

T.C.
YEDİTEPE UNIVERSITY
INSTITUTE OF HEALTH SCIENCES
DEPARTMENT OF NUTRITION AND DIETETICS

**THE RELATIONSHIP BETWEEN
MEDITERRANEAN DIET ADHERENCE AND
MINDFUL EATING AMONG INDIVIDUALS WITH
HIGH EDUCATION LEVEL**

MASTER THESIS

HALİDE YILDIRIM

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SUPERVISOR
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APPROVAL

This thesis has been deemed by the jury in accordance with the relevant articles of Yeditepe University Graduate Education and Examinations Regulation and has been approved by Administrative Board of Institute with decision dated 28.01.2021 and numbered 2021/01-44.

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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.

07/01/2021

HALİDE YILDIRIM

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LIST OF SYMBOLS AND ABBREVIATIONS

BMI	Body Mass Index
cm	Centimeter
CVD	Cardiovascular Disease
DHA	Docosaheptaenoic Acid
EPA	Eicosapentaenoic Acid
n	Frequency
HDL	High-Density Lipoprotein
HPLP-II	Health Promoting Lifestyle Profile II
kg	Kilogram
kg/m ²	kilogram/meters ²
LDL	Low Density Lipoprotein
Max	Maksimum
MEDAS	Mediterranean Diet Adherence Scale
MB-EAT	Mindfulness-Based Eating Awareness Training
MEQ-30	Mindful Eating Questionnaire
Min	Minimum
WHO	World Health Organization
MUFA	Monounsaturated Fatty Acids
%	Percentages
PAH	Polycyclic Aromatic Hydrocarbons
PUFA	Polyunsaturated Fatty Acids
SESAMED	Self-Efficacy Scale for Adherence to the Mediterranean Diet
SD	Standard Deviation

ABSTRACT

Yıldırım, H. (2021). The relationship between Mediterranean diet adherence and mindful eating among individuals with high education level. Yeditepe University, Institute of Health Science, Department of Nutrition and Dietetics, Master's Thesis, Istanbul.

The study was conducted to evaluate the relationship of individuals with a high level of education with the adherence to the Mediterranean diet and mindful eating. For this purpose, a questionnaire study was applied to 188 individuals working as academicians at Yeditepe University and ranging in age between 18-65. General information form, Mediterranean diet adherence scale (MEDAS) and mindful eating scale (MEQ-30) were used in the data collection tool. Survey questions were applied face to face to the participants throughout the research. 33.5% of the individuals participating in the study are men and most of them are women with a rate of 66.5%. According to adherence to the Mediterranean diet scale, 56.4% of the participants show low adherence, 30.3% at an acceptable adherence and 13.3% high adherence. According to the MEQ-30 scale, 73.9% of participants have higher mindful eating score. The mean MEQ-30 of the participants who show low adherence to the Mediterranean diet is 3.27 ± 0.53 , it is 3.29 ± 0.54 for those who show an acceptable level of adherence, and 3.44 ± 0.59 for those who show high adherence. Participants with high adherence to the Mediterranean diet have an unexpectedly higher BMI ($p > 0.05$). Participants with high mindful eating scores were found to have lower BMI values. While adherence to the Mediterranean diet increases in individuals with high education levels, mindful eating scores increase, but this situation was found to be statistically insignificant. ($r = 0.128$, $p = 0.080$).

Keywords: Adherence to the Mediterranean Diet, Mindful Eating, Education Level

ABSTRACT (TURKISH)

Yıldırım, H. (2021). Yüksek eğitim düzeyine sahip bireylerde Akdeniz diyetine bağlılığın yeme farkındalığı ile ilişkisi. Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Anabilim Dalı, Yüksek Lisans Tezi, İstanbul.

Araştırma, yüksek eğitim düzeyine sahip bireylerin akdeniz diyetine bağlılığı ve yeme farkındalığı ile ilişkisini değerlendirmek amacıyla yapılmıştır. Bu amaç doğrultusunda Yeditepe Üniversitesinde akademisyen olarak çalışan ve yaşları 18-65 yaş aralığında değişen 188 bireye anket çalışması uygulanmıştır. Uygulanan veri toplama aracında genel bilgi anket formu, akdeniz diyetine bağlılık ölçeği (MEDAS) ve yeme farkındalığı ölçeği (YFÖ-30) uygulanmıştır. Araştırma boyunca anket soruları katılımcılara yüz yüze uygulanmıştır. Katılımcıların %33.5'ü erkek ve %66.5'i kadındır. Akdeniz diyeti bağlılık ölçeğine göre katılımcıların %56.4'ü düşük, %30.3'ü kabul edilebilir düzeyde ve %13,3'ü yüksek bağlılık göstermektedir. YFÖ-30 ölçeğine göre, katılımcıların %73,9'u daha yüksek yeme farkındalığı skoruna sahiptir. Akdeniz diyetine düşük bağlılık gösteren katılımcıların YFÖ-30 ortalamaları $3,27 \pm 0,53$, kabul edilebilir düzeyde bağlılık gösterenlerin $3,29 \pm 0,54$, yüksek bağlılık gösterenlerin $3,44 \pm 0,59$ 'dur. Akdeniz diyetine uyumu yüksek olan katılımcılar beklenmedik bir şekilde daha yüksek BKİ değerlerine sahiptir ($p > 0.05$). Yüksek yeme farkındalığı skoruna sahip olan katılımcıların daha düşük BKİ değerlerine sahip oldukları tespit edilmiştir. Yüksek eğitim düzeyine sahip bireylerde akdeniz diyetine bağlılık artarken yeme farkındalığı skorları artmakta ama bu durum istatistiksel olarak anlamsız bulunmuştur ($r = 0,128$, $p = 0,080$).

