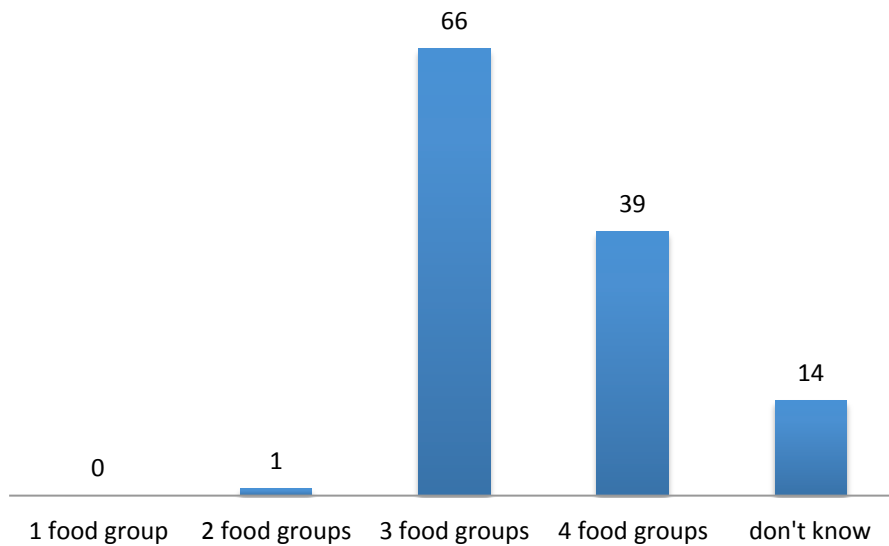
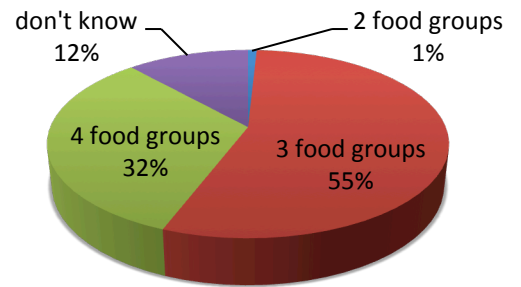
From which food group in the Pyramid should you eat the most servings a day?

	Number of respondents	%
Bread, cereals, rice and pasta	47	39
Meat, poultry, fish, eggs, dry beans and nuts	34	29
Vegetables	5	4
Fruits	28	23
Don't know	6	5



Joe ate cereal with milk and a banana and drank orange juice for breakfast. How many different food groups did Joe eat from the Pyramid?

How many?	Number of respondents	%
1 food group	0	0
2 food groups	1	1
3 food groups	66	55
4 food groups	39	32
Don't know	14	12



66 respondents (55%) said that the food Joe ate contained 3 food groups, 39 respondents (32%) said it was 4 food groups in the meal Joe took and just 1 respondent said there were 2 food groups in that food. But 14 respondents (12%) reported not to know how many food groups were in that meal.

## **Chap V SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 INTRODUCTION**

The discussion of findings is in relation to factors affecting nutritional eating habits of medical students at KIU-WC and its impact on the community. This section presents the summary of findings from the research, data collected from 120 respondents, the conclusions as well as recommendations by the researcher. The discussions are based on the analysis presented in chapter four of the research.

### **5.2 SUMMARY AND DISCUSSION OF FINDINGS**

#### **5.2.1 Demographic findings**

Demographically, respondents come from 8 different nations, 44 (37%) from Uganda, 42 (35%) from Kenya, 11 (9%) from Somaliland, 6 (5%) from Rwanda, 6 (5%) from Tanzania, 4 (3%) from Nigeria, 4 (3%) from South Sudan and 3 (2.5%) from Burundi.

81 respondents were Christians, 38 were Muslims, and 1 was from another unspecified religion.

55% (66) were male and 45% (54) were female. Of the 120 respondents, 34 (28%) reside in KIU-WC hostels, the rest rent houses in the proximities of the campus, among which 54 (45%) stay alone, while 32 (27%) stay with friends.

#### **5.2.2 Findings on factors affecting nutritional eating habits**

Among things medical students consider when buying foods, the first consideration with the biggest number of respondents was “cost” with 36 (30%), followed by “nutritional value” with 32 (26.6%), then “familiarity” with 25 (20.8%), “time” with 22 (18.3%) ...

#### **Eating**

In terms of their eating frequency, 63 (52.5%) respondents eat thrice a day, 35 (29.2%) eat twice a day, 7 (5.8%) eat once a day and 15 (12.5%) eat more than three times per day. Among those, 93 (77.5%) cook some of the meals for themselves, while 27 (22.5%) don't cook at all.

Regarding the foods served in restaurants and hotels around, 74 (62%) respondents said it was enough, whereas 46 (38%) said it wasn't.

