T.C.

YEDITEPE UNIVERSITY
INSTITUTE OF HEALTH SCIENCES
DEPARTMENT OF NUTRITION AND DIETETICS

DIFFERENCES BETWEEN NUTRITIONAL KNOWLEDGE AND DIETARY HABITS OF STUDENTS IN FACULTY OF HEALTH SCIENCES AND OTHER UNIVERSITY STUDENTS

MASTER'S THESIS

ALI EMRECAN ATA, DIETICIAN

İstanbul, 2019

T.C.

YEDITEPE UNIVERSITY
INSTITUTE OF HEALTH SCIENCES
DEPARTMENT OF NUTRITION AND DIETETICS

DIFFERENCES BETWEEN NUTRITIONAL KNOWLEDGE AND DIETARY HABITS OF STUDENTS IN FACULTY OF HEALTH SCIENCES AND OTHER UNIVERSITY STUDENTS

MASTER'S THESIS

ALI EMRECAN ATA, DIETICIAN

SUPERVISOR
Assist. Prof. Dr. HÜLYA DEMİR

İstanbul, 2019

TEZ ONAYI FORMU

Kurum : Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü

Program : Beslenme ve Diyetetik Anabilim Dalı

Tez Başlığı : Differences Between Nutritional Knowledge and Dietary Habits of Students in Faculty of Health Sciences and Other University Students
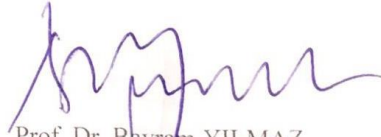
Tez Sahibi : Ali Emrecan ATA

Sınav Tarihi : 29.03.20019

Bu çalışma jurimiz tarafından kapsam ve kalite yönünden Yüksek Lisans Tezi olarak kabul edilmiştir.

	Unvanı, Adı-Soyadı (Kurumu)	İmza
Jüri Başkanı:	Dr.Öğr.Üyesi Mehmet AKMAN	
Tez danışmanı:	Dr. Öğr.Üyesi Hülya DEMİR	
Üye:	Dr.Öğr.Üyesi Beril KADIOĞLU YAMAN	

ONAY

Bu tez Yeditepe Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca yukarıdaki jüri tarafından uygun görülmüş ve Enstitü Yönetim Kurulu'nun 29./03./2019... tarih ve .2019./05.-.04..... sayılı kararı ile onaylanmıştır.

Prof. Dr. Bayram YILMAZ

Sağlık Bilimleri Enstitüsü Müdürü

DECLARATION

I hereby declare that; this thesis is my own work, I did not show unethical behaviour throughout the whole process from planning to writing, I obtained all knowledge in the thesis staying within academic and ethical rules, I cited and included all content that was not obtained by thesis work in the bibliography and I made no patent or copyright infringements.

29./.03./2019

Ali Emrecan ATA

FOR MY FAMILY, WHO NEVER LET ME WALK ALONE…

ACKNOWLEDGEMENTS

CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS AND ABBREVIATIONS

Cevd	Citrus Exocortis Viroid
CVD	Cardiovascular Disease
dl	Decilitre
Kg	Kilogram
LDL	Low Density Lipoprotein
Mg	Milligram
NCEP	National Centers For Environmental Prediction
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

ABSTRACT

ATA, A. E. (2019). Differences Between Nutritional Knowledge And Dietary Habits Of Students In Faculty Of Health Sciences And Other University Students. Yeditepe University Institute of Health Sciences, Department of Nutrition and Dietetics. Master's Thesis. İstanbul.

This study dwells on examining the effect of nutrition course on nutritional knowledge levels and dietary habits of students in Faculty of Health Sciences and other university students. A total of 348 students from Amasya University (183 Faculty of Education, 165 Faculty of Health Sciences) were recruited between February and March, 2019. The data on demographic characteristics of the participants as well as their dietary habits and nutritional knowledge levels were obtained through survey forms. The statistical analyses were performed using SPSS 22.0 software. The significance level was determined as $p < 0,05$. Findings indicate that there is statistically significant relationship between department and the number of meals as well as skipping meal status ($p < 0,05$). When the main meals skipped by the students are examined, it can be noted that 58,6% of students in Faculty of Education skip lunches, while 3,2% of them don't have dinners. On the other hand, 53,1% of students in Faculty of Health Sciences skip lunches, whereas 4,9% of them don't have dinner. Based on the findings, it can be noted that there is no statistically significant relationship between students' department and dietary habits. This finding can be explained by the fact that participants may not have transferred theoretical knowledge on nutrition into their daily dietary habits. The average means of nutritional knowledge scores of students in Faculty of Health Sciences were found as 76,65%, whereas it was calculated as 58,05% in students in Faculty of Education. In this sense, it can be noted that there is statistically significant relationship between students' department and knowledge levels on nutrition ($p < 0,05$). Correspondingly, it can be argued that to some extent, nutrition course may have contributed to nutritional knowledge level of students in Faculty of Health sciences..

Keywords: Adolescent, Nutritional Knowledge, Dietary Habits, Faculty of Education, Faculty of Health Sciences, University Student

ÖZET

ATA, A. E. (2019). Sağlık Bilimleri Fakültesi ve Diğer Fakültelerde Okuyan Üniversite Öğrencilerinin Beslenme Alışkanlıkları ve Beslenme Bilgi Düzeyleri Arasındaki Fark. Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik ABD. Master Tezi. İstanbul.

Sağlık bilimleri fakültesi öğrencilerinin aldığı beslenme dersinin beslenme alışkanlıkları ve beslenme bilgi düzeylerine etkisini incelemeyi amaçlayan bu araştırma Şubat-Mart 2019 tarihleri arasında toplam 348 Amasya Üniversitesi (183 Eğitim Fakültesi, 165 Sağlık Bilimleri Fakültesi) öğrencisi üzerinde uygulanmıştır. Katılımcıların kişisel özellikleri, beslenme alışkanlıkları ve beslenme bilgi düzeyleri uygulanan anket formu ile belirlenmiştir. İstatistiksel analizler SPSS 22.0 programı aracılığı ile yapılmıştır. Anlamlılık $p<0,05$ düzeyinde değerlendirilmiştir. Analizler sonucu elde edilen bulgulara göre, üniversite öğrencilerinin ana öğün sayıları ile ana öğün atlama durumları ve öğrenim gördükleri fakülte arasında anlamlı bir ilişki bulunmaktadır ($p<0,05$). Öğrencilerin atladıkları ana öğünler incelendiğinde, Eğitim Fakültesi öğrencilerinin %58,6'sı öğlen yemeğini ve %3,2'si akşam yemeğini atlarken, Sağlık Bilimleri Fakültesi öğrencilerinin %53,1'i öğlen yemeği ve %4,9'u akşam yemeği yememektedir. Genel olarak üniversite öğrencilerinin öğrenim gördükleri fakülte ile beslenme alışkanlıkları arasında anlamlı bir ilişki tespit edilmemiştir. Bu durumun öğrencilerin aldıkları beslenme eğitiminin günlük hayattaki beslenme alışkanlıklarına iyi yansıtamamalarından kaynaklandığı söylenebilir. Sağlık Bilimleri Fakültesi öğrencilerinin beslenme bilgi puanı ortalamaları %71,65 iken, Eğitim Fakültesi öğrencilerinin beslenme bilgi puanı ortalamaları %58,05 olarak bulunmuştur. Bu bulgudan hareketle, öğrencilerin eğitim gördükleri fakülte ile beslenme bilgi düzeyleri arasında anlamlı bir fark tespit edilmiştir ($p<0,05$). Buna göre, sağlık Bilimleri Fakültesi öğrencilerinin aldıkları beslenme dersi beslenme bilgi düzeylerine belirli bir oranda olumlu katkı sağladığı söylenebilir.

Anahtar Kelimeler: Adolesan, Beslenme Bilgisi, Beslenme Alışkanlıkları, Eğitim Fakültesi, Sağlık Bilimleri Fakültesi, Üniversite Öğrencisi

.

1.   INTRODUCTION AND PURPOSE

Health is defined by World Health Organization (WHO) as "a state of absolute physical, mental and social well-being". The fact that any individual has no disease or injury doesn't necessarily mean that he/she is healthy (1). Human health is affected by a great number of factors such as nutrition, genetic inheritance, climate and environmental conditions (2).

Nutrition is conceptualized as taking macro- and micronutrients that are necessary for survival of individuals and protecting their healths (3). The main purpose of eating shouldn't be satisfying our hunger or stuffing ourselves with food but having a balanced eating habits in accordance with age, gender and current physical condition (4). Malnutrition and having an imbalanced diet adversely affect the life quality of individuals (5).

Eating habits and nutritional preferences start at very early childhood and are shaped by family and social environments   (6).   Additionally, the beliefs of an individual, nutritional knowledge, personal feelings, thoughts and behaviours play a significant role in dietary habits and nutritional preferences (7).

Upon beginning university education, individuals start to acquire wrong nutritional habits, thereby gaining weight (8). Those who move away from their parents and embark on a new life in universities are prone to effects of the environment and make decisions about their nutritional preferences easily (8,9). A systematic analysis of literature has revealed that students are attracted by ready-made and processed foods (8). Skipping meals, social environment and irregular bedtime schedule play role in the increase of their attractions (10).

Nutrition plays a significant role in overall well-being and positive lifestyle. It has been revealed that a well-balanced and healthy diet as well as a healthy lifestyle diet prevent 6 out of every ten diseases and deaths (11). For this reason, there needs nutritional education. Although nutritional education has been proved to enhance the quality of life, it hasn't been achieved at satisfactory levels yet (12).

Health workers are specialist groups that serve for well-being of patients. Cooperation among professions increases job satisfaction of health professionals, boosts

the effectiveness of treatment and reduce the costs. This cooperation enables individuals to gain knowledge on several issues and to support other units in healthy system through their knowledge and skills (13).

Other health professionals are required to give advice on nutrition and guide individuals even though this task is mostly attributed to dieticians (12). Unfortunately, a great number of health professionals have lack of basic knowledge on nutrition that prevents diseases to deteriorate or changes the lifestyles of patients in a positive way (14).

The purpose of this study is to investigate into the differences in nutritional knowledge levels and dietary habits between students in Faculty of Health Sciences and others studying in different faculties.

2.   LITERATURE REVIEW

2.1.   Definition and Importance of Nutrition

Taking the substances that are necessary for physical development and growth into the body is called as 'nutrition'. Nutrition has been of great importance since time immemorial. While nowadays most people have been fighting against malnutrition and hunger, many more others try to cope with imbalanced diet and health problems caused by malnutrition (15).

It is of great value to adopt a well-balanced and healthy diet in every stage of life since it may be difficult or impossible to compensate for the damage led by malnutrition experienced in a certain period of life when individuals get older (16). Having a well-balanced and healthy diet is of vital importance to have a healthy physical development and growth as well as being successful in life (5).

Nutrition plays a significant role in a wide range diseases, including cardiovascular (hereafter, CVD) and cerebrovascular (hereafter, CeVD) health problems as well as malign tumors that are one of the common causes of deaths in United States of America (the USA) (17). Additionally, nutrition in childhood is an effective factor in some diseases such as obesity, asthma, attention-deficit/hyperactivity disorder (ADHD) (18). A relationship between lack of vitamins and several chronic diseases, including CVDs, cancer, and osteoporosis in all members of the society, particularly elderly has been revealed (19). Some changes in lifestyles such as dietary habits and physical activity play a role in reducing chronic diseases (17).

Physical health and development of individuals are adversely affected when any substances in the food aren't taken or are taken excessively or insufficiently. Nutritional preferences of individuals are affected by a variety of factors, including age, gender, income, culture, environment, traditions and customs, genetic inheritance and lifestyle (20).

Nutritional elements that are necessary for body can be listed as carbohydrates, fats, proteins, vitamins, minerals, and water. There have been distinctive subgroups of all nutrition groups except water. Each nutrition element is assigned some several or different tasks, and each of them is related to one another directly or indirectly. Each of

them performs such a way that they work collaboratively and help each other. At this precise point, it can be noted that a well-balanced and healthy food intake must be ensured in order to maintain a healthy system of the body (16).

Nutrition is essential for survival of the individuals as well as physical growth and development. It is indispensable to stay alive healthily. The varieties of nutrients are also significant for humans as much as nutrition itself. The intake frequency of food, daily energy and food elements should be arranged through regular meals. Physical and mental developments show impediments in the event of malnutrition. A review of literature has revealed that children with malnutrition suffer from mental development delays when compared to those with a well-balanced diet (21). As a result of nutrient deficiency or an imbalanced diet, a condition in which the body cannot satisfy its needs occurs and this is called as malnutrition. It is more likely that infants, those in early childhood periods, adolescents, pregnants, breastfeeding mothers, elderly people and vegetarians suffer from malnutrition (22).

2.2.Adequate and Balanced Nutrition

A balanced and healthy diet refers to food intake in a balanced way so that the body can satisfy its needs to survive. It can be also defined as choosing and consuming foods in such a way that they won't put health of individuals at risk (23).

It is of great importance for taking nutrients in a balanced and healthy way to have a proper nutrition. Some foods are rich in terms of nutritional benefits, whereas others don't include these nutrients. On the other hand, cooking and preserving methods are important for protection of nutritional benefits of foods (20).

A well-balanced and healthy diet provides individuals with the energy they need (24). It is required for not merely survival of the society, but also development of the whole population so that individuals in a society will be healthy and can serve the purpose. It is also necessary for economical and social well-being of any given society. A growing body of research has noted that over nutrition affects the health of the body in a negative way as opposed to a well-balanced and healthy diet. Those with proper eating habits display a healthy physical appearance and have active and concentrated looks. They have smooth texture, normal sensations, hydration and rosy color as well as

strong, healthy muscles. They are eager to work and don't suffer from regular headaches. Their mental and spiritual developments are normal. On the other hand, those with imbalanced and unhealthy diets are individuals who act slowly, have heavy, leaning body posture with a fat stomach and rough, damaged skins and have personalities who have constant headaches, always feel tired and have no appetite. Intellectual disability (mental retardation) and imbalanced personality and actions can be observed in later stages of severe malnutrition along with obesity. Apart from checking the physical appearance of individuals to understand if they have a well-balanced and healthy diet or not, it is also possible to employ scientific methods. Statistical evidence has revealed that a substantial proportion of the society have imbalanced and unhealthy eating habits in Turkey (20).

Above all, it must be known which nutrients include foods that are needed by the body to satisfy its need and have a well-balanced diet so that individuals can include them in their dietary habits. Lack of knowledge on a well-balanced and healthy diet may lead to malnutrition, as well. It may be difficult to abandon adverse eating habits at later stages of life, so some information on nutrients and healthy diet is required to abstain from bad habits (25).

2.3.Nutrients

Nutrients are classified as macro- or micronutrients as well as essential or nonessential. Whether a nutrient is essential or not is determined on the basis of their production in the body. Essential nutrients must be obtained from external sources, (e.g. food sources) since the body either doesn't manufacture them or manufactures them in so small quantities that they don't satisfy body needs. Nonessential nutrients, on the other hand, are produced in the body to maintain growth and health. Some nutrients may show the essential nutrient patterns since they cannot meet the demand in such situations as pregnancy and lactation. Macronutrients are the main nutrients which the body needs in larger amounts (many grams in a day). Micronutrients, on the other hand, are those that make up less amounts (micro or milligram/day). Vitamins and minerals are classified as micronutrients (26).

Figure 1. Food Guide Pyramid (20)

2.3.1. Carbohydrates

Carbohydrates are the most important energy sources of body in human nutrition. Eighty-five percent of energy is obtained from carbohydrates in developed countries (27). The main sources of carbohydrates are plants as they are outcomes of photosynthesis. The only source of carbohydrates that are not based on plants is milk and dairy products (28).

55-60% of daily energy is provided by carbohydrates. Carbohydrate intake should be at least 125 grams on a daily basis (2). Carbohydrate types and sources are presented in Table 2.3.

Table 2.1 Carbohydrate types and sources (28) .

Type	Description	Sources
Monosaccharaides (Simple sugars)		
Glucose (Blood sugar)	It is the end product of carbohydrates in digestion process. It is the only carbohydrate used by central nervous system.	It is found in fruits, some roots, corn and honey. It is found in blood as a product of digestion process.
Fructose (Fruit sugar)	It gives the unique taste of honey.	It is found in fruit, honey and vegetables.
Galactose	It is a side product in the digestion of lactose.	It is found in dairy products.
Disaccharides		
Sucrose (Table sugar)	It comes from the combination of glucose and fructose. It is also known as table sugar.	It is found in sugar cane, sugar beet, maple syrup, a wide range of vegetables and fruits.
Lactose (Milk sugar)	It is only produced by mammals. It dissolves and is digested slower than sugar cane.	It is found in dairy products and nonfermented milk.
Maltose (Malt sugar)	It is a disaccharide formed from two glucose molecules and is a basic molecule of starch.	It doesn't occur in nature and is found in malt and malt products.
Polysaccharides		
Complex Carbohydrates (Starch)	It is a stored state of carbohydrates in plants. It turns into glucose in digestion process.	It is found in grains and grain products, seeds, roots, potatoes and other plants.
Dextrin	It is obtained during hydrolysis of starch.	It is found in cooked starch.
Dietary Fiber	It is non-digestible and plays a significant role in the prevention of a wide range of diseases.	It is found in seeds and pods of fruits, oatmeal and green rooted plants.
Glycogen	It is a stored state of carbohydrates in mammals. It turns into glucose when necessary.	It is found in liver and muscles in less amount.

