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NUTRITION AND DIETETICS

FOOD HABITS OF INDIVIDUALS APPLYING TO NUTRITION AND DIET POLICLINIC OF A PRIVATE HOSPITAL LOCATED IN ISTANBUL AND RELATION OF CHEWING NUMBER WITH BODY MASS INDEX

Bahar Akçin

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Bu tez Yeditepe Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca yukarıdaki jüri tarafından uygun görülmüş ve Enstitü Yönetim Kurulu'nun 31.03.2017 tarih ve 2017/06-04 sayılı kararı ile onaylanmıştır.

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DECLARATION

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree except where due acknowledgment has been made in the text.

…./…./17

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ABSTRACT

Bahar Akçin, Food Habits of Individuals Applying to Nutrition and Diet Policlinic of a Private Hospital located in Istanbul and Correlation of Chewing Number with Body Mass Index. Yeditepe University, Institute of Health Sciences, Department of Nutrition. Istanbul. 2016.

98 individuals who applied to Üsküdar Private Yunus Emre Hospital Nutrition and Dietetics Policlinic between January 2016 and April 2016, are older than 18 and have no health problem, participated into this study. In the study, correlation of fast eating with obesity and body mass index was investigated, body weight, tall stature, waist circumference, hip circumference were measured according to anthropometric measurement techniques. Socio-demographical data form was applied with face-to-face questionnaire method. It was based on volunteerism in the study, patients participated into the questionnaire signed voluntary consent form. 83% of participants are women, 17% are men. When BMI (Body mass index) values of participants are examined; it is seen that 17% are normal (between 18,5-24,99), 37% are overweight/mild fat (25-29,99), 46% are obese (30 and older). When correlation between fast eating habits of individuals and obesity is examined; a significant correlation is found between fast eating and obesity since p-probability value is $p=0,017<0,05$. According to this result, it is seen that obese individuals eat faster. It is observed that there are many habits affecting obesity and leading to obesity such as immobility, eating excessive junk food, eating in front of television. There are many factors leading to gaining weight. Fast eating and little chewing are two of these. Habits leading to obesity should be determined in order to prevent obesity and changing these factors should be emphasized.

Key words: Obesity, fast eating, food habits, BMI, healthy eating.

ÖZET

Bahar Akçin, İstanbul'da Özel Bir Hastanenin Beslenme Ve Diyet Polikliniğine Başvuran Kişilerin Beslenme Alışkanlıkları Ve Çiğneme Sayısının Beden Kütle İndeksiyle İlişkisi Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme Bölümü. İstanbul. 2016.

Bu çalışmaya, Ocak 2016 ile Nisan 2016 tarihleri arasında, Üsküdar Özel Yunus Emre Hastanesi Beslenme ve Diyetetik Polikliniği'ne başvuran, 18 yaşından büyük, herhangi bir sağlık problemi olmayan 98 birey katılmıştır. Çalışmada hızlı yemenin obezite ve beden kütle indeksi ile ilişkisi araştırılmış, vücut ağırlığı, boy uzunluğu, bel çevresi, kalça çevresi ölçümü antropometrik ölçüm tekniklerine uygun yapılmıştır. Sosyo-demografik veri formu yüz yüze anket yöntemiyle uygulanmıştır. Çalışmada gönüllülük esas alınmış, ankete katılan hastalara gönüllü onam formu imzalatılmıştır.Katılımcıların %83'ü kadın, %17 si erkektir. Bu katılımcıların BKİ (Beden kütle endeksi) değerleri incelendiğinde; % 17'sinin normal (18,5-24,99 arası), %37'sinin fazla kilolu/hafif şişman (25-29,99), %46'sının ise obez (30 ve üzeri) olduğu görülmektedir. Kişilerin hızlı yemek yemeleri ile obezite arasındaki ilişki durumu değerlendirildiğinde; p-olasılık değeri $p=0,017<0,05$ olduğundan, hızlı yemek yeme ile obezite arasında anlamlı bir ilişki bulunmuştur. Bu sonuca göre, obez olan kişilerin daha hızlı yemek yediği görülmektedir. Obeziteyi etkileyen ve obeziteye sebep olan, hareketsizlik, aşırı abur cubur tüketimi, televizyon karşısında yemek yemek gibi birçok alışkanlık olduğu gözlenmiştir. Kişilerin kilo almasına sebep olan birçok faktör bulunmaktadır. Hızlı yemek yemek ve az çiğnemek bunlardan biridir. Obeziteyi önlemek için obeziteye sebep olan alışkanlıklar tespit edilmeli ve bu faktörlerin değiştirilmesi üzerinde durulmalıdır.

Anahtar Kelimeler: Obezite, hızlı yemek yeme, beslenme alışkanlıkları, BKİ, sağlıklı beslenme

1. INTRODUCTION AND AIM

Obesity rate is increasing in the society every day (1). There are internal and external factors leading to the obesity. Studies regarding that fast eating stimulate the weight gain are conducted (2,3). In this study, body mass indexes and other food habits of individuals who eat fast and chew less are examined.

Obesity comes from the word of "obesus" that is the past tense form of the Latin rooted eating verb "obedere". Obesity is defined by the world health organization as "excessive fat deposit in tissues in such way which will impair the health of the body". Obesity becomes a multi-factorial and complex disease connected with endocrine and metabolic changes over time (1).

It is known that the essential mechanism in the formation of overweight is positive energy balance. Energy accumulated in the body as a result of much calorie taken by foods and less calorie burned, is stored by turning into fat tissue (2). It is known that obesity is a chronic condition which occurs when fat tissue increases excessively and affects many organ and system negatively if it is not treated (3). Obesity is rapidly increasing also in the developing countries as is in the developed countries every day (1).

Excessive fat portion accumulated in the body decreases the life quality and shortens the lifetime. Incidence of such diseases as hypertension, cardiovascular diseases, Type 2 diabetes mellitus, gall bladder diseases, sleep apnea, cancer is increasing with the obesity. Obesity leads to metabolic syndrome over time (4).
Number of obese individual living in the world and Turkey shows increase by years (5). It has been concluded that obesity has many reasons based on physiological, psychological, environmental factors and immobility (5). Weight gain is observed due to factors such as fast eating, consuming excessive junk food, having irregular food habits, eating at late hours. Consequently, obesity becomes an important health threat and problem for the countries (3).

The aim of this study is to determine internal and external factors leading to Obesity, detect food habits and to search the relation between fast eating and chewing number and weight gain and obesity.

2. BACKGROUND

2.1 Obesity

Fat amount which is more than 25% of the total body weight in males, 30% in females is accepted as obesity (6).

Fat tissue constitutes average 25-30% of body weight of adult female and 15-20% of males. This rate rising above 25% in males and 30% in females is defined as obesity (5). While determining the obesity rate, body mass index obtained by dividing the weight to the square of height and waist-hip ratio are used as criteria (6).

2.2. Epidemiology of Obesity

The fifth leading reason of deaths in the world is obesity and overweight. It is reported that at least 2.8 millions of adult die every year due to overweight and fatness (7). Obesity is playing an important role in increase of many diseases such as cholesterol, triglyceride, insulin resistance rates, type two diabetes mellitus, some cancer types (breast, colon, prostate), kidney, gall bladder, cardiovascular diseases, stroke every year and this situation increases health expenditures of countries (8). Optimal value of body mass index has been determined as 21-23 kg/m2, normal value is 18,30-24.9 kg/m2 (7). The risk of obesity increases in the BMI range of 27-29.9 kg/m2 and brings along the health problems. The World Health Organization expressed the rate of being overweight of adults aged above 20 as 35% in a study conducted in 2008. The rate of being overweight doubled in the last 28 years according to the report and this substantial increase brought along the obesity. Pursuant to the report, it was determined that 1.4 billions of individuals aged 20 and above are obese and one of 210 individuals is obese.

As shown in Table 1, incidence of obesity in individuals aged 20 and above in the world varies in every country pursuant to 2012 report (7). Mild fatness and fatness are rapidly increasing in the world countries every day. The highest rate was reported in America (62% overweight -27% obese) and the lowest rate in the southeast Asia (14% overweight -

3% obese). According to the world health organization, about 50% of women has been determined as overweight in Europe, America and eastern Mediterranean regions. It was found in the researches that women are obese at a higher rate compared with men (8).
It was reported that more than 50% of the community are overweight and 20% are obese in the half of developing countries. It was addressed that the increasing obesity prevalence has tripled in USA in the last 20 years and accordingly, this caused health expenditures to increase substantially (9).

Obesity also poses an important problem for Europe in the same way. It was found that obesity rises to the rates of 10-27% in adult males and 38% in adult females in Europe. Obesity prevalence of countries such as Germany, Czech Republic, Greece, Malta, Finland, Spain show similarity with USA (9).

About 26% of adults are in obesity rates in UK. In another study conducted, waist circumference was found as (>102 cm) in 34% of females and (>88 cm) in 46% of females in the country (10). Increasing obesity rates become a problem seen children and young, it was found in the studies conducted that the obesity rate in children has increased about two-fold and the increase in young is about threefold. It was reported according to data of 2010 year that more than 40 millions of children aged below five are obese (10,11).
While the fatness was already seen as a problem in countries having high level of income and standards, it is seen that it has been started to be seen as a problem of low and medium-income countries today (12). The rate of being overweight and obesity has increased rapidly in the last 30 years. Rates tripled in some countries after 1980. About more than 20% of children in Europe face with overweight problem and it is known that one third of these children is obese (13). Obesity causes many physiological, metabolic, orthopedic and psychological diseases in children and adults. It leads to many problems such as psycho-social disorders, lack of self-esteem and self-confidence, depression since it affects the appearance. Also, many studies are being conducted regarding that children experiencing weight problem may be obese when they are adult and they will bear risk for many diseases (13,14).

Table 1. WHO, Obesity Prevalence in Individuals Aged 20 and Above in the World Pursuant to World Health Statistics 2012 Report

Countries	MALE	FEMALE
Minimum	0.7	1.3
Maximum	67.5	74.7
Regions		
Africa	5.3	11.1
USA	23.5	29.7
South-Eastern Asia	1.7	3.7
Europe	20.4	23.1
Eastern Mediterranean	13.0	24.5
Eastern Pacific	5.1	6.8
Income Level		
Low	2.6	5.1
Low-Medium	4.7	8.4
High-Medium	19.5	28.9
High	21.8	21.6
Global	10.0	14.0

There are four studies conducted for determining the rate of fatness in Turkey. These are; Turkish Obesity Profile, The Study of Cardiac Disease and Risk Factors in Adults in Turkey (TEKHARF), Turkish Diabetes, Obesity and Hypertension Epidemiology (TURDEP), Turkish Obesity and Hypertension Research (TOHTA) (5), (15). Pursuant to the report of Turkish Obesity and Hypertension Research, it was found that 50% of females are fat, 40.0% of males and 44.4% of the community (TOHTA). According to the report in TEKHARF study conducted with 3681 individuals, it was stated that 25.2% of Turkish males aged above 30 are fat and 44.2% of females are fat. According to the study of Turkish Diabetes, Obesity and Hypertension Epidemiology, it was found that obesity prevalence is 29.9% in females and 12.9% in males; when it is assessed by waist circumference (waist circumference; female: ≥ 88 cm, male: ≥ 102 cm),

obesity prevalence was found as 48.4% in females and 16.9% in males. Such high rate in thickness prevalence in waist circumference points out many health problem to be encountered in the future, notably type 2 diabetes mellitus and cardiovascular diseases (5). It was found in the study of "Turkish Obesity Profile" conducted by Turkish Obesity Research Association in 2000-2005 years that 4056 individuals are obese, 34.5% of those are females, 21.8%of males (5).

2.1.1. Relation with Body Mass Index (BMI)

Body mass index relation is a mostly used and mostly accepted practical criterion for detection of obesity. It is found by dividing weight measured (kg) to the square of height (m).
BMI = weight (kg) / boy²(m²). It is addressed that each country should use specific BMI values (16,17).

2.1.2. Waist Circumference, Umbilical Circumference, Hip Circumference, Waist-Hip Ratio

Waist circumference measurement points recommended by WHO is a measurement made in the middle of the distance between costa lower edge and spinal iliac. It is recognized in the studies performed that waist circumference measurements exceeding 89cm in females and 102cm in males define individuals requiring an intervention against obesity (18). The biggest problem in waist circumference measurements is that both visceral fat thickness and subcutaneous fat tissue thickness are included, that is, the measurement reflects both visceral fat tissue and subcutaneous fat tissue. It is known that fat amount around the waist is mostly associated with disease prevalences compared with the whole body fat. Studies show that waist circumference is associated with diabetes mellitus, hypertension prevalence and cardiovascular disease risk factors in males (19,20).
Maximum circumference is made by measuring with a rigid tape (21-23). According to the waist-hip ratio (WHR), a value exceeding 0,9 in males and 0,85 in females is regarded as obesity and according to waist circumference measurement, a value exceeding 102cm in

males and 88cm in females is regarded as obesity. It was reported that all risks increased in these values (24,25).

2.1.3. Detection and Classification of Obesity

It is known that for defining an adult as obese (fat) or overweight (mild fat), body weight, body composition and fat distribution in the body should be assessed by the height. The most valid method for detecting the obesity is accepted as determining the fat amount in the body. There are different methods used for detecting the fat amount in the body. Body mass index is a frequently used method in practice. 25-30 kg/m2 of body mass index values recommended by World Health Organization is defined as mild fatness and more than 30 kg/m2 is defined as fatess. Detection of obesity by BMI is presented in Table 2 (26).

Numerous international and national growth curves or reference values are used in children and adolescents. As shown in Table 3, BMI rates vary in different age groups (26). Standards or reference values used in children and adolescents and junction points used in assessment vary and this situation create difficulties in the assessment of prevelance of obesity problem (6).

Table 2. Classification of Obesity by BMI

BMI	**Values**
Thin	< 18.50
Normal	18.50-24.99
Overweight/ Mild Fat	25.00-29.99
Obese	≥ 30.00
Morbid Obese	≥40.00

Table 3. Proper BMI Values By Age

Age (year)	BMI (kg/m2)
19-24	19-24
25-34	20-25
35-44	21-26
45-54	22-27
55-65	23-28
65-+	24-29

It is possible to classify the obesity in different ways (27, 28):

A) By distribution of fat tissue: Obesity progressing with increase in fat cell number is called as hypercellular obesity and this is the obesity type seen in childhood. It may be sometimes seen in adults. Hypertrophic obesity is assessed with increase and size of lipid content of fat cells. By the fat distribution, it is classified as android (in the abdominal region) and gynoid type obesity (in the hip and femur).

B) Classification by the starting age of obesity is assessed as obesity developed in childhood and adultness period.

C) Classification by the factors playing role at the heart of obesity is examined under two headings.

1) Primary obesity (exogenous obesity) is an obesity based on much caloric intake. It is associated with taking calorie more than needed and consuming high-calorie foods.

2) Secondary obesity is an obesity developed due to a physiological disease. It develops due to drug use, physiological and hormonal disorders and genetic factors (27).

2.3. Factors Leading to Obesity

Factors leading to obesity can be classified as physiological, genetic, environmental and economic factors.

2.3.1. Physiological Reasons of Obesity

How the obesity develops in the body and its physiological mechanics may be examined in two ways. First is defined as energy input, second as energy output.

In a healthy individual, energy input and energy output should be made in a balanced way in the body. In the obesity, energy input is more than energy output. Factors affecting the obesity of an individual are based on factors determining the caloric input and caloric output.

For example, external appearance of food, consuming more food as a result of emotional stress such as anger, fear and sorrow, anxiety and obese individuals having weaker auto-control may be regarded as factor among the factors affecting the energy input (29). Another factor affecting the energy input-output is the physical activity level. Decreasing physical activity and mobility lead energy output to decrease and obesity to increase (30).

