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DEPARTMENT OF NUTRITION AND DIETETICS

EXAMINATION OF RELATIONSHIP BETWEEN INDIVIDUALS' EATING ATTITUDE BEHAVIOURS AND BODY IMAGE PERCEPTION

MASTER THESIS

AYŞE MERVE ZEYTUN

Istanbul, 2021

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This thesis has been deemed by the jury in accordance with the relevant articles of Yeditepe University Graduate Education and Examinations Regulation and has been approved by Administrative Board of Institute with decision dated 06.10.21 and numbered 2021/10-02.

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DECLARATION

I declare that this thesis is my own work, it has no unethical behaviour among steps including planning, research and collecting data and writing, and that all academic information is obtained within ethical frame, all information not obtained by this thesis is shown by sources and all these sources are shown in references section, and that I have not violated any patent or copyright during the working and writing of this thesis.

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Ayşe Merve Zeytun

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ABSTRACT

Zeytun, A. M. (2021). Examination of Relationship Between Individuals' Eating Attitude Behaviours and Body Image Perception. Yeditepe University, Institute of Health Sciences, Department of Nutrition and Dietetics, Master Thesis, Istanbul.

This work is done with the purpose of examining the relationship between the eating attitude behaviour and the body image perception of individuals. 366 voluntary 18-56 aged individuals from a private yoga center have participated in the research. These individuals were asked to fulfill a 98-question data collection survey consisting of 7 Demographic Questions, 26 EAT-26 Eating Attitude Test, 31 BCS Body Cathexis Scale Test and 34 FFQ Food Frequency Questionnaire. The study was initiated based on the approval given by the Yeditepe University Clinical Research Ethics Committee on January 21, 2021, and data were collected between February 1 and March 31. The study consists of 4 different parts: Demographic Information, EAT-26 (Eating Attitude Test), BCS (Body Cathexis Scale) and FFQ (Food Frequency Questionnaire). In the Demographic Information section, general descriptive statistics such as age, height, weight, educational status, gender is asked to partcipants. Exercise status is also asked in this section as it can be associated with many other data of the survey. The EAT-26, BCS and FFQ are internationally valid scales. The EAT-26 scale was developed in 1982 to determine the risk of eating disorders. EAT-40, the previous version of the EAT-26 scale, was composed by Garner & Garfinkel in 1979 for the detection of Anorexia Nervosa, and then EAT-26 was developed for the detection of all kinds of eating disorders risk. The BCS Body Cathexis Scale was composed by Secard & Jourard in 1953 and adapted to Turkish society by Hovardaoğlu in 1986. The FFQ Food Frequency Questionnaire of the National Health and Nutrition Examination Survey (NHANES) is applied to the participants which is a reliable questionnaire organized by the National Center for Health Statistics (NCHS) to evaluate the nutritional status of individuals. NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) program was used for statistical analysis. Descriptive statistical methods (mean, standard deviation, frequency, percentage, minimum, maximum) were used while evaluating the study data. The suitability of quantitative data to normal distribution was tested by Shapiro-Wilk test and graphical analysis. Independent groups t test was used to compare normally distributed quantitative variables between two groups. One-way analysis of variance and Bonferroni corrected binary evaluations were used for comparing more than two groups of quantitative variables with normal distribution. Pearson correlation analysis was used to evaluate the relationships between quantitative variables. Statistical significance was accepted as $p < 0.05$. The relationship between eating attitudes and body image perception, which is the starting point of the study, was measured by EAT-26 and BCS tests, and a very weak negative relationship was found in accordance with our initial hypothesis. According to the scores of the EAT-26 scale through our analysis, 91.3% of the participants (n = 334) had no risk of eating attitude behavior disorder, while 8.7% (n = 32) had. So the eating disorder risk was found 8.7%. When the relationships between eating frequencies, BMI and gender were examined, it was seen that some food groups showed a significant difference according to BMI and gender, and these food groups were determined. In our study, which investigated the relationship between eating attitude

behaviors and body image perception , remarkable data related to our subject is found which we think may contribute to future studies as a result of examining these two scales and their relationship with other descriptive statistics.

Keywords: Body Cathexis, Body Image Perception, Eating Attitudes, EAT-26, Eating Disorder Risc, FFQ

ABSTRACT (Turkish)

Zeytun, A.M. (2021). Bireylerin Yeme Tutum Davranışları ile Beden İmgesi Algısı Arasındaki İlişkinin İncelenmesi. Yeditepe Üniversitesi, Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Anabilim Dalı, Yüksek Lisans Tezi, İstanbul.

Bu çalışma, bireylerin yeme tutum davranışı ile beden imajı algısı arasındaki ilişkiyi incelemek amacıyla yapılmıştır. Araştırmaya özel bir yoga merkezine başvurmuş olan 18-56 yaş arası gönüllü 366 birey katılmıştır. Bu bireylerden 7 Demografik Soru, 26 soruluk EAT-26 Yeme Tutum Testi, 31 soruluk BCS Beden İmaj Ölçeği Testi ve 34 FFQ Besin Tüketim Sıklığı Testi'nden oluşan toplam 98 soruluk veri toplama anketini doldurmaları istenmiştir. Çalışma, Yeditepe Üniversitesi Klinik Araştırmalar Etik Kurulu tarafından 21 Ocak 2021 tarihinde verilen onay ile başlatılmış ve veriler 1 Şubat-31 Mart tarihleri arasında toplanmıştır. Çalışma, Demografik Bilgiler, EAT-26 E(Yeme Tutum Testi), BCS (Beden İmaj Ölçeği) ve FFQ (Besin Tüketim Sıklığı Testi) olmak üzere 4 farklı bölümden oluşmaktadır. Demografik Bilgiler bölümünde katılımcılara yaş, boy, kilo, eğitim durumu, cinsiyet gibi genel tanımlayıcı istatistikler sorulmuştur. Egzersiz durumu, anketin diğer birçok verisi ile ilişkilendirilebileceği için bu bölümde de sorulmaktadır. Çalışmada kullanılmış olan EAT-26, BCS ve FFQ ölçekleri uluslararası geçerliliği olan ölçeklerdir. EAT-26 ölçeği, 1982 yılında yeme bozukluğu riskini belirlemek amacıyla geliştirilmiştir. EAT-26 ölçeğinin bir önceki versiyonu olan EAT-40, 1979 yılında Garner & Garfinkel tarafından Anoreksiya Nervoza'nın tespiti için oluşturulmuş ve daha sonra her türlü yeme bozukluğu riskinin tespiti için EAT-26 geliştirilmiştir. BCS Body Cathexis Scale, 1953 yılında Secard & Jourard tarafından oluşturulmuş ve 1986 yılında Hovardaoğlu tarafından Türk toplumuna uyarlanmıştır. Bireylerin besin tüketim sıklığını değerlendirmek için kullanılmış olan Ulusal Sağlık ve Beslenme İnceleme Anketi (NHANES) FFQ, Ulusal Sağlık İstatistikleri Merkezi (NCHS) tarafından bireylerin beslenme durumlarına ilişkin incelemelerde kullanılan güvenilir bir testtir. İstatistiksel analizler için NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) programı kullanılmıştır. Araştırma verileri değerlendirilirken tanımlayıcı istatistiksel yöntemler (ortalama, standart sapma, frekans, yüzde, minimum, maksimum) kullanılmıştır. Nicel verilerin normal dağılıma uygunluğu Shapiro-Wilk testi ve grafik analizi ile test edilmiştir. İki grup arasında normal dağılım gösteren nicel değişkenleri karşılaştırmak için bağımsız gruplar t testi kullanılmıştır. Normal dağılıma sahip ikiden fazla nicel değişken grubunu karşılaştırmak için tek yönlü varyans analizi ve Bonferroni düzeltmeli ikili değerlendirmeler kullanılmıştır. Nicel değişkenler arasındaki ilişkileri değerlendirmek için Pearson korelasyon analizi kullanılmıştır. İstatistiksel anlamlılık $p < 0,05$ olarak kabul edilmiştir. Çalışmanın başlangıç noktası olan yeme tutumları ile beden imajı algısı arasındaki ilişki EAT-26 ve BCS testleri ile ölçülmüş ve başlangıç hipotezimize uygun olarak çok zayıf negatif ilişki bulunmuştur. Analizimiz üzerinden EAT-26 ölçeğinden alınan puanlara göre, katılımcıların %91,3'ü (n=334) yeme tutumu davranış bozukluğu riski taşımazken, %8,7'sinde (n=32) yeme bozukluğu riski tespit edilmiştir. Böylece yeme bozukluğu riski %8,7 bulunmuştur. Besin tüketim frekansları ile BMI ve cinsiyet ilişkilerine bakıldığında da bazı besin gruplarının BMI ve cinsiyete göre anlamlı bir fark gösterdiği görülmüş ve

bu besin grupları tespit edilmiştir. Yeme tutum davranışları ile beden imajı algısı arasındaki ilişkinin araştırıldığı çalışmamızda, bu iki ölçeğin ve diğer tanımlayıcı istatistiklerle ilişkisinin incelenmesi sonucunda, konumuzla ilgili ileride yapılacak çalışmalara katkı sağlayabileceğini düşündüğümüz dikkat çekici verilere ulaşılmıştır.

Anahtar Kelimeler: Beden İmajı, Beden İmaj Algısı, Yeme Tutumları, EAT-26, Yeme Bozukluğu Riski, FFQ

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ABBREVIATIONS

EAT-26: Eating Attitude Test

BCS: Body Cathexis Scale

FFQ: Food Frequency Questionnaire

NHANES: National Health and Nutrition Examination Survey

NCHS: National Center for Health Statistics

CCK: Cholecystokinin

EDs: Eating Disorders

PYY: Polypeptide YY

ACTH: Adrenocorticotropic Hormone

NPY: Neuropeptide Y

mRNA: Messenger Ribonucleic Acid

BMR: Basal Metabolic Rate

ATP: Adenosine Triphosphate

NTS: Nucleus Tractus Solitarius

ARC: Arcuate Nucleus

AN: Anorexia Nervosa

BED: Binge Eating Disorder

NCSS: Number Cruncher Statistical System

BMI: Body Mass Index

Avg: Average

Sd: Standard Deviation

App.: Appendix

PROP: 6-n-Propylthiouracil

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1. INTRODUCTION AND PURPOSE

Eating disorders point to serious problems with eating behaviours. Behaviour is found to be abnormal because it is different than regular eating behaviours, and above all it has negative effects on the physical and mental health of the individual. It affects more women than men and it starts generally at puberty or adulthood.

It is observed that behind the eating disorder there are psychological problems. Eating disorders also includes subjects such as fear from being fat, obsessions about being thin, self-esteem, depression, power, controlling himself, body image perception and obsessions about that. This points out that there is a relationship between body image perception and eating disorder.

Body image perception has a relation with how one perceives his body and body parts, his idea about what is ideal and what he has and how he evaluates the distance between the two, identity and personality concepts.

The physical properties of a person affects body image perception because it is an effective factor for one's self-evaluation as well as his social evaluation about himself. Body image is defined as physical appearance of one. Body image has an important role on how one perceives himself. Even though one does not have an abnormality with his appearance, if his body image is damaged then he will have his body image and self-evaluation damaged as well. When one's body image perception is found to be related with being fat and passion for getting thinner, we will see eating behaviour goes in parallel ; this is the starting point of our research.

This research is planned for the purpose of defining eating behaviour score by the EAT-26 test which is found by Garner and Garfinkel and comparing this score with BCS(Body-Cathexis Scale) which is found by Secord and Jourars, as well as finding how these two parameters are related with each other.

2. LITERATURE REVIEW

2.1. Definiton of Eating Behaviour

Eating behaviour defines all behaviours of one about food consumption. The main physiological function of this behaviour is to provide energy substrates and biochemical compounds that are needed for all cells of the organism. Like all behaviours, eating behaviour is also controlled by CNS(Central Nervous System). Today, it is accepted that main centers controlling eating behaviour is found at hypothalamus. Concepts such as one satiety and one hunger center, discovery of lots of number of neurotransmitters, reseptors and neurons lead to eating disorder mechanism to be perceived more complex.(1)

Eating disorder, in pyschology literature, is deemed to be the tendency that shapes behaviours, emotions and thoughts of one. When evaluated at this parallel, attitudes are meant not to be concrete behaviours but mean to be abstract tendencies that shape the behaviours. When this concept is researched through relating with eating attitude, eating attitude is the tendency that shapes one's emotions, thoughts and behaviours about eating and nutrition.(2)

Another conceptual view about eating attitude is that eating attitudes grow depending on family and social effects and by learning, and also covers one's choices about what to eat. Eating attitude covering what one will eat, how and when, and how much and with who is not limited with biological improvement and physiological needs but also changes depending on psychological and public variables. Eating disorder, on the other side, is intensive disorders about eating behaviour. These eating disorders are behaviours such as objection to staying at current kilogram level and in parallel eating very low amounts, intensive efforts to lose weight through exercises, and so on. Today, damaged eating attitudes are seemed to be antecedents that lead to eating disorders (ED) that cause dramatic conclusions when proper treatment is not applied.(3)

2.2. Regulation of Eating Behaviour

Eating is initiated with starting of eating desire through stimulating vagus nerves. Later, gastrin is secreted in stomach. Gastrin secretion stimulated gastric liquid secretion and stomach mouvements.

Gastric liquid is found at small amount even when there is no food in the stomach (called fasting juice). There are 3 steps in gastric liquid being secreted:

1. Cephalic

2. Gastric

3. Intestinal

Cephalic phase, is a parasympathetic period that initiated with stimulation of vagus nerves and formation of eating desire. Gastric phase is the secretion of gastrin through Duodenum and Enteroendocrine cells by entrance of food into stomach. Gastrin stimulates more gastric liquid secretion.

Intestinal phase is the period covering secretion of Secretin and CCK by the passing of absorbed food from stomach to intestine, the reduction of the gastric liquid production by this secretion and the reduction of gastric mouvements.

The moment when gastric liquid secretion is at maximum level is 1 hour after eating. After 4 hours, it gets back to the level at hunger time.

The food coming to small intestine mixes with pancreatic liquid and the bile.

This step is especially important for the consumption of nutrients including fat.

Carbohydrates stay almost 2-3 hours in stomach whereas proteins stay longer, and fat stay even longer.

Another hormone regulating eating is Ghrelin hormone that is secreted from the stomach. Ghrelin secretion stimulates eating desire.(4)(5)

2.2.1 Changes in Eating Behaviour, Taste and Nutrition Choice and The Effect of Gastrointestinal Hormones

Food intake is a priority depending on the impossibility of resistance to long-time hunger. Eating behaviour concept is characterized by the eating period and covers the complex mechanism of eating or stopping eating decision. Indeed, number of meals, quantities and choice of different food is related with factors such as taste differences, intestinal mouvements, psychological stress and pain. As a result, the prevention and improvement of health-related changes in eating is related with how well the causing factors are defined.

Eating behaviour is a complex respond to internal and external factors and the purpose is to preserve energy homeostasis, providing body weight stability, and maintaining healthy conditions.

Under physiological conditions, even though the energy intake is long-term stable, many stimulators may affect energy intake.

In general, eating behaviour is defined by homeostatic and hedonic nutrition. With the presence of taste and smell changes these mechanisms interact with peripheral effectors including gastrointestinal peptides and tries to maintain body weight and energy intake.(6)

2.2.2. Hormones That Regulate Eating Behaviour

Hormones generally have crucial roles on regulation of energy metabolism and maintaining electrolyte balance of the body and are secreted through endocrine glands.