Carbohydrates are mainly in charge of providing all cells of the body, especially the brain with energy (29). Each gram of carbohydrate produces 4 grams energy. Other functions of carbohydrates in the body are as follows (28);

1- They prevent protein to be used as an energy source.

2- They ease the oxidation of fat for energy.

7

3-   Sugar has a laxative effect.

4-   Lactose helps the absorption of calcium.

5-   Soluble fiber regulates the movements of bowel, whereas insoluble fiber one controls blood cholesterol.

6-   Fiber gives a feeling of fullness, slowing digestion.

2.3.2. Proteins

Proteins are commonly found in vegetables and animal products. The chemical compounds of protein are amino acids and an organic compound, nitrogen. High-protein foods can be listed as egg, milk and cheese. Each gram of protein produces 4 kcal energy (28). Almost 10-15% of our daily energy comes from proteins, and nearly sixteen percent of the body weight of an average adult is made up of proteins. There are numerous functions of proteins and are crucial for muscle and tissue recovery. Several functions and benefits of proteins can be listed as (27);

1-   They are essential for the body, and almost half of the proteins of the body are found in skin and muscles.

2-   They play a role in transportation of several molecules and foods in blood

3-   Some hormones are made from proteins and amino acids

4-   Antibodies are composed of protein molecules

5-   They maintain proper PH levels in blood.

The structures of proteins are determined by the sequence and interactions of amino acids and there are 20 types commonly found amino acids (Table 2.2). Amino acids are the main building blocks of proteins and the chemical composition of each amino acid is based on a carbon chain, a carboxyl group (COOH), amine group (NH2) and a R group. R group determines the specific bio-chemical properties of amino acids (26).

Table 2.2 Amino Acids (26)

Essential Amino Acids		Non-Essential Amino Acids
Isoleucine	Arginine	Alanine
Leucine	Cysteine	Asparagine
Lysine	Glycine	Aspartic acid
Methionine	Glutamine	Glutamic acid
Phenylalanine	Histidine	Serine
Threonine	Proline	
Tryptophan	Serine	
Valine	Tyrosine	

2.3.3. Fats

Fat is a crucial energy source for the body. Fats play a role in the absorption of fat-soluble vitamins and carotenoids. The daily intake of fat must supply 20-35% of energy (29). Most of the calories come from fat when compared to carbohydrates and proteins (28).

The saturated fatty acids don't include any double bonds between the carbon atoms. Monounsaturated fatty acids have simply one unsaturated double bond in their molecular structures and are mostly liquid at room temperature but turn into solid matter when chilled. Polyunsaturated fatty acids, on the other hand, are fat molecules that include more than one carbon bound called a double bound in their molecular structures and are typically liquids (26). Fatty acids and sources are presented in Table 2.3.

Table 2.3 Fatty acids and fatty acid sources (2,26)

Saturated Fatty Acids	
Acetic Acid	Seeds of some plants
Butyric	Milk fat
Caproic	Milk and cacao fat
Caproic	Milk and cacao fat
Caprylic	Milk and cacao fat
Lauric	Coconut oil, milk and cacao fat
Myristic	Coconut oil, milk and cacao fat
Palmitic	Animal products and some plant oils, coconut oil, milk and cacao fat
Stearic	Tallow fat, meat and meat products
Unsaturated Fatty Acids	
Palmitoleic	Milk fat and fish fat
Oleic	Milk fat and fish fat
Linoleic	Animal products and some plant oils
Linolenic	Flaxseed oil, rapeseed oil and fish fat
Arachidonic	Liver and animal phospholipids

The main functions of fatty acids are to supply the body with heat and energy. They are direct energy sources of all body cells except nervous system and erythrocyte. Other functions of fatty acids are as follows (26):

- They enrich the taste of foods and add fragrance.

- They make us feel like a feeling of fullness thanks to their long digestion process

- They are incorporated into the structure of the cell membrane.

- They protect internal organs.

2.3.4. Vitamins

Vitamins are organic compounds with a wide range of functions in the body. Each of the vitamins has distinctive structures in themselves (27). The body needs vitamins in small quantities for normal health (micro or milligram/day). When any vitamin is absent from our diets, some different symptoms occur to signal us. They are classified as water-soluble and fat-soluble vitamins in terms of biological functions. For example, Vitamin A, D, E, K are fat-soluble compounds, whereas B-complex and C

group vitamins are identified as water-soluble ones. Additionally, C, H, and O elements are found in the structures of fat-soluble vitamins, while nitrogen, sulphur and cobalt are found in molecular structures of water-soluble vitamins (30). Table 2.3.4 summarizes the functions of the symptoms of vitamin deficiency.

Table 2.4 The Biological Functions and Symptoms of Deficiency (26,31)

Vitamins	Biological function	Symptoms of deficiency
A (Retinol/ Beta-carotene [β])	Antioxidant, normal vision, integrity of epithelial cells	Night blindness (nyctalopia), dy skin
D (Calsiferol)	Calcium balance	Rickets disorder, osteomalacia
E (Tocopherol)	Antioxidant	Neurological disorders
K (Phylloquinone)	Blood coagulation	Blood coagulation disorders
B1 (Thiamin)	Coenzymes	Beriberi disease
B_2 (Riboflavin)	Coenzymes	Cracker corners in the mouth
B3 (Niacin)	Corporates into Nikotinamid adenin dinucleotide (NAD) and Nikotinamid adenine dinucleotide phosphate (NADP)	Pellagra disease, depression
B5 (Pantothenic acid)	Corporates into Coenzyme A	Peripheral Nervous System Disorders
B6 (Pyridoxine)	Coenzymes	Convulsion
B9 (Folic acid)	Coenzymes	Megaloblastic anaemia
B12 (Cobalamin)	Coenzymes	Pernicious Anaemia
C (Ascorbic acid)	Antioxidant, C collagen synthesis	Slowly healing wounds, Scurvy disease,
H (biotin)	Coenzymes	Dermatitis

2.3.5. Minerals

Minerals are essential for the body functions and regulating chemical reactions in the body. They are extracted by plants from the soil and are transmitted humans or animals by eating plants, but they don't produce energy as do vitamins (32). They aren't affected by the air as opposed vitamins. Table 2.5 summarizes mineral sources. The effects of minerals on health can be listed as (28):

- Calcium, magnesium and phosporus keep our teeth and bones strong.

- Phosphorus, potassium, chlorine and sulphur benefit for soft tissues.

- Sulphur is essential for hair and nails.

- Iron incorporates into hemoglobin, while copper penetrates into red blood cells.

- Sodium and potassium balance the liquid pressure.

- Calcium, magnesium, sodium, potassium, phosphorus and chlorine regulate muscle contraction and relaxation.

- Calcium, magnesium and sodium regulate nerves.

- Calcium is in charge of blood coagulation.

- Chlorine, sulphur and phosphorus regulate acid-base balance.

- Zinc, magnesium, potassium and chlorine function as coenzymes

Table 2.5 Minerals and their sources (26)

Mineral	Source
Sodium	Cheese, processed food
Potassium	Vegetables and fruits
Calcium	Milk and dairy products
Phosphorus	Fish
Iron	Meat and fish, dried fruit
Iodine	Sea products, iodised salt
Magnesium	Whole grains, nut
Zinc	Red meat, egg
Copper	Red meat, vegetables
Chlorine	Sea products, tea

2.3.6. Water

Water is essential for survival of body cells and the sustainability of human being relies upon the existence of water. The body needs water to maintain bodily functions. The water that the body needs is provided by oxidizing energy-containing macro-nutrient substances such as carbohydrates, proteins and fats. This water is called as endogeny or metabolic water. The body satisfies its water need through exogen water found in food and beverages since endogeny water isn't sufficient alone for maintaining

life. The body loses 2500 grams water due to a variety of reasons, and it gets 1300 grams water from beverages, 900 grams water from food, and 200 grams from the oxidizing macro-nutrients to compensate for its water lost (33). Table 2.6 summarizes the amounts of water in some food sources.

Table 2.6 Water Amounts in Food Sources (34)

Food	Water amount (%)	Food	Water amount (%)
Fatless pork meat	53-60	Beef meat	50-70
Skinless chicken meat	74	Fish	65-81
Banana	75	Mulberry, pear, cherry	80-85
Apple, peach, orange, grapefruit	85-90	Ravent, strawberry, tomatoes	90-95
Oil, butter	15	Powdered milk	4
Grain flours	10-13	Honey	20
Avocado, green peas	74-80	Beet, broccoli, carrot, potatoes	80-85
Asparagus, green beans, zucchini	90-95	Bread	35-45
Biscuit	3-8	Tea	3-7
Consumable fat	0		

The functions of water in the body can be listed as (33):

- To regulate body temperature.
- Being in charge of transportation of medium size nutrients, elimination of metabolic wastes and exhilaration gases.
- To contribute to softening and dissolving nutrients
- To contribute to chemical and biochemical reactions in the body.

2.4.The Relationship between Nutrition and Health

Over the last decades, a great body of research on diet and disease has shown that it is a complex process to determine an ideal diet for a population and it is very difficult to give advice on ideal dietary habits. Individuals react to the changes in their nutrition habits in terms of metabolic ways. However, if there is something certain, it is that carbohydrate is a raw material and a healthy diet must include less carbohydrates and fats. Healthy adults are typically advised to include carbohydrates as their main

nutrients, 5 a day portions of vegetables and fruits, twice fish in a week as well as low amounts of fat and sugar. Food intake must be regular intervals and the breakfast is the most significant one (26).

2.5. Body Mass Index (BMI) and Health

Body Mass Index (BMI) is employed to assess nutritional habits of individuals. It is a simple calculation employing an individual's height and weight. Said another way, BMI formula is BMI = kg/m^2. Kg represents weight, while m^2 stands for height. BMI intervals are based on the effect of increase in body fat on diseases and death and are related to adiposity. BMI is developed for an indicator of some diseases. The prevalence of premature deaths, cardiovascular diseases, blood pressure, osteoarthritis, some cancer types and diabetes increase as BMI is higher. BMI is also employed for children and adolescents. Height and weight show differences according to gender and age, so BMI value used to determine dietary habits of individuals 0-19 ages is special to age and gender (35).

Height and weight are measured to calculate BMI and is calculated with the formula BMI = kg/m^2. [BMI: Weight (kg) / height $(m)^2$]. Table 2.7 summarizes the references of BMI in adults.

Table 2.7 Body Mass Index (BMI) in Adults (20).

CLASSIFICATION	
Underweight	<18.50
Severe thinness	<16.00
Moderate thinness	16.00-16.99
Mild Thinnes	17.00-18.49
Normal Range	18.50-24.99
Overweight	≥25.00
Pre-obese	25.00-29.99
Obese	≥30.00
Obese Class I	30.00-34.99
Obese Class II	35.00-39.99
Obese Class III	≥40.00

2.6. Diet Related Diseases

2.6.1. Obesity

Obesity is excessive accumulation of body fat with the value 30 and above in adults (36). Fatness and obesity may occur not only excessive accumulation of body fat more than needed as calories but also genetic inheritance or environmental factors (37).

It is important to understand and fight with obesity since high BMI value poses health risks (36). Additionally, obesity increases the possibility of diabetes, hypertension, stroke, cancer and osteoarthritis (38). The incidences of coronary heart diseases increase since diabetes are often diagnosed in obese individuals (39). Overweight people, the risk of hypertension is 40-60% higher than the normal weight people. The risk of having cardiovascular disease is 41,8% in an obese male, while it is 34,9% in a male with normal weight. Similarly, it is 32,4% in an obese female, whereas it is 25% in a female with normal weight. In a study recruiting 2900 males in two-year period, the risk of having cardiovascular disease is 59% higher than a male with normal weight (39).

2.6.2. Type 2 Diabetes

Nutrition education and treatment are of great importance in that patients with diabetes who have higher BMI values play a key role in the treatment of the condition (40). According to Centers for Disease Control and Prevention (CDC), Almost 29.1 million or 9,3% of the population in the USA have been diagnoses with diabetes, and a great number of people haven't been diagnosed with diabetes yet (27,8%) (41). Schen (42), notes that obesity and fatness are the main factors in the prevalence of type 2 diabetes. Based on the data obtained by National Health and Nutrition Examination Survey between 1980-2012, the prevalence and incidence of diabetes increased between 1990-2008. It protected its stability between 2008-2012 (43). The risk of developing chronic kidney failure, lower-extremity amputations and retinopathy increase in patients with diabetes (40). Hu (44), has suggested that nutrition treatment suggested for type 2 diabetes is effective for the prevention of the condition. The author has revealed that consuming nutrients including trans-fat and nutrients with higher GI and carbohydrates increase the risk of developing type 2 diabetes. Additionally, it has been found that having foods rich in fiber and multi saturated fatty acids are effective in diminishing the disease. Those individuals who consume beverages with 1-2 portion sugar in a day have higher possibility of developing type 2 diabetes (26%).

2.6.3. Cancer

Dietary habits of patients with cancer are the main determinants of their life quality (45). In this condition, weight loss and malnutrition increase the risk of infection and decrease life span. Appetite loss, indigestion, metabolic changes and the side effects of chemotherapy such as vomiting, nausea, abdominal pains and mal-absorption harm dietary habits and adversely affect the prognose of the disease. High energy intake and alcohol usage also increase the risk of developing cancer (46). Those who consume less vegetable and fruit have double risks when compared to those who consume high amounts of vegetable and fruits (47).

A review of literature has revealed that bioactive nutrients and minerals found in vegetables and fruits provide protection against cancer. Lycopene has also been found to have a delaying effect on breast cancer (48). Taking more selenium than advised

diminishes the risk of developing cancer (49). Sulforaphane found in broccoli, zucchini, and cabbage is a bioactive compound that provides protection against cancer (50).

2.6.4. Cardiovascular Diseases

Each year, some 610 000 people lose their lives due to heart disease, and heart-related diseases are the leading factor in death tolls of men and women (51). Dietary habits play a role in developing several diseases, especially hypertension atherosclerosis (52).

Hypertension is a leading risky factor for CVDs, and it affects 25% of the world population (53). Hypertension occurs as a result of having high level sodium and low-level potassium (52). Processed foods include high levels of sodium, whereas fruits and vegetables have high levels of potassium (53). The limitations on saturated fat consumption have positive effects on heart health (54). Having saturated fatty acids rather than multiunsaturated fatty acids diminishes the risk of developing CVDs. A diet including vegetables, fruits, legumes, whole grains, fish and white meat has been found to reduce the risk of CVDs (44).

2.6.5. Kidney Diseases

Individuals with kidney diseases must pay attention to some important issues, including proteins, energy, sodium, potassium, phosphate and fluid intake. Even though there are typically less limitations in terms of foods and drinks, there may be more restrictions on phosphate, potassium, sodium, protein and fluid intake (55).

Nutrition plan in kidney diseases is designed to prevent the disease from deteriorating, to reduce electrolytic level to safe levels, and to provide the body's water balance. Drinks with high potassium content are harmful for patients, so improving nutritional habits of the patients will reduce the health risks (56) but it must be emphasized that foods include a wide range of nutritional benefits, and restrictions on some certain foods may affect other nutrients, as well (57).

2.6.6. Liver Diseases

The morbidity and mortality rates of lives diseases have increases across the world (58). Viral or bacterial infections, physical injuries, genetic inheritance or

mutation, poisonous substances, excessive or insufficient intake of essential nutrients and imbalanced dietary habits may lead to liver diseases (59,60).

2.6.7. Excessive or Insufficient Nutrient Intake

Excessive body weight leads to fatness and obesity (61). Fatness and obesity increase non-alcoholic fatty liver disease due to the accumulation of fat in liver (62). 15-30% of patients develop fibrosis, while 12-35% end up with cirrhosis. Additionally, nonalcoholic fatty liver also increases the risk of cardiovascular diseases (63).

Liver that has been damaged or cannot function properly leads to insufficient energy. Another symptom of kwashiorkor, a serious disease caused by a lack of protein, is fatty liver (64).

Excessive ethyl alcohol consumption triggers liver cirrhosis, and almost seventy-five percent of patients with liver cirrhosis has been found to be related to ethyl alcohol consumption (65).

Vitamin A has been found to be related to liver diseases even though it is essential for fertility and immune system. For example, it has been reported that more than 100 000 IU vitamin A intake (retinol) leads to liver damage (66). On the other hand, less intake of vitamin A (less than 25 000 IU) leads to hepatotoxicity (64).

2.6.8. Bone Diseases

Nutrition related bone diseases are common in all societies. Excessive or insufficient food intake is the main leading factor to develop bone diseases. Nutrition may lead to stronger bones or bone diseases caused by getting older. Dietary habits with less calcium reduce the bone mass level during body development and increases bone resorption to measure calcium level in older ages. There exist a wide range of factors that impact bone health in positively or negatively. For example, an individual with vitamin D deficiency cannot absorb calcium in foods and faces the bone fractures even if a calcium rich diet is adopted (67). Reduction in bone mineralization as well as in calcium lead to osteoporosis. Osteomalacia occurs as a result of lack of vitamin D when compared to osteoporosis and is defined as disruption in bone mineralization. Bone endurance is affected by osteoporosis and osteomalacia conditions (68).