2.3.2. Genetic Reasons of Obesity

Obesity is defined as a health problem having high social and economic cost which is frequently seen almost in every age group (31). Childhood obesity is a problem to be considered which continues from childhood to adolescence and adulthood and includes many health risks. World Health Organization defines the childhood obesity as an increasingly important community problem. According to estimates of World Health Organization, 110 millions of children were recorded as overweight ad obese in the world. Obesity prevalence is seen three fold more in children, about four fold more in children in the age group of 6-11 in the last 30 years in USA. It is possible to say that prevalence varies between 2-17% and increases in the studies conducted in different regions of Turkey. One of the essential factors in formation of obesity is genetic reasons. It was found that genetic factors play role in the development of obesity in the rate of 25-40%. Existence of obesity in parents increases the risk of obesity in rate of 80% in children. In case of existence of obesity only in mother or only in father, the risk is about 40%. Parents of other children amounting 25-35% have normal weight. Prevalence of obesity in children

of obese couples compared with children of other couples who are not obese has been observed 3-times more (32). However, in the event that both mother and father have normal weight, the probability of being obese in their children was found in rate of 10% in childhood, 50% in adulthood. Genetic factors may be examined under headings such as gender, race, genetic structure (33). (Türkiye Diyetisyenler Derneği Yayını, İstanbul, 2012). The role of genetic factors in the obesity was investigated in twins who are maternal twins and fraternal twins. Particularly maternal twins of obese parents have more tendency to be obese compared with those who are children of non-obese parents (34). The possibility of being a overweight spouse in case another spouse is overweight, is higher in maternal twins than fraternal twins. It was found that weights of maternal twins who lived apart from each other for more than twenty years are similar (35).

Although human genetics has not changed much after the industrial revolution, it is found that the obesity rate shows increase. Reaching high caloric and carbon hydrate-containing foods becomes much easier over time. It is argued that familial, environmental and economic factors as well as genetic factors are more dominant and efficient in the obesity development (36).

2.3.3. Environmental Reasons of Obesity

Environmental reasons as well as genetic reasons play an important role in the development of obesity. Effect of physical, social, cultural and economic environment has an important share in the obesity and the environment leading to the obesity is called as obegenetic environment (37). It is argued that desire of obeses for eating much is a habit acquired in the family environment. The environment in which individual lives may be assessed under the general headings of family, school environment, psychological effects, media and environment. It is affected by factors such as education and socio-economic level of the family, working state of the mother and father, number of sibling, nutrition and food habits of the family, breastfeeding period of mother, pregnancy history. Educational status of parents also affects the obesity of the child. Low educational level of the family and lack of knowledge in the nutrition and health aspects may bring along the obesity. Obesity increases in the developed and developing countries depending on tendency of families for feeding with high caloric foods (34,38). It is argued that obesity is seen more widely in poor classes in America and developed European countries (39).

Also, it is foreseen that habits pushing the child to immobility such as watching television excessively, lack of physical activity, increase in using computer are associated with the family life for many times. Lack of physical activity and sedentary life style play important role in development and continuity of the obesity. It is suggested that body fat and Body Mass Index (BMI) of those who watch television for more than 4 hours in a day are higher than those who watch television for less than 2 hours in a day (40).

2.3.4. Economic Reasons of Obesity

Obesity is seen as an individual health problem at first sight, then as an social and common incident. There are many complicated and important reasons under the serious health problems it caused and social reflection. However, it is mentioned about economic reasons leading to obesity as well as these reasons. Leading to obesity by economic incidents has two ways both as individual and social. Firstly, as mentioned in the part of "economic results of obesity", obesity problem may be caused by economic conditions of households and discussion stating that obesity problem causes low wages, low wages cause obesity (41). Besides, some researchers, for instance Cutler et al., and Lakdawalla et al., argue in their studies that increase in the obesity is resulted by technological change. In the study, they stated that caloric foods have become cheaper relatively and doing exercise has started to be more expensive relatively, that is, individuals will organize benefits by this new budget constraint and consequently, they will have higher body mass index (42,43). Also, they analyzed that when individuals face with environmental factors, they make a choice and they prefer to eat more and do exercise less and this choice gains more favor for them (43). It is considered that the reason for making this choice is due to tha fact that eating more but doing exercise less provide more favor for them instead of eating less and doing exercise more (44).

2.4. Relation of Fast Eating with Obesity

Some of misconducts which may lead to obesity may be listed as eating excessively, eating fast, taking big bites, chewing less, keep holding of fork-spoon, skipping meals, continuously snacking something between meals, dealing in other activities while eating (chatting, watching TV, reading, etc.), eating much in stressed or uneasy conditions, participating into visits and invitations frequently and not rejecting offerings, eating continuously from dinner to bed time, not drinking water or drinking water less, snacking from the arrival to the home to the dinner and then eating again (45). The behavioral

change emphasized in this study is chewing more and eating slow. It was stated in many studies that weight loss is observed in case of slow eating (27, 28, 44). It was argued that less weight is gained in case of slow eating. A device which calculates the speed and rate of chewing was developed for developing this habit. In a study, slower chewing and gaining less calorie were aimed with a device called as "bite counter". It was observed that daily caloric intake of participants decreases compared with the beginning and more water is consumed when they use the device carefully. However, sizes and amounts of bites were not assessed (46).

2.4.1. Slow eating techniques

Fast eating is a habit. If the period required for learning slow eating techniques is considered, it is said that minimum 21 days, optimum 40 days, maximum 3 and half months are necessary. Because changing the habits instantly is not suitable for the nature of human. Fast eating is also a habit.

Eating slowly provides finding more pleasure; because as much the food dissolves with saliva, so more pleasure signal will be sent to the brain. For example, the pleasure taken once the chocolate piece is consumed instantly may be compared with the pleasure once the chocolate is swallowed after having waited on the palate for 30 seconds. It is possible to take more pleasure when the food is kept in the mouth for longer time. The person cannot perceive the amount which he/she ate and can take more calorie than needed since the fullness signal is sent to the brain within 12-20 minutes (47).

Satiety and fullness are two important terms for the appetite control. While fullness is a feeling which exists for the day apart from the eating and controls the fasting in the background, satiety is a feeling coming with eating and controlling the hunger early. Satiety signals form as a result of compression of bites coming from the mouth into the stomach, there are neural or hormonal sensors which perceive this compression in cardia region of the stomach, but whose nature cannot be known exactly. Signals reach to hypotalamus center which is called as arcuate nucleus and reduce the eating. These are low-threshold and slow-adapting sensors. Ghrelin is a hormone inducing the appetite, a part of hormones that are recognized as hormones reducing the appetite may be resulted from cardia part of stomach (48). If bad eating habits (inadequate chewing, eating too fast,

eating with big bites) last long, peristaltic wave power in the stomach is lost, fasting feeling increases (49).

How the food is consumed is also important as well as what is consumed. Methods for eating slow may be listed as below in the clinic;

1. Chewing the bites not only with posterior molar teeth but also incisors: when it is chewed with molar teeth, swallowing reflex can be more active and faster. Chewing with incisors may extend the process.
2. Fork spoon may be put on table after taking bite into the mouth.
3. Bites may be divided into small pieces.
4. Breathing before taking the new bite once the bite is swallowed may be regarded as techniques which will provide slow eating.

Chewing numbers of foods may be classified by softness and stiffness states of foods. For example, while foods such as soup and yoghurt cannot be chewed much, soft foods such as bread-cooked vegetable can be chewed for average 8-10 times, more stiff foods such as meat-salad can be chewed for average 15-20 times. However, factors affecting this vary by the size of bite, by the mouth diameter of individual, by water rate of food. Too high goals should not be given to the individual for changing th eating habits of individuals. For example, chewing for 9-10 times may be recommended to those who chew for 3-4 times in average, however, recommending for 40 times cannot be put into practice.

The food may not be divided into too small parts mechanically in case of fast eating. In this case, the food will not dissolve adequately in the salive. The saliva washes the flavour buds continuously and helps the sense of taste by dissolving the foods into liquid. When the food put into the mouth is chewed adequately, the individual will take more flavor (50).

Fast eating is one of the important behaviors leading to excessive weight. The most effective way in protection from the obesity and treatment of obesity is described as change of lifestyle containing behavior treatment (51). Obesity treatment procedures used in cognitive behavioral therapy are effective in permanent weight control (52). If the behavior is not changed, it was observed that weight lost is gained again. Methods applied in behavioral change therapy may be listed as self-observation, stimulus control, alterative behavior development, reinforcement, self-awarding, cognitive structuring and social support (51, 52).

2.5. Relation of chewing number with body mass index

Overweight and obesity are increasing in developed and developing countries day by day. Also, obesity is an important threat for the community health (11). For this reason, practical and effective measures and treatment methods should be developed (53). Diet therapy and behavioral change therapies are two important therapies applied in fighting with overweight and obesity. Although recommended food intake and energy balance vary by the individual, if the extra calorie taken is not burnt, it causes obesity by storing in the body (54). Even though macro and micro nutritional elements which an individual should take daily were determined, the principles of behavioral change has not clarified adequately. The behavioral change related with eating habits is not clear in the prevention of obesity and it is not addressed adequately. When eating habits are examined, it is argued that caloric intake decreases in a direct proportion with decrease in eating rate (55). Many studies stating that increasing eating rate stimulate weight gain and obesity have been conducted and a significant relation was found (55, 56). In the study of Aktaş et al., BMI values were compared by some properties concerning nutrition, when BMI values are assessed by the eating rate; it was found that 32,9% of overweight students and 15,8% of obese students have fast eating habit. Notwithstanding, it was found that 71,2% of students having normal weight eat their meals at a normal rate. Accordingly, a statistically significant relation was found between BMI values and eating rate. In the study, "fast, normal and slow eating" was defined and participants are asked to say how many times they chew (57).

Ohkuma et al., scanned by using the headings of fast eating, quick eating, obesity, body weight ad BMI in 2015 and they published a meta-analysis including 23 studies. It is a common view in the end of the study that obesity has a significant relation with fast eating however, definition of fast eating and relation with BMI were not defined. The hypothesis suggested in this study is that BMI is numerically rated with chewing number. It is argued that there is a rate between chewing number and BMI. It is argued that individuals who eat a bite in a chewable size by chewing 3-4 times are mostly obese or less often overweight, those who eat by chewing for 5-7 times are mostly overweight or less often obese, those who eat by chewing for 7-11 times are mostly in their ideal weight or less often overweight, those who chew for more than 11 times are generally thin or in the ideal range.

As chewing number decreases, individuals eat more fastly. Once they eat fast, they gain more calori and approach their obesity rates more. This statistics may change by the factors such as whether the individual does physical activity or not, whether he/she has any physiological disease or not (58).

2.6. Relation of Refreshments with Obesity

Upon obesity has became a common disease all over the world and its prevalence is increasing day by day, obesity's reasons have been emphasized in many studies. Many complex factors such as physiological, psychological factors as well as environmental and genetic factors have been listed among the reasons of obesity. Determination of factors leading to obesity is assessed as an important step for prevention of increasing obesity prevalence (59).

In some studies conducted regarding the reasons of obesity, meal frequency has been emphasized recently. Effects of consuming frequent meals on the energy balance regulation have been searched. In the studies conducted, it was argued that consuming frequent meal reduces the obesity rate (60, 61). In one of these studies, it was found that those who consume 4 and above meals in a day have 45% more obesity risk than those who consume 3 and below meals in a day (61).

In some studies, it was foreseen that consuming frequent meal stimulates eating impulse in and directs to eating more, when less meal is consumed, weight loss is possible. In a study conducted, participants consumed 1 meal in a day and body weight loss and decrease in body fat were found at the end of the study (62, 63).

While some researchers recommend refreshment for decreasing the obesity rate, some researchers stipulated at the end of their studies that having refreshment has not a significant effect on the obesity rate (63, 64)

2.7. Relation of skipping meal with obesity

In the current life, skipping meal has became one of the most common problems due to many reasons such as active work schedule, neglect, unwillingness, working conditions, density (65).

According to Report for Assessment of Nutritional State and Nutrition Habits prepared by Turkish Nutrition and Health Research Board in 2010; when it is generally examined, it

was found that the meal whose skipping rates are highest are morning and lunch meals, the rate of skipping the dinner meal is low.

It was found that 15.8% of males, 12.5% of females and totally 14.2% skip their breakfasts in Turkey.

The rate of those who skipped lunch meal was found as 14.5% in males, 21.4% in females and 17.8% totally in Turkey.

The rate of those who skipped dinner meal was found as 4.5% in males, 5.7% in females and 5.1% totally in Turkey.

When the reasons of skipping breakfast were considered; 52.3% showed the reason of "feeling disinclined", 26.2% "having no habit of breakfast", 17.4% "lack of time", 16.6% "wakig up late" in Turkey.

The reasons mostly shown in males are listed as follows; "feeling disinclined" (51.5%), “having no habit” (27.2%) and “lack of time” (19.7%). In females, "feeling disinclined" (53.4%), “having no habit” (24.8%) and “lack of time” (16.7%).

When the reasons of skipping lunch meal were considered; 30.1% showed the reason of "feeling disinclined", 28.3% "waking up late", 24.8% "having no habit of lunch" in Turkey.

When the reasons of skipping dinner meal were considered; 27.9% showed the reason of "feeling disinclined", 19.0% "having no habit of dinner", 16.9% "having the habit of snack" in Turkey (64). It was suggested that skipping any meal of breakfast, lunch or dinner meals is an important factor stimulating the obesity, in a study conducted, it was stated that the obesity risk of participants having regular breakfast is 4,5 times less than those who skipped the breakfast (65).

In another study; it was argued that there is a positive correlation between increasing obesity rate and meal number and it was observed that as the meal number decreases, obesity risk increases. In the study, it was emphasized additionally that skipping the breakfast meal constitutes an important risk for the obesity. It was stated that when meal is skipped, a slowdown will be seen in basal metabolism rate and energy expenditure of the body will be constrained, this state will stimulate the obesity (67), (68).

2.8 Relation of changing mood with eating

Individuals eat for calming and as tranquilizer, also fasting is not only physiologic, it can be psychological (52).

2.8.1. Eating for Calming-Tranquilizing

It was found that emotional fasting and psychological eating are two of the factors underlying the weight and obesity (66). People must deal with many incidents for meeting the needs in daily life such as working, making friends, maintaining friendship, being in close relationships, covering our emotional and physical needs, disloyalty, unemployment, economic problems, disease, death, school and home change, getting married, having child, maintaining routine works. Remaining incapable or feeling to remain incapable for dealing with these incidents may cause negative ideas such as anxiety, fear, stress, despair. A set of ways are applied in order to cover these needs when calming down is needed for moving away and escaping from negative ideas. Eating which is assessed together with categories such as use of drug-alcohol, gambling, shopping is among the nonfunctional dealing methods applied in calming down of the individual and solving (unable to solve) the problems, as is in use of drug. Role of eating has increased in dealing with problems and difficulties of daily life in western culture after the industrialization (69). The connection with the eating is based on infancy period. Feeding the infant is one of the first things which a mother does for calming down when it cried or felt pain. Formula (breast milk-food) is usually used as a tranquilizer when the infant cries, is ill and gets hurt and it helps the infant to be quiet. The tranquilizer effect of the feeding is penetrated into the brain and subconscious as from the infancy. Therefore, eating has became an element used in difficult negative emotions such as anxiety, fear, guilt, loneliness, sorrow, despair, unhappiness for escaping and moving away. In many studies conducted, it was observed that individuals who continue a diet interrupt the diet and gain the weights they lost when they experienced difficult times (63,52). It was determined that they eat more intensely and turn towards "forbidden" foods (chips, junk food, rice, cracked wheat, pasta) when they felt negative emotions. Stimulation of eating behaviors by emotional factors brought forth the terms of "emotional eating, emotional fasting" (70).

Behaviors of eating excessively or never eating or taking offence at eating show that the relation with the eating has been impaired. Diseases such as fatness and anorexia develop in the countries having impaired eating relation. This rate shows increase for our country as is in the world (66).

2.8.2. Differences between emotional and physiological fasting

While physiological fasting develops for covering energy and food which a body needs; emotional fasting, emotional eating develops when it is eaten for dealing with emotions such as negative feelings, sorrow, anger, loneliness, feeling worthless, despair. The following differences can be useful for sorting out physical fasting from the emotional fasting (71-73).