Evidence suggests that biological factors, specifically reproductive and appetite hormones may play a crucial role in understanding the development and maintenance of eating disorders (EDs) and obesity.

Appetite-regulating hormones such as Leptin and Ghrelin are associated with binge eating episodes and fat mass. Appetite hormones influence adiposity and body composition together with the reproductive hormones.(7)

Here there are hormones that regulate eating behaviour and lacking or deformation of those may cause eating disorders and more serious cases.

2.2.2.1. Pancreatic Hormones

Insulin: It is a protein hormone. It ensures that glucose in the blood enters the cell, oxidizes it in the cell and is converted into glycogen in the liver and stored. Since glucose is not used in insulin insufficiency, its level in the blood increases. In this case, the amount of ketone bodies increases as energy is met from fat and proteins. The metabolic disorder that occurs with these symptoms is called Insulin Dependent Diabetes Mellitus (Type 1 Diabetes). Although the blood insulin level is high in obese individuals, because of its low effect, glucose use is also impaired. This situation is explained with the term "insulin resistance". Obesity, which occurs as a result of feeding with fast-digesting carbohydrate foods, despite the lack of physical activity, is an important factor in the formation of insulin resistance. Increased blood sugar due to insulin resistance is called Non-Insulin Dependent Diabetes Mellitus (Type 2 Diabetes)   Type 1 diabetes can be controlled by parenteral administration of insulin and appropriate diet tailored to the effectiveness of insulin. Individuals with Type 1 don't produce Insulin. Type 2 diabetes can be cured by increasing physical activity, limiting the energy of the diet and easily digestible carbohydrate sources, and with an appropriate diet with high dietary fiber. Indiduals who has Type 2, don't respond to Insulin as well as they should, and later in the disease they don't make enough Insulin. Both types of diabetes can lead to chronically high blood sugar levels. That increases the risk of diabetes complications.(8)

Glucagon: Glucagon, the second hormone secreted from the pancreas, is also in protein structure. It has an opposite effect comparing to insulin. It stimulates the conversion of glycogen to glucose.This effect is similar to that of Epinephrine, the only difference is, Glucagon has no effect on Glycogen in the muscles.

Insulin and glucagon work in negative feedback process. Which means one triggers another, to ensure blood sugar level homeostasis.(9)

2.2.2.2. Gastrointestinal Hormones

Secretin: It has a protein structure. It is secreted from the upper part of the small intestine. It stimulates the secretion of digestive enzymes from the pancreas.(10)

Cholecystokinin: It controls the movement of the gallbladder and the evacuation of bile. Hence, reduces food intake. (10)

Gastrin: It is secreted from the stomach. It has a protein structure. It stimulates stomach secretion. (10)

Ghrelin: It is a peptide secreted from the gastric mucosa. It shows anti-leptin activity. It stimulates food intake, accelerates the use of carbohydrates, reduces fat use, increases stomach motility and acid secretion. Circulating ghrelin level rises before meals and decreases after meals.(10)

Polypeptide YY: This hormone secreted from the digestive organ stimulates the nerves that create a feeling of satiety in the hypothalamus and suppresses the nerves related to the desire to eat. Thus, it is effective in reducing food intake. (10)

2.2.2.3. Adipose Tissue Hormones

Leptin: It is a protein encoded by the obese gene. Although it is secreted from adipose tissue, it is found in small amounts in the hypothalamus, pituitary, placenta, skeletal muscle, stomach and breast tissue. The main function of leptin is related to energy balance and the formation of the satiety signal. The level of leptin in the circulation increases in parallel with the increase in fat mass and causes the hypothalamus to inform the hypothalamus that sufficient energy is stored in the body, causing the suppression of appetite and an increase in energy expenditure. When leptin can not be produced as a result of a mutation in the obese gene, obesity due to overeating occurs because the satiety signal can not be formed.(5)

Adinopectin: It is a protein secreted from white adipose tissue. It is effective in increasing insulin sensitivity. Blood adinopectin level is low in obese and Type 2 diabetics. Low adinopectin levels in experimental animals were parallel to the development of insulin resistance and Type 2 diabetes, glucose utilization and fat oxidation increased with external administration of adinopectin, and improvement in insulin resistance was observed. It has been found that high blood adinopectin levels in humans are associated with low body weight, fat mass, and low insulin levels. It has been reported that a diet with high antioxidant capacity increases the level of adinopectin.(5)

Resistin: It is a protein secreted from adipose tissue. It was observed that the resistin level increased in the fattened experimental animals. However, no correlation was found between circulating resistin level and insulin resistance in human studies.(5)

Prostaglandins: Prostaglandins are derivatives of polyunsaturated fatty acids. These hormones are synthesized in the tissues where they are active and circulate. Prostaglandins provide the contraction of smooth muscles. Because of these activities,

they are used to facilitate birth, terminate pregnancy and control blood pressure. Some of these hormones raise blood pressure, while others lower it. They facilitate breathing difficulties such as asthma. They increase the excretion of sodium and water in the kidneys due to their opposite effects to vasopressin. Increases cyclic AMP level and synthesis of many hormones. They are effective in maintaining normal functions of blood platelets. Prostaglandins act opposite to Gastrin hormone in the digestive apparatus, causing decrease in gastric secretion. (11)

Table 2.1. Effects of Some Hormones on Energy Metabolism

Hormones	Liver	Muscles	Adipose Tissue
Insulin	Glucose==> Glycogen	Glucose oxidation increases	Glucose oxidation increases
Epinephrine	Glycogen==> Glucose	Lactic acid formation increases	Formation of free fatty acids increases
Cortisone	Increases glucose synthesis	Increases protein breakdown	Prevents the use of glucose
Glucagon	Glycogen==>Glucose	–	Increases free fatty acid formation
ACTH	–	–	Stimulates Epinephrine

2.2.3. Homeostatic Control of Eating Behaviour

Under physiological conditions, energy, protein and food intake is stable for long-term, besides it may change significantly from day to day. For example, during a study made with female mice, their food intake was observed during their oestrus period, and it was shown that number and quantity of meals changed synchronized with the oestrus cycle.

For that reason, under physiological conditions, net food intake is a dynamic period and the homeostasis of energy intake is a respond to internal and external factors leading to satiety and satiety modulation.

The homeostatic control of eating behaviour is a complex mechanism entegrated to the hypothalamic level of brain.

Findings point to hypothalamic nucleus as the entegration point of hedonic and mechanic signals that is born from peripheric and central sections.

Especially, activation and inhibition of NPY (Neuropeptid Y) neurons and the decrease or increase of Melanocortin neurons triggers eating.

These two neurons are connected by nerves and because of that prophagic impulse that is activated by the simulation of NPY neurons is solidified in synchronization with the inhibition of melanocortin neurons.

Extensive studies are made over mechanical stimulations on stocmah-intestine path. Experimental observations show that when discomfort is given to the stomach by placing stomach balloon to the stomach, there is significant decrease in food intake.

Findings show that gastric discomfort augments both homeostatic and non-homeostatic brain neural activity that regulates food intake. Similar to these mechanical signals, metabolic signals also affect homeostatic eating behaviour by regulating food intake and appetite in order to maintain body weight.

When body composition, basal metabolism speed, acute energy intake in a meal and daily energy intake are observed, it is seen that the mass without lipid has the main role for acute energy intake; on the other side basal metabolism speed is observed to have the main role in daily energy intake.(12)

2.2.4. Hedonic Control of Eating Behaviour

Even though eating is a metabolic process as the mechanism providing necessary energy intake, it also triggers reward mechanism of specific neural cycles. Thereby, hedonic property of eating contributes to the modeling of eating behaviour and thereby it can sometimes suppress homoestatic control of eating and can deactivate it.

Indeed, many neural cycles that are thought to be regulating eating behaviour overlaps with the reward cycle of brain in both anatomic and functional way.

It is not always possible to differentiate the homeostatic and hedonic eating because they are physiologically similar.

Sense of smell is the main pushing factor for individuals to eat and affects the choices of the meal and gives info about its security.

Studies made on mice revealed that mice that are lost sense of smell consume less food in a meal, but the total energy intake remained almost the same due to the increasing meal number per day.

Thus, sense of smell is a key factor that regulates the transition between hedonic and homeostatic feeding.

After the beginning of obesity, losing sense of smell stopped the acute weight gain and ameliorated the metabolic paranormalities for a while.

In addition, sympathetic nerves' activity promoted and leaded the beta adregeneric activation receptors on adipocytes to improve the lipolysis.

As opposed to this, excess lost of sense of smell caused adiposity and insulin resistance.

It is still not verified if the hedonic feeding is an important parameter that accompanies the homeostatic feeding or alone itself a main factor for the energy intake regulation and health.

Researches made recently found out that hedonic feeding, by activating the rewarding center in the brain provides biological perception to the psycho-physio regulation of health in general.

One of the most important component of the rewarding system in the brain is the ventral tegmental area, a connection between the activation of this area and enhancement of the antibacterial activity of macrophages and monocytes and increase in T-cell responses is found out which explains that immunological defense is supported. (13)

2.2.5. Taste Changes and Eating Behaviour

The perception and discrimination ability of all senses leads food preferences and eating behavior. Interestingly, changes in taste and smell in early adulthood affect total energy intake, but this can be compensated. But not in old ages, the total energy intake is negatively affected in such case.

The homeostatic control of eating well regulates the required energy intake in human being in early ages and adulthood but fails in older ages and this cause the beginning of the loss of muscle and cachecticism.

Receptors of taste are located mainly on the tongue but function through the whole body.

Sense of taste is affected obviously with ageing and the reduced expression of taste receptors may cause taste changes. However, a study comparing young and old mice has shown that there was not always a significant change of taste bud cells. Which means, the taste changes with aging is not only related with the taste organs.

It is found out that the mRNA expressions of the signaling effectors are obviously decreased with ageing.

These results verifies that not only the peripheral tissue changes affect the deterioration of taste functions but the denaturation of the central nervous system is a significant effector. (6)

2.3. The Digestive System

The alimentary canal and its organs and the digestive process that prepares the food suitable for absorption composes the digestive system. The digestive processes are chemical reactions occur in the body to regulate the energy intake and making new/replacement body substances.(4)

In the chart below, it is explained how the nutrients are broken down, digested and absorbed in the related organs:

Table 2.2. Digestive Process of Nutrients and Related Organs

	Mouth	Stomach	Digestion	Absorption	Large Intestine
Carbohydrate	Salivary amylase: digestible starches to dissacharides	Hydrochloric acid: denatures and stops action of salivary amylase	Pancreatic amylase: digestible starches to disaccharides. Sucrase, maltase, lactase(in enterocytes): dissaccharides to monosaccharides (mainly glucose)	Into blood capillaries of villi	-
Proteins		Hydrochloric acid: pepsinogen to pepsin. Pepsin: protesins to polypeptides	Enterokinase (in enterocytes): chymotrypsinogen and trypsinogen (from pancreas) to chymotrypsin and trypsin. Chmotrypsin and trypsin: polypeptides to di- and tripeptides. Peptidases (in enterocytes): di- and tripeptides to amino acids.	Into blood capillaries of villi	-
Fats	-	-	Bile (from liver): bile salts emulsify fats. Pancreatic lipase: fats to fatty acids and glycerol. Lipases(in entereocytes): fats to fatty acids and glycerol	Into the lecteals of the villi	-
Water	-	Small amount absorbed here		Most absorbed here	Remainder absorbed here
Vitamins	-	Intrinsic factor secreted for vitamin B12 absorption	-	Water-soluble vitamins absorbed into capillaries; fat-soluble ones into lacteals of villi	Bacteria synthesise vitamin K in colon; absorbed here

2.4. Energy Production

The main chemical reactions that composes the metabolic pathways are catabolism and anabolism. Catabolism is the breakdown of large molecules into smallers and anabolism is the synthesis of large molecules from smaller ones.

The energy produced in the body can be measured by units of work (joules) or unit of heat (kilocalories).

A kilocalorie (kcal) is the amount of heat required to raise the temperature of 1 lt of water by 1 degree Calcius.

The nutritional value of carbonhydrates, proteins, fats and alcohol can be expressed by kcal/gr.

The kcal/gr of carbonhydrates, proteins, fats and alcohol are as below:

Carbonhydrate : 4 kcal

Protein : 4 kcal

Fats: 9 kcal

Alcohol : 7 kcal

The metabolic rate of each individual changes by age, gender, height, weight mainly and affected by also some special status such as hormonal states of the person at a special period (such as pregnancy, menstruation and lactation) and also it is also asserted that emotional states may affect the metabolic rate.

The basal metabolic rate (BMR) is the rate of metabolism when individual is at rest in a warm place and in the postaborsptive state (12 hours fasting state).

The energy requirement of the body is made up by the oxidation of nutrients inside the cells. The energy is produced by chemical reactions of carbonhydrate, protein and fat compositions of nutrients controlled by hormones and enzymes. The oxidation of nutrients follows specific pathways and gradually completed after some phases.

Chemical reactions are always related to energy change. Chemical reactions that release energy occur through enzymes. The energy released in one reaction can be used to run another reaction. The energy released by the reactions is in the form of ATP (Adenosine Triphosphate) which is a high energy element. ATP provides energy for the contraction of muscles as well as the energy required for the formation of many other destruction and construction reactions.

The main source of energy is the sun. The energy of sun is stored in plants in form of carbonhydrate, protein and fats and as eating the plants the animals turn into sources of meat, milk, egg and etc. Human being may provide energy from directly plants or from animal sources.

After digestion of food, they carried into cells through blood circulation in form of nutrients and oxidized by presence of Oxygen to produce energy.(14)

2.5. Factors Affecting Eating Behaviour

Eating behavior is generally defined as "normal behavior related to eating habits, food selection, preparing food, quantities and ingestion". Eating behaviour has a very important place in life of humans as a corrupted eating behaviour such as skipping meal, non organized diet plan, consuming high carbonhydrate low nutrious food, unhealthy diets may cause in long-term period important health problems. Whereas, a balanced diet and consuming nutrious well qualified food is a main factor provides sustaining healthy situation.(15)

Today, while millions of people in the world are fighting death and diseases caused by constant hunger and malnutrition, others lose their lives at an early age and become inoperable due to disorders caused by excessive calorie intake and malnutrition. Thus, inadequate and unbalanced nutrition problems are one of the factors that affect people's health. One of the causes of malnutrition and unbalanced nutrition problems is the lack of nutritional knowledge. Nutritional knowledge is one of the factors affecting the nutritional status and habits of individuals, families and communities. (6)

In contrast, a balanced diet and the consumption of quality food can contribute to sustaining the physical well-being and mental stability of individuals. Likewise, a healthy diet is understood to play a significant role in the lives of university students that is, a considerably large population group which could be targeted to prevent numerous health problems . Indeed, international research has demonstrated that student life in the university setting is characterized by many changes in eating behaviors and dietary patterns (16)

Through several researches, it is found out that the psychopathology levels of individuals with negative eating attitudes were higher. According to the study of Edman et al. (2008); anxiety in women, depression and dissatisfaction, and irregular eating attitudes were significantly related. The general anxiety and depression, which are subgroups of psychopathology, with eating attitudes were related. In this regard, the evaluation of eating manners of individuals whose attitudes are negative in terms of psychopathology is meaningful. Besides, individuals who previously received psychological support had strongly negative eating attitude scores according to several tests.(17)

The main factors affecting eating attitude behaviors are generally examined in 3 groups as subliminal factors, triggering factors and sustaining factors. Examples of subliminal factors are mainly sourced by the desire to have a skinny body and obsessions about body image. Traumatic events(especially experienced during adolescence or childhood) such as death, school change, mockery, divorce are considered as triggering factors. Continuous and long-term application of aggressive diets are examined under the name of sustaining factors.(18)

In some cases, emotional stimuli can directly affect the eating behavior of individuals and preclude physiological needs. Even if people are not hungry, it is also a matter of

eating in emotional situations such as sadness, stress, happiness and loneliness. In such situations, people tend to eat uncontrollably and non-stop, without being aware of what and how much they are eating. In this situation, which we call emotional eating, in addition to boredom and not being able to find anything to do, eating behaviors may develop in response to stressing situations such as anger and aggressivity.(19)

2.6. Eating Disorders

The term of eating disorders is used to describe all types of negative eating attitudes and behaviors.