A large part of the society cannot benefit from sunlight sufficiently as a result of changes caused by industrialisation and life styles, so vitamin D deficiency increases. Vitamin D deficiency may lead to rickets in children and osteomalacia or osteoporosis in adults. In a study, it was found that some recovery was observed in osteoporosis and rickets conditions of mice (YPZ71) that consumed foods with Vitamin D (69).

2.6.9. Metabolic Syndrome

Metabolic syndrome is a fatal disease that is a cluster of health conditions, including insulin resistance, glucose intolerance, excess body fat around the waist or diabetes, hypertension, coronary artery disease and dyslipidaemia (70). May lead to several diseases such as sympathetic activation, endothelial disfunction, oxidative stress, systemic inflammation, hypercoagulable and hyperlipidaemia (71,72). Along with common Central Obesity (CO), it has been found that metabolic syndrome is also accompanied by other phenotypes, including fibrinolysis disorder, microalbuminuria, small, dense LDL particles, and acute phase reactants (APR) (73). Table 2.8 summarizes the list of diagnoses criteria of metabolic syndrome based on NCEP's criterias.

Table 2.8 NCEP's Criteria for Diagnosis of the Metabolic Syndrome (74).

Waistline	Males >108 cm
	Females >102 cm
TG	>150 mg/dl
Blood pressure	Systolic >130
	Diastolic >88
HDL-K	Male <40 mg/dl
	Female <50 mg/dl
Or diabetes or glucose intolerance	

The increasing prevalence of metabolic syndrome is related to fatty liver, high cholesterol, obstructive sleep apnea syndrome, gut, depression, disorders of muscular system and skeletal system, polycystic ovarian syndrome and cardiovascular diseases (75). Metabolic syndrome prevalence in our country has increased 54,5% in women and 49,8% in men over 40 years of age. It has been reported that 5,9 million men and 6,85 million women over 40 years of age have been diagnosed with metabolic syndrome (76). It has been reported that the cardiovascular disease risks related to metabolic

syndrome may continue until adolescence or even adulthood (77). Individuals with childhood obesity may develop this condition again when they get older (78).

2.6.10. Anemia

Anemia is a condition which occurs when blood doesn't have enough red blood cells or healthy red blood cells don't function properly and is mostly characterized by the increase in the hemoglobin level (79). According to a report by World Health Organization (WHO), anemia is a condition in which the number of red blood cells is insufficient to satisfy physiologic needs regardless of the cause (80). This condition may occur in a variety of reasons, particularly vitamin and mineral deficiency (81,82,83). According to the study by National Health and Nutrition Examination Survey (NHANES III), food related anemia is caused by lack of iron with the 48,3%, lack of only folic acid with the 18,8%, lack of only vitamin B12 with the 17,2%, lack of folic acid and vitamin B12 with the 5,2%, and lack of all three nutrients with the 9,9% (81).

Iron deficiency anemia is the most frequent anemia based on nutrition. This condition occurs when health red blood cells aren't at sufficient levels due to lack of iron in the body (84). Iron is essential element in the body and is found in a great number of foods, including red meat, oysters, vegetables with dark green leaves, dried fruits, and beans (85). Iron plays a key role in transportation of oxygen, cell metabolism, cell growth and differentiation. According to WHO, almost 800 000 deaths across the world are relate do iron deficiency anemia, and this condition is ranked as 15th fatal disease among others (86).

A lot of vitamins play a significant role in iron deficiency anemia. Vitamin A regulates the transportation of iron (87). The absorption, storage, release and transportation to marrow of iron, and production of red blood cells are adversely affected in case of vitamin A deficiency (88). Vitamin C plays a role both in transportation of iron and fighting with inhibition of iron absorption caused by dietary tannins (89). Riboflavin improves haematological condition and increases the effect of iron supply (87).

2.7. The Effect of Nutrition Knowledge on Nutrition Behaviour

Nutrition knowledge has a positive impact on the nutritional preferences of individuals. Some research has revealed that nutrition education plays a key role in nutritional preferences and healthy dietary habits of individuals (90). Especially for those who are aware that the body needs fat, vegetables and fruits to provide protection against diseases, particularly cancer, nutrition education is of great importance (91). Those with high level of knowledge on nutrition have been proved that they consume less fat, more vegetables and fruits (92).

A study conducted on people with diabetes, it was found that as nutrition knowledge increases, the glucose level in the blood increases, as well (40). After older people with type 2 diabetes were informed on nutrition, it was found that their nutrition knowledge and awareness increased along with HbA1c levels (93).

After an eight-week training for obese mothers, it was found that obese mothers who lost more weight (2,3 kg) had more knowledge on nutrition when compared to those who lost less weight. Especially, mothers with weight-loss increased their nutrition knowledge in all topics, while mothers who couldn't lose weight and got fat increased their knowledge on two topics (94).

2.8. General Characteristics of University Students

Puberty, the final stage of development, covers 12-25 ages. During this period, there occur some paradoxes between the first reactions of the individuals and the values they gain. (95). This stage also refers to the period in which individuals search for their own identity as well as discovering their talents. They rehearse several identities in this period. The interests of adolescences greatly differ, so do their dietary habits (96).

Young individuals stay away from their families when they begin university education and feel free to do whatever they want. Their dietary habits include some foods such as fried foods, ice-cream, sugared and salty snack. These individuals whose dietary habits are adversely affected also don't do exercies as much as high school period (97).

University education is the period in which students' lifes begin to change. The stress caused by the new environment may lead to excessive eating. Such factors as anxiety, homesickness, sadness and stressful situations may lead to some negative results in dietary habits of individuals (97). These new beginners often eat foods with low energy, calcium, iron, fibre, vitamin A and carotenoid as well as those with high level of fat. These findings indicated that students have imbalanced dietary habits and need more education on healthy eating (98).

The eating needs of adolescences vary according to age, gender, height and physical activity status. Boys need 1800-3200 kcal energy, while girls need 1600-2400 kcal. The essential energy intake must be satisfied through foods with high nutritious, including vegetables, fruits, meat, milk, egg, and whole grains (99).

Calcium and iron are essential foods that adolescences need to have a healthy physical development and growth. On the other hand, alcoholic beverages rather than milk have become main drinks of adolescences. The daily calcium needs of adolescences is 1300 milligrams (3 portions of milk, yoghurt and cheese) (100).

Girls, especially limits their food intake as they worry about their physical appearances and wish to be thinner. Some adolescences, on the other hand, use accelerators, diet pills, laxatives, and self-induced vomiting to stay thin. Imbalanced dietary habits adversely affect physical development and growth of individuals throughout life. (101). Eating disorders refer to a situation in which individuals' imbalanced food intake that can ultimately damage their health. In this situation, brain focuses on eating, body weight and physical activity (102). Young individuals with eating disorders are most likely to suffer from anxieties, CVDs, chronic tiredness, depression, infectious diseases, insomnia and even suicide (103).

It was concluded that there was a high risk of eating disorders among students in Faculty of Medicine. University students face the risk of some dangers, including alcohol and smoking addictions, drug use, unprotected sexual behaviour (104). In this sense, it can be noted that any negative behaviour may lead to another one (105) .

3. MATERIALS AND METHOD

3.1. Purpose, Research Site and Time

This study was conducted with the purpose of examining the differences in nutritional knowledge levels and dietary habits between students in Amasya University Faculty of Health Sciences and those studying in Faculty of Education in February-March, 2019.

3.2. Population and Sample

A total of 183 students in Faculty of Education out of 2638 and 165 students in Faculty of Health Sciences out of 420 were recruited in this study (106).

Said another way, this study surveyed on 348 university students from Faculties of Health Sciences and Faculty of Education in Amasya University. Considering that first grade students in Faculty of Health Sciences participated in the Nutrition course during the first spring term of academic year, 2nd, 3rd and 4th grade students were surveyed in this study. Students in Faculty of Education were solicited as their scores in National University Entrance Exam were closer those of Faculty of Health Sciences. Students in Department of Midwifery and Department of Nursery represent the Faculty of Health Sciences, whereas those in Department of Guidance and Psychological Counselling, Department of Pre-School, and Department of English Language Teaching make up students in Faculty of Education in this study.

The official permission from Rectorate of Amasya University and personal consents of university students were obtained in this study. The ethics committee approval was taken from Yeditepe University Ethics Committee Presidency of Clinic Researches.

3.3. Data Collection Tools

Survey forms were employed for data collection. While designing survey form, such reports as 'Turkey's Nutrition Guide" developed by Ministry of Health, Turkey Public Health Institution, Head of the Department of Obesity, Diabetes and Metabolic Diseases and 'Patient Follow-up Guide for Dieticians' developed by Ministry of Health

General Directorate of Public Health Head of the Department of Healthy Diet and Active Lifestyle were employed. The expert opinions were also consulted.

35 questions in three sections were included in survey forms employed for data collection.

1. General Information: Some information on participants' age, gender, department, height and weight are included in this section.

2. Dietary Habits: In this section, there are ten questions, including data on participants' daily meal routines, timing and frequency of meals and snacks, foods eaten as snacks, eating speeds, changes in eating patterns caused by environmental factors, smoking and drinking habits

3. Knowledge Level on Nutrition: This section encompassed 20 questions with multiple choice answers related to participants' Body Mass Index (BMI) calculation and evaluation, osteoporosis, hypertension, anemia, lactose intolerance, functions of vitamins and minerals in our body, and nutrients in foods

3.4. Data Analysis

Students' anthropometric measurements, including body weights (kg) and heights (m) were measured and their BMI values were evaluated. While BMI values were being evaluated, the BMI classification made by World Health Organization (WHO) was taken as a reference (35). Accordingly, BMI values are commonly used to classify underweight, normal range, overweight and obesity in adults. The identified BMI values are listed respectively '18,5 and below', '18,5-24,9', '25-29,99' and '30 and above'.

Each question asked to measure nutrition knowledge of participants was scored equally. The total calculation of the correct answers was evaluated their nutritional knowledge score percentages. Then, the percentages of the total correct answers of the participants were calculated.

The data obtained in the study were analysed through SPSS 22.0 software.

During analysing process, Kolmogorov-Smirnov (K-S) test was conducted to test the normal distribution of the data set. Apart from descriptive statistics, the Chi-

Square was employed to analyse group differences in quantitative data set, while Kruskal-Wallis was used to determine whether there are statistically significant differences between means of independent samples. On the other hand, as parametric tests are stronger than nonparametric ones in terms of comparison of quantitative data, t-test was employed instead of Mann-Whitney U test since t-test will give more accurate results in studies related to Health Sciences (107). Significance in the study was accepted as p <0.05.

4.   FINDINGS

A total of 348 students, of whom 269 (77,3%) were female and 79 (22,7%) were male, were solicited between February 2019 and April 2019 in this study. Table 4.1 summarizes the demographic information about the participants.

Table 4.1. Demographic Information about Participants

		N	%
Gender	Female	269	77,3
	Male	79	22,7
Age	19-24	338	97,1
	25-30	9	2,6
	31-35	1	0,3
	>36	-	-
Faculty	Faculty of Education	183	52,6
	Faculty of Health Sciences	165	47,4
BMI	Underweight	101	29
	Normal Range	185	53,2
	Overweight	57	16,4
	Obese	5	1,4

When we examine the distributions of age range of students, it is seen that 338 (97,1%) of them are between 19-24 age range, 9 (2,6%) students are between 25-30 age range, and one (0,3%) student is between 31-35 age range. There is no participant who are 36 and above age range

183 (52,6%) students were studying Faculty of Education, while 165 (47,4%) were students from Faculty of Health Sciences.

The students were classified as underweight, normal range, overweight and obese respectively 101 (29%), 185 (53,2%), 57 (16,4%) and 5 (1,4%).

As shown in Table 4.2, the BMI values of participants were found as statistically significant in terms of gender ($p<0,05$).

Table 4.2 Relationship between University Students'' BMI values and their Gender

Gender	N	x̄	S	Sd	t	p
Female	269	1,81	0,675	346	4,783	0,000
Male	294	13,13	2,593			

İndependent Samples t-Tests   p<0,05

As shown in Table 4.3, when the distributions of the daily main meal routines of university students are examined, it is seen that the main meal frequencies of students in Faculty of Education are as follows: 2 students (1,1%) once, 120 students (65,6%) twice, 55 (30,1%) three times. On the other hand, participants in Faculty of Health Sciences have different main meal patterns as one student (0,6%) once, 79 students (47,9%) twice, 79 students (47,9%) three times, and 6 students (3,6%) four times (Table 4.63). Based on these findings, there is statistically significant difference between main meal frequencies and departments of participants (p<0,05).

Table 4.3 Distributions of Daily Main Meal Routines of University Students

Count of Meals	Faculty of Education		Faculty of Health Sciences		χ^2	p
	N	%	N	%		
One	2	1,1	1	0,6	12,181	0,007
Two	120	65,6	79	47,9		
Three	55	30,1	79	47,9		
Four	6	3,3	6	3,6		

Chi-square   p<0,05

As shown in Table 4.4, when the distribution of skipping meal habits of university students in terms of departments are examined, it is seen that 76 (41,5%) students in Faculty of Education always skip their main meals, while eighty of them (43,7%) have a regular main meal routine. On the other hand, 49 (29,7%) students in Faculty of Health Sciences, always skip their main meals, whereas 94 (57%) of them eat their main meals regularly. Based on these findings, there is statistically significant difference between skipping meal habits and department (p<0,05).

Table 4.4 Distributions of Skipping Mail Meal Habits of University Students according to Departments

Skipping Meal Habits	Faculty of Education		Faculty of Health Sciences		χ2	P
	N	%	N	%		
Yes	76	41,5	49	29,7	6,555	0,038
No	27	14,8	22	13,3		
Sometimes	80	43,7	94	57		

Chi-square   p<0,05

As shown in Table 4.5, when the distribution of meals skipped by students, it is seen that 60 (38,2%) students in Faculty of Education skip breakfasts, 92 of them (58,6%) skip lunches, and five students (3,2%) skip dinners. On the other hand, 60 (42%) students in Faculty of Health Sciences skip breakfasts, 76 of them (53,1%) skip lunches, and four students (4,9%) skip dinners. Based On These Findings, There Is No Statistically Significant Difference Between Distribution Of Skipped Meals And Department (P>0,05).

Table 4.5 Distributions of Meals Skipped by University Students according to Departments

Distribution of Skipped Meals	Faculty of Education		Faculty of Health Sciences		χ2	P
	N	%	N	%		
Breakfast	60	38,2	60	42	1,206	0,5
Lunch	92	58,6	76	53,1		
Dinner	5	3,2	4	4,9		

Chi-square   p<0,05

As shown in Table 4.6, when the causes of skipping meals of university students are examined, it is seen that 75 (48,4%) students in Faculty of Education skip meals due to time constraints, 42 of them (27,1%) skip meals due to their lack of appetite, 19 students (12,3%) skip meals due to their eating habits, and four (2,6%) students skip meals to lose weight. On the other hand, 68 (47,6%) students in Faculty of Health Sciences skip meals due to time constraints, 46 of them (32,2%) skip meals due to lack of appetite, 10 (7%) students skip meals due to their eating habits, and four (2,6%) students skip meals to lose weight. 15 students in both faculties (respectively 9,7% and 10,5%) reported that they skip meals due to the fact that there was no lunch service in their dormitories or they tended to oversleep. Based on these findings, there is no

statistically significant difference between causes of skipping meal and department (p>0,05).

Table 4.6 Distributions of Causes of Skipping Meals according to Departments

	Faculty of Education		Faculty of Health Sciences			
Reasons for skipping	N	%	N	%	χ^2	P
time constraints	75	48,4	68	47,6	2,839	0,5
Lack Of Appetite	42	27,1	46	32,2		
Eating Habits	19	12,3	10	7		
To Lose weight	4	2,6	4	2,8		
Another	15	9,7	15	10,5		

Chi-square   p<0,05

As shown in Table 4.7, when snacking status of students are examined, it is seen that 65 (35,5%) students in Faculty of Education have snacks, while 28 of them (15,3%) don't have any snacks. 90 (49,2%) students , on the other and, sometimes eat foods as snacks. When it comes to Faculty of Health Sciences, it is seen that 65 (39%) students have snacks, whereas 30 of them (18,2%) don't have any snacks. 70 (42,4%) students, on the other hand, sometimes have snacks. Based on these findings, there is no statistically significant difference between snacking status and department (p>0,05).

Table 4.7 Distributions of Snacking status according to Departments

	Faculty of Education		Faculty of Health Sciences			
Eating Snack Status	N	%	N	%	χ^2	p
Yes	65	35,5	65	39,4	1,642	0,4
No	28	15,3	30	18,2		
Sometimes	90	49,2	70	42,4		

Chi-square   p<0,05

As shown in Table 4.8, when the foods eaten as snacks by university students are examined, it is seen that biscuits, cookies, cake are preferred by 64 (41,2%) students, while pastry /pastry with meat or cheese filling/sandwich/bagel are eaten by 34 (21,9%) students. Milk, yoghurt, ayran are the least preferred foods by 74 (54,8) students in Faculty of Sciences. On the other hand, the most preferred foods as snacks are pastry /pastry with meat or cheese filling/sandwich/bagel by 74 (54,8%) students in Faculty of Health Sciences, followed by fruits, sugar and chocolate by 39 (28,8%) students. 6 participants (3,8% and 4,4%) put a tick on other. Those who mark other often prefer noodles and fried potatoes.