Table 4. Differences between emotional and physiological fasting

Physiological fasting	***Emotional fasting***
It starts with physiological needs.	It starts with emotions.
The feeling of hungry starts after average 3-4 hours from the meal.	Eating time is not important.
A slight gurling in the stomach, increase in the gurling, then a strong spasm is felt.	Pain or any sensation is described as hunger.
It can be met with a small portion.	Satiation is difficult.
The individual knows what he/she will eat, determines the portion, feels the flavor of the meal, knows what he/she puts into mouth.	Awareness is lower. The individual does not pay attention whether he/she is satiated or not. Therefore, he/she can continue eating.
Sensations of hunger and satiation are felt in the stomach.	The place where the feeling is intense is mouth region. It seems like that food stays in the mouth region and there is no connection between foods and stomach.
Only one fruit is attractive and adequate.	Tendency to high caloric specific foods (desserts, ice cream, chocolate) is more. When the individual fills his/her stomach with these foods, he/she feels relieved.
A guilt feeling is not felt in the subsequent meals since the meal is eaten in required amounts.	A guilt feeling is usually felt after the meal and less eating promise is given in the next meal. However, keeping the promise is as easy as giving the promise because eating serves to different functions beyond suppressing the hunger (70-73).

3 MATERIAL AND METHOD

3.1 Type of the Study

The research is a descriptive study which was conducted for the purpose of examining the eating habits of individuals who applied to Private Yunus Emre Hospital Nutrition ad Dietetics Department and the relation of chewing number with body mass index.

3.2 Period of the Study

The study was conducted between January and April 2016.

3.3 Location of the Study

The study was conducted in Istanbul Uskudar Private Yunus Emre Hospital Nutrition and Dietetics Department, between January and April 2016. Policlinic service is given to those who applied to Nutrition and Dietetics Department, body weight, height and waist circumference measurements are done. Hip circumference is measured by means of a rigid tape and umbilical circumference is measured by means of a rigid tape which passes over belly button.

3.4 Population and Sampling of the Study

The population of the study consists of individuals who applied to Istanbul Uskudar Private Yunus Emre Hospital Nutrition and Dietetics Department, are older than 18 years old and have no physiological disease. All voluntary individuals who applied to the policlinic in previously determined date range and met all inclusion criteria were included into the study. Those who accepted to participate into the study signed a voluntary consent form prior to the study (Annex 1). Those who have diseases which affect the chewing number such as dental prosthesis or dental brace, chewing-swallowing difficulty, gingival disease were excluded from the study.

3.5 Hypotheses of the Study

- Gender has a relation with the obesity.
- Age has a relation with the obesity.
- Umbilical and hip circumferences have relation with the obesity.
- Fast eating has a relation with the obesity.
- Chewing number has a relation with the obesity.
- Skipping meal has a relation with the obesity.
- Not having refreshments has a relation with the obesity.
- Irregular eating habit has a relation with the obesity.
- Immobility has a relation with the obesity.
- Eating at late hours has a relation with the obesity.
- Eating excessive junk food has a relation with the obesity.
- Eating much dessert has a relation with the obesity.
- Diseases have a relation with the obesity.
- Eating bread at large amounts has a relation with the obesity.
- Giving up smoking has a relation with the obesity.
- Continuous alcohol consumption has a relation with the obesity.
- Pregnancy period and post-pregnancy have a relation with the obesity in females.
- Continuous constipation has a relation with the obesity.
- Eating more than needed has a relation with the obesity.

3.5.1 Dependent and Independent Variables of the Study

Dependent variable: Obesity state (BMI $\geq$ 30 kg/m^2).

Independent variables:

- Socio-demographic characteristics (age, gender)
- Marriage period, gaining weight after the marriage
- Skipping main meals-refreshments
- Daily taken and burnt calorie
- Skipping meals
- Smoking
- Use of alcohol
- Pastry, dried nut, fizzy drink, junk food consumption

3.6 Ethics of the Study

Ethics committee approval of the study was given by Istanbul Medipol University Ethics Committee Presidency of Non-interventional Clinic Researches. Patients signed volunteering consent form before the questionnaire application was made, the study was conducted according to voluntary principle.

3.7 Data Collection Method

Questionnaire application based on voluntary principle was applied to the patients.

3.7.1 Questionnaire Form

In the questionnaire; background, reasons of applying to the policlinic, assessment of eating habits, general health conditions of applicants and eating habits were questioned.

Part 1. Background

In this part; gender, age, BMI, umbilical circumference, hip circumference measurements were assessed.

Part A: The reason of applying to the Policlinic was Asked.

In this part, it was asked to the patients why they applied to the dietician. It was requested from the patients to mark one or several of options among "I want to lose weight, gain weight, eat healthily and in balanced way or I come upon recommendation of doctor".

Part B: Eating Habits were assessed.

In this part, 7 different questions were asked to the patients. How many meals they eat in a day, whether they eat fast or not, how many times they chew a bite in average, refreshment habits, whether they skip meal or not, which meal they skip mostly, what they prefer as snack mostly were asked.

Part C: Reasons of Gaining Weight were questioned.

In this part, diets of patients, disease histories, consumption of dessert and bread, state of giving up smoking and whether they gained weight in the post-pregnancy period or not were asked.

Part D: Patients' General Health States and Eating Habits in Psychological Changes were questioned.

Whether they experience constipation or not, smoking and use of alcohol, whether their mental states increases the eating or not and in which states they eat much were questioned.

3.8 Assessment of questionnaire results

Data were analyzed with Statistical Programme for Social Sciences (SPSS) program.

4 FINDINGS

SPSS v22.0 was used.

Tests used,

In the questionnaire; frequency analysis, test of independent groups (chi-square relation)**,** Kruskall Wallis Test, Pearson correlation were used.

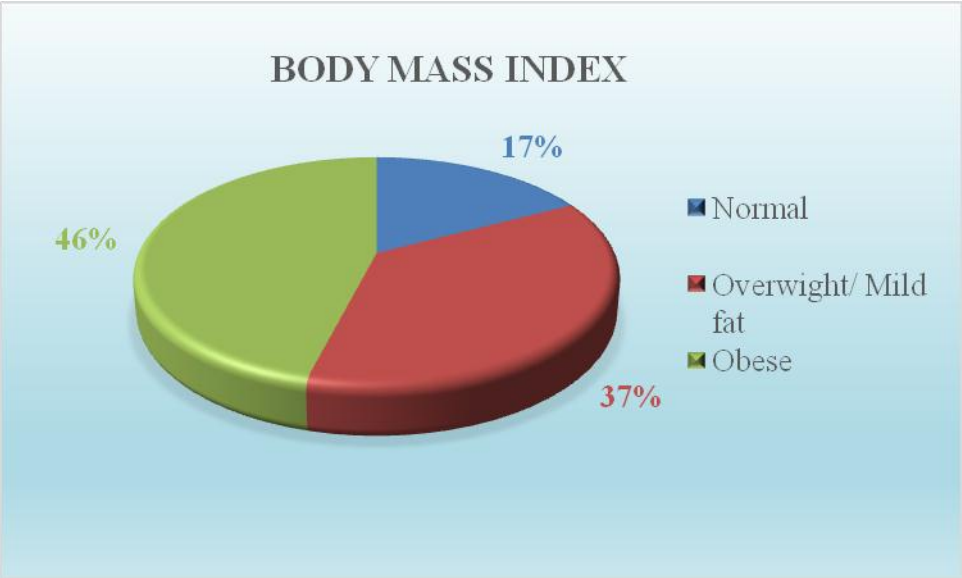
In the analysis of data, descriptive statistics such as frequency, arithmetic mean, standard deviation, minimum, maximum, frequency, percentage were used. Chi-square relation analysis was used in comparison of 2 independent groups. In comparison of 2 non-parametric independent groups and more, Kruskal Wallis test was applied. Pearson correlation coefficient was calculated in the analysis of relation. One or several choices can be marked in the questionnaire.

4.1 Demographic Information

Totally, 98 individuals participated into the study. When gender distribution of these individuals is evaluated; 83% (n=81) are women and 17% (n=17) are men.

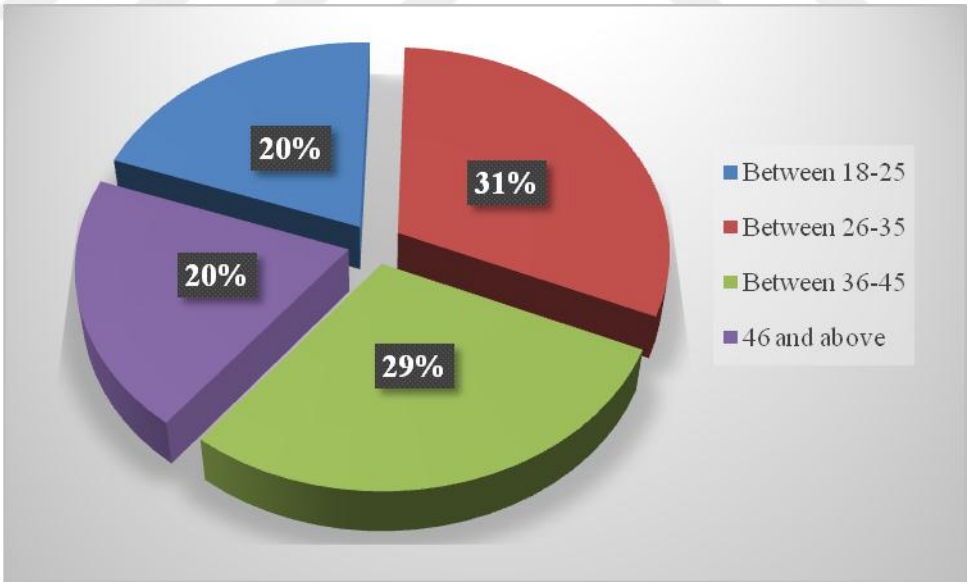
Schedule 1 Gender distribution

When BMI (Body mass index) values of individuals who participated into the study are examined; it is seen that 17% are normal (between 18,5-24,99), 37% are overweight/mild fat (25-29,99), 46% are obese (30 and older).



Schedule 2 Body mass index (BMI) distribution

When age groups of individuals who participated into the study are examined; it is seen that 20% (n=20) are in 18-25 age group; 31% (n=30) are in 26-35 age group; 29% (n=28) are in 36-45 age group and 20% (n=20) are in the age group of 46 and above.



Schedule 3 Age group distribution

Minimum-maximum, arithmetic mean and standard deviation values concerning age, BMI, umbilical and hip circumference (cm) measurements of individuals who participated into the study were presented.

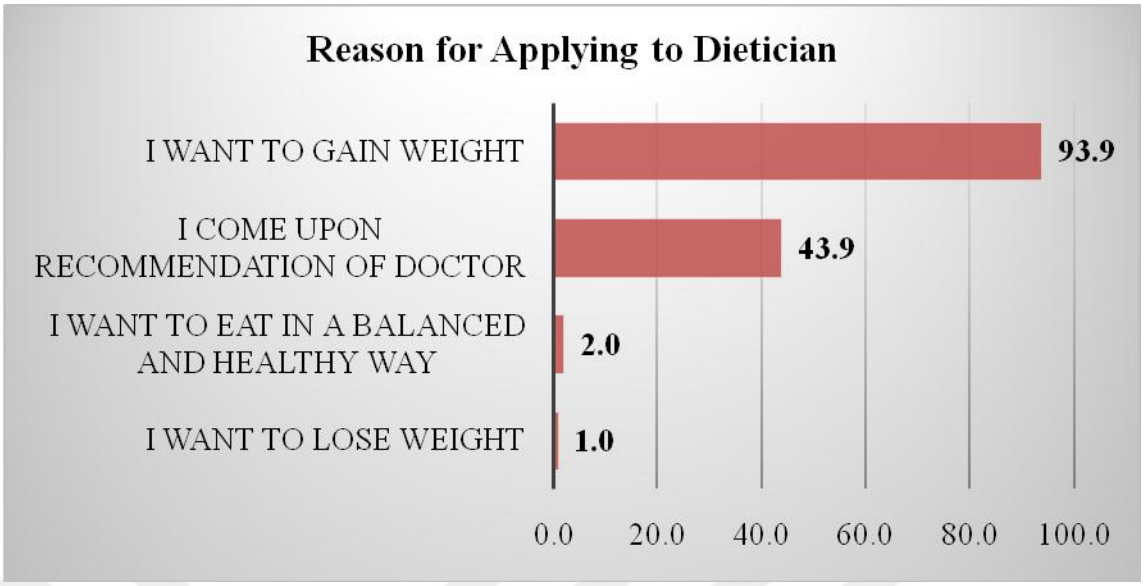
Average mean of individuals is 35,24 ± 10,77. The lowest BMI of individuals who participated into the study is 18,2, the highest BMI is 42,8, average BMI is 29,85 ± 5,33. Average umbilical circumference is 102,97 ± 12,41, average hip circumference is 111,31 ± 9,34.

	N	Min - Max	AO ± SS
Age	98	(18-64)	35,24±10,77
BMI	98	(18,2 – 42,8)	29,85 ± 5,33
Umbilical circumference (cm)	98	(77 – 140	102,97 ± 12,41
Hip circumference (cm)	98	(89 – 134)	111,31 ± 9,34

Schedule 4 Descriptive statistics

When individuals who participated into the study are asked to say the reasons for applying dietitian;

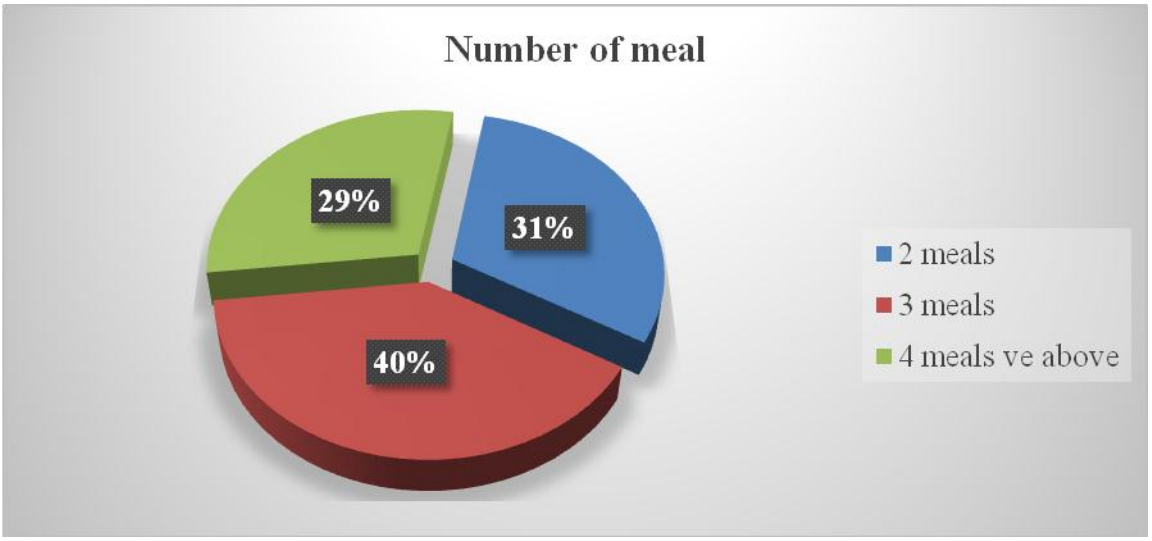
94% stated that they applied to the dietitian in order to want to lose weight and 44% applied for feeding in a balanced and healthy way. Also, too small portion came upon doctor recommendation or applied for gaining weight.