Though 59 (49%) respondents thought hotels offer foods they like, 40 (33%) respondents disagree that foods offered are good for health, 54 (45%) strongly disagree that there are new foods to try, and 43 (36%) strongly disagree on variety of fruits offered.

Almost all respondents (97%) had their meals composed of carbohydrates, 67 respondents (56%) had proteins rich products in their meals, 41 respondents (34%) took vegetables, 34 respondents (28%) had milk products and only 32 respondents (27%) took fruits.

People usually have two or three meals a day regularly. Snacks of smaller amounts may be consumed between meals. Some propose not snacking; yet advocate three meals a day (of 600 kcal per meal) with four to six hours between. Having three well-balanced meals (thus 1/2 of the plate with vegetables, 1/4 protein food as meat, ... and 1/4 carbohydrates as pasta, rice, ...) will then account to some 1800–2000 kcal; which is the average requirement for a regular person.

### **Water consumption**

About water consumption, 49 respondents (41%) reported that they drink less than one liter of water per day, 38 respondents (32%) said that they drink more than one liter per day while 33 respondents (27%) drink just one liter of water per day. 52% drink it boiled, 39% drink mineral bottled water and 9% drink any kind, whether boiled, non boiled or mineral.

Some health authorities have suggested at least eight glasses, eight fl oz each (240 mL), of water per day (64 fl oz, or 1.89 litres), and the British Dietetic Association recommends 1.8 litres. This common misconception is not supported by scientific research. Various reviews of all the scientific literature on the topic performed in 2002 and 2008 could not find any solid scientific evidence that recommended drinking eight glasses of water per day. In the US, the reference daily intake (RDI) for water is 3.7 litres per day (L/day) for human males older than 18, and 2.7 L/day for human females older than 18 including water contained in food, beverages, and drinking water. The amount of water varies with the individual, as it depends on the condition of the subject, the amount of physical exercise, and on the environmental temperature and humidity. An individual's thirst provides a better guide for how much water they require rather than a specific, fixed quantity.

### **Nutritional knowledge**

On what a balanced diet is, 83 (69%) respondents said it is eating different foods from all the food groups, 25 (21%) said it was eating only the foods pictured in the pyramid, 6 (5%) admitted not to know what it is, 5 (4%) said that it was eating a lot of fruits and vegetables, lastly 1 respondent said that it was eating the same food every day.

In a breakfast composed of cereal with milk, banana and orange juice, 66 (55%) respondents said that there were three different food groups in that breakfast, 39 (32%) said it was made of 4 food groups, 14 (12%) didn't know and 1 respondent said it was made of 2 food groups.

The United Healthcare / Pacificare nutrition guideline recommends the following foods per day to enhance your health (based on a 2,000 calorie diet): Grains: 6 oz per day 'Make half your grains whole', Vegetables: 2.5 cups per day 'Vary your veggies', Fruits: 2 cups per day 'Focus on fruits', Milk: 3 cups per day 'Get your calcium-rich foods', Meat and beans: 5.5 oz per day 'Go lean with protein'.

### **5.3 CONCLUSIONS**

From the research findings and respondents themselves, it would not be exaggerating if we said that nutritional eating habits of medical students are generally poor if we consider the amount of knowledge they have on nutrition and especially on non-communicable diseases, which are now the leading causes of morbidity and mortality worldwide. This goes without saying that, medical students today are medical professionals of tomorrow, and this makes them guardians of health for the future.

Not only this concern should be emphasized of reasons like: it cost large sums of money to train medical students, and for the fact that the population look towards medical professionals (medical students of today) to find solutions on public health issues; they are not spared by what used to be called “western diseases”, then “diseases of the rich”, and now affecting millions, thus are among the leading causes of death, whereas they are preventable.

Nutrition is taught in schools in many countries. In England and Wales the Personal and Social Education and Food Technology curricula include nutrition, stressing the importance of a balanced diet and teaching how to read nutrition labels on packaging. In many schools a Nutrition class will fall within the Family and Consumer Science or Health departments. In some American schools, students are required to take a certain number of FCS or Health related classes. Nutrition is offered at many schools, and if it is not a class of its own, nutrition is included in other FCS or Health classes such as: Life Skills, Independent Living, Single Survival, Freshmen Connection, Health etc. In many Nutrition classes, students learn about the food groups, the food pyramid, Daily Recommended Allowances, calories, vitamins, minerals, malnutrition, physical activity, healthy food choices and how to live a healthy life.

A 1985 US National Research Council report entitled *Nutrition Education in US Medical Schools* concluded that nutrition education in medical schools was inadequate. Only 20% of the schools surveyed taught nutrition as a separate, required course. A 2006 survey found that this number had risen to 30%.