Table 4.8 Distributions of Foods Eaten as Snacks according to Departments

Foods*	Faculty of Education		Faculty of Health Sciences	
	N	%	N	%
Nuts	25	16,1	34	25,1
Pastry / /Pastry with Meat or Cheese Filling Sandwich / Bagels	34	21,9	31	22,9
Biscuits / Cookies / Cakes	64	41,2	74	54,8
Candy / Chocolate	21	13,5	39	28,8
Milk / Yoghurt / Ayran	9	5,8	12	8,8
Fruit	28	18	39	28,8
Other	6	3,8	6	4,4

* Multiple food groups can be selected.

As shown in Table 4.9, when the eating speeds of students in Faculty of Education, it is seen that 91 (49,7%) students state that they eat foods at normal speeds, 53 (29%) students eat fast, and four students 2,4% have meals very fast. Based on these findings, there is no statistically significant difference between eating speeds and department (p>0,05).

Table 4.9 Distributions of Eating Speeds of University Students according to Departments

Eating speed	Faculty of Education		Faculty of Health Sciences		χ2	p
	N	%	N	%		
Slow	29	15,8	34	20,6	4,300	0,231
Normal	91	49,7	72	43,6		
Fast	53	29	55	33,3		
Very fast	10	5,5	4	2,4		

Chi-square   p<0,05

As shown in Table 4.10, when the psychological states and eating habits of students are examined, it is seen that 82 (44,8%) students in Faculty of Education never eat, while 57 (31,1%) students eat less than normal when they feel upset. Fourteen (7,7%) students, on the other hand, aren't affected by their feelings. When it comes to eating habits of students in Faculty of Health Education, it is seen that 64 (38,8%) students never eat, whereas 55 (33,3%) eat less than normal. Seventeen (10,3%) students, on the other hand, aren't affected by their feelings. Based on these findings,

there is no statistically significant difference between eating habits and psychological states of students (p>0,05).

As shown in Table 4.10, when tiredness state and eating habits of students are examined, it is seen that 79 (43,2%) students in Faculty of Education and 81 (49,1%) students in Faculty of Health Sciences eat less, while eleven students (6%) in Faculty of Education and six students (5,5%) in Faculty of Health Sciences eat much frequently when they feel tired. Based on these findings, there is no statistically significant difference between tiredness state and departments of students (p>0,05). As shown in Table 4.10, when happiness state and eating habits of students are examined, it is seen that 95 (51,9%) students eat much frequently, while 61 (33,3%) students aren't affected by their feelings in Faculty of Healthy Science when they feel happy. When it comes to students in Faculty of Health Sciences, it is seen that 75 (45,5%) students eat much, while 56 (33,9%) students aren't affected by their feelings when they feel happy. Based on these findings, there is no statistically significant difference between happiness state and department (p>0,05).

As shown in Table 4.10, when excitement feelings and eating habits of students are examined, it is seen that 59 (32,2%) students aren't affected by their feelings, while 54 (29,5%) students eat much frequently when they feel excitement. On the other hand, when it comes to students in Faculty of Health Sciences, it is seen that 54 (32,7%) students aren't affected by their feelings, whereas 39 (23,6%) students eat much frequently. Based on these findings, there is no statistically significant difference between excitement state and department (p>0,05).

Table 4.10 Distributions of Psychological States of University Students according to Departments

States	Behaviours	Faculty of Education		Faculty of Health Sciences		X2	P
		N	%	N	%		
Upset	Never Eat	82	44,8	64	38,8	1,636	0,651
	Less Than Normal	57	31,1	55	33,3		
	Much Frequently	30	16,4	29	17,6		
	Don't Affected	14	7,7	17	10,3		
Tired	Never Eat	46	25,1	41	24,8	1,672	0,643
	Less Than Normal	79	43,2	81	49,1		
	Much Frequently	11	6	9	5,5		
	Don't Affected	47	25,7	34	20,6		
Happy	Never Eat	14	7,7	11	6,7	4,786	0,188
	Less Than Normal	13	7,1	23	13,9		
	Much Frequently	95	51,9	75	45,5		
	Don't Affected	61	33,3	56	33,9		
Excited	Never Eat	26	14,2	34	20,6	3,224	0,358
	Less Than Normal	44	24	38	23		
	Much Frequently	54	29,5	39	23,6		
	Don't Affected	59	32,2	54	32,7		

Chi-square   p<0,05

As shown in Table 4.11, when smoking habits of university students are examined, it is seen that 33 (18%) students smoke, while 150 (82%) students don't smoke in Faculty of Education. 21 (12,7%) students in Faculty of Health Sciences, on the other hand, have smoking habits, whereas 144 (87,3%) students don't smoke. Based on these findings, there is no statistically significant difference between smoking habits and departments (p>0,05).

Table 4.11 Distributions of Smoking Habits of University Students according to Departments

Faculty Type	Smoke		Don't Smoke		$\chi2$	p
	%	N	%	N		
Faculty of Education	18,0	33	82,0	150	1,863	0,172
Faculty of Health Sciences	12,7	21	87,3	144		

Chi-square   p<0,05

As shown in Table 4.12, when drinking habits of university students are examined, it is seen that 11 (6%) students drink alcohol, while 172 (94%) students don't drink alcohol in Faculty of Education. On the other hand, 11 (6,7%) students in Faculty

of Health Sciences drink alcohol, whereas 154 (93%) students don't have any drinking habits. Based on these findings, there is no statistically significant difference between drinking habits and departments (p>0,05).

Table 4.12 Distributions of Drinking Habits of University Students according to Departments

	Drink Alcohol		Don't Drink Alcohol			
Faculty Type	%	N	%	N	χ2	p
Faculty of Education	6	11	94	172	0,063	0,802
Faculty of Health Sciences	6,7	11	93,3	154		

Chi-square   p<0,05

Table 4.13 summarizes students' correct answers on nutritional knowledge of university students. When the correct answers given by students in Faculty of Education is examined, it is seen that the most repeated correct answer were given to the question "Which symptoms occur when people have lack of flor?" by 171 students (93,4%). This is followed by the question "Which mineral deficiency leads to anemia?" by 169 students (92,3%). On the other hand, the most repeated wrong answer was given to the question "How much is the ideal portion of daily fruit and vegetable intake?" by 5 students (2,7%). This is followed by the question "Which foods shouldn't be eaten in the event of constipation?" by 156 (85,2%) students.

When it comes to students in Faculty of Health Sciences, the most repeated correct answer was given to the question "Which mineral deficiency leads to anemia?" by 163 students (98,8%). This is followed by the question "Which symptoms occur when people have lack of flor?" by 162 students (98,2%). On the other hand, the most repeated wrong answer was given to the question "Which foods shouldn't be eaten in the event of constipation?" and "How much is the ideal portion of daily fruit and vegetable intake?" by 14 (8,5%) students.

When the most repeated correct answers given by students in both faculties are examined, it is seen that students in both groups gave correct answers the same questions

When the correct answers are evaluated without considering the group differences, it is seen that 333 (95,7%) participants answered the question "Which symptoms occur when people have lack of floor?" correctly. On the other hand, the 19

(5,5%) participants answered, "How much is the ideal portion of daily fruit and vegetable intake?" wrongly.

Even though students in Faculty of Education gave correct answer to the question "Which foods shouldn't be eaten in the event of constipation?" more than those in Faculty of Health Sciences, but given the correct answers given to all questions, students in Faculty of Health Sciences had higher scores than those in Faculty of Education.

Table 4.13 Distributions of Students' Correct Answers on Nutritional Knowledge Questionnaire of University Students According To Departments

		Faculty of Education		Faculty of Health Sciences		Total	
		N	%	N	%	N	%
1- Which mineral deficiency do you see in those with osteoporosis?	True	136	74,3	160	97,3	296	85,1
	False	47	25	5	3	52	14,9
2- Which symptoms occur when people have lack of floor?	True	171	93,4	162	98,2	333	95,7
	False	12	6,6	3	1,8	15	4,3
3- Which is the calculation formula of BMI?	True	83	45,4	116	70,3	199	57,2
	False	100	54,6	49	29,7	149	49,8
4- Which food is the best source of protein?	True	137	47,9	126	76,4	263	75,6
	False	46	25,1	39	23,6	85	24,4
5- Which vitamin is water-soluble?	True	103	56,3	155	93,9	258	74,1
	False	80	43,7	10	6,1	90	25,9
6- Which food is a good source of complex carbohydrates?	True	93	50,8	109	66,1	202	58
	False	90	49,2	56	33,9	146	42
7- Which mineral deficiency leads to anemia?	True	169	92,3	163	98,8	332	95,4
	False	14	7,7	2	1,2	16	4,6
8- How many mg /dl of fasting blood glucose in is normal?	True	123	67,2	156	94,5	279	80,2
	False	60	32,8	9	5,5	69	19,8
9- Someone who is lactose intolerant needs to limit the intake of which food?	True	150	82	159	96,4	309	88,8
	False	33	18	6	3,6	39	11,2
10- How much is the ideal portion of daily dairy products ?	True	131	71,6	126	76,4	257	73,9
	False	58	28,4	39	23,6	91	26,1
11- Which foods shouldn't be eaten in the event of constipation?	True	27	14,8	14	8,5	41	11,8
	False	156	85,2	151	91,5	307	88,2
12- Which vitamin can cause blood clots?	True	78	42,6	150	90,9	228	65,5
	False	105	57,4	15	9,1	120	34,5
13 How much is the ideal portion of daily fruit and vegetable intake	True	5	2,7	14	8,5	19	5,5
	False	178	97,3	151	91,5	329	94,5
14- Someone who has hypertension needs to avoid which food?	True	166	90,7	160	97	326	93,7
	False	17	9,3	5	3	22	6,3
15- Which food is the best source of vitamin C?	True	147	80,3	138	83,6	285	81,9
	False	36	19,7	27	16,4	63	18,1
16- Which food is the best source of fiber?	True	135	73,8	145	87,9	280	80,5
	False	48	26,2	20	12,1	68	19,5
17- Which food is the best source of vitamin A?	True	85	46,4	95	57,6	180	51,7
	False	98	53,6	70	42,4	168	48,3
18- How much is the ideal portion of daily cereals?	True	22	12	22	13,3	44	12,6
	False	161	88	143	86,7	304	87,4
19- What is the classification of an individual with a Body Mass Index value of 30,00-34,99 kg / m^2?	True	90	49,2	99	60	189	54,3
	False	93	50,8	66	40	159	45,7
20- A gram fat contains how many calories?	True	39	21,3	96	58,2	135	38,8
	False	144	78,7	69	41,8	23	61,2

The nutrition knowledge mean scores of students in Faculty of Education is 58,05, whereas the mean scores of those in Faculty of Health Sciences is found as

71,65%. The total knowledge nutrition mean score of all participants is 65,5 (Table 4.14)

Table 4.14 Nutritional Knowledge Mean Scores of University Students according to Departments

Faculty Type	Nutritional Knowledge Scores
Faculty of Education	58,05
Faculty of Health Sciences	71,65
Mean	64,50

Table 4.15 summarizes nutrition knowledge mean scores of participants. Based on these findings, there is statistically significant difference between nutrition knowledge scores and departments (p<0,05).

Table 4.15 Comparison of Nutritional Knowledge Mean Scores of University Students according to Departments

Faculty Type	N	x̄	S	Sd	t	p
Faculty of Education	183	11,61	3,038	0,225	10,146	0,000
Faculty of Health Sciences	165	14,33	1,726	0,134		

İndependent Samples t-Tests   p<0,05

As shown in Table 4.16, based on these findings, there is no statistically significant difference between BMI values and nutrition knowledge scores (p>0,05).

Table 4.16 Comparison of Nutritional Knowledge Mean Scores according to BMI Values

Body Mass Index	N	Mean R.	Sd	X^2	P
Underweight	101	183,46	3	3,265	0,353
Normal Range	185	165,67			
Overweigh	57	184,78			
Obese	5	202,90			

Kruskal Wallis   p<0,05

Table 4.17 summarizes nutrition knowledge mean scores of participants according to gender. When the findings are examined, it is seen that there is statistically significant difference between nutrition knowledge scores and gender (p<0,05).

Table 4.17 The relation between Nutritional Knowledge Mean Scores and Gender of University Students

Gender	N	$\bar{x}$	S	Sd	t	p
Female	269	65,55	2,675	346	2,539	0,012
Male	79	60,95	3,290			

İndependent Samples t-Tests   p<0,05

Table 4.18 summarizes distribution of nutrition knowledge scores according to skipping meal status of university students. Accordingly, there is no statistically difference between nutrition knowledge scores and skipping meals status of university students (p>0,05).

Table 4.18 The relation between Nutritional Knowledge Mean Scores and Skipping Meal Status of University Students

Skipping Meal Status	N	Mean R.	Sd	X^2	P
Yes	124	164,04	2	2,299	0,317
No	49	187,19			
Sometimes	174	177,38			

Kruskal-Wallis Test   p<0,05

Table 4.19 summarizes the comparison of nutrition knowledge scores with skipping meal status of university students. Based on the findings, there is no statistically difference between nutrition knowledge scores and snacking status of university students (p>0,05).

Table 4.19 Comparison of Nutritional Knowledge Mean Scores with Snacking Status of University Students

Snacking Status	N	Mean R.	Sd	X^2	P
Yes	130	180,45	2	0,765	0,689
No	58	169,78			
Sometimes	160	171,38			

Kruskal-Wallis Test   p<0,05

Table 4.20 summarizes the comparison of nutrition knowledge scores and smoking habits of university students. Based on the findings, there is a statistically significant difference between nutrition knowledge scores and smoking habits of university students (p<0,05).

Table 4.20 Comparison of Nutritional Knowledge Mean Scores with Smoking Habits Status of University Students

Smoking Habits	N	x̄	S	Sd	t	P
Yes	54	11,63	3,738	346	3,627	0,006
No	294	13,13	2,593			

İndependent Samples t-Tests   p<0,05

Table 4.21 summarizes the comparison of nutrition knowledge scores and drinking habits of university students. Based on the findings, there is no statistically difference between nutrition knowledge scores and drinking habits of university students (p>0,05).

Table 4.21 Comparison of Nutritional Knowledge Mean Scores with Drinking Habits Status of University Students

Drinking Habits	N	x̄	S	Sd	t	p
Yes	22	12,86	2,696	346	0,61	0,68
No	326	12,90	2,861			

İndependent Samples t-Tests   p<0,05

5. RESULTS AND DISCUSSION

University education can be considered as an important period in which students can shape their dietary habits for future time as eating habits and physical activity status may change in time after college education.

This study has sought to illuminate the differences between dietary habits and nutritional knowledge of university students in Faculty of Health Sciences in which future health workers are being educated and those in other faculties. The study was conducted in Faculty of Health Science and Faculty of Education in Amasya University to survey on the participants.

77,3% of the participants were female, while 22,7% of them were male in the study. In a study conducted by Yücel (108), a total of 321 health workers were recruited for the study and study group included 70,1% female and 29,9% male participants. In another study on students in faculty of medicine, 275 students were solicited to survey their nutrition knowledge and dietary habits. The study group was composed of 58% female and 42% male participants (109). In a study conducted to survey on nutritional knowledge levels of 222 students in vocational school of health services, 81,5% female and 18,5% male participants were included (110). Based on these findings, it can be noted that the rate of males has been increasing over the last decades in health profession which was mostly preferred by females beforehand.

97,1% of the students who participated in this study were between 19-24 age range, while 2,6% were between 25-30 years old. In a study conducted by Avilla (14), the average age score of the participants was found as 20,3.

In another study who recruited 70 students in faculty of health sciences, 54,3% of the students were between 20-25 years old (111). Considering that the graduation age is eighteen in high schools, it can be noted that the average ages are in good agreement with existing studies in the literature.

The 47,4% of the students are students in Faculty of Health Sciences, while 52,6% are studying in Faculty of Education. In the study of Labban (112), 998 university students were recruited for the study and 22,7% of the participants were studying in health-

related departments. Similarly, Avilla (14), included 36,8% students in faculty of health sciences.

The foundations of a good health are having a well-balanced diet and healthy dietary habits. In this sense, the aim is to ensure that individuals are healthy for lifelong period, to improve their health and to provide well-being (healthy eating and physical activity habits, prevention of alcohol and smoking). Reducing or eliminating eating disorders that harm life quality, including thinness, shortness, iron decificieny anemia, iodine deficiency diseases, folic acid and Vitamin D deficiencies, rotting teeth, fatness, healing some diseases such as cardiovascular diseases, hypertension, some cancer types, diabetes, osteoporosis as well as improving environmental conditions can only be achieved by having healthy food and dietary habits (20).

Obesity is a fundamental risk factor for coronary artery diseases both in females and males (113). The most frequent method that is used to identify obesity is to measure Body Mass Index (BMI) (114).

In this present study, BMI values of the participants can be listed as 29% underweight, 52,2% normal range, 16,4% overweight and 1,4% obese.