Eating disorder behavior is characterized by serious disturbances in eating behavior. Eating disorders are psychiatric disorders that endanger the life of the individual and even result in death if precautions are not taken at the right time, which can lead to significant deterioration in eating attitudes and behaviors.(20)

Eating Disorders can be grouped in 6 most common types:

1. Anorexia nervosa

2. Bulimia nervosa

3. Binge eating disorder

4. Pica

5. Rumination disorder

6. Avoidant/restrictive food intake disorder

Unhealthy eating habits may originated mainly by obsessions about body or food.

If untreated, it is possible to cause serious health problems.

Different types of symptoms develop if the individual have eating disorder, but the most commons are vomitting, food restriction, binge eating or exercise excessively.

Eating disorders affect people at any age and gender, however commonly seen in especially adolescent and young women.(21)

Many different factors can cause eating disorders.

Genetics can be an influencing factor. Studies have shown that the eating disorder risk is higher if a family member has developed an eating disorder. (22)

Especially studies made on twin sisters have strongly supported this thesis.(23)

There are studies showing that genes related to Dopamine and Serotonin secretions are also associated with diseases diagnosed with eating disorders, including Anorexia Nervosa.(24)

Some personality traits can also cause eating disorders. These are personality traits such as neuroticism, perfectionism, and impulsivity, which are often linked to a higher risk of developing eating disorders.(21)

Sociocultural factors are also among potential causes. Such as being exposed to the ideals of having a skinny body imposed especially in the media, the pressure to be the skinny and ideal woman concentrated on women in developed Western societies. Giving messages that being skinny means being beautiful and attractive through communication and media channels causes many women to have a weaker passion for their ideal body perception and therefore eating disorders. (24)

Accordingly, body dissatisfaction and negative body perception that develop in individuals cause eating disorders. In studies conducted on women, a deterioration was observed in body perception who had eating disorders.(25)

Recent research has suggested that some physiological factors and hormone secretions may also play a role in the development of disorders. Food intake, fat storage and energy consumption are regulated by a complex neuroendocrine system called 'energy homeostasis'. This autocontrol system consists of cephalic, cellular and hormonal responses that stimulate food intake in response to energy requirements of the body.(26)

Feelings of satiety and hunger arise according to the messages and messages received by the neurons forming a network in the body from the peripheral tissues, hypothalamus or nucleus tractus solitarius (NTS) located in the brain stem. Messages from peripheral tissues (such as Ghrelin, Leptin, PYY) reach the hypothalamus and brain stem by crossing the blood-brain barrier. It affects the release of anorexigenic and orexigenic neuropeptides expressed in the arcuate nucleus (ARC) region of the hypothalamus. Appetite, obesity or anorexia nevrosa and most importantly nutrition are regulated as a result of the appetite mechanism of these peptides and their increasing or preventive effects on food intake.(27)

In studies conducted to examine whether changes in appetite-regulating hormones after a standard meal were associated with homeostatic and hedonic appetite in young women with Anorexia Nervosa (AN), higher Ghrelin and Peptide YY (PYY) levels and differences in hunger perceptions were observed in women with AN. (28)

In brief, we can say that genetics, personality traits, sociocultural factors and physiological factors cause eating disorders.

2.6.1. Anorexia Nervosa

Anorexia Nervosa is an obsessive attitude towards achieving weight control by refusing to eat, excessive restraint in portions or vomiting, excessive exercise, and use of laxatives, which are the result of an individual's effort to control their weight and appetite excessively. Body perception disorder is the main factor causing AN. Although the individual has a low weight for his height, due to impaired body perception, he/she sees himself overweight and is worries about gaining weight. AN is a very serious health problem as can be mortal if untreated, the incidence is around 1-4% among women of Western countries.(29)

2.6.2. Bulimia Nervosa

In this type of eating disorder, where binge eating behavior is constantly repeated, the fear of being overweight is at the forefront. This type of eating disorder is characterised by losing control of eating and eating attacks. After the eating attacks when the person eats excessively, extreme guilt and sometimes depression occurs accordingly. As in anorexia nervosa disease, these patients also use lactasives and diuretics. During eating attacks, calorie-rich carbohydrate foods are generally preferred as they are ready to consume at all time. The difference of bulimia nervosa patients from those with anorexia is that, in contrast, they can not stop eating instead of restricting it, and they are at a normal weight. As the weight is normal for the age and height, recognition and diagnosis is more difficult.(30)

2.6.3. Binge Eating Disorder

Binge eating disorder(BED) is a type of eating disorder in which an individual eats more food than he can normally eat at once (often very quickly and to the point of discomfort) in a very short time, and can not stop eating, and the behavior of eating with excessive portions is repeated time to time. In individuals with BED, in contrast to Bulimia Nervosa, compensatory behaviors such as vomiting, diuretic and laxative use, excessive exercise are not observed in order to reduce the consequences of eating episodes. Individuals with binge eating disorder quickly consume much more than another individual can eat in the same conditions and in the same time. In doing so, they believe that nothing can prevent them from eating. The individual can not control himself. There are no limits to what and how much is eaten. The feature that distinguishes binge eating disorder from other eating disorders is that compensatory behaviours are not taken to prevent its negative effects after eating attacks. (31)

BED is the most common eating disorder among adults. During lifetime around 1,9% of the individuals develop binge eating. Through several researches and meta analysis, it has been found out that BED is associated with some specific neurocognitive characteristics. Cognitive difficulties are observed in BED patients. The executive functions are tested in which skills like working memory, inhibitory control, goal-directed

behaviour, decision making, planning, response to feedback, task-switching , cognitive control, flexibility were measured and the patients with BED showed lower scores. (32)

Through several researhes made on students, it has been found out that students with overweight or obesity were more inclined to develop eating disorders comparing to those with healthy weight. Moreover, a strong association between overweight, obesity and binge eating is hypothesized. Individuals who are overweight or obese are more likely to show a indication of clinical or non-clinical binge eating disorder rather than other eating disorder types. (33)

2.6.4. Pica

Pica is a disorder characterized by the regular and excessive consumption of a non-nutritious substance or food. It usually occurs in infants or children. Physiological and psychological factors may underly pica. Factors such as inadequate mother-child relationship, low socioeconomic level are thought to be effective for development of this type of eating disorder. Pica often occurs due to iron, zinc and copper deficiencies. Individuals with pica eat items such as soil, paper, ice, lime, paint, and thread. It is more common in boys rather than in girls. It is found out through researches that Pica may be related to Gastro-Intestinal Symptoms, Autism Spectrum Disorder (ASD) and other development disabilities. (34)

2.6.5. Rumination Disorder

Rumination disorder is an eating disorder characterized by repetitive recurrent food regurgitation, which is often defined as involuntary or habitual. Rumination disorder was classified under the disorders diagnosed in infancy, childhood or adolescence, but it has been found that it is seen in all age groups today. Ruminating is a normal physiological process performed by ruminants such as cattle, sheep and goats in order to increase the digestibility of food. However, in human being, if rumination occurs, it is considered pathological and known as rumination disorder. Rumination can also be seen due to growth retardation. In children with normal development, the onset time is between 3-12 months. It is more common in boys than girls.(35)

Rumination incidence of mental retardation in young children has been reported as 6% - 10%. Prevalence in adults in two population-based studies from Australia and Mexico is found 0.8% and 0.9%, respectively.(36)

In adults, other eating disorders accompanies to rumination. While it is more common in boys in childhood, it is more common in women comparing to men in adulthood, the reason is thought to be due to the higher rate of women seeking functional health services for gastrointestinal disorders. Rumination disorder may occur due to cultural, socioeconomic, organic and psychodynamic factors. Especially negative psychosocial environment and stressful life is related to rumination disorder. The feeling of inadequacy, lack of stimulus and neglect in the mother-child relationship can cause

rumination a a relaxation behavior.A child who brings stomach contents back to mouth restarts the process and soothes himself tries to get rid of tension. Rumination disorder and mental retardation are seen together in some cases. Rumination in babies and in individuals with developmental retardation can function as a sedative behavior. Although there is a relationship between gastroesophageal reflux disease and the onset of nausea, vomiting and rumination, it is thought that many other stomach disorders may precede or accompany rumination. Esophageal reflux is thought to be the main reason for the predisposition and emergence of rumination behavior that can cause psychosocial problems (37)(38).

2.6.6. Avoidant/Restrictive Food Intake Disorder

It is a conscious restriction of consumption by controlling the amount and type of food consumed, provide calorie-restriction, in order to prevent or to reduce weight gain. In other words, it is the eating behavior in order to prohibit cravings for food and the effort to resist this desire. Excessive restrictions in food consumption in individuals with restrictive eating behaviors may cause eating attacks from time to time by creating an adverse effect. During the restriction period, excessive cravings for the deficient food may develop. Restrictive eating behaviors can be seen in people with normal weight, if so, the main aim is maintaining weight rather than losing. Individuals with restrictive eating behaviors complain about overeating and have a great fear of gaining weight. These individuals can eat more than others(who do not experience this type of eating behaviour) at once when they are under stress. These individuals are constantly on a diet. In individuals with restrictive eating behavior, to stop the restriction and eat the prohibited product or excessive quantity for any reason brings along a feeling of guilt that causes them to start dieting again, and this cycle continues in this way.(39)

Restrictive eating disorder may be seen in children as well. A questionnaire-based study recently made in Switzerland found out that the prevalence is 3.2% between 8–13 year old primary school students. Depending on series of case reviews and clinical studies made on adult patients across eating disorder treatment programs in North America found that the prevalance is around 7.2% and 17.4%. (40)

2.7. Body Image Perception

Body image perception is a concept related to the individual's perception of his own body and its parts. As attributing certain meanings to them, self-perception, identity and personality concepts are related to body image perception. Body image perception is a subjective and individual perception of the person's own body indeed and is one of the basic components of personality. Body image perception is actually how our own body looks to us, which we shape in our minds. Body perception, which is the whole state of the body organs designed in the mind of the person, is one of the factors that make up the personal self concept and has a fundamental importance in the formation of the ego. It has been observed that people who have a positive physical assessment about themselves

are safer in their relationships and more successful in their work, and those who do not like themselves think that they have many defects in themselves and have a negative body perception are uneasy, insecure and feel worthless at various periods of their lives or constantly. Body image is also defined as the appearance of the physical self. Body image is of great importance in an individual's self-definition and perception. If the body image perception is impaired even though there is no defect in the person's appearance, there will be a defect in the self-evaluation of himself, hence his perception of body image, and a negative body image perception will develop. Having a healthy and positive body image perception will also help the individual to develop a favorable self-image in general. Positive body image perception reflects a self appraisal that includes unique factors related to respect, appreciation, and acceptance related to the body. (41)(42)

In a research made in Fordham University in U.S., body image perception was examined by testing 179 undergraduate students, the relationship between gender, age, race, and social characteristics of real body weight (underweight, normal weight, obese) with body-image misperception was investigated. Those who are underweight or obese have been found to mispercieve their weight-related appearance more than those with normal weight. Among those who misperceived their appearance about weight, gender was also associated with perceptual deterioration, and female students tend to perceive themselves as heavier, while male students tend to perceive themselves lighter than they actually are. Race and age have also been identified as related factors. The tendency to perceive negatively was stronger in young young participants comparing to older ones. Overweight and non-white students also had higher negatively perception tendancy scores relatively.(43)

3. MATERIALS AND METHODS

3.1. Type and Pattern of the Research

This study was planned in a descriptive and cross-sectional design in order to examine the relationship between eating attitude behaviours and body image perception of individuals.

3.2. Place and Time of the Research

This study was initiated based on the approval given by the Yeditepe University Clinical Research Ethics Committee on January 21, 2021, and data were collected between February 1 and March 31 from 366 volunteer participants who do not have any psychological health problems and who meet the inclusion criteria between ages 18-56 and who are members of a Private Yoga Center in Istanbul.

3.3. Universe and Sample of the Research

The universe of the study consists of 366 volunteer participants who do not have any psychological health problems and who meet the inclusion criteria between ages 18-56 who are members of a Private Yoga Center in Istanbul.

3.3.1. Inclusion Criteria of the Research

Being a member at the yoga center where the study was conducted

Being in the age range of 18-56

Agree to respond to the questionnaire and be included in the study

3.3.2. Not Inclusion Criteria of the Research

Not being a member at the yoga center where the study was conducted

Being out of the specified age range (18-56 Years)

Pregnants, Breastfeeding Mothers, Puerperant, Children

In Intensive Care and Unconscious Persons

Not Accepting To Answer The Questionnaire And Include In The Study

The scope and objectives of the study were explained in detail to the individuals who accepted to participate in the study voluntarily and who met the inclusion criteria, and a voluntary consent form was filled in (App.-2). General information about the research was given in the form, and it was clearly stated that the identity information was not used

and that it could be withdrawn from the study if desired. Individuals who did not meet the inclusion criteria, who applied before or after the specified dates, who were diagnosed with any psychological health problem before or during the study were not included in the study.

3.4. Research Questions

The study consists of 4 different parts: Demographic Information, EAT-26 (Eating Attitude Test), BCS (Body Cathexis Scale) and FFQ (Food Frequency Questionnaire).

Demographic Information consists of 7 questions, EAT-26 26 questions, BCS 31 questions and FFQ 34 questions.

The total of the questions is 98.

In the Demographic Information section, general descriptive statistics such as age, height, weight, educational status, gender is asked to participants. Exercise status is also asked in this section as it can be associated with many other data of the survey.

The EAT-26, BCS and FFQ scales are internationally used valid scales.

The EAT-26 scale was developed in 1982 to determine the risk of eating disorders. EAT-40, the previous version of the EAT-26 scale, was composed by Garner & Garfinkel in 1979 for the detection of Anorexia Nervosa, and then EAT-26 was developed for the detection of all kinds of eating disorders risk.

The BCS Body Cathexis Scale was composed by Secard & Jourard in 1953 and adapted to Turkish society by Hovardaoğlu in 1986.

The FFQ Food Frequency Questionnaire of the National Health and Nutrition Examination Survey (NHANES) is applied to the participants which is a reliable questionnaire organized by the National Center for Health Statistics (NCHS) to evaluate the nutritional status of individuals.

3.5. Measures

3.5.1. EAT-26 Eating Attitude Test Measurement

EAT-26 Eating Attitude Test consists of 26 questions and each item of EAT-26 is consisted of 5-point likert scale from "Always" to "Never".