Anahtar Kelimeler: Akdeniz Diyetine Bağlılık, Yeme Farkındalığı, Eğitim Düzeyi

1.INTRODUCTION AND PURPOSE

The health effects of the Mediterranean diet first emerged in the late 1950s and the beginning of the 1960s with a seven-country study by Angel Keys. In the study, the relationship between heart diseases and diet was examined, and the definition of the Mediterranean diet was made for the first time (1). Mediterranean style diet is not a specific diet, it is a traditional diet created by people from different countries on the Mediterranean coast (2). In this diet, it is a diet that recommends consumption of high amounts of fruits, vegetables, legumes, fish and seafood, olive oil as the main oil source, moderate consumption of milk and wine, and low red meat consumption (3).

Food choices and eating habits of individuals are determined according to environmental and individual factors. Social, cultural or economic conditions lead to unequal distribution of health outcomes. People with low economic level have short life expectancies and are more likely to get illness than wealthy people. Socioeconomic inequalities have been shown to be associated with all causes of mortality (4).

Included in socioeconomic factors, education has a positive effect on the diet quality index (5). According to a study with a high level of evidence, there is a positive relationship between fruit&vegetable consumption and SES. It has been observed that individuals with high SES have more nutritional knowledge and awareness, thus they make healthier food choices (6).

Mindful eating has been used frequently in recent years to treat eating disorders, obesity, food craving, portion control, weight control and reducing automatic eating (7). Mindful eating is defined as "focusing on why and how eating behaviors rather than what is eaten, internalizing physical hunger-satiety signals, being aware of the effects of emotions and thoughts, without being affected by external factors, without judging food choices, focusing on the food to be consumed here and now" (8). Mindful eating is based on 5 basic principles: Reducing eating speed, evaluating physical hunger-satiety cues, reducing portions size, reducing distraction during eating and enjoying food. It has been observed that individuals with high mindful eating score have lower body mass index (BMI) values (7). Thanks to mindfulness meditations, the mindful eating of individuals

increases and this is reflected in their eating habits (9). In studies conducted, an increase in weight loss and MEQ scores was observed as a result of mindfulness and nutrition training given to individuals (10, 11).

There are many studies examining the education level and adherence the Mediterranean diet. However, this one is the first study examining the relationship between adherence to mediterranean diet and mindful eating among high education level participants.



2.GENERAL INFORMATION

2.1. Mediterranean Diet Definition and General Characteristics

The mediterranean diet is a lifestyle that has existed in Mesopotamia and the eastern Mediterranean region for five thousand years or more (12). The Mediterranean diet was scientifically defined for the first time in the 1960s by Angel Keys in a Seven Countries Study (1).

The traditional Mediterranean diet is characterized with high consumption of vegetables, fruits, olive oil, fish and seafood, herbs and spices, legumes, nuts and cereals (especially whole grains) but low consumption of red meat, moderate consumption of milk and wine with meals (13, 15). Mediterranean diet, which was defined as a sustainable diet due to its environmental, nutritional, economic and sociocultural dimensions in a conference held in Italy in 2009; It was accepted as "The Intangible Cultural Heritage of Humanity" by UNESCO in 2010 (16). The latest update of the Mediterranean diet pyramid in 2011, it reveals that the main concern is ultra-processed food. In the pyramid, not only nutrition-oriented approach, but also social, cultural, traditional and environmental determinants of food were added. Nutrition is not just about lowering of disease risk, but also includes factors such as the preparation, cooking and eating of the food (17).

The target group of Mediterranean diet pyramid recommendations is healthy individuals between the ages of 18-65. Suggestions given to individuals with any disease, pregnant women and children's needs can be reshaped. All food groups are included in the Mediterranean diet pyramid. This diet, which has a rich food variety, minimizes the deficiency of a food group or nutrient. The consumption frequencies and portions of the recommended foods are included in the pyramid (15).

Plant-based foods constitute the basis of the Mediterranean food pyramid. The consumption of olive oil, which is the main oil source of the pyramid, whole grains (1-2 servings), fruits of various colors and textures (1-2 servings), vegetables (2 servings, cooked or raw) are recommended at every meal. Daily consumption of dairy products (2 servings, preferably low-fat) and nuts- seeds (1-2 servings) are recommended. The use of onion, garlic and various spices are recommended to reduce the amount of salt and

increase flavor. In the pyramid, the consumption of potatoes, legumes and animal origin proteins are recommended weekly. It is recommended to consume 2 servings of legumes, 3 servings of potatoes and 2-4 servings of eggs per week. Recommended consumption of fish and seafoods are ≥ 2 servings, white meat is 2 servings and the amount of red meat is < 2 servings per week. Processed red meat consumption should be less than 1 serving per week (15) (Figure 2.1).