Yücel (108), conducted a study and found that the 4,7% of the participants were underweight, 56,1% normal range, 28% overweight, and 11,2% obese. Tütüncü ve Karaismailoğlu (110), surveyed on students in vocational school of health services and concluded that 9,5% of the participants were underweight, 77,9% normal range, 12,6% overweight and obese. In another study that was conducted on 175 students in vocational school of health services, it was concluded that 18,4% of the participants were underweight, 77,4% normal range, 2,9% overweight and 0,6% obese (115). On the other hand, a study recruiting 73 university students and examining their dietary habits and nutritional knowledge concluded that 6,8% of the participants were underweight, 69,9% normal range, 20,5% overweight and 2,7% obese (116). Female university students who accommodated in dormitory were solicited in another study that focused on dietary habits of university students and it was concluded that 14,7% were underweight, 82,3% normal range, 3% overweight (117). Öztürker ve Özer (118), also found that 14% of the university students were underweight, 78,6% normal range, 15,6% overweight and 2,4% obese. In a study including 1120 university students, the

average BMI values of the participants were measured as 21,9 (normal range) (119). In a different study on 998 university students, it was found that 6,3% of the participants were underweight, 62,2% normal range, 26,2% overweight and 5,3% obese (112). In this present study, our findings corroborated with others. Said another way, most of the participants were classified as normal weight. On the other hand, there are some differences in terms of the percentages of the participants who are overweight and obese. In other words, as opposed to this present study, the percentages of overweight and obese students were higher, while those of underweight were lower. This may be due to the fact that most of the participants were female ones in this present study.

There is a statistically significant difference between BMI values and gender of the participants in this present study (p<0,05). Astarlı (4) concurs well with this in the study that focuses on nutritional knowledge of students in faculty of medicine and notes that there is a statistically significant difference between gender and BMI values (p<0,05). Yücel (108), provides evidence to suggest that there is a statistically significant difference between gender and BMI values of health workers (p<0,05). As an explanation for this, it can be suggested that female participants pay more attention to their physical appearances and body weights.

1,1% of the students in Faculty of Education have only one meal in a day, while 65,6% of the students have two meals, 30,1% of the students have three meals and 3,3% of the students have four meals in a day. On the other hand, those in Faculty of Health Sciences reported about their daily meal routines as follows: 0,6% one meal, 49,9% two meals, 47,9% three meals and 3,6% four meals.

In this sense Yücel (108), concluded that 2,8% of the participants have only one main meal, 24% of them have two meals, and 65% of them eat three meals. In another study that focused on examining dietary habits of 512 Chinese university students, it was found that 79% of the students have meals three times in a day (120). The works of Çetin and Sarper (109), recruited 275 students in faculty of medicine to examine their nutrition knowledge levels and dietary habits and concluded that 13,9% of the students have two main meals, 60,4% of them have three main meals, and 20,8% of them have four main meals in a day. Mazıcıoğlu and Öztürk (121), examined dietary habits of university students and found that 48,9% of the participants reported that they had three

main meals in a day. In another study that included 712 university students, it was found that 2,3% of the students have one meal, 47,4% of them two meals, 40,8% have three meals and 9,3% have meals more than three times (122). Taken together, it can be noted that most of the university students havig had nutrition education have meals three times in a day even though they don't care their eating routines.

Based on the findings, there is a statistically significant relation between daily meal frequency and department (p<0,05). Astarlı (4), examined the daily meal frequencies of first and fifth grades students in Faculty of Medicine and concluded that there is no statistically relation between daily meal frequency and department (p>0,05)

It is essential for individuals to have a regular eating schedule and there should be some regular intervals between meal times so that they can fully benefit from foods eaten and take necessary energy for a daily activity. The energy intakes of those who skip meals in any time of the day can increase or decrease (123). Those who skip breakfast take more energy during lunch and most of this energy comes from carbohydrates (124).

41,5% of the students in Faculty of Education always skip main meal, while 14,8% of the students never do this. On the other hand, 29,7% of the students in Faculty of Health Sciences always skip main meals, whereas 57% of the students never skip any meals. 38,2% students in Faculty of Education skip breakfasts, 58,6% skip lunches and 3,2% skip dinners, whereas forty-two percent of students in Faculty of Health Sciences don't have breakfasts, 53,1% don't eat lunches, and 4,9% skip dinners.

Yılmaz and Özkan (115), concluded in their studies that 90,3% of the students skip any meal. The authors also found that 29,7% of the students skip breakfasts, 65,8% of them don't have lunches and 4,4% of the students skip dinners. Ermiş et all. (125), conducted a study to examine dietary habits of 1105 university students and concluded that 39,7% of the students skip breakfasts, 52,6% don't have lunches and 7,7% skip dinners In another study by Çiftçi et all. (123), was found that 5,8% of the students don't have breakfast, 33,5% skip lunch and 1,2% don't eat dinner. Güleç et all. (117), surveyed on 300 university students and concluded that 15,3% don't have breakfast, 26,3 of the students skip lunches and 20,3% don't have dinners Onurlubaş et all. (126), included 1032 university students and found that 68,5% of them skip a meal. The

authors concluded that 52,3% of the students don't have lunch, 42,4% of them skip breakfasts and 5,3% of them don't have dinner. Orak et all. (122), revealed that 27,4% of the students skip breakfast, 23,3% of them don't eat lunch and 9,5% of them skip dinners. In another study which included university students as participants, it was found that 30,2% don't have breakfast, 50,9% of them skip lunch and 4,5% of them don't have dinners (118). Çetin (127), surveyed on 275 students in Faculty of Medicine to measure their nutrition knowledge and dietary habits and found that 10,9% of the students skip breakfasts, 20,8% don't have lunch and 9,9% of them skip dinners. Taken together, it can be noted that university students mostly skip lunches, followed by breakfast. A systematic analysis has revealed that the findings of existing studies obtained similar results. In this sense, it can be argued that the number of main meals of university students isn't enough.

There is a statistically significant relation between skipping meal status and departments of the students ($p < 0,05$). Çetin (127), surveyed on first and sixth grade students in Faculty of Medicine and concluded that there is no statistically significant relation between breakfast and lunch routines and class levels of the students ($p > 0,05$), whereas there is a statistically significant relation between dinner status and class levels of the students. Another study including first and fifth grade students in Faculty of Medicine, there is a statistically significant relation between skipping meal status and class levels of the students ($p < 0,05$) (4).

When the causes of skipping meal are examined, it is seen that almost half (48,4%) of the students in Faculty of Education mentioned that they skip meals due to lack of enough time, 27,1% of them do this because of lack of appetite, and 2,6% of the students skip meals to lose weight. Almost half (47,6%) of the students in Faculty of Health Sciences, on the other hand, skip meals due to lack of time, 32,2 of them skip meals because of lack of appetite, 7% of them skip meals owing to dietary habits, and 2,8% of the students skip meals to lose weight

Vançelik et all. (119), concluded that participants skip meals due to several reasons, including losing weight (3,6%), lack of appetite (31,5%), and lack of time or forgetting to eat (52,9%). Additionally, Özütürker and Özer (118), surveyed on university students and found that individuals skip meals due to such reasons as lack of

enough time (33%), lack of appetite (24%), losing weight (4,5%), and imbalanced dietary habits (16%). According to another study by Onurlubaş et all. (126), found that participants skip meals due to lack of time (31,9%), lack of appetite (25,1%), not being able to wake up (23,5%), and losing weight (1%). systematic review of literature has revealed that our findings in this study corroborated with previous research. Correspondingly, it can be noted that student skip meals for a variety of reasons, including irregular life style, inconvenient sleep patterns, some economical factors, imbalanced dietary habits even though they have nutritional knowledge.

Based on the findings, it is seen that there is no statistically significant relation between skipping meal causes and departments of university students (p>0,05). On the other hand, Çetin (127), conducted a study on students in Faculty of Medicine and concluded that there is a statistically significant relation between skipping meals due to lack of appetite and class levels of the students (p<0,05). The author also concluded that there is no statistically relation between skipping meals due to lack of time and imbalanced dietary habits and class level of the students (p>0,05).

Skipping a meal has a direct impact upon carbohydrate and fat metabolism, reduces thermogenic effect of foods, and lead to gaining weight in the long-run (128). has been reported that those who skip meals seven times or more may lack vitamins B1 and B2 when compared those who don't (129). Having breakfast contributes to educational achievements of the individuals, regulating their cognitive skills, such as perceiving, understanding, remembering and enabling them to start daily routines actively (130).

Dietary habits of the individuals may change when they begin higher education. The changing dietary habits may lead to differences in academic achievements of the students as well as disease related to eating. For this reason, an increase in nutritional knowledge levels of the students will expected to improve their dietary habits (131).

In this present study, it has been revealed that 35,5% of the students in Faculty of Education have snacks, while 15,3% of them don't eat any food as snacks. 49,2% of the students, on the other hand, have sometimes snacks. When it comes to students in Faculty of Health Sciences, it is seen that 39% of the participants have snacks, whereas 18,2% of them don't have any snacks, 42,4% of the students in Faculty of Health

Sciences, on the other hand, have sometimes snacks. Given the foods eaten as snacks by the participants in this present study, it has been concluded that students in Faculty of Education mostly prefer to eat biscuits, cookies and cake (41,2%), followed by pastry/pastry with meat or cheese filling/sandwich/bagel (21,9%). Milk, yoghurt and ayran are the least preferred foods (5,8%). On the other hand, those in Faculty of Health Sciences often eat pastry/pastry with meat or cheese filling/sandwich/bagel (54,8%), followed by fruits, candies and chocolate (258,8%). In this sense, it can be concluded that students generally consume foods containing high level fat, flour and sugar rate even though they have snack habits. Milk and dairy products are eaten at low amounts by the students.

Güleç et al. (117), included university students in their studies and concluded that 61% of the participants have snacks, while the rest of them don't have snacks. When it comes to the foods eaten as snacks, it was found that the most preferred foods are sugar and chocolate (52,7%), biscuits (15%), ice-cream (13,7%), dried fruits (6,7%), potato chips (6,3%), and fizzy drinks (5,7%). Yücel (108), surveyed on health workers and found that participants mostly eat food and drinks, including tea and coffee (72,3%), fizzy drinks (4,7%), fruit juice (3,4%) as well as fruits (26,3%), dried fruits (19,6%) and candies (14,3%). Onurlubaş et all. (126), surveyed on university students and concluded that 60,1% of the students always have snacks, 36,5% of them have sometimes snacks, but 3,4% of them don't have any food as snacks. When it comes to drinks as snacks, 65,7% of them prefer to drink tea, 45,7% of them have fruit juices, 42% of the students have coffee, 33,9% of them have fizzy drinks, and 27,4% of them drink milk and ayran (115). Snacking during different periods of a day help reduce the food eaten at main meals, regulating blood sugar. Having snacks at regular intervals can prevent people from eating much

Based on the findings, it has been concluded that there is no statistically significant relation between skipping meal status and departments of the students (p>0,05).

In this present study, almost half (49,7%) of the students in Faculty of Education stated that they eat foods at a normal speed, whereas twenty-nine percent of them reported that they eat fast and 5,5% of them eat very fast. 43,6% of the students in

Faculty of Health Sciences, on the other hand, regard their eating speeds as normal, while 33,3% of them eat fast and 2,4% of them eat very fast.

In a study focused on pre-school teachers' eating habits and nutritional knowledge levels, it was found that 12,5% of the participants reported that they eat fast, 18,3% of them eat slowly, and 69,3% of them eat at normal speeds (132). Yücel (108), on the other hand, surveyed on health workers and concluded that 35,5% of the participants eat fast, 50,2 of them eat at normal speeds, 10,9% of them eat slowly, and 3,4% of them eat very slowly. Correspondingly, our findings show that most of the participants in this study eat at normal speeds, and these findings corroborated with previous research. It has been reported in the literature that it is very threatening to eat fast, especially in terms of gastrointestinal health (108).

Based on the findings, there is no statistically significant relation between eating speed and departments of the students (p>0,05). Çetin (127), on the other hand, found a significant relation between eating speed and class levels in the study recruiting students in Faculty of Medicine (p<0,05).

When the pshychological states of the students in this study are examined, it is seen that almost half (48%) of the students in Faculty of Education don't eat any food when they feel upset, whereas almost forty (38,8%) percent of the students in Faculty of Health Sciences eat nothing when they feel unhappy. 43,2 of the students in Faculty of Education eat less than normal when they feel tired, while almost half (49,1%) of those in Faculty of Health Sciences eat less food when they are tired. On the other hand, 51,9% of the students in Faculty of Education eat much and frequently when they feel happy, whereas 45,5% of those in Faculty of Health Sciences eat more than usual. 32,2% of the students in Faculty of Education don't show any changes in their eating patterns and routines when they feel excited, while 32,7% of those in Faculty of Health Sciences don't experience any change when they feel excited.

In a study conducted by it was concluded that 36,3% of the health workers eat less than, while 27,5% of them never show any changes in their eating routines when they are tired or feel upset. It was also found that 48,1% of the participants never change their eating patterns, while 25,2 of them eat less than normal when they feel happy or excited. Çetin ve Sarper (109), surveyed on the first grade students who didn't

take any nutrition education and the sixth grade students who took nutrition education and concluded that 38,5% of the first grade and 55,4% of the sixth grade students never eat when they feel upset. Additionally, 39,7 % of the first grade and 55,4% of the sixth-grade students eat less when they feel upset. The authors found that 37,9% of the first grade and 58,4% of the sixth-grade students eat much more than usual when they feel upset. 33,3% of the first-grade students reported that there is less or no change when they feel tired, while 44,6% of the sixth grade students stated that there is no change in their eating routines. Vançelik et all. (119), conducted a study on university students and concluded that 16,4% of the participants never eat, 42,6% of them eat less than usual, 20,4% of the students eat much more than usual, and 18,1% of them don't display any change when they feel upset or are tired. The authors also found that 9,4% of the participants never eat, 22,9% of them eat less than usual, 22,8% of the students eat much more than usual, and 41,4% of them don't experience any change when they feel happy and excited.

Based on the findings, it is concluded that there is no statistically significant relation between psychological states and departments of the students (p>0,05). Kuyumcu (133), surveyed on first and sixth grade students of Facility of Medicine and concluded that there is no statistically significant relation between dietary habits and their psychological states and class levels (p>0,05).

What we eat impacts a wide range of functions of the brain, including cognitive skills as well as providing necessary energy intake of the body. Foods may help physical and psychological status of the body improve. Along with foods and dietary habits, emotional states also affect what kind of food we eat. It has been reported that individuals may show aggression as a result of lack of nutrition along with weak cognitive skills and depressive mood. Moods of the individuals have an impact upon the foods we eat. It is more common for individuals to eat much more than usual when they feel stressed. Eating foods that ease stress levels is considered as a reaction which has occurred to relieve stress (134).

In this present study, eighteen percent of the participants in Faculty of Education smoke, while 82% of them don't have smoking habits. 12,7% of the students in Faculty

of Health Sciences, on the other hand, smoke, whereas most of them (87,3%) don't smoke.

Yılmaz and Özkan (115) lend support to the findings of this study and conclude that 12,6% of the students in vocational school of health services smoke. Ermiş et all. (125), are in line with this and note that 36,7 of the university students smoke. In another study on students in Faculty of Medicine, 27,6 % of the first-grade students and 37,6 of the sixth-grade students smoke. (127). In a study focusing on pre-school teachers' nutrition knowledge levels and dietary habits, almost one fourth of the participants smoke (132). Ayhan et all. (135), found in their studies that 25,1% of the males and 9,1% of the females smoke. In another study including 334 students in Faculty of Medicine in Tiran, first and fifth grade students were surveyed, and it was concluded that 16,8% of the first-grade students and 54,1% of the fifth grade students smoke (136). Students have to cope with the difficulties they face during college education without their families and may need some different remedies. At this precise point, they may tend to smoke due to the emotional state they have. Additionally, students may be encouraged by their friends in school, dormitory or by their flatmates. In this study, it has been concluded that the rate of those who smoke were found less when compared to the findings of previous research

Based on the findings, there is no statistically significant relation between smoking habits and departments of the students ($p > 0,05$). Batı (137), surveyed on first and sixth grade students in Faculty of Medicine and concluded that there is a statistically significant relation between smoking habits and class levels of the students ($p < 0,05$).

Smoking is considered as the most threatening habit in terms of health all over the world. According to WHO, nine hundred sixty thousands of all deaths in 1990, and almost five million of deaths in 2002 are reported to have been caused by smoking. This number is even expected to rise up to by nine million until 2020 (138,139). Substances with more than 4000 different features found in tobacco and smoke lead to cancer (140).S Such substances nicotine and carbon dioxide found in smoke lead to serious arrhythmia and sudden deaths, increasing heart beat, blood pressure and contraction of the heart (76).

Six percent of the students in Faculty of Education have drinking habits, while 6,7% of those in Faculty of Health Sciences drink alcohol. Based on the findings, there is no statistical relation between drinking habits and departments of the students (p<0,05).

In a study conducted with 175 students in vocational school of health services, it was concluded that 6,7% of the students have drinking habits (115). Çetin (127), found that twenty-seven percent of the first-grade students drink alcohol, while 37,6% of the sixth grade students have drinking habits. Yücel (108), concluded that ten percent of the students have drinking habits. Güleç el all. (117), found that 13,7% of the university students drink alcohol. Astarlı (4), surveyed on first and fifth students in Faculty of Medicine and concluded that 38,4% of the first graders and 46,6% of the fifth graders drink alcohol. In another study recruiting 1120 university students, it was found that most of them (88,1%) have drinking habits (119). In this present study, it was revealed that the rate of alcohol consumption of the participants is lower than previous research. University students may be believed to drink alcohol due to a wide range of reasons, including difficulties, stress, imitation, effort to prove identity, friends, and worries. Said another way, those who cannot cope with difficulties and challenges may lead to alcohol addiction (141).