In KIU-WC, there is a course unit on Nutrition, but unfortunately the knowledge acquired is lost with time, or even when it is remembered, it is to help others when it should start with us for our own protection and preservation of good health, and then lead the others by examples.

## **5.4 RECOMMENDATIONS**

In general terms, the healthy eating pyramid recommends the following intake of different food groups each day, although exact amounts of calorie intake depends on sex, age, and lifestyle:

- Daily exercise to expend calories for weight control
- At most meals, whole grain foods including oatmeal, whole-wheat bread, and brown rice; 1 piece or 4 ounces (110 g).
- Plant oils, including olive oil, canola oil, soybean oil, corn oil, and sunflower seed oil; 2 ounces (60 g) per day
- Vegetables, in abundance 3 or more each day; each serving = 6 ounces (170 g).
- 2–3 servings of fruits; each serving = 1 piece of fruit or 4 ounces (110 g).

- 1–3 servings of nuts, or legumes; each serving = 2 ounces (60 g).
- 1–2 servings of dairy or calcium supplement; each serving = 8 ounces (230 g) non-fat or 4 ounces (110 g) of whole.
- 1–2 servings of poultry, fish, or eggs; each serving = 4 ounces (110 g) or 1 egg.
- Sparing use of white rice, white bread, potatoes, pasta and sweets;
- Sparing use of red meat and butter.

In KIU-WC in particular:

- Include Nutrition subject in all the COBERMS levels
- Establish periodical nutrition campaign for the students body, and the community
- Put in place a University subsidized restaurant run by professional and controlled by nutritionist
- Open a nutrition unit in KIUTH to help and counsel students and the community
- Liaise with local authorities to sensitize the population (farmers and businessmen) to make available a wide range of vegetables and fruits
- Train and empower hygiene controllers in partnership with the Private Sector and Ministry of Health



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# ANNEXE 1

## WORK PLAN AND BUDGET

OBJECTIVES	ACTIVITIES	TIME FRAME						Indicators
		Aug - Sept '14	Sept '14	Oct '14	Oct '14	Oct '14	Oct '14	
<b>Administrative</b>	Choosing & Presentation of the research topic for approval							Supervisor and Researcher
<b>Proposal writing and handing for correction</b>	Writing a proposal and preparing research tools							Researcher
<b>Correction of the proposal</b>	Handing the proposal to the supervisor and presenting it for approval							Supervisor and Researcher
<b>Gathering data</b>	Distribution of research tools and collection							Researcher
<b>Data analysis and Interpretation</b>	Making sense of the collected information							Supervisor and Researcher
	Compiling the analyzed information							Researcher
	Discussing, the findings.							Supervisor and Researcher
<b>Dissemination of information</b>	Copies of the dissertation presented to HOD, KIU-WC library and conferences							Researcher

## ANNEXE 2

### BUDGET

Activity	Unity	Unitary Cost	Total
Photocopy		28,000	28,000
Pens	5	200	1000
Research assistants	2	20,000	40,000
Data collection		50,000	50,000
Typing and printing		100,000	100,000
Transport		8,000	6,000
Miscellaneous		50,000	50,000
<b>Total</b>			<b>UGX 300,000</b>

## ANNEXE 3

### NUTRITIONAL EATING HABITS QUESTIONNAIRE

**Contact person:** Yves Nezerwa, BMS 6.1, +256794543276 / +250788543276

#### Instructions:

- This is not a test. There are no right or wrong answers.
- Read or listen to each question carefully and think about it before you choose an answer.
- To choose an answer, put an **X** next to your choice.
- Choose only one answer for each question unless you are asked to choose more than one.
- It is OK to check "don't know" if you really don't know the answer.
- If you want to change an answer, erase your old answer and mark your new choice. Be sure to erase completely.
- Do not skip any questions.

Country: \_\_\_\_\_ Religion: \_\_\_\_\_ Class: \_\_\_\_\_ Sex: \_\_\_\_\_M \_\_\_\_\_F

Residence: \_\_\_\_ KIU Hostel      Other (Off KIU Hostel) \_\_\_\_ Alone      \_\_\_\_ With friends

1. What factors you consider when buying foods? From 1 to 6, give numbers according to priority.

____ Time	____ Availability	____ Nutritional value
____ Cost	____ Familiarity	____ Other

2. How many times you eat per day? \_\_\_\_ Once      \_\_\_\_ Twice      \_\_\_\_ Thrice      \_\_\_\_ More

3. Do you cook for yourself? \_\_\_\_ Yes      \_\_\_\_ No.

4. If Yes (for Question 3), what? \_\_\_\_ Breakfast      \_\_\_\_ Lunch      \_\_\_\_ Super

5. Is the meal served in restaurants enough? \_\_\_\_ Yes      \_\_\_\_ No      Estimate weight in grams (e.g. 500g) \_\_\_\_