Foods which are at the top of the pyramid are rich in fat and sugar. Sugar, sweets, pastries, sweetened drinks and soft drinks should be consumed in small amounts and in special cases. The weekly consumption of such foods should be limited to 2 servings. The wine and other fermented beverages should be consumed with moderation and preferably during meals (1 glass per day for women, 2 glass per day for men) (15).

In the Mediterranean diet pyramid, besides the nutritional importance of food, food has a cultural and social meaning. Cooking and sharing meals with family or friends around a table are among the suggestions highlighted in the pyramid. Consuming traditional and local products and seasonal fresh products are among the suggestions given in the pyramid. Finally, 30 minutes of moderate physical activity per day is recommended for a healthy body weight and balanced energy intake (18).

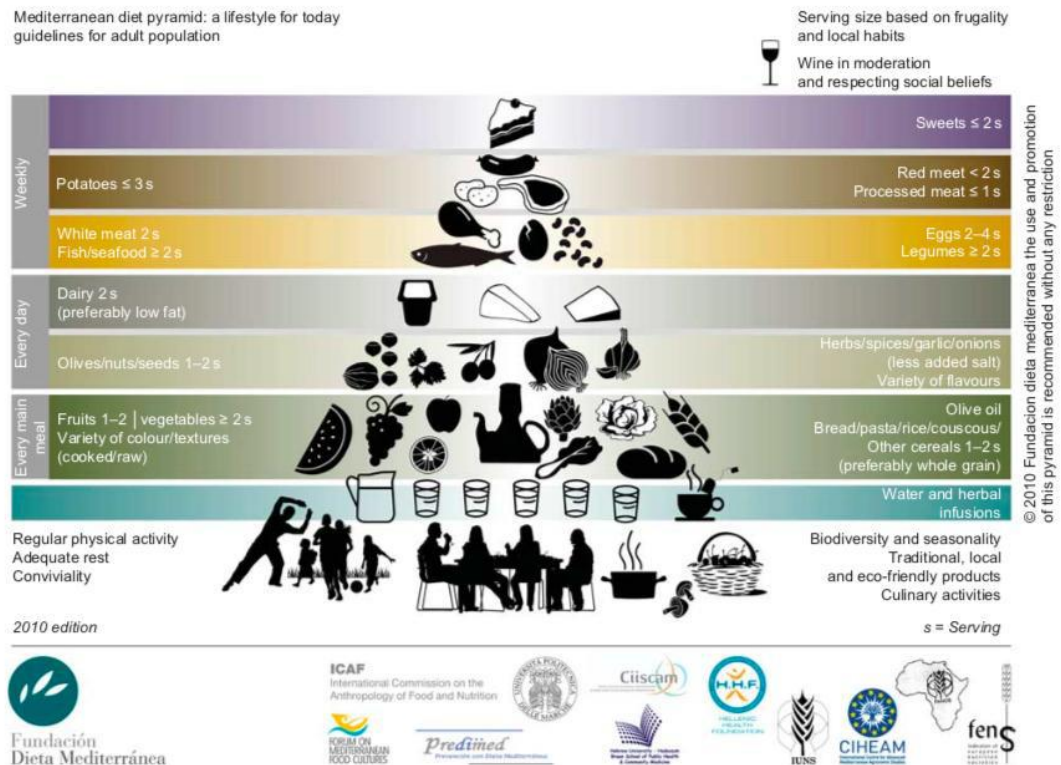


Figure 2.1. Mediterranean Diet Pyramid

Cannon G. The Mediterranean Diet Pyramid. Building conviviality into nutrition. *World Public Nutrition Assoc.* 2012;(March 2012).

2.2. Food in The Mediterranean Diet

Fruits and vegetables that take part a large place in the Mediterranean diet contain phytochemicals with many antioxidant properties. Fruits and vegetables consumption have protective effect against chronic diseases and some types of cancer. It is thought that their content, the vitamins, minerals, fiber and various phytochemicals, has a positive effect on our health (19). Caroten which founds in red foods, has antioxidant and anti-inflammatory effects against reactive oxygen species and free radicals. Cooking techniques are effective on phytochemicals. While the amount of carotene increases by 36% with the stewing technique, which is often preferred as a cooking method in Mediterranean countries, it decreases by 41% in frying. To increase the bioavailability of carotenes, 3-5 grams of diet oil is recommended (20). Cruciferous vegetables (broccoli, cabbage, cauliflower), also known as Brasika, have important properties such as increasing cellular antioxidant dilution and reducing oxidative stress thanks to the

glucosinolates they contain. It is recommended that these types of vegetables be consumed in a short time and cooked in little water (21).