Based on the findings, there is no statistically significant relation between alcohol consumption and departments of the students (p>0,05). Astarlı (4), surveyed on first and fifth grade students and found no relation between alcohol consumption and class levels of the students (p>0,05).

The risks of cardiomyopathy, arterial fibrassion and stroke increase based on the alcohol consumption (142,143,144). Additionally, drinking may lead to oropharynx, larynx, liver, colon, rectal and breast cancer, alcoholic hepatitis, steatorrhoea, nonalcoholic steatohepatitis fibrosis and cirrhosis (145,146). Having more than four drinks in a day may lead to hypertension and cerebral bleeding (147,148). 9,3% of the young people who are 19- 24 age range and 16,5% of those who are 25-34 age range drink alcohol (149).

In this present study, it was found that nutrition knowledge mean scores of students in Faculty of Education is 58,05%, while that of Faculty in Health Sciences is 71,65%. On the other hand, the total nutritional knowledge mean scores is 64,5%.

In a study that corroborated with this one, it was found that nutrition knowledge mean score of healthcare students' is 71% (150). In another study recruiting 70 healthcare students, it was concluded that nutrition knowledge mean score of the students in Faculty of Medicine is 84,9%, those of in nursing department is 79,2%, those in physiotherapy department is 75,9%. The total mean scores of the all departments was calculated as 75,4% (111). Additionally, in a study focusing on nutritional knowledge levels of 998 university students, it was concluded that the nutrition knowledge mean score is 37,8 out of 110. The nutrition knowledge mean score of those in Faculty of Health Sciences is 37,8, while that of others in different departments is 36,8 (112). Tütüncü and Karaismailoğlu (110), surveyed on students in vocational school of health and concluded that nutrition knowledge mean score is 62,5%. In another study conducted in Ghana, it was concluded that nutrition knowledge mean score of nursing students is 44,25% (151). Murathan et all. (152), investigated into 160 students in Department of Physical Education and Sports who took nutrition education. In this sense, it was concluded that those in department of teaching gave correct answers to the 66% of the questions, those in coaching department gave correct answers 49% of the questions, and those in department of sport management gave correct answers to the 53% of the questions. In a study surveying on students in Faculty of Health Sciences, it was concluded that the nutrition knowledge mean score of the nursing students is 21 out of 32, that of those in department of physiotherapy is 21 out of 32, and that of in department of fitness is 22 out of 32 (153). Unsworth (116), surveyed on 73 university students and concluded that nutrition knowledge mean score is 49%. In another study recruiting 103 nursing students, it was found that nutrition knowledge mean score is 60,2% (154). In a study focusing on nutrition knowledge levels of students in Faculty of Medicine, it was concluded that nutrition knowledge mean score is 58,2% (127). another study including 28 dieticians, 81 nurses and 89 doctors, it was found that doctors gave correct answers 77,4%, nurses gave correct answers 75,7%, and dieticians gave correct answers 85,8% (155). Yücel (108), surveyed on health workers and concluded that nutrition knowledge mean score is 61%.

Gündoğdu (132), examined nutrition knowledge of pre-school teachers and found that their nutrition knowledge mean score is 65,54%.

In this present study, based on the findings, there is a statistically significant relation between nutrition knowledge mean scores of students in Faculty of Health Sciences and Faculty of Education (p<0,05). As an explanation for this, it can be noted that nutrition education of students in Faculty of Health Sciences affect their nutrition knowledge in a positive way.

Çetin (109), lends support to this and concludes that sixth grade students in Faculty of Medicine who took nutrition education scored better than first grade students. Thomas et all. (153), concluded that there is statistically significant relation between nutrition education and nutrition knowledge level. Çalış et all. (156),surveyed on students in vocational school of health services and concluded that there is statistically significant relation between nutrition knowledge levels of those in vocational school of health services and that of others (p<0,05). Labban (112), also found a significant relation between nutrition knowledge and departments of the participants. Yücel (108), found a significant relation between nutrition knowledge and occupations. Alması (157), surveyed on university students and found that there is a statistically significant relation between those who took nutrition education and those who didn't (p<0,05).

As opposed to the existing literature Tütüncü and Karaismailoğlu (110), found no significant relation between nutrition education and nutrition knowledge (p>0,05). Avilla (14), found no significant relation in nutrition knowledge levels between students in Faculty of Health Sciences and those in other faculties (p>0,05).

It is of great importance to provide individuals with nutrition education from the early years of formal education so that a sustainable consciousness will be achieved even though there have been great efforts to raise awareness on the issue by printed and visual media (125).

In this present study, based on the findings, there is no statistically significant between BMI values and nutrition knowledge mean scores of the students (p>0,05).

Tütüncü and Karaismailoğlu (110), corroborated with the findings of this present study. The authors concluded that there is no statistically significant relation between

BMI values and nutrition knowledge scores of the students. Yücel (108), Also found no significant relation between nutrition knowledge scores of health workers and their BMI values. Çetin (127) recruited first and sixth grade students in Faculty of Medicine and found no significant relation between nutrition knowledge scores of students and their BMI values. Labban (112), conducted a study with Syrian students and found no found no significant relation between nutrition knowledge scores of students and their BMI values. As opposed to these Gündoğdu (132), surveyed on pre-school teachers and found a statistically significant relation between their BMI values and nutrition knowledge levels (p<0,05). Almasi (157) corroborates with the findings of this present study and notes that there is no statistically significant between BMI values and nutrition knowledge scores of the students (p>0,05). Bonaccio et al. (158) concluded that prevalence of obesity is high in those with high nutrition knowledge scores.

In this present study, based on the findings, there is a statistically significant relation between nutrition knowledge mean score and genders (p<0,05). Accordingly, it was concluded that nutrition knowledge scores of females are higher than those of males.

Vançelik et all. (119), corroborated with the findings of the present study. The authors concluded that nutrition knowledge mean score of female students is statistically different from that of males (p<0,05). In another study recruiting 998 university students, it was found that nutrition knowledge scores of females is statistically different from that of males (p<0,05)(112). Buxton and Davies (151), on the other hand, surveyed on nursing students and found that nutrition knowledge score of females is not statistically different from that of males. Gündoğdu (132), found a statistical significant relation between nutrition knowledge scores of females and that of males (p<0,05). Said another way, the nutrition knowledge scores of females are higher than that of males. Alması (157), also found a statistically significant relation between nutrition knowledge scores of females that of males(p<0,05). As an explanation for the fact that nutrition knowledge scores of females are higher than that of males, it can be noted that females are more interested in nutritional issues when compared to males.

As opposed to this present study, in a study recruiting 73 university students, it was found that there is no statistically significant relation between nutrition knowledge

scores and genders of the students (116). Çalış et all. (156), found no statistically significant relation between nutrition knowledge scores and genders of the students (p>0,05). Murathan et all. (152), found no statistically significant relation between nutrition knowledge scores and genders of the students in Department of Physical Education and Sports (p>0,05)

In this present study, it has been found that there is a statistically significant relation between nutrition knowledge mean score and smoking habits of the participants (p<0,05). Bonaccio et all. (158), concur well with this and conclude that there is a significant relation between nutrition knowledge level and smoking habits (p<0,05). whereas Alması (157), didn't find any statistically significant relation between nutrition knowledge level and smoking habits (p>0,05).

In conclusion, the nutrition knowledge mean scores of students in Faculty of Health Sciences were found higher than those in Faculty of Education. Nutrition education is expected to contribute to dietary habits of individuals and societies in a positive way. In this present study, it can be noted that the effect of nutrition education of the university students on their dietary habits didn't have a certain impact. On the other hand, what is clear is that female participants have higher scores than males in terms of nutrition knowledge mean scores. Female participants also pay more attention to their body weight when compared to males. In a nutshell, it would be better providing students with nutrition education in all levels of formal education even though individuals can learn some useful information on healthy diet and nutrition from printed and visual media.

6. REFERENCES

1) Baysal, A., Aksoy, M., Besler, T., Bozkurt N., Keçecioğlu S., Mercangil, S., Merdol, S., Pekcan, G., Yıldız, E., *Diyet El Kitabı*. Ankara: Hatipoğlu Yayınevi; 2014.

2) Baysal, A. *Beslenme*. Ankara: Hatipoğlu Yayınevi; 2015.

3) Lean, M. Principles of Human Nutrition. *Medicine*, 2015. 43(2): p. 61-5.

4) Astarlı, Ö. *Marmara Üniversitesi Tıp Fakültesi 1. ve 5. Sınıf Öğrencilerinde Beslenme Bilgi Düzeylerinin Ve Beslenme Alışkanlıklarının Değerlendirilmesi*. İstanbul: Marmara Üniversitesi, 2008.

5) Bulduk, S.,Yabancı,N., Demircioğlu,Y. *Özel Durumlarda Beslenme*. İstanbul: Yapa Yayınları; 2002.

6) Insel, P., Turner, R.E., Ross, D., *Discovering Nutrition*. Massachuset: Sudburry, Jones and Bartlett Publishers; 2003.

7) Şanlıer, N., Konaklıoğlu, E., Güçer, E., Gençlerin Beslenme Bilgi, Alışkanlık Ve Davranışları İle Beden Kütle İndeksleri Arasındaki İlişki. Gazi Eğitim Fakültesi Dergisi, 2009. 29: p. 333-352.

8) Wilson, C.K., Matthews, J.I., Seabrook, J.A., Dworatzek, PDN. Self-Reported Food Skills of University Students. Appetite, 2016. 108: p. 270-27.

9) Kleinman, R.E. and Coletta, F.A. Historical Overview of Transitional Feeding Recommendations Practices for Infants and Young Children. Nutrition Today, 2016. 51(1): p. 7-13.

10) Bostanac, V., Sanko, K., Gajdos, K., Irena, K.B. Association Between Dietary Offerings and Nutritional Status of Adolescents as a Factor of Geographic Region. Journal of Food Composition and Analysis, 2016. 53: p. 1321.

11) Bahl, S., Hamilton, S., Ormesher, P. A Study of the Nutritional Knowledge of Allied Health Students. The Journal of Health Behavior, Education, and Promotion, 1993. 17(5): p. 3-8.

12) American Dietetic Association. Position of the American Dietetic Association: Food and nutrition misinformation: Journal of the American Dietetic Association, 2006. 106.

13) MacNaughton, K., Chreim, S., Bourgeault, I.L. Role Construction And Boundaries İn İnterprofessional Primary Health Care Teams: A Qualitative Study. BMC Health Serv Res, 2013. 13: p. 486.

14) Avila, V. *Comparıson Of Basıc Nutrıtıon Knowledge Between Health And Non-Health Related Majors*. California, California State University, 2016.

15) Bulduk, S. *Beslenme İlkeleri ve Mönü Planlama*. Ankara: Detay Yayınları; 2005.

16) Işıksoluğu M., *Endüstri Meslek Liseleri için Beslenme*. İstanbul: Devlet Kitapları Müdürlüğü; 2005.

17) Kris-Etherton PM, Akabas SR, Bales CW, Bistrian B, Braun L, Edwards MS, Van Horn L. The Need to Advance Nutrition Education İn The Training Of Health Care Professionals And Recommended Research To Evaluate İmplementation And Effectiveness. The American Journal of Clinical Nutrition. 2014; 99: 1153-1166.

18) Perrin J.M, Bloom S.R, Gortmaker, S.L. The Increase of Childhood Chronic Conditions in the United States. Journal of the American Medical Association, 2007. 297(4):p. 2755-2759.

19) Fletcher, R.H., and K.M. Fairfield, Vitamins For Chronic Disease Prevention. Journal of American Medical Association, 2002. 28(23):p. 3127-3129.

20) Türkiye Beslenme Rehberi. Ankara: T.C. Sağlık Bakanlığı; 2015.

21) Demirci, M. *Beslenme*. Tekirdağ: Rebel Yayıncılık Basım; 2003.

22) Tezcan, S., Ertan, A., Aslan, D. Beş Yaş Altı Çocuklarda Malnütrisyon Durumunun Değerlendirilmesi. Temel Klinik Tıp Bilimleri, 2003. 23(5): p.420-9.

23) Alphan, E. *Hastalıklarda Beslenme Tedavisi*. Ankara: Hatipoğlu Yayınları; 2013.

24) Demircioğlu, Y. and N. Yabancı, Beslenmenin Bilişsel Gelişim Ve Fonksiyonları İle İlişkisi. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 2003. 24:p. 170-179.

25) Aktaş, N. Ankara Üniversitesi Ziraat Fakültesi Öğrencilerinin Beslenme Bilgi Düzeyleri. *Ankara Üniversitesi Ziraat Fakültesi Yayınları*, 1988. 554:p. 37.

26) Langley-Evans, S., *Nutrition, Health and Disease*. Iowa: Wıley Blackwell; 2015.

27) Barratt, J., Clonan, A., Delic, J., Delpeuch, F., Dillon, R., Dixon, M., Douglas, P. *Oxford Handbook of Nutrition and Dietetic*. New York: Oxford Medical Publications; 2012.

28) Baker, T.B., Derricott, B., Elbon, S.M., Hartney, C.A., Indorato, D.A., Montgomery, A., Reed, A.K., Ward, K.S., Willis, J.E. *Nutrition Essentials and Diet Therapy*. Missouri: Elsevier, 2010.

29) Lupton JR, Brooks GA, Caballlero B, Flatt JP, Fried S.K, Garlick, PJ, Grundy, SM, Innis SM, Jenkins DJA, Johnson RK, Krauss RM, Etheron P, Nuttall FQ, Pencharz PB, Reeds PJ, Dietary Referance Intakes For Energy, Carbonhdrate, Fiber, Fat, Fatty Acids, Collesterol, Protein and Amino Acids. Washington: The National Academic Press; 2005.

30) McDowell, R.L., *Vitamins in Animal and Human Nutrition*. Iowa: Iowa State University Press; 2000.

31) Demirci, M. *Gıda Kimyası*. İstanbul: Gıda Teknolojisi Derneği Yayını; 2014.

32) Menza, V., Probart V., *Eating Well for Good Health*. Rome: Food and Agriculture Organization, 2013.

33) Velisek, J., *The Chemistry Of Food*. Chennai: Willey Blackwell; 2014.

34) Das N.D., Sun L., Sun J., Yu L., Zhou X., Zhang B., Halyan L., Wang B., Liang X., *Food Chemistry*. New York : Nova Publishers, 2012.

35) Body mass index - BMI. http://www.euro.who.int/en/health-topics/disease-prevention/nutrition/a-healthy-lifestyle/body-mass-index-bmi.. Available :28.07.2018

36) Sturm, R. and A. Hattori, Morbid Obesity Rates Continue To Rise Rapidly İn The United States. International Journal of Obesity, 2013. 37(6): p. 889-91.

37) Centers for Disease Control and Prevention.Adult obesity facts. Available 25.07.2018 https://www.cdc.gov/obesity/data/adult.html.

38) Wang, Y. C., McPherson, K., Marsh, T., Gortmaker, S. L., Brown, M. Health and economic burden of the projected obesity trends in the USA and UK. Lancet, 2011. 378: p. 815-825.

39) Hammond, R. A., and R. Levine, The Economic İmpact Of Obesity İn The United States. Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy. 2010, 3: p. 285–295.

40) Sharifirad, G., Entezari, M. H., Kamran, A., Azadbakht, L. The effectiveness of nutritional education on the knowledge of diabetic patients using the health belief model. Journal of Research in Medical Sciences, 2009. 14(1): p.1-6.

41) Centers for Disease Control and Prevention.National diabetes statistics report. Available:25.07.2018

http://www.cdc.gov/diabetes/data/statistics/2014statisticsreport.html.

42) Scheen, A. J. Pathophysiology of type 2 diabetes. *Acta Clinica Belgica*, 2003. 58(6): p. 335-341.

43) Geiss, L., Wang, J., Cheng Y.J., Thompson., Barker, L., Li, Y.,. Prevalance and Incidence Trends for Diagnosed Diabetes Among Adults Aged 20 to 79 Years Prevalance and Incidence Trends for Diagnosed Diabetes Among Adults Aged 20 to 79 Years United States, 1980-2012. Journal of the American Medical Association, 2014. 312(12): p. 1218-26.

44) Hu, F.B. Globalization Of Diabetes: The Role Of Diet, Lifestyle, And Genes. *Diabetes Care*, 2011. 34(6): p. 1249-57.

45) Ravasco, P., Monteiro-Grillo, I., Vidal, P. M., Camilo, M. E. Cancer: Disease and Nutrition are Key Determinants of Patients' Quality of Life. Supportive Care in Cancer, 2004. 12: p. 246-252.

46) Aziz, N.M. Cancer Survivorship Research: Challenge and opportunity. *The Journal of Nutrition*, 2002. 132: p. 3494-3503.

47) Block, G., Patterson, B., Subar, A. Fruit, Vegetables and Cancer Prevention: A Review Of the Epidemiological Evidence. Nutrition and Cancer, 1992. 18 :p. 1-29.

48) Karas, M., Amir, H., Fishman, D., Danilenko, M., Segal, S., Nahum, A., Sharoni, Y.,. Lycopene interferes with cell cycle progr Lycopene İnterferes With Cell Cycle Progression And İnsulin-Like Growth Factor I Signaling İn Mammary Cancer Cellsession and insulin-like growth factor I signaling in mammary cancer cells. Nutrition and Cancer. 2000; 36(1): p. 101-111.

49) Combs, G. F. Impact of Selenium and Cancer-Prevention Findings On The Nutrition-Health Paradigm. *Nutrition and Cancer*, 2001. 40(1): p. 6-11.