Schedule 5 Distribution of the reason for applying to the dietitian

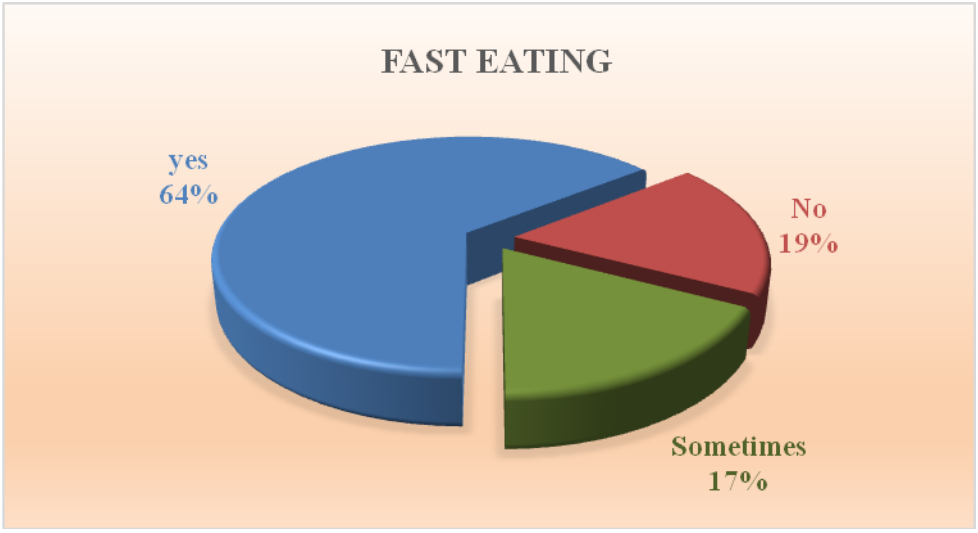
4.2 Food Habits

When daily meal numbers of individuals who participated into the study are evaluated; it is seen that 31% have 2 meals, 40% have 3 meals and 29% have 4 meals and more. Here, it can be said that daily meal numbers of individuals who participated into the study are normal.



Schedule 6 Meal number distribution

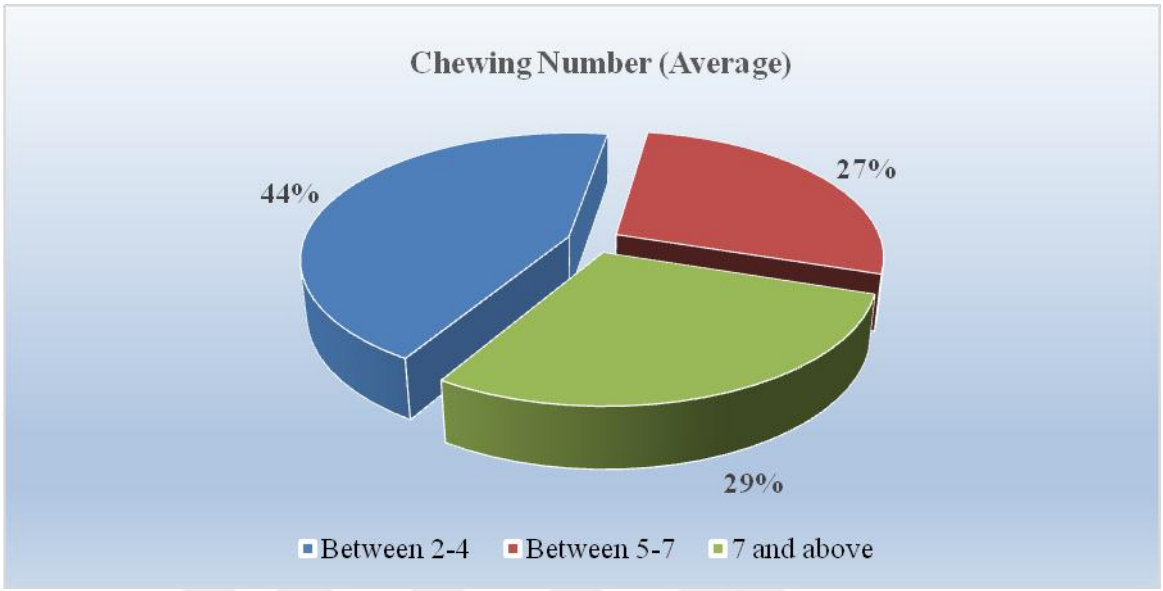
When fast eating states of individuals who participated into the study are evaluated;
it is seen that 64% eat fast, 19% do not eat fast. Also, it is seen that 17% sometimes eat fast.



Schedule 7 Fast eating

When chewing numbers (average) of foods which individuals who participated into the study eat are evaluated;

it is seen that 44% chew for 2-4 times, 27% chew for 5-7 times and 29% chew for 7 times and more.



Schedule 8 Chewing number of individuals in meals

When chewing numbers (average) of foods which individuals who participated into the study eat are evaluated; it is argued that there is a ratio between Chewing number and BMI, as stated in Table 5. It is argued that individuals who eat a bite in a chewable size by chewing 3-4 times are mostly obese or less often overweight, those who eat by chewing for 5-7 times are mostly overweight or less often obese, those who eat by chewing for 7-11 times are mostly in their ideal weight or less often overweight, those who chew for more than 11 times are generally thin or in the ideal range.

Table 5. Rating of BMI values with Chewing number

Chewing Number	**BMI RATIO RANGE** **MAJORITY**	**BMI RATIO RANGE** **MINORITY**
2-4 times	≥ 30 obese	25-30 overweight
5-7 times	≥25-30 overweight	≥ 30 obese
7-11 times	≥19-25 ideal	25-30 overweight
11 times and more	≤18 thin	≥19-25 ideal

96% of individuals who participated into the study stated that they skip meal and 4% do not skip their daily meals. 26% of individuals who skipped their meal stated that they skip their breakfasts, 50% skip their lunch, 46% skip their refreshments and 6% skip their dinners.

When reasons of individuals who skipped meals for skipping the meals are evaluated; 38% stated that they skip their meals due to negligence, 36% due to working conditions, 19% due to density, 14% due to forgetfulness and 8% due to sleep.

Do you skip meal?	Frequency(n)	Percentage(%)
Yes	94	96,0
No	4	4,0
Total	98	100,0
Which meal or meals do you skip?	Frequency(n)	Percentage(%)
Breakfast	25	25,5
Lunch	49	50,0
Refreshment	45	45,9
Dinner	6	6,1
Reason for skipping meal	Frequency(n)	Percentage(%)
Forgetting	14	14,3
Working Conditions	35	35,7
Sleep	8	8,2
Negligence	37	37,8
Density	19	19,4
Other	5	5,1
Total response number	118	120,4
Total number of replied individuals	94	96,0

Schedule 9 State of skipping meal

Refreshment habits and snacking preferences of participants of the research are presented in the schedule. Frequency and percentage values are given in the schedule. The question of snack preferences is a multi-response question, that is, an individual gave more than one response to this question.

Pursuant to the schedule, 38% of participants of the research stated that they have refreshment and 62% do not have refreshment. When snacking preferences of individuals having refreshment are examined; it is seen that 45% consume junk food; 37% consume dried nuts; 32% consume fruit; 28% consume pastry and 14% consume fizzy drinks, fruit juices, etc.

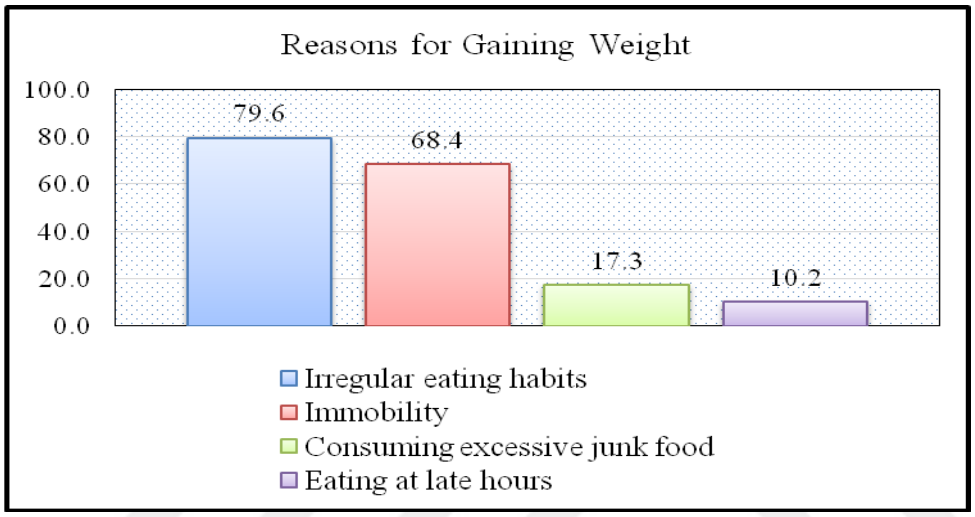
Do you have refreshment habit?	Frequency(n)	Percentage(%)
Yes	37	37,8
No	61	62,2
Total	98	100,0
What do you prefer as snacks?	Frequency(n)	Percentage(%)
Pastry	27	28,0
Fizzy drink, fruit juices, etc.	14	14,0
Fruit	32	31,0
Dried nuts	37	36,0
Junk food	45	44,0
Total response number	152	155,0
Total number of replied individuals	37	37,8

Schedule 10 Refreshment habit

4.3 Reasons for Gaining Weight

When individuals are asked to say their reasons for gaining weight;

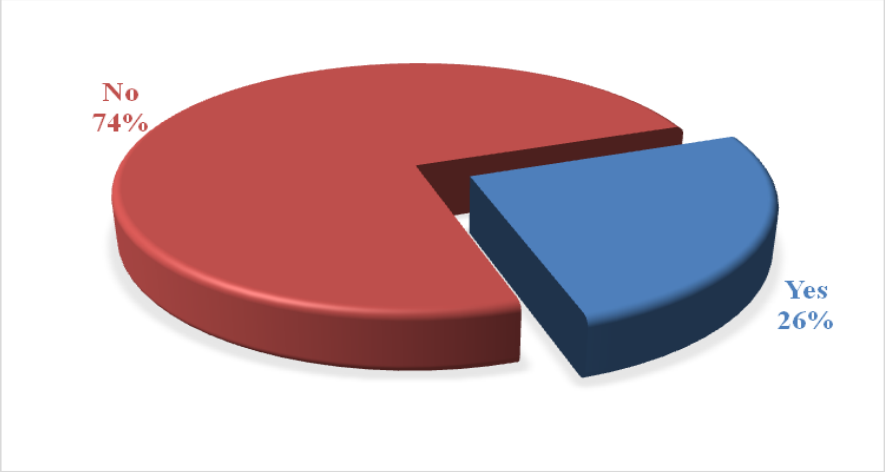
80% stated that they gain weight due to irregular eating, 68% due to immobility (not doing exercise), 17% due to consuming much junk food and 10% due to eating in late hours



Schedule 11 Reasons for gaining weight

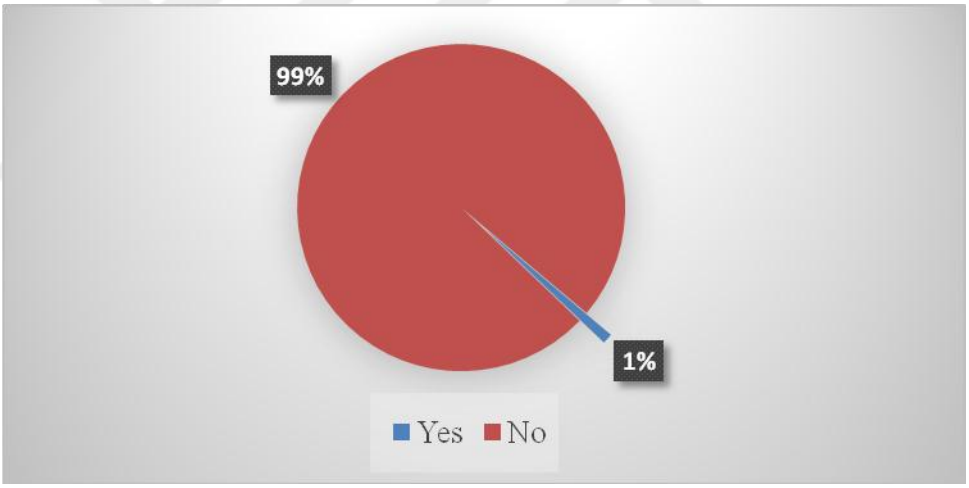
4.4 State of Health

When constipation problem of individuals participating into the study is evaluated; it is seen that 74% do not have constipation problem and 26% have constipation problem.



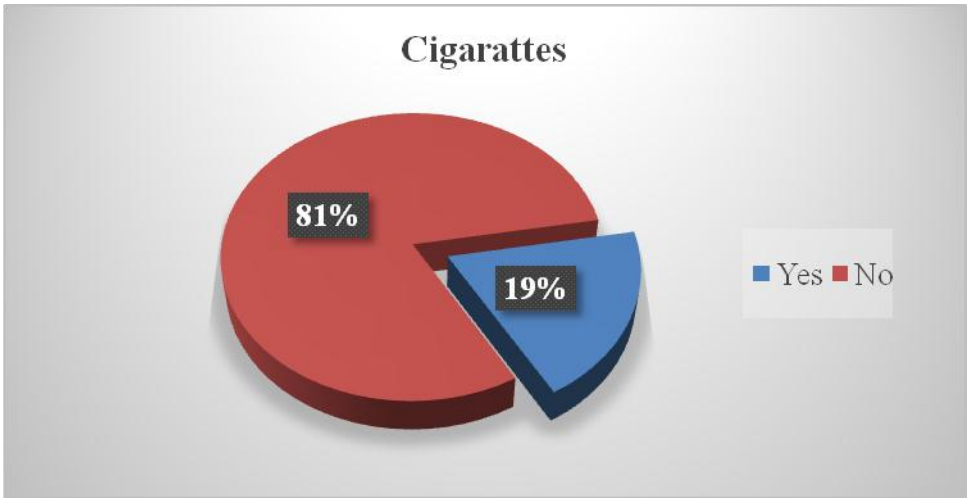
Schedule 12 State of constipation

When diarrhea problem of individuals participating into the study is evaluated; it is seen that 99% do not have diarrhea problem and 1% has diarrhea problem.



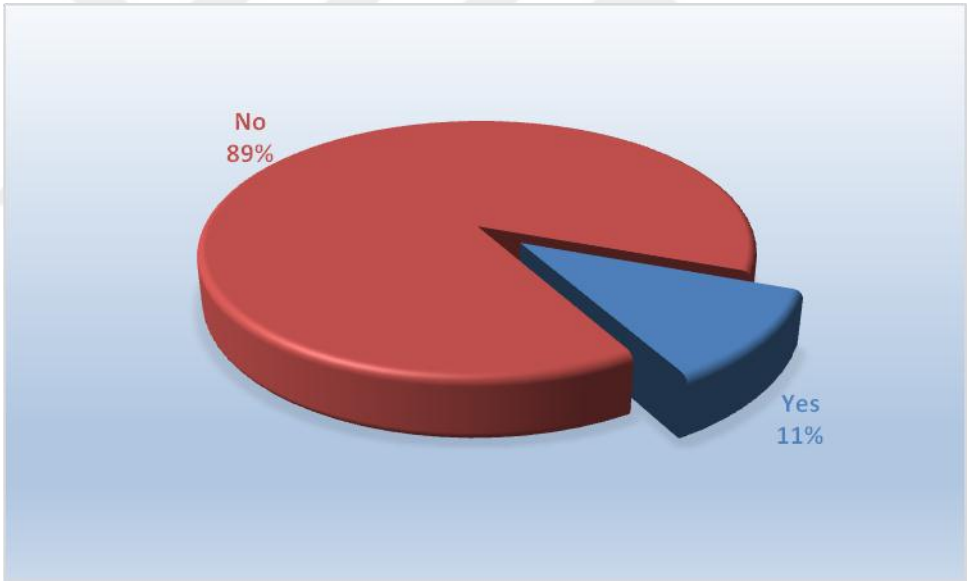
Schedule 13 State of diarrhea

When smoking states of individuals participating into the study are evaluated; 19% stated that they smoke, 81% do not smoke.



Schedule 14 State of smoking

When states of alcohol use of individuals who participated into the study are evaluated; 11% stated that they use alcohol, 89% do not use alcohol.