According to a case-control study from Southern European countries, cooked and raw vegetables are protective against many types of cancer, while it has been stated that raw consumption has a greater protection (20). The findings of a meta-analysis of 95 epidemiological studies by Miller et al; it has been shown that cardiovascular events and stroke are reduced by 27% -39% if the consumption of fruits, vegetables and grains is 3-4 servings per day. Consumption of more one portion a day caused a 35% decrease in mortality (22). When looking at the results of a meta-analyses with 11 studies conducted in 7 European countries, a positive relationship was found between SES and fruit & vegetable consumption. As a result of the study, a higher daily intake of 24.3 grams of fruit was found in men individuals with the highest education level. This difference is 33.6 grams in women with the highest education level (6).

Legumes, which are recommended to be consumed weekly, have many effects on health. These foods, which contain many micro and macro nutrients, have positive effects on lipid profile, blood pressure and inflammation. Data from observational studies showed improvements in glucose metabolism and antioxidant capacity. These foods, which have a low glycemic index, are also good sources of protein and fiber (23).

Olive oil consumption, which is the main oil source of the Mediterranean diet, varies between 25-50 ml/day (19). Approximately 99% of the olive oil composition consists of triacylglycerols, while the remaining part consists of free fatty acids, mono and diacylglycerols (24). Olive oil, which contains high levels of monounsaturated fatty acids (MUFA) contains 80% oleic acid. Compared to polyunsaturated fatty acids (PUFA), the MUFA molecule becomes more resistant to oxidation since it contains a single double bond. This situation affects the stability of olive oil and extends its shelf life (25). Olive oil containing tocopherol, carotenoids and polyphenols has antioxidant and anti-inflammatory properties. There are at least 36 types of phenolic compounds identified in olive oil so far and the increase of these compounds is directly proportional to the increase in antioxidant capacity (20).

Data from clinical research showed improvements in inflammation markers and low density lipoprotein (LDL) as the concentration of polyphenols in olive oil increased. Olive oil is especially recommended in the Mediterranean diet due to health effects of these compounds. Although total polyphenol concentrations vary according to the type and quality of the oil, it varies between 50-800 mg/kg. It should be added to the meal at the end of the cooking process to minimize the loss of these compounds during the process (20). The first study showing the health effects of olive oil consumption was a Seven-Country Study, followed by the MONICA. In these studies, it was stated that the incidence and mortality of cardiovascular diseases are lower in Mediterranean countries compared to other countries (1, 26). In a study of 180 people with metabolic syndrome, the intervention group (n=90) was given the Mediterranean diet, while the control group (n=90) was given the standard diet (carbohydrates, 50%-60%; proteins, 15%- 20%; total fat , 30%). After 2 years, the patients following mediterranean diet group consumed more unsaturated fatty acids, fiber, fruits, vegetables and nuts. Compared to the intervention group and the control group, there was a decrease in the intervention group's insulin resistance and an improvement in endothelial function (27).

Nuts and seeds, important components of the Mediterranean diet, have a protective effect against cardiovascular diseases and mortality. Most nuts are rich in unsaturated fatty acids. Also, they are rich sources of protein, fiber, tocopherol, folate, magnesium and calcium. While MUFA is the predominant fatty acid in most of them, walnuts contain more PUFA (20). Nuts and seeds contain high amounts of l-arginine, which is the precursor of nitric oxide that regulates blood pressure. Nuts and seeds contain high amounts of polyphenols. This content is reduced by 50% or more after roasting or peeling of the outer membrane. Walnut consumption has the highest polyphenol content compared to other nuts and seeds, as it is mostly consumed raw and unshelled. They contain a group of non-cholesterol compounds known as plant sterols, or phytostereols. These compounds inhibit the absorption of cholesterol and play an important role in lowering cholesterol in the blood (28).

In a prospective cohort study on women the relationship between type 2 diabetes and nuts&seeds consumption has examined, it was observed that the risk of type 2 diabetes has decreased when the amount of nuts&seeds consumption has increased (29).

In a study involving 583 women and men with hypercholesterolemia, total cholesterol concentrations decreased by 10.9 mg/dl in individuals who consumed 67 grams of nuts daily, while LDL cholesterol decreased by 10.2 mg/dl. A decrease of 20.6 mg/dl was observed in individuals with the lowest triglyceride level of 150 mg/dl (30).

The wine which is an important component of the Mediterranean diet has protective effect of regular and moderate consumption against cardiovascular risk, hypertension, atherosclerosis, type 2 diabetes and some cancers (e.g. prostate, colon, ovarian). In general, one glass (150 g of wine, 10 g of alcohol) is recommended for women, 2 glasses (300 g of wine, 20 g of alcohol) for men. The protective effect of red wine against cardiovascular diseases (CVD) is explained by many mechanisms. An example is a decrease in platelet collection with LDL cholesterol and an increase in insulin sensitivity (31).