50) Thakur, V. S., Deb, G., Babcook, M.A., Gupta, S. Plant phytochemicals as epigenetic modulators: Role in cancer chemoprevention. The American Association of Pharmaceutical Sciences Journal, 2014. 16(1): p. 151-163.

51) Centers for Disease Control and Prevention.Heart disease facts. Available: 27.07.2018 www.cdc.gov/heartdisease/facts.htm. 2015.

52) Getz, G.S., Reardon, C.A. Nutrition and Cardiovascular Disease. Journal of the American Heart Association, 2007. 27: p. 2499-2506.

53) Adrogue, H.J., Madias, N.E. Sodium and potassium in the pathogenesis of hypertension. The New England Journal of Medicine, 2007. 356: p. 1966-1978.

54) Micah, R., and D. Mozaffarian, Saturated Fat and Cardio Metabolic Risk Factors, Coronary Heart Disease, Stroke and Diabetes: A Fresh Look at the Evidence. Lipids, 2010. 45:p. 893-905.

55) Oluwole, OB., Temiloluwa, A. *Diets and Kidney Diseases* in Diets and Diseases: Causes and Prevention, W., Wu. Nova Science Publishers:New York. 2016. p.30-38.

56) NKDEP. Chronic Kidney Disease (CKD) and Diet: Assesment, Management and Treatment. NIH Publication. 2015, 15-746.

57) Chan, M., and D. Johnson, Modification of Lifestyle and Nutrition Interventions for Managenet of Early Chronic Kidney Disease. CARI Guidlines. Kidney Health Australia. 2012: p.1-50.

58) Rehlm, J., Samokhvalov, A.V., Shield, K.D. Global Burden Of Alcholic Liver Disease. J. Hepatol, 2013. 59: p. 160-168.

59) Wu W, and R. Sun. Toxicological Studies on Plant Proteins: A Reviev. J. Appl Toxicol. 2011, 32: p. 377-386.

60) Wu W, and Y. Sun, Dietary Safety Evalation of Water Htacinth Leaf Protein Concentrate. Hum.Exp.Toxicol, 2011. 30:p. 1514-1520.

61) Wu, W. *Dietary Risk Factors of Cardiyovascular Diseases*. New York : Nova Science Publishers; 2015.

62) Wilkins, T., Tadkod, A., Hepburn, I., Schade, R.R., Nonalcholic Fatty Liver Disease: Diagnosis and Management. Am.Fam.Physician, 2013. 88(1): p.35-42.

63) Loria P, Adinolfi LE, Bellentani S, Bugianesi E, Grieco A, Fargion S, Gasbarrini A, Loguercio C, Lonardo A, Marchesini G, Marra F, Persico M, Prati D, Baroni GS. Practice guidelines for the diagnosis and management of nonalcoholic fatty liver disease. A decalogue from the Italian Association for the Study of the Liver (AISF) Expert Committee. Dig. Liver Disease. 2010; 42(4): 272-82.

64) Zhang, H., Wu, W., *Diet and Liver Disase: A Rewiew of Conributing Factors* in Diets and Diseases: Causes and Prevention Wu W.. Nova Science Publishers:New York : 2015. p. 62-88.

65) Rehm, J., Shield, K.D., Rehm, M.X., Gmel, Jr G., Frick, U. Alchol Comsumtion, Alchol dependence, and Attirbutable Burden of Disease in Europe: Potential Gains From Effective İnterventions for Alchol Dependence. Toronto: Centre For Addiction and Mental Health; 2012.

66) Bashir, R.M. and J.H. Lewis, Hepototoxiity of Drugs Used in the Treatment of Gastrointesinal Disorders. Gastroenterol Clinical Nutrition, 1995. 24: p. 937-67.

67) Ahmad, A., Kaleem M. *Diets And Bone Disease* in Diets and Diseases:Causes and Prevention. Wenbiao Wu. Nove Science: New York : 2016 p. 133-150.

68) Morris, H.A., O'Loughlin, P.D., Anderson, P.H,. Experimental Evidence for the Effects of Calciun and Vitamin D on Bone: A review. Nutrients. 2010. 2(9):p. 1026-1035.

69) Rowling M.J, Gliniak C, Welsh J, Fleet J.C. High Dietary Vitamin D Prevents Hypocalsemia and Osteomalacia in CYP27B1 Knockout Mice. J. Nutrition, 2007. 137(12):p. 2608-2615.

70) Arslan M, Atmaca A, Ayvaz G, et all. Metabolik Sendrom Kılavuzu. Ankara: Tuna Matbaacılık; 2009.

71) Scott, M.G. Metabolic Syndrom Part I and II. *Endocrinology Metabolism Clinics of North America*, 2004. 33: p. 267–282.

72) Fulop, T., Tessier, D., Carpentier, A. The Metabolic Syndrome. Pathologie Biologie, 2006. 54:p. 375–386.

73) Yudkin, J.S., Relationship of serum complement C3 with insulin resistance and coronary heart disease: cause, consequence or common antecedence? *Eur Heart J*, 2000. 21: p. 1036-1039.

74) Circulation. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on detection, evaluation, 2002. Dec 17;106(25): 3143-421.

75) Grundy, S.M. Metabolic Syndrome Pandemic. *Areriosclerosis, Thrombosis & Vascular Biology.* 2008, 28(4): p. 629-636.

76) Onat, A., Can, G., Yüksel, H., Ademoğlu, E., Erginel, N., Kaya, A., Altay, S. *TEKHARF 2017*. İstanbul : Logos Yayıncılık, 2017.

77) Katzmarzyk, P. T., Janssen, I., Ross, R., Church, T. S., Blair, S. N. The İmportance Of Waist Circumference İn The Definition Of Metabolic Syndrome: Prospective Analyses Of Mortality in Men. Diabetes Care, 2006. 29: p. 404–409.

78) Vanhala, M.J., Vanhala, P.T., Keinanen-Kiukaanniemi, S.M., Kumpusalo, E.A., Takala, J.K. Relative Weight Gain and Obesity as A Child Predict Metabolic Syndrome as an Adult. International Journal of Obesity and Related Metabolic Disorders, 1999. 23(6): p. 656-659.

79) Kassebaum NJ, Jasrasaria R, Naghavi M, Wulf SK, Johns N, Lozano R, Regan M, Weatherall D, Chou DP, Eisele TP, Flaxman SR, Pullan RL, Brooker SJ, Murray CJ. A Systematic Analysis Of Global Anemia Burden From 1990 To 2010. Blood. 2014; 123(5): 615-624.

80) Nutritional anaemias. report of a WHO scientific group. World Health Organ Tech. 1968;405: p.5-37.

81) Guralnik, J.M., Eisenstaedt, R.S., Ferrucci, L., Klein, H.G., Woodman, R.C. Prevalence Of Anemia İn Persons 65 Years And Older İn The United States: Evidence For A High Rate Of Unexplained Anemia. Blood, 2004. 104(8): p.2263-2268.

82) Baker, S.J., DeMaeyer, E.M. Nutritional Anemia: Its Understanding and Control With. Am J Clin Nutr, 1979. 32(2): p.368-417.

83) DeMaeyer, E. Dallman, M. Gurney, P. Hallberg, J. Sood, L. Srikantia S. Preventing and Controlling Iron Deficiency Anaemia through Promary Health Care: A Guide for Health Administrators and Programme Managers. Geneva: World Health Organization; 1989.

84) Thompson, B. *Food-Based Approach for Combating Iron Deficiency* in Nutritional Anemia. Sight and Life, K. Zimmermann. MB. Kraemer. Press:Switzerland: 2007. p.337-359.

85) Gropper, S.S., Smith, J.L., Groff, J.L. *Advanced Nutrition And Human Metabolism.* California: Cengage Learning, 2013.

86) World Health Organization.World health report 2002: Reducing risks, promoting healthy life. Geneva : World Health Organization, 2002.

87) Fishman, S.M. Christian, P. West, K.P. The Role Of Vitamins İn The Prevention And Control Of Anaemia. Public Health Nutr, 2000. 3(2): p.125-150.

88) Bloem, M.W. Interdependence of Vitamin A and Iron: An Important Association or Programmes Of Anaemia Control. *Proc Nutr Soc*, 1995. 54(2): p.501-508.

89) Hallberg, L., Brune, M., Rossander- Hulthén L. Is There A Physiological Role Of Vitamin C in İron Absorption ? Ann N Y Acad Sci, 1987. 498: p. 324-332.

90) Worsley, A. Nutrition knowledge and food consumption: Can nutrition knowledge change food behavior? *Asian Pacific Journal of Clinical Nutrition*, 2002. 11:p.579-585.

91) Harnack, L, Block, G., Subar, A., Lane, S., Brand, R. Association of cancer prevention related nutrition knowledge, beliefs, and attitudes to cancer prevention dietary behavior. Journal of the American Dietetic Association, 1997. 97(9) :p. 957-965.

92) Wardle, J., Parmenter, K., Waller, J. Nutrition knowledge and food intake. Appetite, 2000. 34: p. 269-275.

93) Miller, C. K., Edwards, L., Kissling, G., Sanville, L. Nutrition education improves metabolic outcomes among older adults with diabetes mellitus: Results from a randomized controlled trial. Preventive Medicine, 2002. 34: p.252-259.

94) Klohe-Lehman, D. M., Freeland-Graves, J., Anderson, E. R., McDowell, T., Clarke, K. K., Hanss-Nuss, H., Milani, T. J., Nutrition Knowledge is Associated With Greater Weight Loss in Obese and Overweigh Low-income Mothers. Journal of the American Dietetic Association, 2006; 106(1): 65-75.

95) Kulaksızoğlu, A. *Ergenlik Psikolojisi*. İstanbul: Remzi Kitabevi; 1998.

96) Lutz, C.A., Mazur, E.E., Litch, N.A. Nutrition and Diet Therapy. Philadelphia : Davis Company, 2015.

97) Larsen, L. *Diet and Nutrition Sourcebook*. Detroit : Omnigraphics, 2011.

98) McArthur, L., Rosenberg, R., Grady, F., Howard, A. College Students' Compliance With Food Guide Pyramid Cecommendations. Journal of Family and Consumer Sciences. 2002, 94(2):p.29-39.

99) Centers for Disease Control and Prevention: Adolescent and school health. Accessed 20.02.2019. Available at www.cdc.gov/healthyyouth/nutrition/facts.htm.

100) Brehm-Curtis, B. *Nutrition:Science, Issues, and Applications* . California: ABC-CLIO; 2015.

101) Ayton, A. Dying to be thin. Your guide to today's mental health issues. *Mental Health Today*. 2012, Jan-Feb: p.22-25.

102) Owen, F.K. *Okul Temelli Önleyici Rehberlik ve Psikolojik Danışma*. Ankara: Anı Yayıncılık; 2015.

103) Stice, E., Butryn, M.L., Rohde, P., Shaw, H., Marti, C.N. An effectiveness trial of a new enhanced dissonance eating disorder prevention program among female college students. Behav Res Ther, 2013. 51(12): p. 862-871.

104) Luquis, R., Garcia, E., Ashford, D. A Qualitative Assessment of College Students' Perception of Health Behaviors. American Journal of Health Studies. 2003, 18:p. 156-168.

105) Zweig, J.M., Lindberg, L.D., McGinley, K.A. Adolescent health risk profiles: The cooccurrence of health risks among females and males. Journal of Youth and Adolescence, 2001. 30: p. 707-728.

106) Amasya Üniversitesi 2019 Yılı Performans Programı.Strateji Geliştirme Daire Başkanlığı. Available 29.01.2019, https://www.amasya.edu.tr/media/125639/2019-yili-performans-programi.pdf.

107) Hayran A., Özbek H., *Sağlık Bilimlerinde Araştırma ve İstatistik Yöntemler*. İstanbul: Nobel Tıp Kitabevleri; 2017.

108) Yücel, B. *Sağlık Çalışanlarının Beslenme Alışkanlıkları ve Beslenme Bilgi Düzeylerinin İncelenmesi*. Ankara, Başkent Üniversitesi, 2015.

109) Çetin, G. and F. Sarper, Tıp Fakültesi Birinci ve Son Sınıfa Devam Eden Öğrencilerin Beslenme Bilgi ve Alışkanlıkları Üzerine Bir Araştırma. 21. Yüzyılda Eğitim ve Toplum, 2013. 6: p. 84-104.

110) Tütüncü, İ. And E. Karaismailolğlu, Üniversite Öğrencilerinin Beslenme Bilgi Düzeylerinin Belirlenmesi. Uluslararası Hakemli Akademik Spor Sağlık Ve Tıp Bilimleri Dergisi. 2013, 06: p.29-42.

111) Ogrodnick, M.F. T*he Nutrıtıon Knowledge And Attıtudes Of Allıed Health Students.* New York, D'Youville College, 2002.

112) Labban, L. Nutritional Knowledge Assessment Of Syrian University Students. *Journal of the Scientific Society*, 2015. 42(2): p. 71-77.

113) Hubert, H.B., Feinleib, M., Namara, P.M., Castelli, W.B. Obesity as an independent risk factor for cardiovascular disease: a 26 year follow up participants in the Framingham Heart Study. Circulation, 1983. 67: p.968-977.

114) Task Force of the European Society of Cardiology, European Atherosclerosis Society and European Society of Hypertension: Prevention of coronary heart disease in clinical practice. Eur Heart, 1994. 15: p.1300-1331.

115) Yılmaz E. and S. Özkan, Üniversite öğrencilerinin beslenme alışkanlıklarının incelenmesi. V. Temel Sağlık Hizmetleri Sempozyumu, 2007. Manisa, Türkiye.

116) Unsworth, J.M. *Nutrıtıon Knowledge And Attıtudes Among Clemson Unıversıty Freshmen*. Carolina, Clemson University, 2012.

117) Güleç, M., Yabancı N., Göçgeldi, E., Bakır, B. Ankara'daİiki Kız Öğrenci Yurdunda Kalan Öğrencilerin Beslenme Alışkanlıkları. Gülhane Tıp Dergisi, 2008. 50: p. 102-109.

118) Özütürker, S., and B.K. Özer, Erzincan Üniversitesi Öğrencilerinin Beslenme Alışkanlıkları ve Antropometrik Özelliklerinin Değerlendirlmiesi. Erzincan Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 2016. 9(2): p. 63-74.

119) Vançelik, S., Önal, S.G., Güraksın, A., Beyhun, E. Üniversite Öğrencilerinin Beslenme Bilgi ve Alışkanlıkları ile İlişkili Faktörler. TSK Koruyucu Hekimlik Bülteni, 2007. 6 (4): p. 242-248.

120) Sakamaki, R., Toyama, K., Amamoto, K., Liu, R., Shinfuku, N., Nutritional knowledge, food habits and health attitude of Chinese university students –a cross sectional study–. Nutrition Journal, 2005. 4: p. 4.

121) Mazıcıoğlu, M.M., and A. Öztürk, Üniversite 3 ve 4.Sınıf öğrencilerinde Beslenme Alışkanlıkları ve Bunu Etkileyen Faktörler. Erciyes Tıp Dergisi, 2003. 25 (4): p. 172-178.

122) Orak, S., Akgün, S., Orhan, H. Süleyman Demirel Üniversitesi Öğrencilerinin Beslenme Alışkanlıkları. S.D.Ü. Tıp Fak. Derg, 2006. 13(2):p. 5-11.

123) Çiftçi, S., Arslan N., Değer, V. Sağlık Yüksekokulu Ebelik Öğrencilerinin Beslenme Davranışları Ve Beden Kitle İndeksi (Bki) Kullanılarak Obezite Durumunun Saptanması. Uluslararası Hakemli Beslenme Araştırmaları Dergisi, 2017. 11: p. 58-76.

124) Berkey, CS., Rockett, H.R., Gillman, M.W., Field, A.E., Colditz, G.A. Longitudinal Study of Skipping Breakfast and Weight Change in Adolescents. Int J Obes Relat Metab Disord, 2000. 27(10):p. 1258-1266.

125) Ermiş, E., Doğan, E., Erilli, N.A., Satıcı, A. Üniversite Öğrencilerinin Beslenme Alışkanlıklarının İncelenmesi: Ondokuz Mayıs Üniversitesi Örneği. Spor ve Performans Araştırmaları Dergisi, 2015. 6(1): p. 30-40.

126) Onurlubaş, E., Doğan, H.G., Demirkıran S. Üniversite Öğrencilerinin Beslenme Alışkanlıkları. Gaziosmanpaşa Üniversitesi Ziraat Fakültesi Dergisi, 2015. 32 (3):p. 61-69.

127) Çetin, G. *Zonguldak Bülent Ecevit Üniversitesi Tıp Fakültesi Birinci Ve Son Sınıfa Devam Eden Öğrencilerin Beslenme Bilgi Ve Alışkanlıkları Üzerine Bir Araştırma*. Ankara, Gazi Üniversitesi, 2013.

128) Farshchi, H.R., Taylor, M.A., Macdonald, I.A. Decreased Thermic Effect of Food After an Irregular Compared With a Regular Meal Pattern in Healthy Lean Women. Int J Obes Relat Metab Disord, 2004. 28: p. 653–60.

129) Dzatse, M.E., Kim, E., Kim, H., Kim, H., Vijayakumar, A., Chang, N., Meal Skipping Habits and Nutritional Status Among Ghanaian Students Living in Korea. Journal of Nutrition and Health, 2017. 50(4): p. 376- 382.