The evaluation of the scoring is the total score obtained:

> 20 There is a risk (there is a risk of eating attitude behavior disorder)

 <20 No risk

Min. score is 0 points.

Max. score is 78 points.

3.5.2. BCS Body Cathexis Scale Measurement

BCS Body Image Scale consists of 31 questions and each item of BCS is consisted of 5-point likert scale from "Don't like at all" to "Like very much".

The evaluation of the scoring is the total score obtained:

The BCS score for each participant is reached by dividing the total score obtained into 31.

1 point expresses strongly negative and 5 points means strongly positive body image perception.

Min. score is 31 points.

Max. score is 155 points.

3.5.3. FFQ Food Frequency Questionnaire Measurement

FFQ Food Frequency Questionnaire consists of 5 choices for 34 different food items scaled from "I do not consume", "2-3 times per month", "3-4 times per week", "Once a day" to "2-3 times per day".

The 34 food items are consisted of 5 different food groups such as grains and nuts, vegetables and fruits, dairy products and fermented products, meat products and beverages.

The test determines the consumption frequency of individuals for food items.

3.6. Statistical Analysis

NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) program was used for statistical analysis. Descriptive statistical methods (mean, standard deviation, frequency, percentage, minimum, maximum) were used while evaluating the study data. The suitability of quantitative data to normal distribution was tested by Shapiro-Wilk test and graphical analysis. Independent groups t test was used to compare normally distributed quantitative variables between two groups. One-way analysis of variance and Bonferroni corrected binary evaluations were used for comparing more than two groups of quantitative variables with normal distribution. Pearson correlation analysis was used to evaluate the relationships between quantitative variables. Statistical significance was accepted as $p < 0.05$.

Table 3.1. Straighforward Statistics for Behavioral Sciences

r	Comment
0.00 — 0.19	Very weak
0.20 — 0.39	Weak
0.40 — 0.59	Moderate
0.60 — 0.79	Strong
0.80 — 1.00	Very strong

Evans, J. D. (1996). Straightforward statistics for the behavioral sciences. Pacific Grove, CA: Brooks/Cole Publishing

4. RESULTS

This study was conducted on a total of 366 participants with age range between 18-56 on February - March 2021 term.

4.1. Descriptive Statistics

Table 4.1. Descriptive Statistics

	Min-Max	Avg±sd
Age	18-56 years	37,40±9,16 years
Height	150-185 cm	166,12±7,74 cm
Weight	45-130 kg	68,04±14,34 kg
BMI	16,30-42,61 kg/m^2	24,58±4,48 kg/m^2
	n	**%**
Gender		
Female	313	85,5
Male	53	14,5
Marital Status		
Married	281	76,8
Single	61	16,7
Divorced	24	6,6
Educational Status		
Primary School	4	1,1
Secondary School	3	0,8
High School	48	13,1
Undergraduate	226	61,7
Graduate	85	23,2
Exercise Status		
Always	49	13,4
Usually	152	41,5
Hardly Ever	118	32,2
Never	47	12,8

The height of participants ranges between 150-185 cm and the average is 166,12±7,74 cm.

The weight range is between 45-130 kg and the average is 68,04±14,34 kg.

The BMI range is between 16,30-42,61 kg/m^2 and the average is 24,58±4,48 kg/m^2

The %85,5 of participants are female (n=313), the %14,5 are male (n=53).
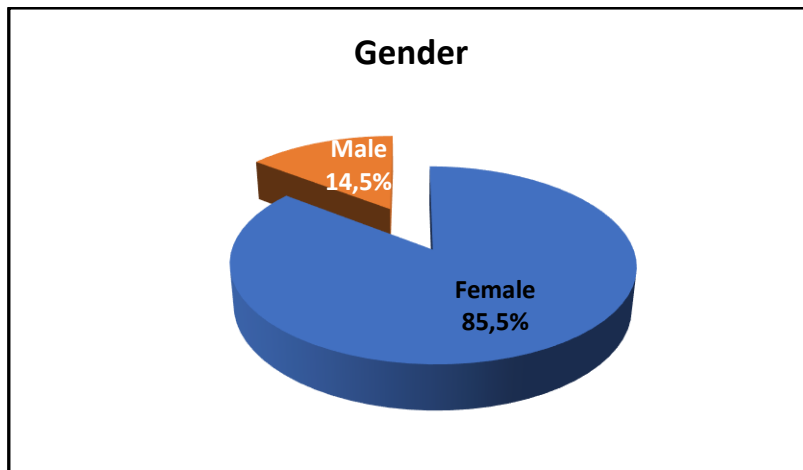
Figure 4.1. Distribution of Participants by Gender

The %76,8' (n=281) of the participants are married, %16,7 (n=61) are single, %6,6 (n=24) are divorced.
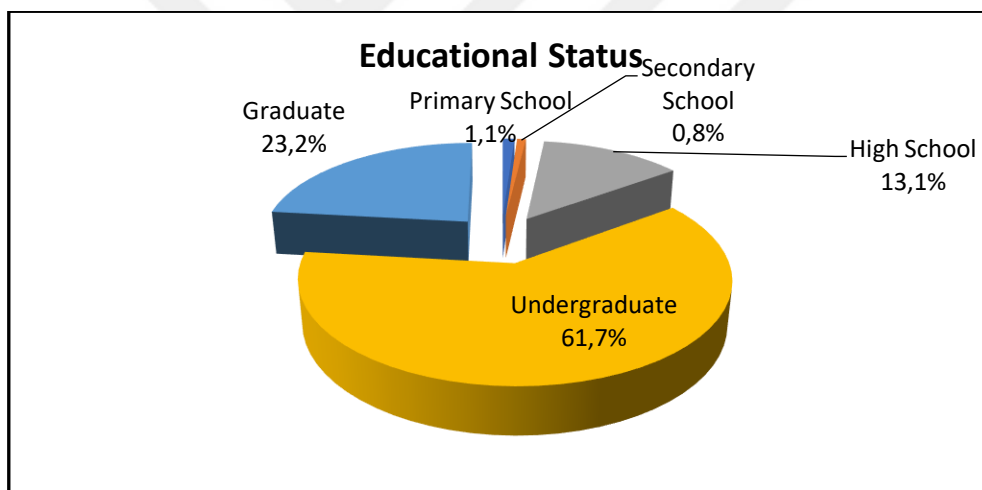
Figure 4.2. Distribution of Participants by Educational Status

The %1,1(n=4) of the participants has primary school, %0,8 (n=3) has secondary school, %13,1 (n=48) has high school, %61,7 (n=226) has undergraduate, %23 (n=85) has graduate educational status.
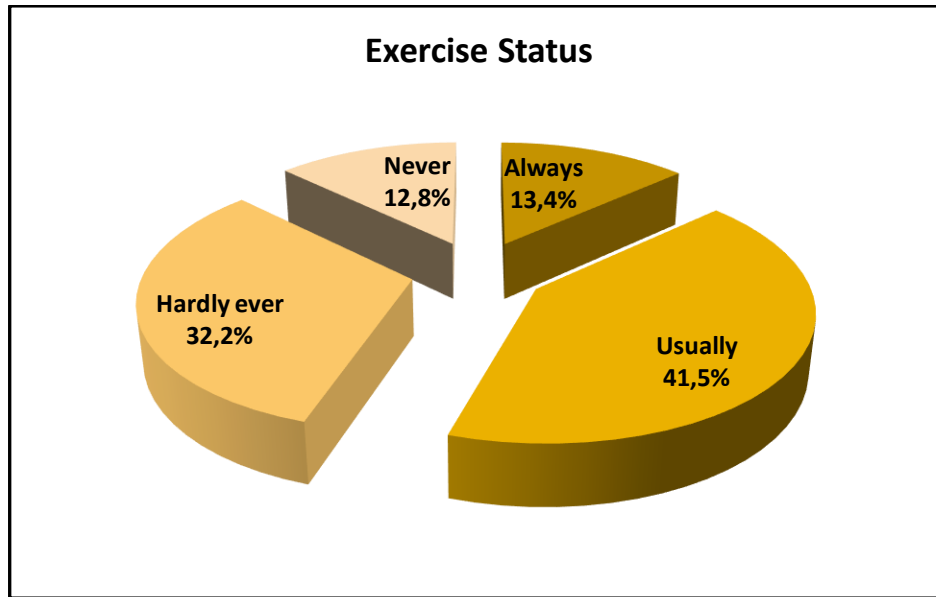
Figure 4.3. Distribution of Participants by Exercise Status

The %12,8 (n=47) of the participants has stated "never" for their execise status, the %32,2 (n=118) "hardly ever", the %41,5 (n=152) "usually", the %13,4 (n=49) "always".

4.1.1. EAT-26 Eating Attitude Test Statistics

Table 4.2. Distribution of Responds for EAT-26

	Always	Usually	Often	Sometimes	Rarely	Never
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Am terrified about being overweight.	63 (17,2)	37 (10,1)	73 (19,9)	108 (29,5)	50 (13,7)	35 (9,6)
Avoid eating when I am hungry	13 (3,6)	12 (3,3)	37 (10,1)	101 (27,6)	92 (25,1)	111 (30,3)
Find myself preoccupied with food	16 (4,4)	37 (10,1)	74 (20,2)	143 (39,1)	67 (18,3)	29 (7,9)
Have gone on eating binges where I feel that I may not be able to stop.	4 (1,1)	34 (9,3)	39 (10,7)	144 (39,3)	99 (27)	46 (12,6)
Cut my food into small pieces	28 (7,7)	18 (4,9)	56 (15,3)	100 (27,3)	99 (27)	65 (17,8)
Aware of the calorie content of foods that I eat.	17 (4,6)	17 (4,6)	44 (12)	89 (24,3)	79 (21,6)	120 (32,8)
Particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes,etc.)	17 (4,6)	26 (7,1)	53 (14,5)	102 (27,9)	99 (27)	69 (18,9)
Feel that others would prefer if I ate more	20 (5,5)	11 (3)	41 (11,2)	60 (16,4)	72 (19,7)	162 (44,3)

Vomit after I have eaten	0 (0)	1 (0,3)	1 (0,3)	5 (1,4)	18 (4,9)	341 (93,2)
Feel extremely guilty after eating	13 (3,6)	14 (3,8)	27 (7,4)	115 (31,4)	103 (28,1)	94 (25,7)
Am preoccupied with a desire to be thinner	29 (7,9)	35 (9,6)	60 (16,4)	72 (19,7)	77 (21)	93 (25,4)
Think about burning up calories when I exercise	1 (0,3)	7 (1,9)	14 (3,8)	56 (15,3)	92 (25,1)	196 (53,6)
Other people think that I am too thin	13 (3,6)	19 (5,2)	42 (11,5)	60 (16,4)	72 (19,7)	160 (43,7)
Am preoccupied with the thought of having fat on my body	20 (5,5)	27 (7,4)	60 (16,4)	91 (24,9)	89 (24,3)	79 (21,6)
Take longer than others to eat my meals.	25 (6,8)	24 (6,6)	29 (7,9)	91 (24,9)	100 (27,3)	97 (26,5)
Avoid foods with sugar in them	15 (4,1)	29 (7,9)	47 (12,8)	115 (31,4)	94 (25,7)	66 (18)
Eat diet foods	4 (1,1)	15 (4,1)	27 (7,4)	118 (32,2)	106 (29)	96 (26,2)
Feel that food controls my life	10 (2,7)	17 (4,6)	39 (10,7)	80 (21,9)	76 (20,8)	144 (39,3)
Display self-control around food	24 (6,6)	41 (11,2)	90 (24,6)	140 (38,3)	56 (15,3)	15 (4,1)
Feel that others pressure me to eat	10 (2,7)	8 (2,2)	21 (5,7)	58 (15,8)	110 (30,1)	159 (43,4)
Give too much time and thought to food	3 (0,8)	24 (6,6)	51 (13,9)	93 (25,4)	84 (23)	111 (30,3)
Feel uncomfortable after eating sweets	14 (3,8)	29 (7,9)	33 (9)	108 (29,5)	102 (27,9)	80 (21,9)
Engage in dieting behaviour	10 (2,7)	15 (4,1)	32 (8,7)	116 (31,7)	102 (27,9)	91 (24,9)
Like my stomach to be empty	8 (2,2)	12 (3,3)	38 (10,4)	113 (30,9)	81 (22,1)	114 (31,1)
Enjoy trying new rich foods	22 (6)	34 (9,3)	74 (20,2)	121 (33,1)	85 (23,2)	30 (8,2)
Have the impulse to vomit after meals.	1 (0,3)	5 (1,4)	4 (1,1)	16 (4,4)	40 (10,9)	300 (82)

Table 4.3. EAT-26 Test Information

	EAT-26
No of Items	26
Min-Maks	0-45
Avg±ss	9,77±7,51
Internal Consistensy	0,769

The EAT-26 consists of 26 items. The scores of the participants from the scale range from 0 to 45, with an average of 9.77 ± 7.51. The internal consistency level of the items that make up the scale was found to be 0.769

Table 4.4. Eating Attitude Behaviour Disorder Risk Evaluation Depending on EAT-26 Scale

	n	%
No Risk (<20)	334	91,3
Risky (≥20)	32	8,7

According to the scores of the EAT-26 scale, 91.3% of the participants (n = 334) had no risk of eating attitude behavior disorder, while 8.7% (n = 32) had.
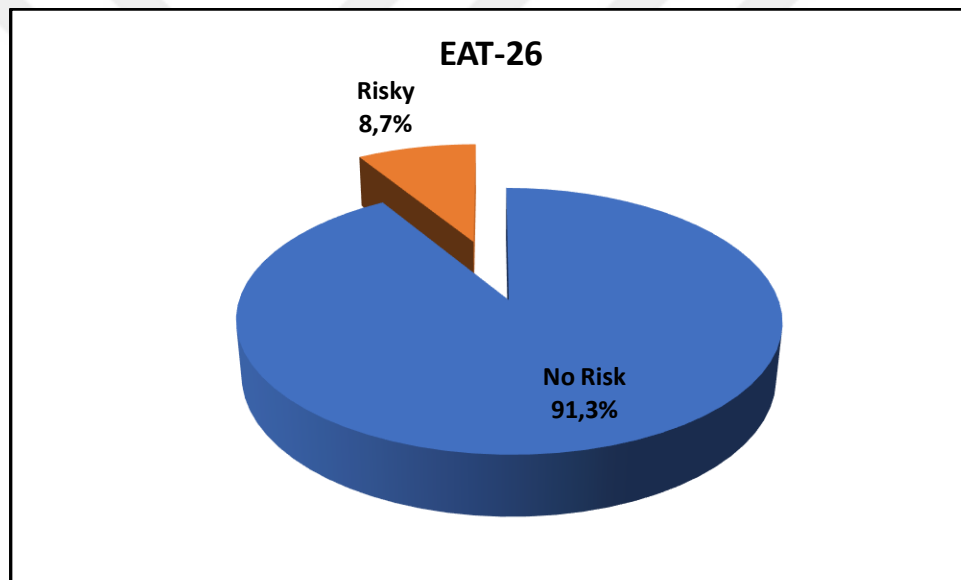
Figure 4.4. Distribution of Participants by Eating Attitude Behaviour Disorder Risk