As alcohol content (ethanol) increases in wine, there is an increase in high-density lipoprotein (HDL) cholesterol and a decrease in systemic inflammation. Thanks to its high polyphenol components, it is effective in lowering blood pressure, improving endothelial function and reducing inflammation (31). Due to resveratrol content of wine, there is a decrease in the accumulation of cholesterol in the aorta and plasma triglycerides. Another important compound, kuersetin, was noted to be hypertensive, having a vasodilator effect on smooth muscles (32).

Low consumption of red meat is an important part of the Mediterranean diet (20). Excessive consumption of processed meat has been associated with an increased risk of cancer, hypertension, Type 2 diabetes, metabolic syndrome and heart disease. Nitrite and nitrate, used as preservatives, have been found to lead to endothelial disorder and insulin resistance when they are found in high amounts in the blood in adults. Excess saturated fat, cholesterol, and sodium lead to type 2 diabetes, metabolic syndrome, and CVD (33). The relationship between red meat and cancer depends on the cooking method, genetic characteristics, type and form of consumption (34). Polycyclic aromatic hydrocarbons (PAH) and heterocyclic aromatic amines may be formed responsible for the development of cancer depending on the temperature, duration and type of meat. The amount of PAH

is also high in smoked and dried meats. Due to the high content of saturated fat, it also increases the formation of free radicals, causing the formation of cancer (35).

A large-scale cohort study from European countries found that high consumption of processed red meat leads to an increased risk of CVD, cancer and early death. When red meat consumption has decreased by 20 g/day in the same population, deaths may be prevented by more than 3%. White meat consumption was not associated with all-cause mortality (36). A study on adherence to the Mediterranean diet concluded that as the meat consumption has increased in men and women the adherence decreased while adherence increased as consumption of fruits, vegetables, legumes, grains, fish and olive oil groups has increased (37).

Unlike other animal sources, more than 2 servings of fish per week are recommended in the Mediterranean diet pyramid. The fishes which make up 40% of total body fat with unsaturated fatty acids, also have a high protein content. Fish and seafood have a lower amount of saturated fat and cholesterol compared to meat (excluding crab, lobster, shrimp and oysters) (38). By enzymatic denaturation processes of α -linoleic acid found in fish and seafood, it is first converted to eicosapentaenoic acid (EPA) and then to docosahexaenoic acid (DHA) (39). DHA and EPA which are anti-inflammatory are precursors to prostaglandins, thromboxanes and leukotrienes. They have an antithrombotic effect and reducing blood clotting and lowering LDL cholesterol (40).

2.3. Mindful Eating

Conscious awareness which is the exact equivalent of the word “mindfulness”, is defined as giving unconditional conscious attention to the present (41). This concept of mindfulness is characterized by a non-judgmental approach to the person's immediate emotions, experiences and thoughts. The origin of mindfulness is rooted in Buddhist meditations. During this period, mindfulness meditations were used to reduce pain or develop positive qualities. Nowadays, mindfulness-based treatment methods are also used in stress management, behavioral therapy, depression, anxiety, eating disorders, chronic pain and cancer patients (10). There are many mindfulness practices for clinical treatments. Mindfulness based-stress reduction is used for stress-related disorders and pain management, mindfulness-based cognitive therapy for personality disorders (41).

Mindfulness-Based Eating Awareness Training (MB-EAT) has been developed to be used in the treatment of eating behavior disorders and obesity (42). In 1990s Kristeller & Haller conducted a pilot study on obese women eating binge disorder. In this study, MB-EAT started to be used as a treatment method in binge eating disorders. After this study, Mindfulness interventions have been used for obese/overweight or normal weight individuals (43).

When mindfulness affects one's eating behavior, mindful eating behaviors show up themselves (8, 44). Mindful eating focuses on how and why eating behavior occurs rather than what is eaten. By internalizing the concepts of physical hunger-satiety, being aware of the effects of emotions and thoughts, it is a way of focusing on the food to be consumed without being affected by environmental factors and without judgment. (8, 45). Mindful eating restricts unnecessary food intake by recognizing the eating behavior that has become automatic eating and identifying the triggers that trigger this event (44). Mindful eating plays an important role in body weight management with internal and external factors such as providing portion size control, preventing emotional eating, reducing eating rate, reducing food cravings, and stopping binge eating (46, 47).

In a research study with 90 university students, the relationship between mindful eating and BMI was examined and a negative relationship was found between them. The same study in which physical activity was also questioned, it is concluded that there is a negative relationship between mindfulness and physical activity level (10). In another study 171 Australian individuals were included about the impact of mindful eating and daily mindfulness on the portion size of energy-dense foods. Mindful eating and daily mindfulness have been observed to have a negative effect on the consumption portions of energy-dense foods. Having an mindful eating has a greater impact on portion sizes than daily mindfulness. At the same time, a negative relationship was found in the same study between increased mindful eating score and emotional eating (48). Mindfulness interventions increase one's attention and reduce food cravings. In a study conducted on women about reducing cravings against chocolate, individuals are given training such as mindfulness, acceptance and definition of the situation for 2 weeks. Measurements which are taken 2 weeks later show a lower response when individuals are exposed to chocolate

again. It has been observed that they have a more accepting attitude towards this situation (49).