Schedule 15 State of alcohol use

When state of nutrition affected by the mood of individuals who participated into the study is evaluated;

79% stated that their moods affect their diet, 21% stated that their moods do not affect their diet. %48 of individuals whose diet is affected by the mood stated that they overeat due to emptiness, 43% while getting angry, 14% while being stressful, 12% while being unhappy, 11% for happiness. Also, 2% stated that they always overeat.

Does your mood affect their diet?	Frequency(n)	Percentage(%)
Yes	77	78,6
No	21	21,4
Total	98	100,0
In which states do you overeat?	Frequency(n)	Percentage(%)
While getting angry	42	42,9
Due to emptiness	47	48,0
While being happy	11	11,2
While being unhappy	12	12,2
Always	2	2,0
While being stressful	14	14,3
Total response number	128	130,7
Total number of replied individuals	77	78,6

Schedule 16 State of nutrition affected by the mood

(Since several choices can be marked in the study, total response number has increased.*

4.5 Relation Analyses

When the relation between gender variable and obesity is evaluated with chi-square analysis; there is no significant relation between gender and obesity since p-probability value obtained is p = 0,076>0,05. Obesity does not vary between genders.

Gender		BMI			Total
		Normal	Mild fat	Obese	
Man	N	0	6	11	17
	%	0,0%	35,3%	64,7%	100,0%
Woman	N	17	30	34	81
	%	21,0%	37,0%	42,0%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,076>0,05

Schedule 17 Analysis of relation between gender and obesity

When the relation between age groups and obesity is evaluated; there is a significant relation between age groups and obesity since p-probability value is p=0,041<0,05. As the age of individuals increases, the risk of being obese increasingly continues.

Age groups		BMI			Total
		Normal	Mild fat	Obese	
18-25	N	5	11	4	20
	%	25,0%	55,0%	20,0%	100,0%
26-35	N	8	9	13	30
	%	26,7%	30,0%	43,3%	100,0%
36-45	N	4	8	16	28
	%	14,3%	28,6%	57,1%	100,0%
46 and above	N	0	8	12	20
	%	0,0%	40,0%	60,0%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,041<0,05

Schedule 18 Analysis of Relation between Age Groups and Obesity

Kruskal Wallis test is used for determining whether there is a significant difference between means belonging to a dependent variable in independent two or more groups or not. This test is the non-parametric equivalent of one-way ANOVA. Data values are ranked in the analysis, rank totals are calculated by dividing rank totals to group size and these means are compared.

When whether there is a relation between umbilical and hip circumferences of participants of the study and obesity or not is evaluated, chi-square or p-probability values given in the Schedule of test statistics are used. Since p-probability value we obtained for both variables is smaller than 0,05, the result is significant.

When the rank means given in the Schedule are considered, umbilical and hip circumferences (cm) of obese individuals are higher compared with other conditions. That is, umbilical and hip circumferences of obese individuals are higher.

Variables	BMI	N	Mean Rank
Umbilical circumference (cm)	Normal	17	14,21
	Mild fat	36	37,19
	Obese	45	72,68
	Total	98	
Hip circumference (cm)	Normal	17	17,65
	Mild fat	30	34,40
	Obese	34	58,50
	Total	81	

Test Statistics[a,b]

	Umbilical	Hip
Chi-Square	62,869	37,970
df	2	2
Asymp. Sig.	,000	,000

a. Kruskal Wallis Test

b. Grouping Variable: BMI

Schedule 19 Analysis of relation between umbilical and hip circumference and obesity

When the relation between fast eating habits of individuals and obesity is evaluated; there is a significant relation between fast eating and obesity since p-probability value is p=0,017<0,05. Accordingly, it is seen that obese individuals eat in a faster way.

Fast Eating		BMI			Total
		Normal	Mild Fat	Obese	
Yes	N	5	27	31	63
	%	7,9%	42,9%	49,2%	100,0%
No	N	7	5	6	18
	%	38,9%	27,8%	33,3%	100,0%
Sometimes	N	5	4	8	17
	%	29,4%	23,5%	47,1%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,017<0,05

Schedule 20 Analysis of relation between fast eating and obesity

When the relation between chewing number and obesity is evaluated; there is a significant relation between chewing number in bites of individuals in their meals and obesity since p-probability value is p=0,038<0,05. It can be said that obese individuals chew their bites less and therefore, they gain weight in a faster rate.

Chewing number		BMI			Total
		Normal	Mild Fat	Obese	
2-4 times	N	3	21	19	43
	%	7,0%	48,8%	44,2%	100,0%
5-7 times	N	5	7	15	27
	%	18,5%	25,9%	55,6%	100,0%
7 times and more	N	9	8	11	28
	%	32,1%	28,6%	39,3%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p=0,038<0,05

Schedule 21 Analysis of relation between chewing number and obesity

When the relation between skipping meal and obesity is evaluated; there is no significant relation between skipping meal and obesity since p-probability value is p=0,626>0,05. However, it is seen in the Schedule that obese individuals skip meals more.

Skipping meal		BMI			Total
		Normal	Mild Fat	Obese	
Yes	N	17	34	43	94
	%	18,1%	36,2%	45,7%	100,0%
No	N	0	2	2	4
	%	0,0%	50,0%	50,0%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,626 > 0,05

Schedule 22 Analysis of relation between skipping meal and obesity

When the relation between refreshment habit and obesity is evaluated; there is no significant relation between refreshment habit and obesity since p-probability value is p=0,244>0,05.

Refreshment habit		BMI			Total
		Normal	Mild Fat	Obese	
Yes	N	5	11	21	37
	%	13,5%	29,7%	56,8%	100,0%
No	N	12	25	24	61
	%	19,7%	41,0%	39,3%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,244>0,05

Schedule 23 Analysis of relation between refreshment habit and obesity

When the relation between reasons for gaining weight and obesity is evaluated; it is seen that 36% of those having irregular eating habits are mild fat and 46% are obese; 33% of those not exercising are mild fat and 52% are obese; 50% of those eating at late hours are mild fat and 30% are obese and 41% of those consuming junk food much more are mild fat and 35% are obese. This shows that irregular eating habits, not exercising, eating at late hours and consuming excessive junk food stimulate the obesity in individuals and cause individuals to be obese in future. Values and rates obtained are the biggest indicator of this.

Reasons for gaining weight	BMI			Total
	Normal	Mild fat	Obese	
Eating in an irregular way	14	28	36	78
	17,9%	35,9%	46,2%	
Immobility	10	22	35	67
	14,9%	32,8%	52,2%	
Eating at late hours	2	5	3	10
	20,0%	50,0%	30,0%	
Consuming excessive junk food	4	7	6	17
	23,5%	41,2%	35,3%	
Consuming excessive fizzy drink or beverages	0	0	1	1
	0,0%	0,0%	100,0%	
Circle of friends	0	3	0	3
	0,0%	100,0%	0,0%	
Diseases (hormonal disorders)	1	1	3	5
	20,0%	20,0%	60,0%	
What I eat causes me to gain weight actually I do not eat much	0	1	1	2
	0,0%	50,0%	50,0%	
Eating excessively	1	1	1	3
	33,3%	33,3%	33,3%	
Eating dessert much	0	1	0	1
	0,0%	100,0%	0,0%	
Excessive addiction for the bread	0	0	1	1
	0,0%	0,0%	100,0%	
Total	32	69	87	188

Schedule 24 Relation between reasons for gaining weight and obesity

When the relation between constipation state and obesity is evaluated; there is a significant relation between constipation state of individuals and obesity since p-probability value is $p=0,039<0,05$. Constipation problem prevails among non-obese individuals compared with obese individuals.

State of constipation		BMI			Total
		Normal	Mild Fat	Obese	
Yes	N	6	13	6	25
	%	24,0%	52,0%	24,0%	100,0%
No	N	11	23	39	73
	%	15,1%	31,5%	53,4%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,039 < 0,05

Schedule 25 Analysis of relation between state of constipation and obesity

When the relation between diarrhea state and obesity is evaluated; there is no significant relation between diarrhea and obesity since p-probability value is p=0,244>0,05.

State of diarrhea		BMI			Total
		Normal	Mild Fat	Obese	
Yes	N	0	1	0	1
	%	0,0%	100,0%	0,0%	100,0%
No	N	17	35	45	97
	%	17,5%	36,1%	46,4%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,419 > 0,05

Schedule 26 Analysis of relation between diarrhea and obesity

When the relation between smoking and obesity is evaluated; there is no significant relation between smoking and obesity since p-probability value is p=0,234>0,05. A non-proportional increase is seen in weights of obese individuals even though they do not smoke.

Smoking		BMI			Total
		Normal	Mild Fat	Obese	
Yes	N	5	4	10	19
	%	26,3%	21,1%	52,6%	100,0%
No	N	12	32	35	79
	%	15,2%	40,5%	44,3%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,234 >0,05

Schedule 27 Analysis of relation between smoking and obesity

When the relation between alcohol use and obesity is evaluated; there is no significant relation between alcohol use and obesity since p-probability value is p=0,166>0,05. A non-proportional increase is seen in weights of obese individuals even though they do not use alcohol.

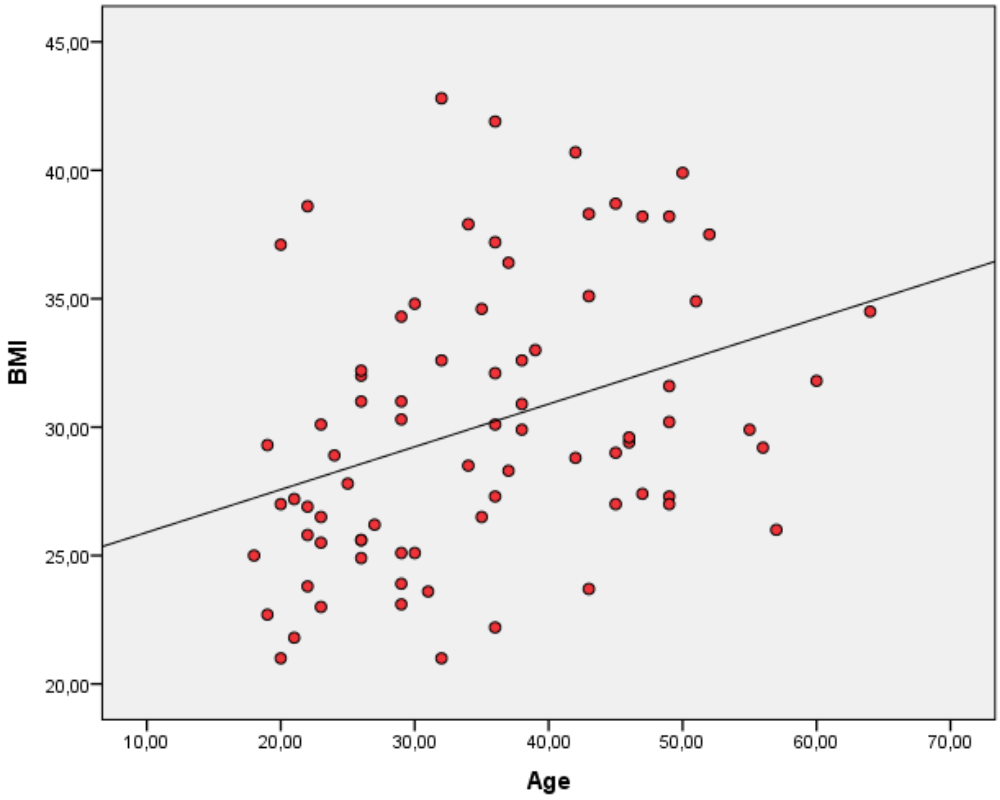
Alcohol use		BMI			Total
		Normal	Mild Fat	Obese	
Yes	N	1	2	8	11
	%	9,1%	18,2%	72,7%	100,0%
No	N	16	34	37	87
	%	18,4%	39,1%	42,5%	100,0%
Total	N	17	36	45	98
	%	17,3%	36,7%	45,9%	100,0%

p = 0,166 >0,05

Schedule 28 Analysis of relation between alcohol use and obesity

4.6 Correlation Analyses

According to results obtained when relation of BMI values by the age is examined;
there is significant relation between r=0,339** and BMI based on the age in a low rate. That is, an increase is seen in BMI values depending on the increase in the age (Figure 1). Also, increasing BMI values lead to obesity problem.



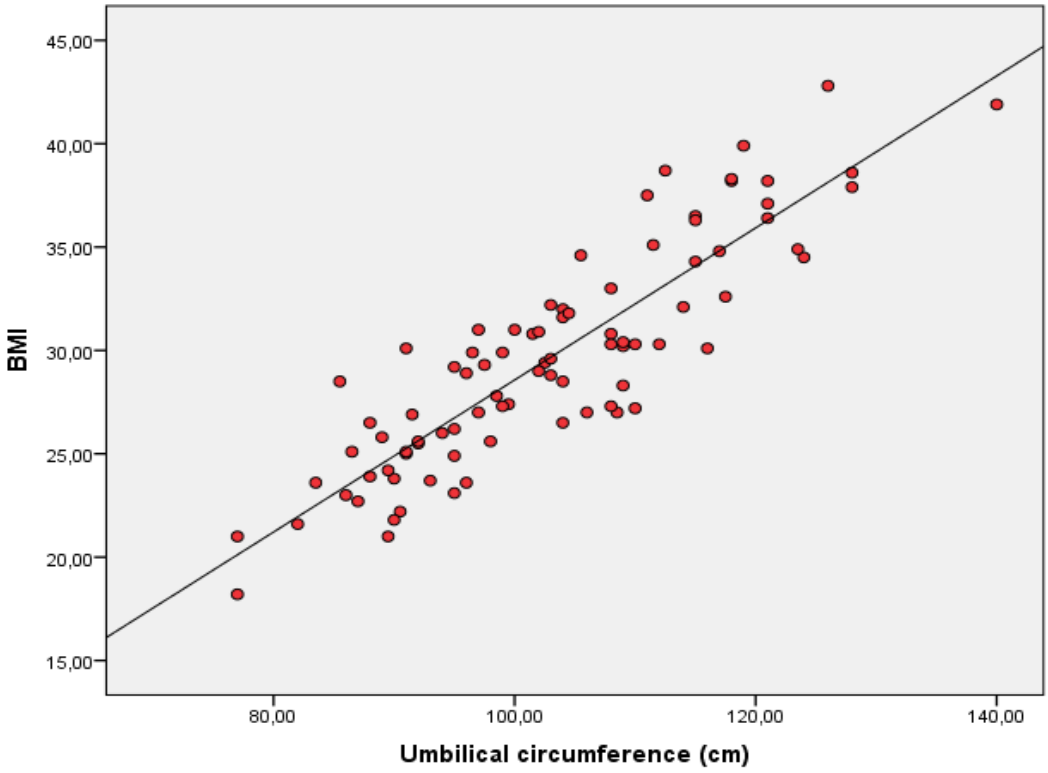
Correlations

		BMI	age
BMI	Pearson Correlation	1	,339**
	Sig. (2-tailed)		,001
	N	98	98

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 1. Correlation coefficient of age and BMI values

According to results obtained when relation of BMI values by umbilical circumference is examined; there is a significant relation between r=0,877** and BMI values in a high rate depending on umbilical circumference. To sum up, increases in umbilical circumference lead BMI values to increase and have a direct impact on obesity (Figure 2).