4.1.2. BCS Body Cathexis Scale Statistics

Table 4.5. Distribution of Responds for the BCS

	Don't like at all	Don't like	Indecisive	Like	Like very much
	n (%)	n (%)	n (%)	n (%)	n (%)
My feeling/thought about my hair :	12 (3,3)	53 (14,5)	93 (25,4)	162 (44,3)	46 (12,6)
My feeling/thought about the color of my face :	7 (1,9)	40 (10,9)	83 (22,7)	192 (52,5)	44 (12)
My feeling/thought about my appetite :	47 (12,8)	83 (22,7)	95 (26)	129 (35,2)	12 (3,3)
My feeling/thought about my hands :	9 (2,5)	57 (15,6)	79 (21,6)	162 (44,3)	59 (16,1)
My feeling/thought about my nose :	7 (1,9)	72 (19,7)	65 (17,8)	159 (43,4)	63 (17,2)
My feeling/thought about my physical power:	13 (3,6)	69 (18,9)	80 (21,9)	162 (44,3)	42 (11,5)
My feeling/thought about my urine&stool patterns:	14 (3,8)	37 (10,1)	65 (17,8)	184 (50,3)	66 (18)
My feeling/thought about my muscle power :	21 (5,7)	92 (25,1)	84 (23)	139 (38)	30 (8,2)
My feeling/thought about my waist :	40 (10,9)	101 (27,6)	80 (21,9)	118 (32,2)	27 (7,4)
My feeling/thought about my energy level :	38 (10,4)	64 (17,5)	94 (25,7)	141 (38,5)	29 (7,9)
My feeling/thought about my back :	40 (10,9)	98 (26,8)	76 (20,8)	133 (36,3)	19 (5,2)
My feeling/thought about my ears :	2 (0,5)	20 (5,5)	42 (11,5)	200 (54,6)	102 (27,9)
My feeling/thought about my age :	6 (1,6)	34 (9,3)	62 (16,9)	177 (48,4)	87 (23,8)
My feeling/thought about my jaw :	6 (2,1)	25 (8,6)	57 (19,5)	204 (69,9)	0 (0)
My feeling/thought about my body structure :	18 (4,9)	72 (19,7)	97 (26,5)	149 (40,7)	30 (8,2)
My feeling/thought about my profile :	5 (1,4)	45 (12,3)	80 (21,9)	191 (52,2)	45 (12,3)
My feeling/thought about my height :	10 (2,7)	69 (18,9)	57 (15,6)	170 (46,4)	60 (16,4)
My feeling/thought about the sensitivity of my senses:	7 (1,9)	41 (11,2)	69 (18,9)	183 (50)	66 (18)
My feeling/thought about my endurance for the ache :	23 (6,3)	44 (12)	61 (16,7)	158 (43,2)	80 (21,9)
My feeling/thought about my arms :	19 (5,2)	66 (18)	68 (18,6)	167 (45,6)	46 (12,6)

My feeling/thought about the shape of my eyes :	7 (1,9)	21 (5,7)	38 (10,4)	188 (51,4)	112 (30,6)
My feeling/thought about my digestive system :	26 (7,1)	59 (16,1)	73 (19,9)	156 (42,6)	52 (14,2)
My feeling/thought about the shape of my teeth:	31 (8,5)	64 (17,5)	53 (14,5)	160 (43,7)	58 (15,8)
My feeling/thought about my teeth :	18 (4,9)	48 (13,1)	61 (16,7)	177 (48,4)	62 (16,9)
My feeling/thought about my sleeping patterns :	41 (11,2)	82 (22,4)	78 (21,3)	128 (35)	37 (10,1)
My feeling/thought about my voice :	20 (5,5)	57 (15,6)	96 (26,2)	140 (38,3)	53 (14,5)
My feeling/thought about my health :	5 (1,4)	39 (10,7)	106 (29)	175 (47,8)	41 (11,2)
My feeling/thought about my knees :	24 (6,6)	61 (16,7)	81 (22,1)	163 (44,5)	37 (10,1)
My feeling/thought about my posture :	32 (8,7)	94 (25,7)	81 (22,1)	134 (36,6)	25 (6,8)
My feeling/thought about my weight :	60 (16,4)	118 (32,2)	75 (20,5)	89 (24,3)	24 (6,6)
My feeling/thought about my resistance for disease:	19 (5,2)	49 (13,4)	68 (18,6)	181 (49,5)	49 (13,4)

Table 4.6. BCS Information

	BCS
No of Items	31
Min-Max	1-4,9
Avg±ss	3,43±0,51
Internal Consistency	0,892

The BCS consists of 31 items. The scores of the participants from the scale range from 1 to 4.9, with an average of 3.43 ± 0.51. The internal consistency level of the items that make up the scale was found to be 0.892.

4.1.3. FFQ Food Frequency Questionnaire Statistics

Table 4.7. Distribution of Responds for FFQ

Nutrients	I don't consume		2-3 times per month		3-4 times per week		Once a day		2-3 times per day	
	n	%	n	%	n	%	n	%	n	%
Oat based food	171	46,7	124	33,9	57	15,5	11	3,0	3	0,8
Cereal bar	186	50,8	146	39,9	25	6,9	6	1,7	3	0,8
Breakfast cereal	160	43,7	121	33,1	68	18,6	13	3,6	4	1,1
Whole grain bread derivatives	58	15,9	117	32,1	96	26,1	56	15,2	39	10,7
Assorted nuts	25	6,8	124	33,9	144	39,3	52	14,2	21	5,7
Banana	22	6,0	221	60,5	103	28,1	19	5,3	1	0,3
Pineapple	151	41,3	195	53,3	17	4,6	2	0,7	1	0,3
Red plum	173	47,3	167	45,6	25	6,9	0	0,0	1	0,3
Fresh squeezed fruit juice	100	27,4	195	53,2	58	15,9	11	3,0	2	0,5
Dried fruit	79	21,5	165	45,0	92	25,1	19	5,3	11	3,0
Raw green leafy vegetables	25	6,9	122	33,4	151	41,3	54	14,9	13	3,6
Onion	13	3,6	47	12,9	134	36,7	122	33,4	49	13,4
Pea	65	17,9	215	58,8	74	20,2	10	2,6	2	0,5
Tomato	8	2,3	36	9,9	110	30,1	127	34,7	84	23,0
Fresh squeezed vegetable juice	276	75,4	59	16,2	24	6,6	5	1,3	2	0,5
Pickled cabbage or cucumber	69	18,8	177	48,3	92	25,1	23	6,3	5	1,4
Cow's milk	33	8,9	87	23,8	140	38,3	76	20,8	30	8,2
Soy milk	334	91,2	23	6,3	8	2,3	0	0,0	1	0,3
Soy containing products	336	91,9	24	6,6	5	1,3	0	0,0	1	0,3
Yogurt	6	1,7	41	11,2	138	37,7	120	32,7	61	16,7
Probiotic yogurt	257	70,1	70	19,2	21	5,6	13	3,6	5	1,4
Instant drinks with probiotic effect	316	86,3	34	9,3	10	2,6	4	1,0	3	0,8
Types of cheeses	11	3,0	25	6,9	97	26,4	177	48,3	56	15,2
Breakfast olives	30	8,2	38	10,2	110	30,1	146	40,0	42	11,6
Kefir	220	60,1	86	23,5	33	8,9	23	6,3	5	1,3
Ice cream	35	9,6	190	51,9	102	27,8	34	9,3	6	1,6
Boza	255	69,7	81	22,2	23	6,3	7	2,0	0	0,0
Red meat	7	1,9	149	40,7	184	50,3	22	6,0	5	1,3
Types of white meat	12	3,3	156	42,6	182	49,6	16	4,4	0	0,0
Fermented sucuk	80	21,9	207	56,5	77	21,2	1	0,3	0	0,0
Dried meat and meat products	232	63,4	99	27,1	33	8,9	1	0,3	1	0,3
Coffee	14	3,8	34	9,3	90	24,5	116	31,7	113	30,7
Beer	175	47,8	145	39,7	41	11,2	4	1,0	1	0,3
Red wine	217	59,3	128	35,0	17	4,6	2	0,7	1	0,3

4.1.4. Comparison of EAT-26 and BCS with Descriptive Statistics

Table 4.8. Comparison of EAT-26 and BCS Scores According to Descriptive Statistics

		EAT-26	BCS
Age	r	-0,005	0,184
	p	**0,923**	**<0,001***
BMI	r	0,017	-0,187
	p	**0,742**	**<0,001***
		Avg±sd	Avg±sd
Gender			
Female		10,32±7,79	3,41±0,51
Male		6,53±4,37	3,52±0,48
[a]t		**5,092**	**-1,394**
p		**<0,001***	**0,164**
Marital Status			
Married		9,55±7,34	3,45±0,46
Single		10,39±8,76	3,33±0,68
Divorced		10,71±5,95	3,39±0,46
[b]F		**0,516**	**1,440**
p		**0,598**	**0,238**
Educational Status			
High School and below		8,49±6,93	3,49±0,54
Undergraduate		9,97±7,55	3,41±0,5
Graduate		10,06±7,75	3,44±0,49
[b]F		**0,941**	**0,595**
p		**0,391**	**0,552**
Exercise Status			
Always		13,59±8,82	3,69±0,49
Usually		10,36±7,49	3,46±0,50
Hardly ever		8,22±7,05	3,35±0,50
Never		7,74±5,3	3,24±0,44

bF	**7,777**	**8,428**
p	**<0,001***	**<0,001***

r=Pearson correlation coefficient

[a]Independent groups t test

[b] One Way ANOVA

*p<0,05

There was no statistically significant relationship between the participants' ages and EAT-26 scores (p> 0.05).

A statistically significant positive correlation at the level of 0.184 was found between the participants' ages and the BCS scores (r = 0.184, p <0.001).

There was no statistically significant relationship between BMI values and EAT-26 scores of the participants (p> 0.05).

A statistically significant negative correlation was found between the BMI values and BCS scores of the participants at the level of 0.187 (r = -0.187, p <0.001).

No statistically significant difference was found in terms of EAT-26 scores according to the gender of the participants (p <0.001). Women's scores are higher than men's scores. No statistically significant difference was found in terms of BCS scores according to the gender of the participants (p> 0.05).

There was no statistically significant difference in terms of EAT-26 and BCS scores according to the marital status of the participants (p> 0.05).

No statistically significant difference was found in terms of EAT-26 and BCS scores according to the educational status of the participants (p> 0.05).

A statistically significant difference was found in terms of EAT-26 scores according to the frequency of exercise of the participants (p <0.001). As a result of the evaluations performed using the Bonferroni test, it was found that the scores of those who stated that they always exercised were higher than those who stated that they did usually or hardly ever and never did (p = 0.045, p <0.001, p = 0.001, respectively). There was no significant difference between other exercise frequencies (p> 0.05).

A statistically significant difference was found in terms of BCS scores according to the frequency of exercise (p <0.001). As a result of the evaluations performed using the Bonferroni test, it was found that the scores of those who stated that they always exercised were higher than those who stated that they did it usually or hardly ever and never did (p = 0.025, p <0.001, p <0.001, respectively). It was determined that the scores of those who stated that they exercised usually were higher than those who stated that they never did (p = 0.046). There was no significant difference between other exercise frequencies (p> 0.05).

4.1.5 EAT-26 AND BCS Correlation Analysis

Table 4.9. Relationship Level Between EAT-26 and BCS Scores

		EAT-26
BCS	r	-0,100
	p	**0,056**

r=Pearson correlation coefficient

There was a very weak and negative relationship between the participants' EAT-26 scores and the BCS scores (r = -0.100, p> 0.056).

4.1.6 Comparison of FFQ and BMI

Table 4.10. Comparison of FFQ of Individuals According to Their BMI Status

Nutrients	Responses	Participants' BMI Classifications								p
		Underweight (n=13)		Normal weight (n=189)		Overweight (n=114)		Obese (n=50)		
		n	%	n	%	n	%	n	%	
Oat based food	Does not consume	7	53,8	56	29,6	63	55,3	25	50,0	
	Consumes occasionally	3	23,1	89	47,1	29	25,4	11	22,0	
	Consumes	3	23,1	44	23,3	22	19,3	14	28,0	ᵃ0.310
Cereal bar	Does not consume	5	38,5	80	42,3	53	46,5	23	46,0	
	Consumes occasionally	7	53,8	75	39,7	39	34,2	18	36,0	
	Consumes	1	7,7	34	18,0	22	19,3	9	18,0	ᵃ0.401
Breakfast cereal	Does not consume	4	30,8	14	7,4	44	38,6	30	60,0	
	Consumes occasionally	2	15,4	80	42,3	30	26,3	14	28,0	
	Consumes	7	53,8	95	50,3	40	35,1	6	12,0	ᵃ0.033*
Whole grain bread derivates	Does not consume	1	7,7	32	16,9	52	45,6	25	50,0	
	Consumes occasionally	3	23,1	62	32,8	21	18,4	10	20,0	
	Consumes	9	69,2	95	50,3	41	36,0	15	30,0	ᵃ0.027*
Assorted nuts	Does not consume	1	7,7	10	5,3	15	13,2	2	4,0	
	Consumes occasionally	6	46,2	49	25,9	42	36,8	26	52,0	
	Consumes	6	46,2	130	68,8	57	50,0	22	44,0	ᵃ0.777
Banana	Does not consume	1	7,7	10	5,3	20	17,5	6	12,0	
	Consumes occasionally	7	53,8	110	58,2	62	54,4	30	60,0	
	Consumes	5	38,5	69	36,5	32	28,1	14	28,0	ᵃ0.211
Pineapple	Does not consume	5	38,5	70	37,0	53	46,5	22	44,0	
	Consumes occasionally	7	53,8	98	51,9	51	44,7	23	46,0	
	Consumes	1	7,7	21	11,1	10	8,8	5	10,0	ᵃ0.117
Red plum	Does not consume	7	53,8	87	46,0	59	51,8	18	36,0	ᵃ0.843