6. Tick the food in each line that you think you would like to eat.

____ cookies OR ____ an apple	____ doghnut OR ____ bread
____ chocolate cake OR ____ an orange	____ omelet OR ____ boiled eggs
____ ice cream OR ____ fresh fruit	____ green salad OR ____ french fries
____ whole milk OR ____ low-fat milk	____ raisins OR ____ candy bar
____ fruit juice OR ____ soda	____ pancake OR ____ toast

7. What is a "balanced diet"? Mark only one answer.

- ☐ Eating a lot of fruits and vegetables  
☐ Eating the same food every day  
☐ Eating only the foods pictured in the Pyramid  
☐ Eating different foods from all the food groups  
☐ Don't know

9. From which food group in the Pyramid should you eat the most servings a day? Mark only one answer.

- ☐ Bread, cereal, rice, and pasta  
☐ Meat, poultry, fish, eggs, dry beans, and nuts  
☐ Vegetables  
☐ Fruit  
☐ Don't know  
☐ Don't Know

8. If you want to eat more fruit, which of the following would you choose?

- ☐ Orange soda  
☐ grape jelly  
☐ Strawberry ice cream  
☐ A banana  
☐ Don't know

10. Joe ate cereal with milk and a banana and drank orange juice for breakfast. How many different food groups did Joe eat from the Pyramid? Mark only one answer.

- ☐ 1  
☐ 2  
☐ 3  
☐ 4

11. Think about all of the foods you ate last week. Which of the following food groups did the foods you ate most come from? Put a check next to all of the food groups that apply.

- ☐ Bread, cereal, rice, and pasta group  
☐ Milk, yogurt, and cheese group  
☐ Vegetable group  
☐ Meat, poultry, fish, dry beans, eggs, and nuts group  
☐ Fruit group

12. Mark the number below that best describes your opinion of the restaurants / hotels lunch program in Ishaka. The numbers mean: 1 - I strongly agree; 2 - I agree; 3 - I disagree; 4 - I strongly disagree

It offers food that I like.	1	2	3	4
It offers food that is good for my health.	1	2	3	4
It offers new foods to try.	1	2	3	4
It offers foods that taste good.	1	2	3	4
It offers a variety of foods that I will eat.	1	2	3	4
It offers fruits that I will eat.	1	2	3	4
It offers vegetables that I will eat.	1	2	3	4

13. How much water do you drink per day? ☐ below 1L ☐ 1L ☐ above 1L

14. What type of water do you drink? ☐ boiled water ☐ mineral water ☐ any

15. If you are going to eat healthier food, then would you ever choose to:

	YES	NO	MAYBE
a) Eat fresh fruit instead of a candy bar?			
b) Eat cereal instead of a donut for breakfast?			
c) Try new foods?			
d) Order new food in a restaurant?			
e) Eat more servings of fruits or vegetables than you eat right now			
f) Eat six or more servings of grains, such as cereals, rice, spaghetti, and other noodles each day?			
g) Use Nutrition Facts labels to choose low-fat foods?			

16. Mark the box that best describes your opinion of the following vegetables:

	I have never tasted this	I don't like this	I like this a little	I like this a lot
a) Carrots				
b) Celery				
c) Greens				
d) Peas (green, sweet)				
e) Tomatoes				

17. Mark the box that best describes your opinion of the following fruits:

	I have never tasted this	I don't like this	I like this a little	I like this a lot
a) Bananas				
b) Apples				
c) Oranges				
d) Mango				
e) Pineapple				

18. What do you think of Nutritional eating habits of medical students at KIU-WC?

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19. If you could change or implement one thing related to nutrition for medical students at KIU-WC, what would that be?

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THANK YOU FOR YOUR CONTRIBUTION

## ANNEXE 4

### RECOMMENDATION LETTER FROM THE FACULTY OF CLINICAL MEDICINE & DENTISTRY



**KAMPALA  
INTERNATIONAL  
UNIVERSITY**

Ishaka Bushenyi \* PO BOX 71 Ishaka, Uganda  
Tel: +256 (0)771696711/0703817216 Fax: +256 (0) 41 - 501 974  
E-mail: admin@kiu.ac.ug \* Website: <http://www.kiu.ac.ug>

**OFFICE OF THE DEAN,  
FACULTY OF CLINICAL MEDICINE & DENTISTRY**

17/10/2014

**TO WHOM IT MAY CONCERN**

**RE: YVES NEZERWA**

**(BMS/0009/81/DF)**

The above named is a student of fifth year at Kampala International University pursuing a Bachelor of Medicine, Bachelor of Surgery (MBChB) programme.

He wishes to conduct his research project in your Hospital.

**Topic: Factors affecting nutritional habits of medical students  
at KIU-WC and its impact on the community**

Any assistance given will be appreciated.

Thank you

S.O. Akib  
Dr. Akib Surat  
Asso. Dean, FCM &D