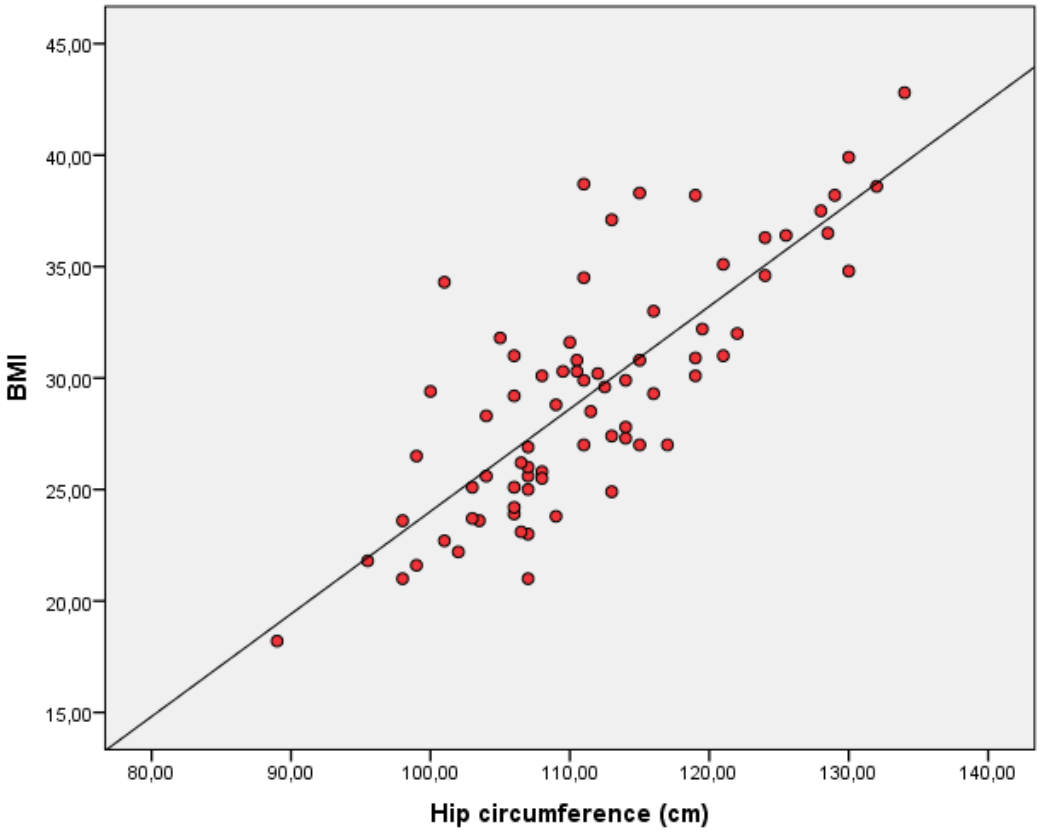
Correlations

		BMI	Umbilical
BMI	Pearson Correlation	1	,877**
	Sig. (2-tailed)		,000
	N	98	98

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 2. Correlation coefficients of umbilical circumference and BMI values

According to results obtained when relation of BMI values by hip circumference is examined; there is a significant relation between r=0,805** and BMI values depending on hip circumference in a good level. This measurement is made only in women, it is seen that increase in hip cicumference of women affects BMI values and consequently leads the obesity problem to reveal (Figure 3).



Correlations

		BMI	Hip
BMI	Pearson Correlation	1	,805**
	Sig. (2-tailed)		,000
	N	98	81

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 3. Correlation coefficients of hip circumference and BMI values

5 DISCUSSION AND CONCLUSION

1) When BMI (Body mass index) values of participants are examined; it is seen that 17% are normal (between 18,5-24,99), 37% are overweight/mild fat (25-29,99), 46% are obese (30 and older). When it is examined throughout Turkey, the rate of those who are overweight was found as 34,6%, those who are overweight and fat as 64,9% and those who are too fat as 2,9% totally. (http://beslenme.gov.tr/index.php?lang=tr&page=40) While the rate of obesity was found as 22% in TURDEP study conducted in 1999, obesity rate was found as 44.5% in TOHTA study; the obesity rate was found as 36.2% in Turkish Metabolic Syndrome Research (METSAR) conducted in 2004 (15), (74), (75). All these data show that obesity prevalence is increasing day by day in our country like the other world countries.

2) When the relation between gender variable and obesity is evaluated with chi-square analysis; there is no significant relation between gender and obesity since p-probability value obtained is p = 0,076>0,05. Obesity does not vary between genders. This result contradicts with the results of some other studies. In studies of TURDEP conducted in 1999, TEKHARF conducted in 2000 and TOHTA conducted in 2000, obesity prevalence seen in women are 22.0%, 32.0%, 36.2%, respectively. Also, in the studies conducted by Satman, Schooling, Fouad, Koski et al, the obesity prevalence in women was found higher than men (15), (76-77).

3) When the relation between age groups and obesity is evaluated in the study; there is a significant relation between age groups and obesity since p-probability value is p=0,041<0,05. As the age of individuals increases, the risk of being obese increasingly continues.

In the study conducted by Nazlıcan et al., it was found that the obesity prevalence in women is low in young ages, as the age increases, it is higher (78).

In the study conducted by Berilğen et al., it was observed that the obesity starting at the childhood age also continues in the advancing periods. In the same time, a close relation

was seen between the age when the obesity started in the childhood age and its severity in the adult age (79-80).

4) Mean umbilical circumference is 102,97 ± 12,41 and hip circumference is 111,31 ± 9,34 in the study. In results of TURDEP-2, waist circumference of women was measured as 93cm, hip circumference as 109 cm; waist circumference of Turkish men was measured as 97cm, hip circumference as 105cm (15).

5) When individuals who participated into the study are asked to say the reasons for applying dietitian; 94% stated that they applied to the dietitian in order to want to lose weight and 44% applied for feeding in a balanced and healthy way. Also, too small portion came upon doctor recommendation or applied for gaining weight. When this statistics is evaluated, it is remarkable that the number of patient directed by doctor is small. The role of nutrition in the treatment of diseases has been proved. It is known that obesity causes important health problems globally. Increasing weight and the increase in the number of obese individuals play a principal role in increase of chronic diseases all over the world (81). Increase in the rate of obesity is an important risk factor in increase of diabetes mellitus, musculoskeletal disorders (particularly osteoarthritis), renal diseases, gall bladder diseases, cardiovascular diseases (particularly cardiac disease and stroke) and some cancer types (endometrium, breast, uterus, gis and colon cancers) and mental disorders (82).

Eating Habits: Our country includes the problems of both developing countries and developed countries in terms of nutrition aspect. Nutritional state of people in Turkey varies by regions, season, socio-economic level and urban-rural settlement places. The main reason for this situation is the instability in distribution of income. The nature and prevalence of nutritional problems vary. Also, lack of knowledge in nutrition leads to wrong food selection, wrong preparation, cooking and storing methods to be applied and also dimensions of nutrition problems to increase (83).

The main nutritional source of Turkish people is grain and bread (74). Average 44% of daily energy is met from only bread, 58% from bread and other grain products. When the food consumption by years is examined; it is seen that bread, milk-yoghurd, meat and meat products, fresh fruit and vegetable consumption decreases; legume, egg and sugar

consumption increases. Although there is no important difference in oil consumption, it is observed that vegetable oil's consumption has increased compared with solid oil consumption (5).

6) When daily meal numbers of individuals who participated into the study are evaluated; it is seen that 31% have 2 meals, 40% have 3 meals and 29% have 4 meals and more. A significant relation between obesity and regular three main meals, however, the obesity state of those who eat three main meals every day has been observed lower. The same result was obtained in the study of Çayır and Kuyumcu (83-84). It is supposed that eating regularly controls the weight gain (85-86).

7) 96% of individuals who participated into the study stated that they skip meal and 4% do not skip their daily meals. When the relation between skipping meal and obesity is evaluated, a significant relation was not found between skipping meal and obesity. However, it has been observed that obese individuals skip their meals much more.
Also, a significant relation was not specified between skipping meal and obesity in the study of Deveci et al. (87).
26% of individuals who skipped their meal stated that they skip their breakfasts, 50% skip their lunch, 46% skip their refreshments and 6% skip their dinners.
In the dissertation study with questionnaire conducted by Yılmaz, 5.3% of participants did not consume their breakfast meal, 1% did not consume their lunch meal (67).
In the study conducted by Ateş, nutritional habits of patients were examined, it is seen that 25.9% had 2 main meals, 74.1% had 3 main meals; 27.1% had no refreshment, 32.9% had 1 refreshment, 36.5% had 2 and 3.5% had 3 refreshments. It was seen that 97.6% of participants of his study skipped their meals and the mostly skipped meal is refreshment with a rate of 89.4%, lunch meal follows it with a rate of 30.6% (88).
In some studies, it is said that having frequent meals leads to obesity. Also in the study conducted by Fabry et al., a strong relation was found between having frequent meals and body weight. According to this study; the obesity risk of those who consume 3 and less meals has increased 60%, the obesity risk of those who consume 3-4 meals has increased 45% and the obesity risk of those who consume 5 and above meals has increased 30% (89).

8) When reasons of individuals who skipped meals for skipping the meals are evaluated; 38% stated that they skip their meals due to negligence, 36% due to working conditions, 19% due to density, 14% due to forgetfulness and 8% due to sleep. When the relation between the state of skipping meal and obesity was assessed in the study, a significant relation was not seen between skipping meal and obesity. However, it was found that obese individuals skip their meals much more.

In the study of Ateş, reasons of patients skipping meal for skipping meals were generally seen as not having habits (49.4%) and lack of time (44.7%) (88).

When reasons of participants for skipping meals were examined in another study; it was presented that 44.7% skip meal due to lack of time, 34.1% due to feeling disinclined, 9.4% due to for being weak, 49.4% due to having no habit and 4.7% due to non-preparation of the meal. It was seen that people skip meal due to many reasons within the day, for this reason, results obtained are not statistically significant (64).

9) 38% of participants of the research stated that they have refreshment and 62% do not have refreshment. When snacking preferences of individuals having refreshment are examined; it is seen that 45% consume junk food; 37% consume dried nuts; 32% consume fruit; 28% consume pastry and 14% consume fizzy drinks, fruit juices, etc.

When the relation between refreshment habit and obesity in the study is evaluated; there is no significant relation between refreshment habit and obesity since p-probability value is $p=0,244>0,05$. In some studies, it is argued that having refreshment leads to obesity, on contrary to this result. It was stated that when the meal is skipped in order to decrease the total energy, people eat more with the stimulation of hunger and consequently, more insulin is released. Refreshment was recommended in order to suppress the feeling of hunger (90).

It was argued in another study that the increase in average meal number consumed daily and the increase in fat oxidation in relation with having refreshment lead to decrease in the body fat rates. For this reason; individuals were recommended to consume refreshments along with main meals (91).

It is possible to say that one of the permanent behavioral changes for fighting with the obesity is chewing much and eating more slowly.

10) When fast eating states of individuals who participated into the study are evaluated; it is seen that 64% eat fast, 19% do not eat fast. Also, it is seen that 17% sometimes eat fast. Also, it is seen that 17% sometimes eat fast.

According to the study, when relation between fast eating habits of individuals and obesity is examined; a significant correlation is found between fast eating and obesity since p-probability value is p=0,017<0,05. According to this result, it is seen that obese individuals eat faster.

In the study conducted by Higgs et al., it is stated that chewing much decreases refreshments and leads to less caloric intake (91). It is possible to search and develop behavioral nutritional strategies assisting in control of appetite and energy intake and thus, to provide weight control (92).

In the study conducted by Andrese et al., it was observed that chewing much and slow eating in the meals decrease the total calori amount and lead to more satiety and fulness feeling (93).

Pereira et al. compared 115 adolescents with normal weight and overweight and obese 116 adolescents in their study and they demonstrated that overweight and obese adolescents chew at one side and less (94).

11) When chewing numbers (average) of foods which individuals who participated into the study eat are evaluated; it is seen that 44% chew for 2-4 times, 27% chew for 5-7 times and 29% chew for 7 times and more.

When the relation between chewing number and obesity is evaluated according to the study; there is a significant relation between chewing number in bites of individuals in their meals and obesity since p-probability value is p=0,038<0,05. It can be said that obese individuals chew their bites less and therefore, they gain weight in a faster rate. In the study conducted with 131 individuals by Canbay et al., when the state of chewing the meal adequately was assessed, it was found that 50.4% chew their meal less (95).

In the study conducted by Li et al., hormone concentration released by bowels of those who chew a bite for 15 times and 40 times were compared. It was observed that those who chew for 15 times take less calorie compared with those who chew for 40 times and concentration of ghrelin, glikagon-like peptid 1 and cholecystokinin released in post-

prandial period and regulating the appetite were higher in those who chew less. It was argued that this state leads to obesity (96).

One of the factors affecting the chewing much is healthy mouth and teeth structure. When there is factors such as decay and missing teeth in the mouth, the individual cannot chew much. In the study conducted by Zhu et al. on 64 individuals who have no problem in oral and dental health based on this factor, they compared chewing rates of normal weight, overweight and obese individuals and observed that normal weight individuals chew more, obese and overweight individuals chew less and at close rates (97). All studies conducted showed that fast eating has a significant relation with obesity.

12) When individuals are asked to say their reasons for gaining weight; 80% stated that they gain weight due to irregular eating, 68% due to immobility (not doing exercise), 17% due to consuming much junk food and 10% due to eating in late hours. On contrary to the study, obesity and regular eating habits were assessed in the study conducted with 557 individuals by Ayhan et al., no significant relation was found between irregular eating and obesity (98).

In many studies, it was specified that inadequate physical activity and inactive life-style lead to obesity both in childhood age and adolescent age (36), (99).

In another study conducted regarding nutritional habits and obesity, it was observed that irregular and inadequate nutrition and frequent consumption of harmful foods such as junk food lead to obesity (100).

13) When diarrhea problem of individuals participating into the study is evaluated; it is seen that 99% do not have diarrhea problem and 1% has diarrhea problem. There is no significant relation between diarrhea and obesity. Any study supporting that there is a positive relation between obesity and diarrhea was not found.

14) When constipation problem of individuals participating into the study is evaluated; it is seen that 74% do not have constipation problem and 26% have constipation problem. When the relation between constipation state and obesity is evaluated; there is a significant relation between constipation state of individuals and obesity since p-probability value is p=0,039<0,05. Constipation problem prevails among non-obese individuals compared with obese individuals.

On contrary to the study, obesity-constipation relation was assessed in the study conducted with 1077 adolescents by Costa et al., constipation was seen in 18,2% of participants and a close rate was determined between women and men. A relation was not observed between constipation and obesity in this study (101).

In another study conducted with 2820 children aged between 8 and 18 in Columbia, again the relation between constipation and obesity and a significant result was not found (102).

15) When smoking states of individuals participating into the study are evaluated; 19% stated that they smoke, 81% do not smoke. When the relation between smoking and obesity is evaluated; there is no significant relation between smoking and obesity. A non-proportional increase is seen in weights of obese individuals although they do not smoke.

In the study conducted by Çayır et al., higher obesity rate was seen in smokers than those who never smoke and gave up smoking although there is no significant relation between obesity and smoking. It makes us think that smoking decreases the appetite. It was stated in the study of Fouad, Maskarinec et al., Efil that obesity prevalence is high in those who gave up the smoking (76), (85), (103), (104). In the study of Bakhshi, a decreasing relation was found between smoking and obesity (105). This result shows similarity with other studies (106-108).

On contrary to these studies, it was observed in the study conducted by Doğan et al. that smokers have lower obesity prevalence, this rate is higher in non-smokers. It was argued that smoking generally leads to change in metabolism of fat cells and weight gain and particularly increase in lipoprotein lipase activity in fat tissue, this increase will contribute into the weight gain in the body by interrupting the smoking. It was asserted that since smoking has a reverse effect on development of obesity, smokers are thinner, weight gain starts with giving up the smoking (108-111). This situation is also caused by increased appetite, increased time allocated for eating instead of smoking and mental problems. In

the other studies conducted, smoking was assessed as a risk factor affecting the obesity in negative direction (109). In another study, while similar results were obtained in men who have higher smoking rates, it was found unimportant in females (111).

16) When states of alcohol use of individuals who participated into the study are evaluated; 11% stated that they use alcohol, 89% do not use alcohol.
When the relation between alcohol use and obesity is evaluated; there is no significant relation between alcohol use and obesity since p-probability value is p=0,166>0,05. However, this result should be assessed regionally. In other studies, it was shown that alcohol consumption will lead to increase in BMI in females and males. Since both calorie of alcohol and foods consumed with the alcohol will increase the total calorie amount, it may cause obesity (112), (113).