	Consumes occasionally	5	38,5	80	42,3	37	32,5	20	40,0	
	Consumes	1	7,7	22	11,6	18	15,8	12	24,0	
Fresh-squeezed fruit juice	Does not consume	1	7,7	57	30,2	34	29,8	12	24,0	
	Consumes occasionally	8	61,5	100	52,9	48	42,1	28	56,0	
	Consumes	4	30,8	32	16,9	32	28,1	10	20,0	[a]0.653
Dried fruit	Does not consume	6	46,2	39	20,6	71	62,3	17	34,0	
	Consumes occasionally	3	23,1	89	47,1	12	10,5	21	42,0	
	Consumes	4	30,8	61	32,3	31	27,2	12	24,0	[a]0.042*
Raw green leafy vegetables	Does not consume	1	7,7	20	10,6	15	13,2	19	38,0	
	Consumes occasionally	4	30,8	50	26,5	40	35,1	2	4,0	
	Consumes	8	61,5	119	63,0	59	51,8	29	58,0	[b]0.039*
Onion	Does not consume	1	7,7	15	7,9	11	9,6	3	6,0	
	Consumes occasionally	3	23,1	26	13,8	19	16,7	12	24,0	
	Consumes	9	69,2	148	78,3	84	73,7	35	70,0	[b]0.086
Pea	Does not consume	4	30,8	33	17,5	27	23,7	10	20,0	
	Consumes occasionally	7	53,8	110	58,2	52	45,6	24	48,0	
	Consumes	2	15,4	46	24,3	35	30,7	16	32,0	[a]0.505
Tomato	Does not consume	0	0,0	4	2,1	16	14,0	4	8,0	
	Consumes occasionally	3	23,1	24	12,7	21	18,4	3	6,0	
	Consumes	10	76,9	161	85,2	77	67,5	43	86,0	[b]0.037*
Fresh-squeezed vegetable juice	Does not consume	9	69,2	137	72,5	75	65,8	30	60,0	
	Consumes occasionally	2	15,4	31	16,4	14	12,3	14	28,0	
	Consumes	2	15,4	21	11,1	25	21,9	6	12,0	[a]0.659
Pickled cabbage or cucumber	Does not consume	4	30,8	30	15,9	34	29,8	6	12,0	
	Consumes occasionally	6	46,2	93	49,2	49	43,0	21	42,0	
	Consumes	3	23,1	66	34,9	31	27,2	23	46,0	[a]0.101
Cow's milk	Does not consume	1	7,7	17	9,0	24	21,1	8	16,0	
	Consumes occasionally	3	23,1	45	23,8	29	25,4	11	22,0	
	Consumes	9	69,2	127	67,2	61	53,5	31	62,0	[a]0.566
Soy milk	Does not consume	12	92,3	167	88,4	89	78,1	46	92,0	
	Consumes occasionally	1	7,7	16	8,5	15	13,2	4	8,0	
	Consumes	0	0,0	6	3,2	10	8,8	0	0,0	[b]0.563
Soy containing products	Does not consume	13	100,0	179	94,7	88	77,2	41	82,0	
	Consumes occasionally	0	0,0	10	5,3	15	13,2	6	12,0	
	Consumes	0	0,0	0	0,0	11	9,6	3	6,0	[b]0.315
Yogurt	Does not consume	1	7,7	4	2,1	15	13,2	0	0,0	
	Consumes occasionally	2	15,4	28	14,8	18	15,8	8	16,0	
	Consumes	10	76,9	157	83,1	81	71,1	42	84,0	[b]0.821
Probiotic yogurt	Does not consume	10	76,9	122	64,6	84	73,7	30	60,0	
	Consumes occasionally	3	23,1	39	20,6	19	16,7	8	16,0	
	Consumes	0	0,0	28	14,8	11	9,6	12	24,0	[a]0.901
	Does not consume	6	46,2	155	82,0	83	72,8	41	82,0	
	Consumes occasionally	4	30,8	20	10,6	20	17,5	4	8,0	[b]0.552

Instant drinks with probiotic effect	Consumes	3	23,1	14	7,4	11	9,6	5	10,0	
Types of cheeses	Does not consume	2	15,4	10	5,3	15	13,2	1	2,0	
	Consumes occasionally	1	7,7	16	8,5	17	14,9	5	10,0	
	Consumes	10	76,9	163	86,2	82	71,9	44	88,0	[b]0.544
Breakfast olives	Does not consume	1	7,7	25	13,2	17	14,9	0	0,0	
	Consumes occasionally	2	15,4	34	18,0	17	14,9	3	6,0	
	Consumes	10	76,9	130	68,8	80	70,2	47	94,0	[b]0.296
Kefir	Does not consume	6	46,2	109	57,7	52	45,6	40	80,0	
	Consumes occasionally	4	30,8	47	24,9	30	26,3	4	8,0	
	Consumes	3	23,1	33	17,5	32	28,1	6	12,0	[b]0.438
Ice cream	Does not consume	1	7,7	19	10,1	24	21,1	7	14,0	
	Consumes occasionally	8	61,5	99	52,4	48	42,1	19	38,0	
	Consumes	4	30,8	71	37,6	42	36,8	24	48,0	[a]0.664
Boza	Does not consume	11	84,6	126	66,7	65	57,0	31	62,0	
	Consumes occasionally	1	7,7	40	21,2	42	36,8	16	32,0	
	Consumes	1	7,7	23	12,2	7	6,1	3	6,0	[b]0.217
Red meat	Does not consume	0	0,0	7	3,7	16	14,0	2	4,0	
	Consumes occasionally	6	46,2	73	38,6	41	36,0	25	50,0	
	Consumes	7	53,8	109	57,7	57	50,0	23	46,0	[a]0.799
Types of white meats	Does not consume	1	7,7	9	4,8	17	14,9	0	0,0	
	Consumes occasionally	6	46,2	81	42,9	42	36,8	23	46,0	
	Consumes	6	46,2	99	52,4	55	48,2	27	54,0	[a]0.786
Fermented sucuk(Fermented meat product)	Does not consume	3	23,1	46	24,3	24	21,1	0	0,0	
	Consumes occasionally	5	38,5	99	52,4	51	44,7	38	76,0	
	Consumes	5	38,5	44	23,3	39	34,2	12	24,0	[a]0.211
Dried meat and meat products	Does not consume	11	84,6	111	58,7	63	55,3	30	60,0	
	Consumes occasionally	2	15,4	53	28,0	34	29,8	13	26,0	
	Consumes	0	0,0	25	13,2	17	14,9	7	14,0	[a]0.645
Coffee	Does not consume	0	0,0	9	4,8	14	12,3	0	0,0	
	Consumes occasionally	1	7,7	20	10,6	18	15,8	5	10,0	
	Consumes	12	92,3	160	84,7	82	71,9	45	90,0	[b]0.712
Beer	Does not consume	6	46,2	99	52,4	44	38,6	10	20,0	
	Consumes occasionally	4	30,8	60	31,7	47	41,2	18	36,0	
	Consumes	3	23,1	30	15,9	23	20,2	22	44,0	[a]0.111
Red wine	Does not consume	8	61,5	135	71,4	59	51,8	46	92,0	
	Consumes occasionally	4	30,8	49	25,9	37	32,5	3	6,0	
	Consumes	1	7,7	5	2,6	18	15,8	1	2,0	[b]0.061

[a] :Pearson Chi-Square Test

[b] :Fisher Exact Test

*p<0,05

Table 4.11. BMI Classification

Weight Status	BMI(Kg/m²)
Underweight	<18.5
Normal range	18.5-24.9
Overweight	25.0-29.9
Obese	≥30.0
Obese class I	30.0-34.9
Obese class II	35.0-39.9
Obese class III	≥40.0

Table 4.12. Participants' BMI Classification

Participants' BMI Classifications			
Weight Status	BMI(Kg/m²)	n	%
Underweight	<18.5	13	3,6
Normal range	18.5-24.9	189	51,6
Overweight	25.0-29.9	114	31,1
Obese	≥30.0	50	13,7
Obese class I	30.0-34.9	38	10,4
Obese class II	35.0-39.9	9	2,5
Obese class III	≥40.0	3	0,8

The BMI range is between 16.30-42.61 kg/m^2 and the average is 24.58±4.48 kg/m^2

The 3.6%(n=13) of participants is underweight, the 51.6%(n=189) is normal weight, the 31.1%(n=114) is overweight and the 13.7%(n=50) is obese.

A statistically significant difference was found between the BMI status of participants and their breakfast cereal consumption ($p=0.033$; $p<0.05$). As a result of the paired comparisons, it was found meaningful that these ratios were higher at underweight and normal weight individuals. The underweight and normal weight individuals stated that they consumed regularly breakfast cereal (53.8% and 50.3%) while the rates of overweight and obese individuals who did not consume it were higher (38.6% and 60.0%).

A statistically significant difference was found between the BMI status of participants and their whole grain bread derivates consumption ($p=0.027$; $p<0.05$). As a result of the paired comparisons, it was found meaningful that these ratios were higher at underweight and normal weight individuals. The underweight and normal weight individuals stated that they consumed regularly whole grain bread derivates (69.2% and 50.3%) while the rates of overweight and obese individuals who did not consume it were higher (45.6% and 50.0%).

A statistically significant difference was found between the BMI status of participants and their dried fruit consumption ($p=0.042$; $p<0.05$). As a result of the paired

comparisons, it was found meaningful that these ratios were higher at normal weight individuals. The normal weight individuals stated that they consumed occasionally dried fruit (47.1%) while the rates of overweight and obese individuals who did not consume it were higher (62.3% and 34.0%).

A statistically significant difference was found between the BMI status of participants and their raw green leafy vegetables consumption (p=0.039; p<0.05). As a result of the paired comparisons, it was found meaningful that these ratios were higher at underweight and normal weight individuals. The underweight and normal weight individuals stated that they consumed regularly raw green leafy vegetables (61.5% and 63.0%)while the rates of overweight and obese individuals who did not consume it were higher (13.2% and 38.0%).

A statistically significant difference was found between the BMI status of participants and their tomato consumption (p=0.037; p<0.05). As a result of the paired comparisons, it was found meaningful that these ratios were higher at underweight and normal weight individuals. The underweight and normal weight individuals stated that they consumed regularly tomato (76.9% and 85.2%)while the rates of overweight and obese individuals who did not consume it were higher (14.0% and 8.0%).

4.1.7. Comparison of FFQ and Gender

Table 4.13. Comparison of FFQ of Individuals According to Their Gender

Nutrients	Responses	Female (n=313)		Male (n=53)		p
		n	%	n	%	
Oat based food	Does not consume	126	40,3	25	47,2	
	Consumes occasionally	116	37,1	20	37,7	
	Consumes	71	22,7	8	15,1	[a]0.808
Cereal bar	Does not consume	134	42,8	30	56,6	
	Consumes occasionally	126	40,3	19	35,8	
	Consumes	53	16,9	4	7,5	[a]0.405
Breakfast cereal	Does not consume	140	44,7	35	66,0	
	Consumes occasionally	104	33,2	9	17,0	
	Consumes	69	22,0	9	17,0	[a]0.101
Whole grain bread derivates	Does not consume	60	19,2	20	37,7	
	Consumes occasionally	101	32,3	21	39,6	
	Consumes	152	48,6	12	22,6	[a]0.091
Assorted nuts	Does not consume	41	13,1	17	32,1	
	Consumes occasionally	108	34,5	20	37,7	
	Consumes	164	52,4	16	30,2	[a]0.355
Banana	Does not consume	44	14,1	1	1,9	[a]0.041*

	Consumes occasionally	157	50,2	17	32,1	
	Consumes	112	35,8	35	66,0	
Pineapple	Does not consume	124	39,6	23	43,4	
	Consumes occasionally	147	47,0	22	41,5	
	Consumes	42	13,4	8	15,1	ᵃ0.229
Red plum	Does not consume	132	42,2	23	43,4	
	Consumes occasionally	134	42,8	15	28,3	
	Consumes	47	15,0	15	28,3	ᵃ0.486
Fresh-squeezed fruit juice	Does not consume	93	29,7	15	28,3	
	Consumes occasionally	148	47,3	29	54,7	
	Consumes	72	23,0	9	17,0	ᵃ0.917
Dried fruit	Does not consume	78	24,9	9	17,0	
	Consumes occasionally	122	39,0	35	66,0	
	Consumes	113	36,1	9	17,0	ᵃ0.055
Raw green leafy vegetables	Does not consume	10	3,2	16	30,2	
	Consumes occasionally	108	34,5	25	47,2	
	Consumes	195	62,3	12	22,6	ᵃ0.011*
Onion	Does not consume	45	14,4	0	0,0	
	Consumes occasionally	52	16,6	12	22,6	
	Consumes	216	69,0	41	77,4	ᵃ0.037*
Pea	Does not consume	76	24,3	0	0,0	
	Consumes occasionally	156	49,8	43	81,1	
	Consumes	81	25,9	10	18,9	ᵃ0.295
Tomato	Does not consume	34	10,9	2	3,8	
	Consumes occasionally	53	16,9	5	9,4	
	Consumes	226	72,2	46	86,8	ᵃ0.563
Fresh-squeezed vegetable juice	Does not consume	202	64,5	48	90,6	
	Consumes occasionally	63	20,1	3	5,7	
	Consumes	48	15,3	2	3,8	ᵃ0.760
Pickled cabbage or cucumber	Does not consume	70	22,4	14	26,4	
	Consumes occasionally	131	41,9	19	35,8	
	Consumes	112	35,8	20	37,7	ᵃ0.092
Cow's milk	Does not consume	50	16,0	0	0,0	
	Consumes occasionally	80	25,6	12	22,6	
	Consumes	183	58,5	41	77,4	ᵃ0.887
Soy milk	Does not consume	233	74,4	39	73,6	
	Consumes occasionally	44	14,1	14	26,4	
	Consumes	36	11,5	0	0,0	ᵃ0.219
Soy containing products	Does not consume	239	76,4	50	94,3	
	Consumes occasionally	41	13,1	0	0,0	
	Consumes	33	10,5	3	5,7	ᵃ0.198
Yogurt	Does not consume	34	10,9	1	1,9	
	Consumes occasionally	49	15,7	7	13,2	ᵃ0.066

	Consumes	230	73,5	45	84,9	
Probiotic yogurt	Does not consume	181	57,8	50	94,3	
	Consumes occasionally	77	24,6	2	3,8	
	Consumes	55	17,6	1	1,9	[a]0.111
Instant drinks with probiotic effect	Does not consume	223	71,2	49	92,5	
	Consumes occasionally	49	15,7	1	1,9	
	Consumes	41	13,1	3	5,7	[a]0.285
Types of cheeses	Does not consume	38	12,1	2	3,8	
	Consumes occasionally	43	13,7	4	7,5	
	Consumes	232	74,1	47	88,7	[a]0.566
Breakfast olives	Does not consume	48	15,3	0	0,0	
	Consumes occasionally	52	16,6	0	0,0	
	Consumes	213	68,1	53	100,0	[a]0.772
Kefir	Does not consume	154	49,2	49	92,5	
	Consumes occasionally	89	28,4	3	5,7	
	Consumes	70	22,4	1	1,9	[a]0.061
Ice cream	Does not consume	48	15,3	1	1,9	
	Consumes occasionally	142	45,4	36	67,9	
	Consumes	123	39,3	16	30,2	[a]0.190
Boza	Does not consume	180	57,5	45	84,9	
	Consumes occasionally	83	26,5	5	9,4	
	Consumes	50	16,0	3	5,7	[a]0.556
Red meat	Does not consume	35	11,2	2	3,8	
	Consumes occasionally	124	39,6	20	37,7	
	Consumes	154	49,2	31	58,5	[a]0.277
Types of white meats	Does not consume	27	8,6	12	22,6	
	Consumes occasionally	125	39,9	30	56,6	
	Consumes	161	51,4	11	20,8	[a]0.019*
Fermented sucuk(Fermented meat product)	Does not consume	81	25,9	4	7,5	
	Consumes occasionally	163	52,1	29	54,7	
	Consumes	69	22,0	20	37,7	[a]0.027*
Dried meat and meat products	Does not consume	183	58,5	10	18,9	
	Consumes occasionally	84	26,8	29	54,7	
	Consumes	46	14,7	14	26,4	[a]0.021*
Coffee	Does not consume	38	12,1	0	0,0	
	Consumes occasionally	49	15,7	6	11,3	
	Consumes	226	72,2	47	88,7	[a]0.701
Beer	Does not consume	156	49,8	9	17,0	
	Consumes occasionally	105	33,5	21	39,6	
	Consumes	52	16,6	23	43,4	[a]0.004*
Red wine	Does not consume	170	54,3	29	54,7	
	Consumes occasionally	102	32,6	24	45,3	
	Consumes	41	13,1	0	0,0	[a]0.314

A statistically significant difference was found in banana consumption depending on gender. A statistically significant difference was found between the ratios of banana consumption of females and males (p=0.041; p<0.05). The rate of males consuming banana (66.0%) was higher than female consumption rate (35.8%).