In a study that aims to reduce sugary food consumption with mindful eating training, individuals were given MB-EAT training during 5.5 months. At the end of the study, it was observed that mindful eating increased more in the intervention group compared to the control group. It was concluded that when amount of sugary food consumption decreases, more satisfaction is achieved with this less portion (50). In another study on body weight, women were given a 6-week training about food consumption outside and mindful eating. In the study, a wide range of training was provided in the form of nutritional contents related to body weight management during food consumption, individualized strategies to reduce food intake while outdoors, and mindful eating practices. When evaluating the content of the trainings in details; The eating process on consumed food has been made enjoyable by focusing on the taste, smell and appearance. It was desired to achieve a sense of satisfaction in smaller portions. In another training, hunger signals, stomach satiety and situations that trigger food were emphasized. As a result, significant fat and weight loss was observed in the intervention group compared to the control group (51).

2.4. The Effect of Education Level on Mediterranean Diet and Mindful Eating

Individuals' attitudes towards health are associated with food choices and shaping their eating patterns. It is seen that individuals who make health-oriented food preferences prefer a more balanced diet instead of junk food, energy-dense foods and large portions. There are many factors that affect consumers' food choices. These are genetic, biological, socioeconomic, environmental and psychological factors as well as cultural habits (52).

Socioeconomic factors (education and income) play a major role in a sustainable and healthy diet approach (13). Diet quality varies according to socioeconomic gradient. Income and education level have a significant positive effect on adherence to the Mediterranean diet. A decrease in education and income levels has a negative impact on individuals' food choices. It has been observed that individuals with a low level of education have limited knowledge and little mindfulness of foods. As a result, less educated people find it difficult to follow food recommendations (13, 53).

More educated people have a more balanced and healthy eating pattern because of mindfulness and knowledge about food. As individuals in this population know the role of food in preventing chronic diseases, they follow a healthier eating pattern. On the other hand, these individuals have a pro-environmental attitude. Therefore, they are higher adhere to the plant-based and sustainable Mediterranean diet (13, 37). While less educated people consume food only to meet their needs, more educated people see food as an element of pleasure as well as seeing nutrition as a need (54). The differences in the SES affect the accessibility, functioning, preparation and consumption tendency of the food. Individuals in the high SES aim to get the maximum benefit from the food eaten by applying healthier cooking methods (55). Because of the limited access to supermarkets in the environments where individuals in the low SES live, fast food consumption is higher. This results in an excessive energy intake and a diet with low nutritional value (56).

In a cross-sectional study examining the relationship between adherence to Mediterranean diet and SES, it was concluded that as education and income levels increase, adherence to the Mediterranean diet increases. It was observed that individuals in low SES consumed more energy-dense foods and followed a fat-free diet. Also, being in the low SES has been associated with obesity (57). In another study investigating the effect of SES on diet quality in university students, it was seen that men had a worse diet than women. Also, being underweight and low SES of the mother are factors that negatively affect diet quality (58).

In other studies on SES and diet quality, men with a low SES had lower fish and vegetable consumption, while consumption of pasta, potatoes, fried foods and beer was higher. It was observed that as the socioeconomic level decreased in women, the consumption of meat, potatoes, sugar and beer increased. This had led to deficiencies of iron, vitamin A, vitamin D and calcium among populations with low SES (59, 60).

In a study examining the relationship between socioeconomic factors and adherence to the Mediterranean diet in which 719 people participated, many factors such as education status, BMI, marital status and age were questioned. It was concluded that there was a negative relationship between BMI and adherence to the Mediterranean diet score. It has been observed that the adherence to the Mediterranean diet is high in more

educated people. The consumption of fruits and vegetables, fish, olive oil and grains is higher in individuals who adhere to the Mediterranean diet highly compared to the low adherence score (37).

Although it was not a study that directly questioned the mindful eating and education level, it was observed that mindfulness and basic nutrition information education increased the mindfulness of individuals on food (49, 51).



3. MATERIALS AND METHODS

3.1. The Universe and Sample of The Research

The research was conducted on 188 academicians who worked at Yeditepe University between November 2019-March 2020. The sample consisted of individuals without any chronic disease and those who completed the informed consent form were included in the study. While sample size calculated with 95% confidence interval at the beginning of the study was 302, the study was terminated with 188 people by reaching 62% of the desired sample because formal education was interrupted due to COVID-19 and online education was started. Ethical approval was obtained from the Ethics Committee of Yeditepe University for the study with the 21.11.2019.

3.2. Inclusion and Non-Inclusion Criteria of The Research

Inclusion criterias

- Between 18 and 65 years old
- Volunteer
- Not having a disease that require a specific dietary restriction
- Not Pregnant / not lactating
- Not have diagnosed any chronic disease

Exclusion criterias

- To be younger age of 18 and older age of 65
- Not volunteer
- Having a disease that require a special dietary restriction
- Pregnant / lactating

3.3. General Plan of The Research

The questionnaire form was applied by the researcher through face to face interviews to the individuals who accepted to participate in the study. Participants' socioeconomic characteristics (age, gender, marital status, educational status, and smoking), anthropometric characteristics, physical activity status and concepts about the study were questioned. Physical activity level was questioned at medium intensity for 150 minutes per week recommended by the World Health Organization (WHO) (61). While

the MEDAS which shows the adaptation of individuals to the Mediterranean diet, was applied, the MEQ-30 was applied to evaluate the mindful eating.