Although there is no significant relation between obesity and alcohol use, rate of obesity in those consuming regular alcohol is higher than those who never consume alcohol or sometimes use alcohol. It is considered that high caloric content of alcohol leads to this situation. Similar result was also found in various studies (87), (113).

In the study of Aktener, obesity was found being associated with energy amount taken daily and spent, it was determined that normal weight individuals get less energy than mild fat and obeses and spend more energy. This makes us think that energy balance is decisive in development of obesity (114).

17) When state of nutrition affected by the mood of individuals who participated into the study is evaluated; 79% stated that their moods affect their diet, 21% stated that their moods do not affect their diet. %48 of individuals whose diet is affected by the mood stated that they overeat due to emptiness, 43% while getting angry, 14% while being stressful, 12% while being unhappy, 11% for happiness. Also, 2% stated that they always overeat.
It is supposed that there is a significant relation between psychological factors and obesity. Studies stating that this situation is based on childhood age were conducted. In a study conducted, it was argued that negative relationships among mother, father and child impair

the mental conditions of children and direct children to more eating (115). It was asserted that this condition affects the school success of the child negatively, leads to behavioral disorders such as failure to make friends, fall in socialization and thus, child is inclined to excessive eating by being passive (36). It was argued that loss of appetite develops in some children and some children develop overeating in response to the psychological problems (116). For this reason, it is supposed that obesity developed in adolescent age further increases due to psychological disorders (117), (118).

LIMITATION

The obtained results were assessed by the responses given instantly in line with the statement of individuals in questionnaire study. Any device which will measure the chewing number was not used, it was put into statistics by the responses of individuals. This condition is the weak aspect of the dissertation.

6. REFERENCES

1) Europian Charter on Counteracting Obesity, WHO Europian ministerial Conference on Counteracting Obesity Conference Report, WHO, 2007.
2) Schooling, et al., 2006; Insel, et al., 2007
3) WHO. Global Strategy on Diet, Physical Activity and Health. Geneva, WHO,2004.
4) Alexander, C.M., et al., NCEP-defined metabolic syndrome, diabetes, and prevalence of coronary heart disease among NHANES III participants age 50 years and older. Diabetes, 2003. 52(5): p. 1210-4.
5) Ulusal Eylem Planı, 2008; Woodward, et al., 2005
6) Pekcan, (2001). Türkiye'de Beslenme Sorunları ve Boyutları: Besin ve Beslenme Politikalarının Önemi. Yeni Türkiye Sağlık Özel Sayısı, 39 (1):572-585
7) WHO,5. Risk factors. World Health Statistics 2012. WHO, 2012.
8) World Health organization(WHO), (2007), 'The Change of obesity in the WHO European Region and the Strategies for response summary', Denmark.
9) Cecchini M, Sassi F, Lauer JA, Lee YY. Chonic Deseases: Chronic desease and Development 3. Tackling of unhealthy Diets, Phsical İnactivity, and Obesity: Health Effects And Cost-Effectiveness. November 11,2010. DOI:10.1016/S0140-6736(10)61514-0.
10) National Heart Form, (2008), Healhty Weight Healthy Lives: A Toolkit fo Develping Loocal Strategies, www.heartforum.org.uk.
11) WHO Global database on bady mass index Access 24 November 2010 http://www.apps.who.int/bmi/index.jsp?introPage=intro_3.html
12) Dünya sağlık örgütü Avrupa Obezite ile Mücadele Bakanlar Toplantısı *Sağlık İçin Diyet Ve Fiziksel Aktivite* İstanbul, Türkiye, 15-16 Kasım 2006.
13) Wabithsch M. Overveight and obesity in European children: Definition and diagnostic procedures, risc factors and consequences for later health outcome. Eur J Pediatr 2000; 159:S8-S13
14) Doak CM, Visscher TL Renders CM, Seidell JC. The prevention of overweight and obesity in children and adolescents. A reviev of interventions and programmes. Obesity Reviews 2006;;7:1:111-136

15) Satman İ, Alagöl F, Ömer B, Kalaca S, Tütüncü S, Çolak N, Boztepe H, Genç S, Çakır B. „‟TURDEP-II Study Group‟‟‟, Eur J Epidemiol, 2013, 28:169-80.
16) Günöz H. Şişmanlık. In: Neyzi O, Ertuğrul T.(eds), Pediatri 3. Baskı, Đstanbul: Nobel Tıp Kitabevi, 2002.
17) Öner N, Vatansever Ü, Sari A, Ekuklu G, Güzel A, Karasalihoğlu S, Boris NW. Prevelance of underweight, overweight and obesity in Turkish adolescents. Swıss Medical Weekly 2004; 134:529-533.)
18) Koyuer EY. Obez, Tip-II Diyabetli Hastalarda İnsülin Direnci İle IL-6, CRP ve Fibrinojen İlişkisi, Uzmanlık Tezi, Şişli Etfal Eğitim ve Araştırma Hastanesi Biokimya ve Klinik Biokimya Laboratuarı, İstanbul 2005: 62.
19) Pouliot MC, Després JP, Lemieux S et al. Waist circumference and abdominal sagittal diameter: best simple anthropometric indexes of abdominal visceral adipose tissue accumulation and related cardiovascular risk in men and women. Am J Cardiol. 1994; 73(7): 460-468.
20) Despres JP, Denis P, Pouliot MC, Tremblay A, Bouchard C. Estimation of deep abdominal adipose-tissue accumulation from simple anthropometric measurements in men, Am J Clin Nutr l991; 54: 47l-477
21) Saruhan S. , (1996), Yaşlılarda Beslenme Durumunun Değerlendirilmesinde Kullanılan Antropometrik Ölçümlerin Geçerliliğinin Saptanması Üzerine Bir Çalışma, (Bilim Uzmanlığı Tezi), Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü, Ankara
22) Metin N.,(2000) Şişman Kadın Hastalarda Vücut Yağ Miktarının Belirlenmesinde Üst Kol Antropometrik Parametrilerin Değeri, (Yüksek Lisans Tezi), İstanbul Üniversitesi Sağlık Bilimleri Enstitüsü, İç Hastalıkları Anabilim Dalı,), İstanbul, 2000.
23) Taner Z., (1996) Kistik Fibrozisli Hastaların İzlenmesinde Nütrisyon ve İnflamasyon Durumunun Değerlendirilmesinin Önemi, (Uzmanlık Tezi), İstanbul Üniversitesi Tıp Fakültesi Çocuk Sağlığı ve Hastalıkları Anabilim Dalı, İstanbul.
24) Dunitz M., (2001) *Obezite ve İlişkili Hastalıkların Tedavisi.* 1. Baskı, İstanbul, AND Danışmanlık Eğitim Yayıncılık ve Organizasyon Ltd. Şti.
25) George A. Bray, Peter S.W. Davıes, Jean-Pıerre Despres, et al.(1998) *Klinik Obezite*. 1. Baskı. Blackwell Scianse Limited, Oxford.
26) (WHO, 2010). WHO Global database on bady mass index Access 24 November 2010 www.who.int/bmi/index.jsp?introPage=intro_3.html

27) Kandemir D. Obezitenin sınıflandırılması ve klinik özellikleri. Katkı Pediatri Dergisi 2000; 21(4): 500-506.
28) Öztora S. İlköğretim çağındaki çocuklarda obezite prevalansının belirlenmesi ve risk faktörlerinin araştırılması. Uzmanlık Tezi, 2005.
29) Atalay A, Kutsal YG. Pediatrik obezite ve egzersiz. Katkı Pediatri Dergisi, 2000; 21(4); 537-548
30) Hillsdon M, Thorogood M, Anstiss T, Morris J. Randomised controlled trials of physical activity promotion: a review. Journal of Epidemiology and Community Health 1995, 49, 448 453
31) WHO. Global Strategy on Diet, Physical activity and Health. Genova, WHO, 2004.
32) www.tiroit.org
33) Aksoydan E. Her yönüyle Obezite, *Obezitenin gelişiminde ailenin ve çevresel faktörlerin önemi.* İstanbul. 2012
34) Anderson, P.M., Butcher, K.F. and Levine, P.B.(2002). Maternal Employment and Overweight Children, National Bureau of Economic Research, Working Paper No:8770 www.nber.org/papers/w8770
35) Semerci, C. N., (2004)Obezite ve Genetik,Gülhane Tıp Dergisi 46 (4), s. 353 359.
36) ÖZTORA, S. (2005). İlköğretim Çağındaki Çocuklarda Obezite Prevelansının Belirlenmesi ve Risk Faktörlerinin Araştırılması. Uzmanlık Tezi. İstanbul. s:57
37) Aksoydan E. 2012. Her yönüyle Obezite, *Obezitenin gelişiminde ailenin ve çevresel faktörlerin önemi.* İstanbul. 2012
38) Levine P.B.(2003). Economic perspectives on childhood obesity, Economic Perspectives, S:3Q, s.3048.
39) Türkiye Obezite ile Mücadele Programı ve Ulusal Eylem Planı (2008-2012) 3. Taslak, Sağlık Bakanlığı Temel Sağlık Hizmetleri Genel Müdürlüğü Beslenme v Fiziksel Akiviteler Daire Başkanlığı, Ankara.
40) Kunkel, D. (2001). Children and television advertising. In D.G. Singer & J.L. Singer (Eds.), The handbook of children and media, Thousand Oaks, CA: Sage Publications, 375394
41) Cawley,(2000). Body Weight and Women's Labor Market Outcomes, NBER Working Paper No. 7841 Issued in August 2000.

42) Cutler, D. and Glaeser, E., and Shapiro,J.(2003). Why have Americans become more obese?, Journal of Economics Perspectives, Sayı:17, s.93118.
43) Lakdawalla, D., ,Philipson T.(2002). The growth of obesıty and technologıcal change:A theoretıcal and empırıcal examınatıon, Natıonal Bureau of Economıc Research, Working Paper 8946 www.nber.org/papers/w8946
44) Çetin M. (2007). Obezitenin İktisadi Belirleyicileri, Yüksek Lisans Tezi, Denizli. 2007).
45) Erge S. Obezitede Diyet Tedavisini Destekleyen Davranışsal Tedavi, Turkish Journal of Endocrinology and Metabolism 2003; (Suppl. 2) : 75-82
46) Jenna L. Scisco, Eric R. Muth, (2009) Slowing Bite-Rate Reduces Energy Intake: An Application of the Bite Counter Device. The *Journal of the Academy of Nutrition and Dietetics* August 2011 Volume 111, Issue 8, Pages 1231–1235.
47) Morton GJ, Cummings DE, Baskin DG, Barsh GS, Schwartz MW. Central nervous system control of food intake and body weight. Nature 2006; 443: 289–295
48) Pournaras DJ, le Roux CW. Obesity, gut hormones, and bariatric surgery. World J Surg. 2009;33:1983–1988.
49) Peeters A, O'Brien PE, Laurie C, et al. Substantial intentional weight loss and mortality in the severely obese. Ann Surg. 2007;246:1028–1033.) (11,12)

50) Erişen L. (2003). Oral Kavite Fizyolojisi. Uludağ Üniversitesi. Bursa, 2003. Foreyt JP, Paschali AA. Davranış tedavisi ve obezite ve ilişkili hastalıkların tedavisi 1. Baskı, AND Yayıncılık 8: 165-178, 2003.
51) Foreyt JP, Paschali AA. Davranış tedavisi ve obezite ve ilişkili hastalıkların tedavisi 1. Baskı, AND Yayıncılık 8: 165-178, 2003.
52) Mutlu H. (2015), Çocukluk çağı travmalarının erişkin dönem obezitesiyle ilişkisinin değerlendirilmesi. Başkent Üniversitesi Sağlık Bilimleri Enstitüsü Beslenme ve Diyetetik Anabilim Dalı, Doktora Tezi, 2015.11

53) Cannon CP, Kumar A. Treatment of Overweight and Obesity: Lifestyle, Pharmacologic, and Surgical Options, Clinical Cornerstone 2009; 9(4): 55-71.
54) Jensen MD, Ryan DH, Apovian CM, Ard JD, Comuzzie AG, Donato KA et al. 2013 AHA/ACC/TOS guideline for the management of overweight and obesity in adults: a

report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and The Obesity Society. Circulation 2014; 129: S102–S138

55) Bellack AS. Behavior therapy for weight reduction. Addict Behav 1975; 1: 73–82

56) Kral JG, Buckley MC, Kissileff HR, Schaffner F. Metabolic correlates of eating behavior in severe obesity. Int J Obes Relat Metab Disord 2001; 25: 258–264.

57) Aktaş D., Öztürk F. (2015) Adölesanlarda obezite sıklığı ve etkileyen risk faktörleri, beslenme alışkanlıklarının belirlenmesi. TAF Preventive Medicine Bulletin DOI: 10.5455/pmb.1-1427447620 http://www.scopemed.org/fulltextpdf.php?mno=183394

58) Ohkuma T. (2015). Association between eating rate and obesity: a systematic review and meta-analysis. International Journal of Obesity (2015) 39, 1589–1596

59) BAYSAL, A., BAŞ, M. (2008). Yetişkinlerde Ağırlık Yönetimi. İstanbul: Express Yayınları. p:17-18.

60) TAi, M., CASTIIO, P., XAVIER, F. (1991). Meal size and frequency: effect on the thermic effect of food. American Journal of Clinical Nutrition. 54: 783-7.

61) BERTONE, E. R., STANEK, E. J., REED, G. W., HEBERT, J. R., COHEN, N. L. (2003). Association between Eating Patterns and Obesity in a Free-living US Adult Population. American Journal of Epidemiology. 158: 85-92

62) GOODMAN, A., JOHNSON, K., SHEVLĠN, K. (2003). The Effect of Meal Frequency on Preprandial Resting Metabolic Rate. Journal of Undergraduate Research VI.

63) Yılmaz S. (2010). Yetişkinlerde öğün sıklığının vücut kompozisyonu üzerine etkisi. Başkent Üniversitesi Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi, Ankara, 2010.

64) Sağlık Bakanlığı Sağlık Araştırmaları Genel Müdürlüğü, Hacettepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik Bölümü, Ankara Numune Eğitim ve Araştırma Hastanesi. Türkiye Beslenme ve Sağlık Araştırması 2010: Beslenme Durumu ve Alışkanlıklarının Değerlendirilmesi Sonuç Raporu. Sağlık Bakanlığı Yayın No: 931, Ankara 2014.

65) Nicklas,T. A., Baranowski, T., Cullen,K. W. (2001). Eating patterns, dietary quality and obesity. American Journal of Clinical Nutrition. 6: 599-608.

66) Baysal A, Aksoy M, Besler HT, ve ark. Diyet El Kitabı, 6.baskı, Ankara, Hatipoğlu Kitapevi, Türkiye, 2011.