130) Önay, D. Üniversite Öğrencilerinin Kahvaltı Alışkanlıklarının Değerlendirmesi: Akşehir Sağlık Yüksekokulu Örneği. *Gazi Üniversitesi Endüstriyel Sanatlar Eğitim Fakültesi Dergisi*, 2011. 7: p. 95-106.

131) Yardımcı, H and A.Ö. Özçelik Üniversite Öğrencilerinin Öğün Düzenleri ve Beslenme Eğitiminin Beslenme Bilgisine Etkisi. Bes Diy Derg, 2015. 43: p.19-26.

132) Gündoğdu, S. *Adana İlinde Görev Yapan Okulöncesi Öğretmenlerinin Beslenme Bilgi Düzeyleri Ve Alışkanlıklarının Araştırılması*. Konya, Selçuklu Üniversitesi, 2009.

133) Kuyumcu, G. *Ankara Üniversitesi Tıp Fakültesi 1. ve 6. Sınıf Öğrencilerinde Vücut Kitle İndeksi ve Bazı İlişkili Etmenler*. Ankara, Ankara Üniversitesi, 2007.

134) Özenoğlu, A. *Beslenme Psikiyatrisi* in Beslenme ve Diyetetiğin Psikososyal Boyutu, H., Sürücüoğlu M.S., Tayfur, M., Pekcan, G., Merdol, T.K., Karahan, Ç.İ., Özenoğlu, A., Akarçay, E., Tuncer, P., Şensoy, F., Dönmez, S Hatemi. Nobel Yayıncılık: Ankara, 2017. p:127-165.

135) Ayhan D.E., Günaydın E., Gönlüaçık E., Arslan U., Çetinkaya F., Asımı H., Uncu Y. Uludağ Üniversitesi Tıp Fakültesi Öğrencilerinin Beslenme Alışkanlıkları ve Bunları Etkileyen Faktörler. Uludağ Üniversitesi Tıp Fakültesi Dergisi. 2012, 38 (2): p 97-104.

136) Vakeflliu, Y., Argjiri, D., Peposhi, I., Agron, S., Melani, A.S. Tobacco Smoking Habits, Beliefs, and Attitudes Among Medical Students in Tirana, Albania. Preventive Medicine. 2002, 34: p.370-373.

137) Batı, A.H. *Ege Üniversitesi Tıp Fakültesi Birinci ve Altıncı Sınıf Öğrencilerinde Sağlık ve uyum Düzeyi Değerlendirmesi*. İzmir, Ege Üniversitesi, 2000.

138) Ad Hoc Committee on Health Research Relating to Future Intervention Options. Investing in Health Research and Development. Geneva : World Health Organization, 1996.

139) Peto, R., Lopez, A.D., Boreham, J., Thun, M., Heath, C.Jr. *Mortality from Smoking in Developed Countries 1950-2000*. New York : Oxford Uni Press, 1994.

140) Çelikkol, A. *Ruh Hastalıklarından Korunma*. İstanbul : Gendaş Yayınları, 1999.

141) Köroğlu, Y. *Üniversite Öğrencilerinde Sıkıntıya Dayanma Ve Alkol Kullanımı Arasındaki İlişkide Başaçıkmanın Rolü*. İstanbul, Işık Üniversitesi, 2018.

142) Taylor B, Irving H.M, Baliunas D, Roerecke M, Patra J, Mohapatra S, Rehm J. Alcohol and hypertension: gender differences in dose-response relationships determined through systematic review and meta-analysis. Addiction, 2009. 104(12): p. 1981–90.

143) Kodama S, Saito K, Tanaka S, Horikawa C, Saito A, Heianza Y, Anasako Y, Nishigaki Y, Yachi Y Iida KT, Ohashi Y, Yamada N, Sone H. Alcohol Consumption and Risk of Atrial Fibrillation: A Meta-analysis. Am Coll Cardiol, 2011. 57(4): 427–436.

144) Patra J, Taylor B, Irving H, Roerecke M, Baliunas D, Mohapatra S, Rehm J. Alcohol Consumption and the Risk of Morbidity and Mortality for Different Stroke Types--A Systematic Review and Meta-Analysis. BMC Public Health, 2010. 10: p.258.

145) Bagnardi V, Rota M, Botteri E, Tramacere I, Islami F, Fedirko V, Scotti L, Jenab M, Turati F, Pasquali E, Pelucchi C, Galeone C, Bellocco R, Negri E, Corrao G, Boffetta P, La Vecchia C. Alcohol Consumption and Site-specific Cancer Risk: a Comprehensive Dose-response Metaanalysis. Br J Cancer, 2015. 112(3):p.580–93.

146) Bruha, R., Dvorak, K., Petrtyl, J. Alcoholic liver disease. World J Hepatol, 2012. 4(3): p.81–90.

147) Puddey, I.B., Beilin, L.J., Vandongen, R., Rouse, I.L., Rogers, P. Evidence for a Direct Effect of Alcohol Consumption on Blood Pressure in Normotensive Men: A Randomized Controlled Trial. Hypertension, 1985. 7: p.707-713.

148) Rimm, E.B., Williams, P., Fosher, K., Criqui, M., Stampfer, M.J. Moderate alcohol intake and lower risk of coronary heart disease: meta-analysis of effects on lipids and haemostatic factors. BMJ, 1999. 319: p.1523-1528.

149) Türkiye İstatistik Kurumu, Türkiye Sağlık Araştırması 2016. Available 07.02.2019.

150) Weber, K.E. *Nutrıtıonal Knowledge Of Healthcare Students And Theır Attıtude Toward The Importance Of Dıetetıcs*. New York, Faculty of D'Youville College Division of Academic Affairs, 2015.

151) Buxton, C., and A. Davies, Nutritional Knowledge Levels of Nursing Students in A Tertiary Institution: Lessons for Curriculum Planning. Nurse Education in Practice, 2013. 13(5):p. 355-360.

152) Murathan, F., Uğurlu, F.M., Bayrak, E., Beslenme Dersi Alan Üniversite Öğrencilerinin (Besyo) Bölüm Bazında Beslenme Bilgi Düzeylerinin İncelenmesi. Akademik Sosyal Araştırmalar Dergisi, 2015. 21: p. 330-342.

153) Thomas, D.T., McArthur, L., Robin, W.C., Nutrition Knowledge and Attitudes of Allied Health and Fitness Students. Journal of Allied Health, 2006. 35: p. 37—58.

154) Schaller, C., and E.L. James,The nutritional knowledge of Australian nurses. Nurse Education Today, 2005. 25: p. 405-412.

155) Abdollahi M, Houshiarrad A, Abtahi M, Esmaeli M, Pouraram H, Khoshfetrat MR, Shakori MM, Keshel SH. The nutrition knowledge level of physicians, nurses and nutritionists in some educational hospitals. Journal of Paramedical Sciences. 2013; 4: 106-114.

156) Çalış, B., Dereli, F., Eksen, M., Aktaş, S. Muğla Üniversitesi Öğrencilerinin Beslenme Konusunda Bilgi Düzeylerinin Belirlenmesi. Uluslararası İnsan Bilimleri Dergisi, 2005. 2: p. 1-8.

157) Alması, N. *Üniversite Öğrencilerinin Beslenme Durumu, Bilgi Düzeyi ve Porsiyon Ölçüsü Algısının Değerlendirmesi*. Ankara, Hacettepe Üniversitesi, 2015.

158) Bonaccio M, Di Castelnuovo A, Costanzo S, De Lucia F, Olivieri M, Donati MB, de Gaetano G, Iacoviello L, Bonanni A. Nutrition Knowledge is Associated With Higher Adherence to Mediterranean Diet and Lower Prevalence of Obesity. Results From the Moli-sani Study. Appetite. 2013; 68: 139-46.

7. APPENDICES
APP 1: Data Form

Sevgili Öğrenciler,

Aşağıda üniversite öğrencilerinin beslenme alışkanlıkları ve beslenme bilgi düzeylerini ölçmeye yönelik ifadelere yer verilmiştir. Araştırma sonuçları yalnızca bilimsel amaçla kullanılacaktır. Bu sebeple herhangi kimlik bilgisine gerek yoktur. Çalışmaya katkıda bulunmanız için içten ve samimi olarak cevap vermeniz beklenmektedir. Lütfen hiçbir maddeyi boş bırakmayınız. İlgi ve yardımınızdan dolayı teşekkür ederim.

Dyt. Ali Emrecan ATA

ataemrecan@gmail.com

Tel:05052848496

A) Genel Bilgiler

1- Cinsiyetiniz: ( ) Kadın   ( ) Erkek

2- Yaşınız: ( ) 19-24   ( ) 25-30   ( ) 31-35   ( ) >36

3- Eğitim Gördünüz Fakülte

( ) Sağlı Bilimleri Fakültesi

( ) Eğitim Fakültesi

4- Boyunuz……………………..cm

5- Kilonuz…………………………kg

B) Beslenme Alışkanlıkları

1- Günde kaç ana öğün yaparsınız?

( )Bir   ( ) İki   ( ) Üç   ( ) Dört

2- Gün içerisinde ana öğün atlar mısınız?

( )Evet   ( )Hayır   ( ) Bazen

3- Cevabınız "Evet" veya "Bazen" ise hangi öğünü atlarsınız?

( )Kahvaltı   ( )Öğlen   ( )Akşam

4- Öğün atlama nedeniniz nedir?

( ) Zaman yetersizliği   ( ) Canı istemediği için   ( )Zayıflamak için

( )Alışkanlığı yok   ( )Diğer(belirtiniz)………………..

5- Ara öğün yapıyor musunuz?

( ) Evet   ( )Hayır   ( )Bazen

6- Cevabınız "Evet" veya "Bazen" ise ara öğünde genelde neler tüketirsiniz

( )Kuruyemiş

( ) Börek, poğaça, sandviç, simit

( ) Bisküvi, kurabiye, kek

( )Şeker, çikolata

( )Süt, yoğurt. ayran

( )Meyve

( )Diğer(belirtiniz)…………………

7- Yeme hızınızı nasıl tanımlarsınız?

( )Hızlı   ( )Normal   ( )Yavaş   ( )Çok Hızlı

8- Aşağıdaki durumlarda beslenme durumunuz nasıl etkilenmektedir?(Her bir durum için tek bir seçenek işaretleyiniz)

Durumlar / Davranışlar	Üzüntülü	Yorgun	Sevinçli	Heyecanlı
Hiç yemek yemem				
Her zamankinden az yerim				
Çok ve sık yerim				
Bir değişiklik olmaz				
Diğer(belirtiniz)………………				

9- Sigara Kullanıyor musunuz?

( )Evet. Günde…………..adet   ( )Hayır

10- Alkol tüketiyor musunuz?

( ) Evet   ( )Hayır

C) Beslenme bilgi düzeyi

1- Beden Kitle İndeksi hesaplama formülü aşağıdakilerden hangisi olabilir?

a) $\frac{(Boy\ Uzunluğu\ (m))2}{Vücut\ Ağırlığı}$

b) $(Boy\ uzunluğu\ (m))^2$

c) $\frac{Vücut\ Ağırlığı(kg)}{(Boy\ Uzunluğu(m^2))}$

d) $\frac{Vücut\ Ağırlığı(kg)}{(Bel\ Çevresi(m))}$

2- Aşağıdaki minerallerin hangisinin eksikliğinde osteoporoz görülebilir?

a) Kalsiyum

b) Fosfat

c) Sodyum

d) İyot

3- İnsanlarda Flor yetersizliğinde hangi belirti görülebilmektedir?

a) Anemi

b) Diş çürümesi

c) Büyüme geriliği

d) Pellegra

4- Protein kalitesi en yüksek olan yiyecek aşağıdakilerden hangisi olabilir?

a) Tavukgöğsü

b) Yumurta

c) Nohut

d) Karaciğer

5- Aşağıdaki vitaminlerden hangisi suda çözünür?

a) A vitamini

b) E vitamini

c) D vitamini

d) B_6 vitamini

6- Aşağıdaki besinlerden hangisi kompleks karbonhidrat içerir?

a) Tavuk Eti

b) Çikolata

c) Domates

d) Nohut

7- Anemi(kansızlık) hangi mineral eksikliğinde görülür?

a) Kalsiyum

b) Demir

c) İyot

d) Selenyum,

8- İnsanlarda açlık kan glukozu normal değeri kaç mg/dl'dir?

a) 30-70 mg/dl

b) 70-100 mg/dl

c) 110-150 mg/dl

d) 90-140 mg/dl

9- Laktoz intoleransı bulunan bir kişi aşağıdaki besinlerden hangisini tüketmemesi gerekir?

a) Balık eti

b) Fındık

c) Süt

d) Ispanak

10- Yetişkin bir bireyin günlük tüketmesi gereken süt grubu besinlerin porsiyon miktarı kaçtır?

a) 4

b) 5

c) 6

d) 3

11- Kanstipasyon(kabızlık) hangi besinin tüketilmemesi gerekir?

a) Protein

b) Yağ

c) E vitamini

d) Su

12- Hangi vitamin kanın pıhtılaşmasında görevi vardır?

a) C vitamini

b) B_{12} vitamini

c) A vitamini

d) K vitamini

13- Günlük önerilen taze meyve-sebze porsiyon miktarı kaçtır?

a) 3

b) 4

c) 2

d) 5

14- Hipertansiyon hastası bir birey aşağıdaki besinlerden hangisinden uzak durması gerekir?

a) Süt

b) Havuç

c) Turşu-salamura

d) Balık eti

15- Aşağıdaki besinlerden hangisi en iyi C vitamini kaynaklarından birisi olarak tercih edilebilir?

a) Peynir

b) Patates

c) Çilek

d) Mısır

16- Aşağıdaki besinlerden hangisi en iyi posa kaynağıdır?

a) Üzüm

b) Yulaf ezmesi

c) Yumurta

d) Domates

17- Aşağıdaki besinlerden hangisi A vitamini yönünden en zengindir?

a) Mısır

b) Karaciğer

c) Kavun

d) Fındık

18- Günde kaç porsiyon tahıl grubu besin tüketilmesi gerekir?

a) 4-5

b) 2-6

c) 3-7

d) 8-10

19- Beden Kitle İndeksi değeri 30,00-34,99 kg/m^2 olan bir birey hangi sınıflandırmaya dahildir?

a) Zayıf

b) Normal

c) 1.derece obez

d) 2.derece obez

20- 1 gram yağ vücutta yakıldığında kaç kkal enerji sağlar?

a) 1 kkal

b) 4 kkal

c) 9 kkal

d) 12 kkal

APP 2: Ethics Committee Approval Form

T.C. YEDİTEPE ÜNİVERSİTESİ

Sayı : 37068608-6100-15- 1612
Konu: Klinik Araştırmalar
Etik kurul Başvurusu hk.

14/02/2019

İlgili Makama (Ali Emrecan Ata)

Yeditepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik Bölümü Dr. Öğr. Üyesi Hülya Demir'in sorumlu olduğu **"Sağlık Bilimleri Fakültesi ve Diğer Fakültelerde Okuyan Üniversite Öğrencilerinin Beslenme Alışkanlıkları ve Beslenme Bilgi Düzeyleri Arasındaki Fark"** isimli araştırma projesine ait Klinik Araştırmalar Etik Kurulu (KAEK) Başvuru Dosyası (**1582** kayıt Numaralı KAEK Başvuru Dosyası), Yeditepe Üniversitesi Klinik Araştırmalar Etik Kurulu tarafından **13.02.2019** tarihli toplantıda incelenmiştir.

Kurul tarafından yapılan inceleme sonucu, yukarıdaki isimi belirtilen çalışmanın yapılmasının etik ve bilimsel açıdan uygun olduğuna karar verilmiştir (**KAEK Karar No: 964**).

Prof. Dr. Turgay ÇELİK
Yeditepe Üniversitesi
Klinik Araştırmalar Etik Kurulu Başkanı

8. CURRICULUM VITAE

Kişisel Bilgiler

Adı	Ali Emrecan	Soyadı	ATA
Doğum Yeri	YOZGAT	Doğum Tarihi	01.12.1993
Uyruğu	T.C.	TC Kimlik No	51205336364
E-mail	ataemrecan@gmail.com	Tel	05052848496

Öğrenim Durumu

Derece	Alan	Mezun Olduğu Kurumun Adı	Mezuniyet Yılı
Doktora			
Yüksek Lisans	Beslenme ve Diyetetik	Yeditepe Üniversitesi	2019
Lisans	Beslenme ve Diyetetik	Kastamonu Üniversitesi	2017
Lise	Fen	Sıddık Demir Anadolu Lisesi	2012

#Başarılmış birden fazla sınav varsa(KPDS, ÜDS, TOEFL; EELTS vs), tüm sonuçlar yazılmalıdır

Bildiği Yabancı Dilleri	Yabancı Dil Sınav Notu
İngilizce(Yökdil)	81,25

İş Deneyimi (Sondan geçmişe doğru sıralayın)

Görevi	Kurum	Süre (Yıl - Yıl)
Beslenme Uzmanı	Mutlak İnşaat(Şereflikoçhisar KYK işletmesi)	2018 Ekim-2019Ocak
		-

Bilgisayar Bilgisi

Program	Kullanma becerisi
Microsoft Office Word	Çok iyi
Excel	İyi
PowerPoint	Çok iyi

*Çok iyi, iyi, orta, zayıf olarak değerlendirin