3.3.1. Mindful Eating Questionnaire (MEQ-30)

The mindful eating questionnaire scale was developed by Framson et al in 2009 (62). The validity and reliability studies of this scale in Turkish were obtained by Köse, Tayfur, Birincioğlu and Dönmez (8). The original scale items are evaluated with a 4 point likert style. 1:none/rarely, 2:sometimes, 3:often, 4:usually/always. There are 28 questions and 5 sub-factors. In Turkish version, a new scale consisting of 30 questions was created and divided into 7 sub-factors of 5-point likert type. These sub-factors are disinhibition (mindless eating), emotional eating, eating control, conscious nutrition, eating discipline, mindfulness, interference. High scores from each sub-factors of the scale indicate that the individual has the feature evaluated by the relevant sub-dimension; it also gives total mindful eating score. While scoring the scale, questions of 1,7,9,11,13,15,18,24,25,27 are scored straight. Reverse scoring is done for the remaining questions (reverse scoring: 1 = 5, 2 = 4, 3 = 3, 4 = 2, 5 = 1). While scoring, the mean of the sub-dimensions and the total score is taken. The higher score, the more mindful eating there is (8, 63).

3.3.2. Adherence to The Mediterranean Diet (MEDAS)

Mediterranean Diet Adherence Scale developed by Martinez-Gonzalez et al in 2012 (64). Validity reliability was obtained by Pehlivanoglu, Balcioglu and Ünlüoglu (65). 1 or 0 points are taken for each question asked according to the amount of consumption and the total score is calculated. A total score of 7 or above indicates that the individual has an acceptable degree of adherence with the Mediterranean diet, whereas a score of 9 or above indicates that the individual has a high adherence with the Mediterranean diet (65).

3.3.3. Evaluation of Anthropometric Measurements

BMI value was calculated by taking measurements of body weight (kg) and height (cm) by the participants' own statements. It was evaluated according to the WHO values and the BMI value in WHO is ≤ 18.49 kg/m² underweight, 18.5-24.9 kg/m² normal, 25-29.9 kg/m² slightly obese, ≥ 30 kg/m² as obese classification (66).

3.4. Statistical Evaluation of The Data

Statistical Package for the Social Sciences software 21 program was used to analyze the data. Numerical variables were evaluated with mean, standard deviation (SD), minimum-maximum (min-max) values and categorical variables with frequency (n) and percentages (%). The normality of numerical variables was examined by Shapiro Wilks test. Chi-square test was used to describe the relationship between two qualitative variables. The Mann-Whitney Test was used to determine whether the distributions of two independent variables were statistically significant. The confidence interval for all analyzes were 95% and the results were considered statistically significant for $p < 0.05$.