67) Savige, G., Macfarlane, A., Ball, K., Worsley, A. (2007). Snacking behaviours of adolescents and their association with skipping meals. International Journal of Behavioral Nutrition and Physical Activity. 4: 36.
68) Yılmaz S. (2010). Yetişkinlerde öğün sıklığının vücut kompozisyonu üzerine etkisi. Başkent Üniversitesi Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi.Ankara, 2010.
69) Buckroyd , J. (2011). Understanding Your Eating How to eat and not worry about it. Open University Press
70) Gould, R. (2007) Shriink yourself Break Free from Emotional Eating Forever. John Wiley & Sons, Inc) (Matz, J. ve Frakel, E. (2004) Beyond a Shadoe of the Diet. The Therapist's guide to treating compulsive eating. Brunner-Rutletge :: Newyork.
71) Gould R. (2007). Shrink Yourself Break Free from Emotioal Eating Forever. John Wiley & Sons, Inc.)
72) Cogner J. C., Costanzo, P., Wright, L., (2006). The Effect of Social Cues on the Eating. Behavior of Obese and Normal Subjects. Journal of Personality, 48(2)pp 258-271.)
73) Bozkurt S. (2012) "Duygusal açlık nasıl doyurulur?". Her Yönüyle Obezite: Önleme ve Tedavi Yöntemleri. Türkiye Diyetisyenler Derneği Yayını. Ankara 2012.s.(154-157
74) T.C. Sağlik Bakanliği Temel Sağlik Hizmetleri Genel Mudurluğu. Turkiye Obezite ile Mucadele ve Kontrol Programi (2010-2014). Sağlık Bakanlığı Yayınları, No. 773, Kuban Matbaası, Ankara 2010.
75) METSAR araştırıcıları. Türk erişkinlerde metabolik sendrom prevalansı. TKD XX. Ulusal Kongre Kitabı, Antalya, 2004.
76) Fouad MF, Rastam S, Ward KD, Maziak W. Prevalence of Obesity and Its Associated Factors in Allepo, Syria. Prev Control 2006;2:85-94.
77) Schooling CM, Lam TH, Li TH, Ho SY, Chan WM. Obesity, Physical Activity and Mortality in A Prospective Chinese Elderly Cohort. Arch Intern Med 2006;166:1498-1504.
78) Nazlıcan, (2007) Adana İli Solaklı ve Karataş Merkez Sağlık Ocağı Bölgesinde Yaşayan 20-64 Yaş Arası Kadınlarda Obezite ve İlişkili Risk Faktörlerinin İncelenmesi. Düzce Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi 2011;1(2): 5-12.
79) Berilğen, (2015) Obezitenin Ortodontik Düzenlemelerle İlişkisi, Ege Üniversitesi Diş Hekimliği Fakültesi Ortodonti Anabilim Dalı İzmir. (2015)

80) Sedula MK; İvery D, Ceates RJ et al Do. Obese children become obese adults? A reviev f the literature. Prev Med 1993, 22, s: 167-177.
81) Yıldırım, M., Akyol, A., Ersoy, G. (2008). Şişmanlık (Obezite) ve Fiziksel Aktivite, Enerji Dengesinin Aktivite Yönüne Bir Bakış. Sağlık Bakanlığı Yayın No: 729, Klasmat Yayınevi, Ankara.
82) Anderson, S. E., Cohen, P., Naumova, E. N., Jacques, P. F, Must, A. (2007). Adolescent obesity and risk for subsequent major depressive disorder and axiety disorder: Rospective evidence. Psychomatic Medicine, 69: 740- 747.
83) Pekcan G. Beslenme Sorunlarının Önlenmesi: Besin, Beslenme Plan ve Politikalarının Önemi. Ankara İli Beslenme Alışkanlıkları ve Mutfak Kültürü. Sempozyum Bildirileri ve Katalog. Ankara,VEKAM; 1999: 129-134.
84) KUYUMCU, G. (2007). Ankara Üniversitesi Tıp Fakültesi 1. ve 6. Sınıf Öğrencilerinde Vücut Kitle İndeksi ve Bazı İlişkili Etmenler. Ankara Üniversitesi Tıp Fakültesi Halk Sağlığı Anabilim Dalı Tıpta Uzmanlık Tezi. s: 127.
85) Çayır, A. (2011). Beslenme ve Diyet Kliniğine Başvuranlarda Obezite Durumu ve Etkili Faktörlerin Belirlenmesi. Ankara Üniversitesi Tıp Fakültesi Mecmuası 2011, 64(1).
86) EFİL, S. (2005). Sağlık Çalışanlarında Obezite Sıklığı ve Etkileyen Faktörlerin Değerlendirilmesi. İç Hastalıkları Hemşireliği Anabilim Dalı Yüksek Lisans Tezi. Afyon. s.:57.
87) DEVECİ, S. E., GÜLER, H., DEMET, M., ÖZMEN, E., HEKİMSOY, Z. (2004). Elazığ Emniyet Müdürlüğü Kurum Hekimliği Polikinliğine Başvuran Polislerde Obezite Sıklığı. Fırat Üniversitesi Sağlık Bilgileri Dergisi, 18 (4): 223-228.
88) Ateş B., (2015) Fonksiyonel Konstipasyonu Olan Yetişkin Bireylerin Beslenme Durumlarının Değerlendirilmesi. Başkent Üniversitesi Yüksek Lisans Tezi, Ankara 2015.
89) BELLISLE, F., MCDEVITT, R., PRENTĠCE, A. M. (1997). Meal frequency and energy balance. British Journal of Nutrition. 77: 57-70.)
90) DE ZWAAN, M., MĠTCHELL, J. E., HOWELL, L. M. (2002). Two measures of health-related Quality of life in morbid obesity. Obesity Research. 10: 1143-1151
91) Higgs S., Jones A. (2012). Prolonged Chewing at Lunch Decrease Later Snake Intake. Appetite 62 (2013) 91-95

92) Melason Kj. Food İntake Regulation İn Bady Weight Manegement: A primer. Nutrition Today. 2004;39:203-215

93) Andrese A., Greene G. (2008). Eating Slowly Lead to Decrease in Energy Intake Within Meals in Healthy Women. Journal of The American Dietetic Association 2008;108:1186-1191

94) Pereira A.,Araujo D., Scudine K. (2016). Chewing in adolescents with overweight and obesity: An exploratory study with behavioral approach. Journal of Appetite 107 (2016) 527-533

    a. http://ac.els-cdn.com/S0195666316304469/1-s2.0-S0195666316304469-main.pdf?_tid=bc22a9d0-938f-11e6-b0ad-00000aab0f01&acdnat=1476615802_297c4622086e8c4c6092ce7331eb7494

95) Canbay Ö., Doğru E.,(2016). Bir Üniversite Hastanesi Çalışanlarında Obezite Görülme Sıklığının ve Beslenme Alışkanlıklarının Araştırılması. Bakırköy Tıp Dergisi, Cilt 12, Sayı 3, 2016 / Medical Journal of Bakırköy, Volume 12, Number 3, 2016.

96) Li J, Zhang N, Hu LZ, Li Z, Li R, Li C, et al. (2011). Improvement in chewing activity reduces energy intake in one meal and modulates plasma gut hormone concentrations in obese and lean young Chinese men. Am J Clin Nutr 94:709–716.

97) Zhu Y., Hollis J. (2015) Relationship between chewing behavior and body weight status in fully dentate healthy adults. Int J Food Sci Nutr, 2015; 66(2): 135–139.

98) Ayhan E., Günaydın D. (2012) Uludağ Üniversitesi Tıp Fakültesi Öğrencilerinin Beslenme Alışkanlıkları ve Bunları Etkileyen Faktörler. Uludağ Üniversitesi Tıp Fakültesi Dergisi 38 (2) 97-104, 2012.

99) Karacabey K. (2009) The effect of exercise on leptin, insulin, cortisol and lipid profiles in obese children. The Journal of International Medical Research. 37(5):4:1283-9.

100) Neumark-Sztainer D, Story M, Resnick MD, Blum RW. Psychosocial concerns and weight control behaviors among over weight and non over weight Native American adolescents. J Am Diet Assoc 1997; 97: 598-604.

101) Costa M., Oliviera J., ‘ Overweight and constipation in adolescents ’ Costa et al. BMC Gastroenterology 2011, 11:40 http://www.biomedcentral.com/1471-230X/11/40

102) Koppen IJ., Velasco-Benítez CA;, Is There an Association between Functional Constipation and Excessive Bodyweight in Children?, The Journal Of Pediatrics [J

Pediatr] 2016 Apr; Vol. 171, pp. 178-82.e1. *Date of Electronic Publication:* 2016 Jan 16.

103) Efil S. Sağlık Çalışanlarında Obezite Sıklığı ve Etkileyen Faktörlerin Değerlendirilmesi. İç Hastalıkları Hemşireliği Anabilim Dalı Yüksek Lisans Tezi. Afyon 2005;S:57

104) Maskarinec G, Takata Y, Pagano I, Carlin L, Goodman M, Marchand L, Nomura A. Trends and Dietary Determinants of Overweight and Obesity in A Multiethnic Population. Obesity 2006;14:717-26.

105) Bakhshi E, Eshraghian MR, Mohammad K, Foroushani AR, Zeraati H, Fotouhi A et al. Sociodemographic and smoking associated with obesity in adult women in Iran: Results from the National Health Survey. J Public Health 2008;30:429-35.

106) Ersoy C, Imamoğlu S, Tuncel E, Erturk E, Ercan I. Comparison of the factors that influnce obesity prevelance in three district municipalities of the same city with different socioeconomical status: a survey analysis in an urban Turkish population. Preventive Medicine 2005;40(2):181-8

107) Aktener AY, Dülger Hİ, Erkayhan GE, Görmeli G, Kafadar FS, Yıldız M, et al. [Obesity prevalence in reproductive age and postmenopausal women aged between 20-64 years in a semi-urban area]. Trakya Üniversitesi Tıp Fakültesi Dergisi 2006;23(3):119- 26.

108) Xu F, Yin XM, Wang Y. The association between amount of cigarettes smoked and overweight, central obesity among Chinese adults in Nanjing, China. Asia Pac J Clin Nutr 2007;16(2):240-7.

109) Erem C, Arslan C, Hacıhasanoğlu A, Değer O, Topbaş M, Ukinc K, et al. Prevalence of obesity and associated risk factors in a Turkish population (Trabzon city, Turkey). Obes Res 2004;12(7):1117-27.

110) Yalçın BM, Sahin EM, Yalçın E. Prevalence and epidermiological risk factors of obesity in Turkey. Middle East Journal of Family Medicine 2004;6(6):1-5.

111) Marques-Vidal P, Bochud M, Mooser V, Paccaud F, Waeber G, Vollenweider P. Prevalence of obesity and abdominal obesity in the Lausanne population. BMC Public Health 2008;8:330.

112) Breslow RA, Smothers BA.(2005) Drinking patterns and body mass index in never smokers: national health interview survey, 1997-2001. Am J Epidemiol. 15;161(4): 368-76.

113) Tolstrup JS, Heitmann BL, Tjonneland AM, Overvad OK, Sorensen TI, Gronbaek MN. (2005) The relation between drinking pattern and body mass index and waist and hip circumference. Int J Obes Relat Metab Disord. 11[Epub ahead of print]

114) AKTENER, A,. DÜLGER, H.,ERKAYHAN, G., GÖRMELİ, G., KAFADAR, F. (2006).Yarı Kırsal Bir Bölgede 20-64 yaş Üreme Çağı ve Menopoz Sonrası Kadınlarda şişmanlık sıklığı. Trakya Üniversitesi Tıp Fakültesi Tıp Fakültesi Dergisi, 23 (3): 119-126.

115) Babaoğlu K, Hatun Ş. Çocukluk Çağında Obezite. sted 2002, cilt 11, sayı 1, 8.

116) Parlak A., Çetinkaya Ş.(2007). Çocukların obezitenin oluşumunu etkileyen faktörler. Fırat Sağlık Hizmetleri Dergisi. 2(5).27-33.

117) Güler Y., Gönener H.D., Altay B., GÖNENER A. (2009) Adölesanlarda obezite ve hemsirelik bakımı. Fırat Saglık Hizmetleri Dergisi, Cilt 4, Sayı:10 , s:165.

118) Menteş E., Karacabey K. (2011) Adölesan dönemde obezite ve egzersiz. Uluslararası İnsan Bilimleri Dergisi [Bağlantıda]. 8:2. Erişim: http://www.insanbilimleri.com.

7. APPENDICES

7.1. Ethical Approval

T.C.
İSTANBUL MEDİPOL ÜNİVERSİTESİ
GİRİŞİMSEL OLMAYAN KLİNİK ARAŞTIRMALAR ETİK KURULU

E-İmzalıdır

Sayı : 10840098-604.01.01-E.4580

Konu : Etik Kurulu Kararı

12/12/2015

Sayın Bahar Akçin

Üniversitemiz Girişimsel Olmayan Klinik Araştırmalar Etik Kuruluna yapmış olduğunuz "İstanbul'da Özel Bir Hastanenin Beslenme ve Diyet Polinikliğine Başvuran Hastaların Beslenme Alışkanlıkları ve Çiğneme Sayısının Beden Kitle İndeksiyle İlişkisi" isimli başvurunuz incelenmiş olup, etik kurulu kararı ekte sunulmuştur.

Bilgilerinize rica ederim.

Doç. Dr. Hanefi ÖZBEK
Girişimsel Olmayan Klinik Araştırmalar
Etik Kurulu Başkanı

EK:
-Karar Formu (2 sayfa)

Kavacık Mahallesi Ekinciler Caddesi No: 19 Beykoz / İSTANBUL
Tel: (216) 681 5100 Faks: (212) 531 7555

7.2. Questionnaire Form

Food Habits of Individuals Applied to A Private Hospital in Istanbul and Relation of Chewing Number with Body Mass Index

PERSONAL DETAILS

Patient's Name-Surname:
Occupation:
Age:
Gender:
BMI:
Umbilical circumference:
Hip circumference:

A) WHAT IS YOUR REASON FOR APPLYING TO A DIETICIAN?

1. I want to lose weight ☐
2. I want to gain weight ☐
3. I want to eat healthily ☐
4. I come upon recommendation of doctor ☐

B) WHAT IS YOUR NUTRITIONAL HABITS?

1. How many meals do you eat in a day? ☐1 ☐ 2 3 ☐ 4 ☐ 5 ☐6
2. Do you eat fast? ☐Yes ☐No ☐Sometimes
3. How many times do you chew your bite in average?

2-3 ☐ 3-4 ☐ 5-7 ☐ At least 7 ☐ At least11☐ At least 15 times ☐ At least ☐ 21 times

4. Do you skip your meal? If yes, which meal or meals do you skip?

Breakfast ☐ Lunch ☐ Refreshment ☐ Dinner ☐

5. Why do you skip meal?

Forgetting ☐ Working condition ☐ Sleepi ☐
Negli ☐ce Intensity ☐ Other ☐

6. Do you have refreshment habit? Yes ☐ No ☐
7. What do you prefer as refreshment?

Pastry ☐ Fizzy drink, fruit juices, etc. ☐
Fruit ☐ Dried nuts ☐ Junk food ☐ Other

C. WHY DO YOU GAIN WEIGHT? (Only those who want to loss weight shall reply. Several choices may be checked)

1. Irregular feeding ☐
2. Immobility (not doing exercise) ☐
3. Eating at late hours ☐
4. Eating excessive junk food ☐
5. Consuming excessive fizzy drink or fruit juice ☐
6. Circle of friends ☐
7. Diseases (such as hormonal disorders) ☐
8. I do not eat much but anything I eat cause me to gain in weight ☐
9. Eating excessively ☐
10. Eating dessert much ☐
11. Fondness for bread ☐
12. Giving up smoking ☐
13. Pregnancy and post-pregnancy ☐

D) YOUR HEALTH CONDITION

1. Do you have any problem such as constipation? No ☐ Yes ☐
2. Do you have any problem such as diarrhea? No ☐ Yes
3. Do you smoke? No Yes ☐
4. Do you drink alcohol? No Yes ☐

Does your mood affect your nutrition? Yes No

5. If yes, in which condition do you eat much?

I eat when I get angry ☐
I eat due to emptiness ☐
I eat when I am happy ☐
I eat when I am unhappy ☐
I always eat ☐
I eat when I am stressful ☐

8. CURRICULUM VITAE

Kişisel Bilgiler

Adı	Bahar	**Soyadı**	Akçin
Doğum yeri	Afyon/Dinar	**Tarihi**	20.02.1990
Uyruğu	T.C.	**Tel**	+905375215062
E mail	bahar_bhrakcn@windowslive.com		

Öğrenim Durumu

Derece	**Alan**	**Mezun olduğu kurumun adı**	**Mezuniyet yılı**
Yüksek lisans	Beslenme ve Diyetetik	Yeditepe Üniversitesi	2017
Lisans	Beslenme ve Diyetetik	Yeditepe Üniversitesi	2014
Lise	Fen	Özel Toros Anadolu lisesi	2008

Bildiği Yabancı Dilleri	**Yabancı Dil Sınav Notu**
İngilizce	

İş Deneyimi

Görevi	**Kurum**	**Süre (Yıl-Yıl)**
Diyetisyen	Üsküdar Özel Yunus Emre Hastanesi	2014/ Halen