A statistically significant difference was found in raw green leafy vegetables consumption depending on gender. A statistically significant difference was found between the ratios of raw green leafy vegetables consumption of females and males (p=0.011; p<0.05). The rate of females consuming raw green leafy vegetables(62.3%) was higher than male consumption rate (22.6%).

A statistically significant difference was found in onion consumption depending on gender. A statistically significant difference was found between the ratios of onion consumption of females and males (p=0.037; p<0.05). The rate of males consuming onion (77.4%) was higher than female consumption rate (69.0%).

A statistically significant difference was found in types of white meats consumption depending on gender. A statistically significant difference was found between the ratios of types of white meats consumption of females and males (p=0.019; p<0.05). The rate of females consuming types of white meats (51.4%) was higher than male consumption rate (20.8%).

A statistically significant difference was found in fermented sucuk (fermented meat product) consumption depending on gender. A statistically significant difference was found between the ratios of fermented sucuk (fermented meat product) consumption of females and males (p=0.027; p<0.05). The rate of males consuming fermented sucuk (fermented meat product) (37.7%) was higher than female consumption rate (22.0%).

A statistically significant difference was found in dried meat and meat products consumption depending on gender. A statistically significant difference was found between the ratios of dried meat and meat products consumption of females and males (p=0.021; p<0.05). The rate of males consuming dried meat and meat products (26.4%) was higher than female consumption rate (14.7%).

A statistically significant difference was found in beer consumption depending on gender. A statistically significant difference was found between the ratios of beer consumption of females and males (p=0.004; p<0.05). The rate of males consuming beer (43.4%) was higher than female consumption rate (16.6%).

5. DISCUSSION AND CONCLUSION

5.1. Conclusion

This study was carried out to determine the relationship between individuals' eating attitude behaviours and body image perceptions. The results of the study are summarized below.

1- The height of participants ranges between 150-185 cm and the average is 166,12±7,74 cm.
2- The weight range is between 45-130 kg and the average is 68,04±14,34 kg.
3- The BMI range is between 16,30-42,61 kg/m² and the average is 24,58±4,48 kg/m²
4- The %85,5 of participants are female (n=313), the %14,5 are male (n=53).
5- The %76,8' (n=281) of the participants are married, %16,7 (n=61) are single, %6,6 (n=24) are divorced.
6- The %1,1(n=4) of the participants has primary school, %0,8 (n=3) has secondary school, %13,1 (n=48) has high school, %61,7 (n=226) has undergraduate, %23 (n=85) has graduate educational status.
7- The %12,8 (n=47) of the participants has stated "never" for their execise status, the %32,2 (n=118) "hardly ever", the %41,5 (n=152) "usually", the %13,4 (n=49) "always".
8- The EAT-26 consists of 26 items. The scores of the participants from the scale range from 0 to 45, with an average of 9.77 ± 7.51. The internal consistency level of the items that make up the scale was found to be 0.769.
9- According to the scores of the EAT-26 scale, 91.3% of the participants (n = 334) had no risk of eating attitude behavior disorder, while 8.7% (n = 32) had.
10- The BCS consists of 31 items. The scores of the participants from the scale range from 1 to 4.9, with an average of 3.43 ± 0.51. The internal consistency level of the items that make up the scale was found to be 0.892.
11- There was no statistically significant relationship between the participants' ages and EAT-26 scores ($p > 0.05$).
12- A statistically significant positive correlation at the level of 0.184 was found between the participants' ages and the BCS scores ($r = 0.184$, $p < 0.001$).
13- There was no statistically significant relationship between BMI values and EAT-26 scores of the participants ($p > 0.05$).
14- A statistically significant negative correlation was found between the BMI values and BCS scores of the participants at the level of 0.187 ($r = -0.187$, $p < 0.001$).
15- No statistically significant difference was found in terms of EAT-26 scores according to the gender of the participants ($p < 0.001$). Women's scores are higher than men's scores. No statistically significant difference was found in terms of BCS scores according to the gender of the participants ($p > 0.05$).
16- There was no statistically significant difference in terms of EAT-26 and BCS scores according to the marital status of the participants ($p > 0.05$).
17- No statistically significant difference was found in terms of EAT-26 and BCS scores according to the educational status of the participants ($p > 0.05$).

18- A statistically significant difference was found in terms of EAT-26 scores according to the frequency of exercise of the participants ($p < 0.001$). As a result of the evaluations performed using the Bonferroni test, it was found that the scores of those who stated that they always exercised were higher than those who stated that they did usually or hardly ever and never did ($p = 0.045$, $p < 0.001$, $p = 0.001$, respectively). There was no significant difference between other exercise frequencies ($p > 0.05$).

19- A statistically significant difference was found in terms of BCS scores according to the frequency of exercise ($p < 0.001$). As a result of the evaluations performed using the Bonferroni test, it was found that the scores of those who stated that they always exercised were higher than those who stated that they did it usually or hardly ever and never did ($p = 0.025$, $p < 0.001$, $p < 0.001$, respectively). It was determined that the scores of those who stated that they exercised usually were higher than those who stated that they never did ($p = 0.046$). There was no significant difference between other exercise frequencies ($p > 0.05$).

20- There was a very weak and negative relationship between the participants' EAT-26 scores and the BCS scores ($r = -0.100$, $p > 0.056$).

21- The 3.6%(n=13) of participants is underweight, the 51.6%(n=189) is normal weight, the 31.1%(n=114) is overweight and the 13.7%(n=50) is obese.

22- A statistically significant difference was found between the BMI status of participants and their breakfast cereal consumption ($p=0.033$; $p<0.05$). As a result of the paired comparisons, it was found meaningful that these ratios were higher at underweight and normal weight individuals. The underweight and normal weight individuals stated that they consumed regularly breakfast cereal (53.8% and 50.3%) while the rates of overweight and obese individuals who did not consume it were higher (38.6% and 60.0%).

23- A statistically significant difference was found between the BMI status of participants and their whole grain bread derivates consumption ($p=0.027$; $p<0.05$). As a result of the paired comparisons, it was found meaningful that these ratios were higher at underweight and normal weight individuals. The underweight and normal weight individuals stated that they consumed regularly whole grain bread derivates (69.2% and 50.3%) while the rates of overweight and obese individuals who did not consume it were higher (45.6% and 50.0%).

24- A statistically significant difference was found between the BMI status of participants and their dried fruit consumption ($p=0.042$; $p<0.05$). As a result of the paired comparisons, it was found meaningful that these ratios were higher at normal weight individuals. The normal weight individuals stated that they consumed occasionally dried fruit (47.1%)while the rates of overweight and obese individuals who did not consume it were higher (62.3% and 34.0%).

25- A statistically significant difference was found between the BMI status of participants and their raw green leafy vegetables consumption ($p=0.039$; $p<0.05$). As a result of the paired comparisons, it was found meaningful that these ratios were higher at underweight and normal weight individuals. The underweight and normal weight individuals stated that they consumed regularly raw green leafy

vegetables (61.5% and 63.0%)while the rates of overweight and obese individuals who did not consume it were higher (13.2% and 38.0%).

26- A statistically significant difference was found between the BMI status of participants and their tomato consumption (p=0.037; p<0.05). As a result of the paired comparisons, it was found meaningful that these ratios were higher at underweight and normal weight individuals. The underweight and normal weight individuals stated that they consumed regularly tomato (76.9% and 85.2%)while the rates of overweight and obese individuals who did not consume it were higher (14.0% and 8.0%).

27- A statistically significant difference was found in banana consumption depending on gender. A statistically significant difference was found between the ratios of banana consumption of females and males (p=0.041; p<0.05). The rate of males consuming banana(66.0%) was higher than female consumption rate (35.8%).

28- A statistically significant difference was found in raw green leafy vegetables consumption depending on gender. A statistically significant difference was found between the ratios of raw green leafy vegetables consumption of females and males (p=0.011; p<0.05). The rate of females consuming raw green leafy vegetables(62.3%) was higher than male consumption rate (22.6%).

29- A statistically significant difference was found in onion consumption depending on gender. A statistically significant difference was found between the ratios of onion consumption of females and males (p=0.037; p<0.05). The rate of males consuming onion(77.4%) was higher than female consumption rate (69.0%).

30- A statistically significant difference was found in types of white meats consumption depending on gender. A statistically significant difference was found between the ratios of types of white meats consumption of females and males (p=0.019; p<0.05). The rate of females consuming types of white meats (51.4%) was higher than male consumption rate (20.8%).

31- A statistically significant difference was found in fermented sucuk(fermented meat products) consumption depending on gender. A statistically significant difference was found between the ratios of fermented sucuk(fermented meat products) consumption of females and males (p=0.027; p<0.05). The rate of males consuming fermented sucuk(fermented meat products) (37.7%) was higher than female consumption rate (22.0%).

32- A statistically significant difference was found in dried meat and meat products consumption depending on gender. A statistically significant difference was found between the ratios of dried meat and meat products consumption of females and males (p=0.021; p<0.05). The rate of males consuming dried meat and meat products (26.4%) was higher than female consumption rate (14.7%).

33- A statistically significant difference was found in beer consumption depending on gender. A statistically significant difference was found between the ratios of beer consumption of females and males (p=0.004; p<0.05). The rate of males consuming beer (43.4%) was higher than female consumption rate (16.6%).

5.2. Discussion and Recommendations

In our study, which is a descriptive and cross sectional research, we investigated the relationship between eating attitude behaviors and body image perception by using internationally used and confidential scales. In order to achieve reliable results of through our study, we paid attention to assure sufficient number of samples and chose our scales meticulously. We have also been thoroughly careful about the correct scoring and interpretation of the scores obtained from the test results.

Body image perception includes how the individual perceives his / her own body in a general and short definition, and is measured by BCS worldwide. The BCS Body Cathexis Scale was composed by Secard & Jourard in 1953 and adapted to Turkish society by Hovardaoğlu in 1986. Us, in our research we used this scale which is confidential.

As the correct perception of body weight is the consistency between the perceived and measured body weight of the person, inaccurate perception of body weight makes individuals more concerned with having slim body images and dieting. Having an impaired and negative body image and not having an idealized weak body can lead people to aggressive and unconscious diets, and the desire to lose weight, which is subliminally based on body image perception disorder indeed, can cause eating disorders. So, supports our "there is a relationship between body image perception and eating attitudes" and "both disorders are linked" hypothesis.

Eating disorder is accompanied by psychological and physiological problems in the individual, which occurs with the occurrence of visible disruptions and disorders in the individual's eating attitudes and behaviors and causes behavioral disorders in the individual. In clinical studies, it has been observed that individuals with eating disorders started dieting before eating disorder behavior and behavior began (44). Studies conducted in recent years; Not only one reason in eating disorders, but also social conditions such as biological and psychological predisposition, family and business life, and multiple perceptions such as body perceptions that they consider their body too big and fat play a role. At the beginning of these, individuals' fear of gaining weight and being fat is excessive, there is an excessive obsession with slimming and thinning (45) The eating attitudes was measured by EAT-26, which is an internationally valid scale also, was developed in 1982 to determine the risk of eating disorders. EAT-40, the previous version of the EAT-26 scale, was composed by Garner & Garfinkel in 1979 for the detection of Anorexia Nervosa, and then EAT-26 was developed for the detection of all kinds of eating disorders risk.

Indeed, having the right eating behaviors and being conscious is actually a positive factor that contributes to being healthy, but at the same time, excessive concerns about health and weight control can cause eating disorders. When examined from a psychosocial point of view, it has been found that the individuals' relationship with food is an important contributing factor to eating disorder as well as well-being (Rozin, Fischler, Imada, Sarubin & Wrzesniewski, 1999). Studies investigating the food consumption behaviours of individuals and their psychosocial relations with food have

emphasized that women's psychosocial relationships with food are more complex and problematic than men's, due to their gender-based beauty ideals.(46)

.   In our study, we applied the internationally valid and reliable FFQ Food Frequency Questionnaire to our participants to investigate the food consumption differences between men and women. In our test results, we observed that there were significant differences between men and women, especially in some food groups. We investigated whether the frequency of food consumption changes according to the BMI levels of the individuals and we found significant differences according to the BMI levels.

In our study, where we investigated the relationship between eating attitude behaviors and body image perception, we would like to share the following remarkable data that we think may contribute to future studies as a result of examining these scales and their relationship with other descriptive statistics.

A number of data from the USA, Italy and Australia have shown that 13% of women and 6% of men have eating disorders such as Anorexia Nervosa, Binge Eating, Bulimia Nervosa.(47)

In a study conducted in the western provinces of Turkey, the probability of having an eating disorder was found to be 9.5%. (48)

According to the scores of the EAT-26 scale through our analysis, 91.3% of the participants (n = 334) had no risk of eating attitude behavior disorder, while 8.7% (n = 32) had. So the eating disorder risk was found 8.7%.

Therefore, the percentage we found in our analysis, is consistent with both foreign and domestic literature.

In our study, a statistically significant positive correlation at the level of 0.184 was found between the participants' ages and the BCS scores (r = 0.184, p <0.001).

Although many studies have been conducted on body image perception in youth and adolescence, I did not find any striking findings about body image perceptions of elderly individuals. Therefore, the positive correlation found in our correlation analyses between age and BCS score can be a starting point for future studies.

According to current views about body image, the idea that women can only have a positive body image by being slim is imposed, especially in Western cultures and media.(49) Therefore, being thin is considered a condition of being beautiful. Height and weight information of our participants were obtained and BMI was calculated, which is the most known, objective and reliable measurement to determine the body fatness.

In our study, a statistically significant negative correlation was found between the BMI values and BCS scores of the participants at the level of 0.187 (r = -0.187, p <0.001) which is compatible with the common opinions.

Women's EAT-26 scores are found higher than men's scores in our study. There are many studies showing that the group with the most eating disorders is women and especially adolescent girls.(50)

Associating the concept of "ideal body" with "weakness" or "thinness" in many areas creates a psychological pressure especially on women. All women, mostly obese women, are generally more exposed to judgment, criticism and social pressure with their external appearance compared to men.(51) In a meta-analysis study, women's exposure to body dissatisfaction, internalization of the subtle ideal and eating behaviors were tested. Findings support the idea that exposure to media images and pressure depicting the slim ideal body may be due to body image impairment in women. (52)

Therefore, our finding which indicates that women has more risk to have eating disorder comparing to men is consistent with the literature.

In a study conducted on high school female athletes engaged in aesthetic sports, it was determined that 41.5% of the participants had eating disorders. (53)

Another study found that 35% of female college athletes and 10% of male college athletes were at risk of anorexia nervosa, and 58% of both female and 38% male college athletes were at risk of bulimia nervosa.(54)

In our study,a statistically significant difference was found in terms of EAT-26 scores according to the frequency of exercise of the participants (p <0.001). As a result of the evaluations performed using the Bonferroni test, it was found that the scores of those who stated that they always exercised were higher than those who stated that they did usually or hardly ever and never did (p = 0.045, p <0.001, p = 0.001, respectively). There was no significant difference between other exercise frequencies (p> 0.05).

Our results are compatible with the literature.

This findings bring with it the thought even if exercising is usually a sign of good health and is a recommended activity, the risk turning into an obsession may occur. As we shared above, the risk of eating behavior disorder has been observed especially in individuals who do aesthetic sports. Eating disorders may develop in individuals who exercise excessively due to weight loss obsession.

Following this result, we would like to share the information that individuals who do exercise have higher BCS scores.

According to our analysis, a statistically significant difference was found in terms of BCS scores according to the frequency of exercise (p <0.001). As a result of the evaluations performed using the Bonferroni test, it was found that the scores of those who stated that they always exercised were higher than those who stated that they did it usually or hardly ever and never did (p = 0.025, p <0.001, p <0.001, respectively). It was determined that the scores of those who stated that they exercised usually were higher than those who stated that they never did (p = 0.046). There was no significant difference between other exercise frequencies (p> 0.05).

In a randomized control study in which the effects of exercise training on mental health and well-being were investigated and compared on individuals with sedentary life, it was observed that the exercises performed on the participants positively affected the

participants' quality of life, depression and body image. In particular, resistance exercises have been found to further improve body image perception.(55)

Therefore, our findings are compatible with the literature.

In our study, when we had a look at the BMI correlation with food consumption frequencies, we have found significant differences for some food groups.

We have found out that participants who regularly consume breakfast cereal have lower BMI levels($p=0.033$; $p<0.05$). Studies showing that those who consume breakfast cereals have ideal BMI also support our finding.(56)

Whole grain derivates consumption and BMI is also found correlated in our study ($p=0.027$; $p<0.05$). There are several studies where the relationship between whole grain consumption and body weight measures is investigated. The recommended consumption of whole grain was set at 3 servings per day, and there was studies finding out that such consumption of whole grains was associated with lower BMI scores, particularly in adolescent young people.(57)

In general, fruit and vegetable intake is recommended to protect against obesity. In a systematic review conducted in USA, the relationship between fruit and vegetable consumption and adiposity was evaluated and according to the findings obtained through experimental studies, it has been determined that increased fruit and vegetable intake reduces adiposity and slows down weight gain in overweight and obese individuals.(58)

According to our study, we have been found out that lower and ideal BMI level is correlated with raw green leafy vegetables, tomato and dried fruit consumption ($p=0.039$, $p=0.037$, $p=0.042$; $p<0.05$), which are compatible with literature.

In our research, when we have examined the relationship between food consumption frequencies and gender, we found that there were notable differences between men and women consumption for some food groups.

We have found out that, raw green leafy vegetables consumption of women was significantly higher than consumption of men; while red meat consumption was higher in men comparing to women ($p=0.011$, $p=0.021$; $p<0.05$). Compared to women, there are many researches showing that men consume more red meat and are less open to becoming vegetarian. Traditional gender role conformity and compliance with this traditional gender role is thought as underlining factor for red meat consumption of men. Comparatively, women consume more vegetables and are more prone to vegetarianism as a result of being more conscious about food consumption and healthy eating concerns.(59)

Women are generally closer to vegetable consumption, but this is not the same in fruit consumption. There are findings which states that men prefer fruit over vegetables.(59) In our study, we found a significant difference in banana consumption between men and women ($p=0.041$; $p<0.05$) which is compatible.

Men consume more red meat comparing to women, but women prefer consuming white meat instead of red meat.(60) The significant difference in white meat consumption between men and women which we have found in our study also supports this finding(p=0.019 ; p<0.05).

In a study examining the relationship between individuals' drinking experiences, researchers found primarily perceptual differences between men and women (Gomez-Corona et al., 2016). In a study of individuals' beer drinking habits and perceptions about beer, it was observed that beer consumption was perceived as masculine and drinking was an indicator of masculinity in some cultures and was associated with the masculine stereotype, and for these reasons, the volume of consumers was concentrated on men.(61) We have found significant difference between men and women(p=0.004;p<0.05), which is supporting these opinions and findings as well.

The onion consumption of men is found significantly higher than women consumption according to our study (p=0.037; p<0.05), the underlying factor can be the general belief which states that women prefer sweetness and dislike bitterness and men may like bitterness (Shah, 2010), and academic data on this subject relates it with PROP(6-n-Propylthiouracil) sensitivity. Studies on this subject show that women are more likely to feel uncomfortable and dislike bitter tastes because they have better taste buds and higher PROP sensitivity.(62)

The relationship between eating attitudes and body image perception, which is the starting point of the study, was measured by EAT-26 and BCS tests, and a very weak negative relationship was found in accordance with our initial hypothesis.

Although the EAT-26 test, developed differently from the EAT-40 test, claims to measure the risk of all kinds of eating disorders, when the questions are examined, it is seen that it is still closer to measuring the risk of Anorexia Nervosa.

I believe it would be beneficial increasing the sample size and adding different scales that can measure nutrition habits to examine these cases for future studies.

Since the concepts of body perception and self esteem generally occur during adolescence, nutritional education should start from childhood and adolescence. The important thing is that physical and mental health should be in good health as a whole, not that the weak is beautiful, but to instill a positive body perception in one's own healthy body composition both socially and personally.

At the social level, children and students should be educated about body perception and healthy nutrition, and awareness should be created in media that can affect people's body perception such as big brands, television programs, advertisements, social media.

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7. APPENDIX

7.1. Appendix-1

ETHICS COMMITTEE APPROVAL

Sayı: 37068608-6100-15- 2055
Konu: Klinik Araştırmalar
Etik Kurul Başvurusu hk.

21/01/2021

İlgili Makama (Ayşe Merve Zeytun)

Yeditepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik Bölümü Dr. Öğr. Üyesi Hülya Demir'in sorumlu araştırmacı olduğu **"Yeme Tutum Davranışları Beden İmaj Algısı İlişkisi"** isimli araştırma projesine ait Klinik Araştırmalar Etik Kurulu (KAEK) Başvuru Dosyası **(2051)** kayıtlı Numaralı KAEK Başvuru Dosyası, Yeditepe Üniversitesi Klinik Araştırmalar Etik Kurulu tarafından **20.01.2021** tarihli toplantıda incelenmiştir.

Kurul tarafından yapılan inceleme sonucu, yukarıdaki isim belirtilen çalışmanın yapılmasının etik ve bilimsel açıdan uygun olduğuna karar verilmiştir. **(KAEK Karar No:1345)**

Prof. Dr. Turgay Çelik

Yeditepe Üniversitesi
Klinik Araştırmalar Etik Kurul Başkanı

7.2. Appendix-2

VOLUNTARY CONSENT FORM

BİLGİLENDİRİLMİŞ GÖNÜLLÜ OLUR FORMU

Yeme Tutum Davranışları ve Beden İmaj Algısı Arasındaki İlişki

Sayın Katılımcı,

Yukarıda adı yazılı araştırmaya katılmak üzere davet edilmiş bulunmaktasınız. Bu araştırmada yer almayı kabul etmeden önce, araştırmanın ne amaçla yapılmak istendiğini anlamanız ve bu bilgilendirme sonucunda kararınızı vermeniz gerekmektedir. Aşağıdaki bilgileri lütfen dikkatlice okuyunuz, sorularınız olursa sorunuz ve açık yanıtlar isteyiniz.

Bu araştırma beden imaj algısı ile yeme tutumu ilgisini değerlendirmede yarar sağlayacaktır.. Sizden bu çalışmada veri toplama formunu tam eksiksiz ve doğru olarak doldurmanız istenecektir. Bu işlem 5 dakikanızı alacaktır. Bunun size ve yakınlarınıza hiçbir zararı olmayacaktır. Çalışmaya katılmakla parasal yük altına girmeyeceksiniz ve size de herhangi bir ödeme yapılmayacaktır.

Bu araştırmaya katılıp katılmamakta tümüyle özgürsünüz. Gerek duyduğunuz tüm bilgileri istemeye ve doğru, açık, anlaşılır bilgi almaya hakkınız vardır. Araştırmaya katılmayı istemezseniz burada size verilen hizmet olumlu veya olumsuz şekilde etkilenmeyecektir. Gerekli gördüğü takdirde araştırmanın herhangi bir kısmında katılımcı araştırmadan çıkabilir, araştırmacı çalışmayı sonlandırabilir. Araştırmanın tüm aşamalarında kimlik bilgileriniz gizli tutulacaktır. Araştırma kapsamında elde edilen bilgiler bilimsel amaçlarla kullanılabilir gizlilik kurallarına uyulmak kaydıyla sunulabilir ve yayınlanabilir.

Araştırma ile ilgili daha fazla bilgiye ihtiyaç duyarsanız araştırmacıya …………… e-posta adresinden ulaşabilirsiniz.

Yukarıda yer alan ve araştırmaya başlanmadan önce katılımcılara verilmesi gereken bilgileri içeren metni okudum (ya da sözlü olarak dinledim). Araştırma kapsamında elde edilen şahsıma ait bilgilerin bilimsel amaçlarla kullanılmasını, gizlilik kurallarına uyulmak kaydıyla sunulmasını ve yayınlanmasını, hiçbir baskı ve zorlama altında kalmaksızın, kendi özgür irademle kabul ettiğimi beyan ederim

Katılımcının Adı Soyadı

İmza/Tarih:

Proje Koordinatörü ve Yardımcı Araştırmacı :

Ayşe Merve Zeytun

Sorumlu Araştırmacı:

Doç. Dr. Öğr. Üyesi Hülya Demir

QUESTIONNAIRE

ANKET NO: TARİH:

ANKETÖR ADI-SOYADI:

DEMOGRAFİK BİLGİLER

1.Yaş: …….

2.Boy Uzunluğu: ………cm

3. Kilo:……………………….kg

4.Medeni Durum:

1) Evli   2) Bekar   3) Boşanmış

5.Öğrenim Durumu:

1) İkokul 2)Ortaokul 3)Lise   4)Üniversite 5)Yükseklisans ve üstü

6. Egzersiz yapıyor musunuz?

1)Daima   2) Ara sıra   3)Nadiren   4)Hiçbir zaman

7.Cinsiyetiniz

1) Kadın   2) Erkek

Yeme Tutum Ölçeği YTT-26 (EAT-26)

Aşağıda bulunan yeme tutumlarınızla ilgili duygularınızı en iyi anlatan ifadenin altına (x) işareti koyunuz.

İfadeler	Daima	Çok sık	Sık sık	Bazen	Nadiren	Hiçbir zaman
Şişmanlamaktan ödüm kopar,						
Acıktığımda yemek yememeğe çalışırım,						
Aklım fikrim yemektedir,						
Yemek yemeği durduramadığım zamanlar olur,						
Yiyeceğimi küçük küçük parçalara bölerim,						
Yediğim yiyeceğin kalorisini bilirim,						
Ekmek, patates, pirinç gibi yüksek kalorili yiyeceklerden kaçınırım,						
Ailem fazla yememi bekler,						
Yemek yedikten sonra kusarım,						
Yemek yedikten sonra aşırı suçluluk duyarım,						
Tek düşüncem daha zayıf olmaktır,						
Egzersiz yapığımda harcadığım kalorileri hesaplarım						
Başkaları çok zayıf olduğumu düşünür,						
Şimanlama (vücudumun yağ toplayacağı) düşüncesi zihnimi meşgul eder,						
Yemeklerimi yemek başkalarınınkinden daha uzun sürer,						
Şekerli yiyeceklerden kaçınırım,						
Diyet (perhiz) yemekleri yerim,						
Yaşamımı yiyeceğin kontrol ettiğini düşünürüm,						
Yiyecek konusunda kendimi denetleyebilirim,						
Yemek konusunda başkalarının bana baskı yaptığını hissederim,						
Yiyeceklerle ilgili düşünceler çok zamanımı alır,						
Tatlı yedikten sonra rahatsız olurum,						
Perhiz yaparım,						
Midemin boş olmasından hoşlanırım,						
Şekerli, yağlı yiyecekleri denemekten hoşlanırım,						
Yemeklerden sonra içimden kusmak gelir						

Beden İmaj Ölçeği (BCS)

Aşağıda bulunan vücut özelliklerinizle ilgili duygularınızı en iyi anlatan ifadenin altına (x) işareti koyunuz.

	Hiç Beğenmiyorum	Pek Beğenmiyorum	Kararsızım	Oldukça Beğeniyorum	Çok Beğeniyorum
Saçlarım					
Yüzümün Rengi					
İştahım					
Ellerim					
Burnum					
Fiziksel gücüm					
İdrar-dışkı düzenim					
Kas kuvvetim					
Belim					
Enerji düzeyim					
Sırtım					
Kulaklarım					
Yaşım					
Çenem					
Vücut Yapım					
Profilim					
Boyum					
Duyularımın keskinliği					
Ağrıya dayanıklılığım					
Kollarım					
Gözlerimin şekli					
Sindirim sistemim					
Dişlerimin şekli					
Ayaklarım					
Uyku düzenim					
Sesim					
Sağlığım					
Dizlerim					
Vücudumun duruş şekli					
Kilom					
Hastalığa direncim					

Besin Tüketim Sıklığı Testi (FFQ)

Aşağıda bulunan besinleri son 1 yıl içinde ne sıklıkta tükettiğinizi (x) işareti koyarak belirtiniz.

Tahıl ve Kuruyemiş	Tüketmiyorum	Ayda 2-3 kez tüketiyorum	Haftada 3-4 kez tüketiyorum	Günde 1 kez tüketiyorum	Günde 2-3 kez tüketiyorum
Yulaf, yulaf unu ve yulaf bazlı yiyecekler					
Tahıllı bar (granola bar, yulaf, çavdar gibi tam tahıllar içeren bar)					
Kahvaltılık tahıl/gevrek					
Tam tahıllı ekmek türevleri(Çavdar, tam buğday, kepek, yulaf unlarından yapılmış esmer ekmek çeşitleri)					
Kuruyemiş türleri (yer fıstığı, ceviz, badem, fındık vs.)					
Sebzeler ve Meyveler					
Muz					
Ananas					
Kırmızı erik					
Taze sıkılmış portakal, mandalina veya greyfurt suyu					
Kuru meyve (kurutulmuş incir, kayısı, hurma vs.)					
Çiğ yeşil yapraklı sebzeler (ıspanak, karalahana, pazı, marul vs.)					
Kuru soğan (yemek ve salatalarınıza giren miktarı da dahil ediniz)					
Bezelye (taze, konserve veya dondurulmuş)					
Domates					
Taze sıkılmış sebze suyu					
Lahana veya salatalık turşusu					
Süt ve Fermente Ürünler					
Tam yağlı, yarım yağlı veya yağsız inek sütü (Kahvaltılık gevrek ve kahvelerinize kattığınız sütü de dahil ediniz.)					
Soya sütü					
Tofu, soya peyniri gibi soya içeren ürünler					
Yoğurt (Ev yapımı veya hazır)					
Probiyotik yoğurt					
Probiyotik etkili veya sonradan probiyotik eklenmiş hazır içecekler (Kombucha, probiyotik süt vs.)					

Peynir çeşitleri (yağlı, yağsız, az yağlı peynir türlerini ve sandviç, tost gibi öğünlerinize eklediğiniz peynirleri de dahil ediniz)					
Kahvaltılık zeytin					
Kefir					
Dondurma (Sadece süt ve süt ürünleri içeren dondurmaları dahil ediniz)					
Boza (Kış mevsimi boyunca)					
Et Grubu					
Kırmızı et (Kıyma ve parça et olarak tükettiklerinizi de dahil ediniz)					
Beyaz et çeşitleri (Tavuk, hindi)					
Fermente sucuk					
Kurutulmuş et ve et ürünleri					
İçecekler					
Kahve(Türk kahvesi, filtre kahve gibi kafein içeren tüm kahve türleri)					
Bira					
Kırmızı şarap					