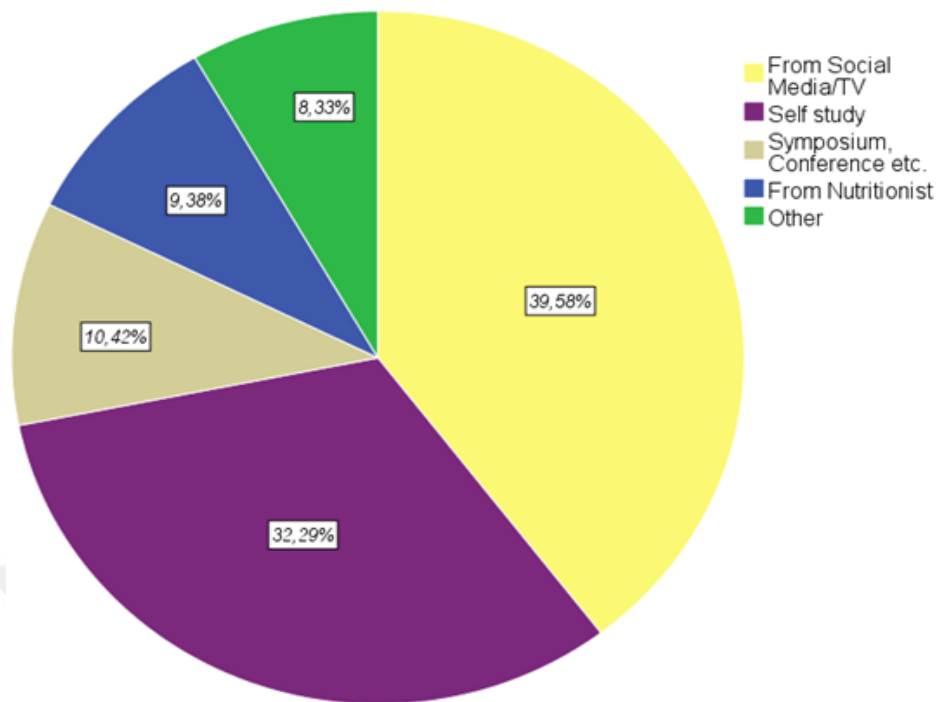


4.RESULTS

The research was conducted on 188 academicians, 125 women (66.5%) and 63 men (33.5%). The mean age of the participants was 33.95 ± 11.97 years (min: 22 yrs, max: 65 yrs). The education levels of the women participants were 52% master and 48% PhD. When the educational status of men individuals was examined, 50.8% were at the master level and 49.2% were at the PhD. level. 32.8% of women participants were married, 67.2% were single, 36.5% of men participants were married and 63.5% were single. When we look at the physical activity levels of women participants, 77.6% of them were $<150\text{min/week}$, 22.4% of them were $\geq 150\text{ min/week}$. It was observed that 57.1% of men participants $< 150\text{ min/ week}$, 42.9% of men participants $\geq 150\text{ min/week}$. When the smoking status of the participants was questioned, it was found that 34.4% of the women were smokers, 65.6% of them did not. While 34.9% of the men smoke and 65.1% of them did not. While 27.2% of women participants eat alone, 72.8% of them eat with family / friends, 31.7% of men participants eat alone and 68.3% of them eat with family / friends. It was stated that 41.6% of the women participants had followed a diet program before, and 58.4% of them did not. In men participants, 42.9% had followed a diet program before, 57.1% of them did not. While 56% of women showed low adherence to the Mediterranean diet, 33.6% were acceptable and 10.4% were high adherence. For men participants these rates were 57.1%, 23.8%, 19%. When the participants were questioned whether they have heard of the mindful eating before, 54.4% of women participants have heard about mindful eating before, while 45.6% of them have not heard it before. While 44.4% of men participants have heard about mindful eating before, 55.6% of them have not. Interms of the BMI classification of women participants, 12.8% underweight, 73.6% normal, 11.2% overweight and 2.4% were obese. Men participants were 3.2% underweight, 36.5% normal, 42.9% overweight and 17.5% obese.

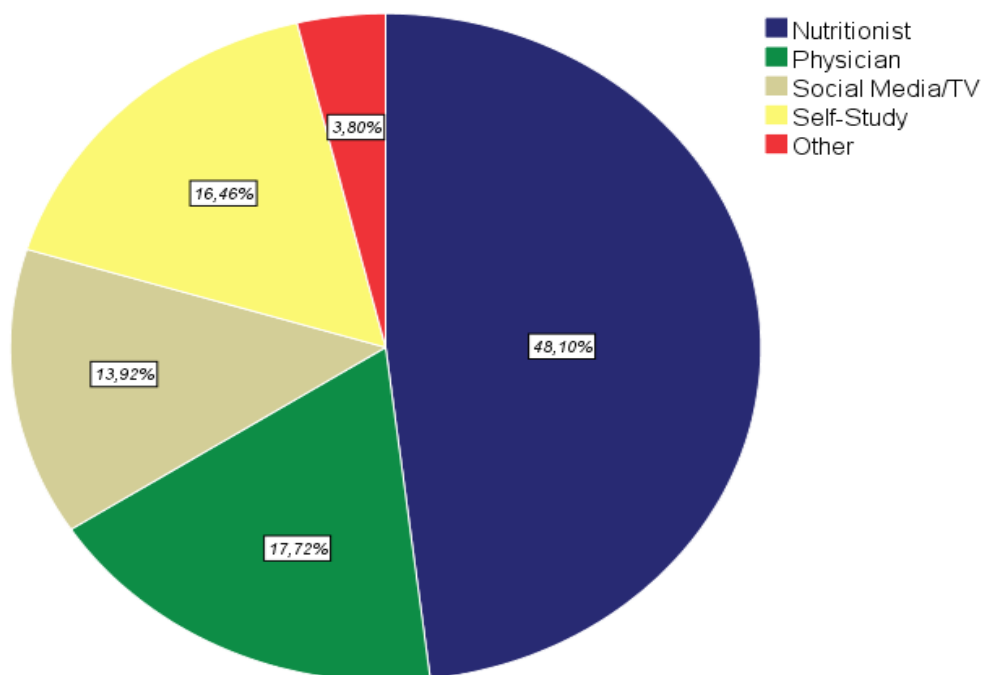
Table 4. 1.Distribution of Some Demographic and Nutritional Characteristics of The Participants

		Overall		Women		Men	
		n	%	n	%	n	%
Education Status	Master degree	97	51,6	65	52	32	50,8
	PhD.	91	48,4	60	48	31	49,2
Marital status	Married	64	34	41	32,8	23	36,5
	Single	124	66	84	67,2	40	63,5
Physical Activity	<150 min/week	133	70,7	97	77,6	36	57,1
	≥150 min/week	55	29,3	28	22,4	27	42,9
Smoking	Yes	65	34,6	43	34,4	22	34,9
	No	123	65,4	82	65,6	41	65,1
Eating Status	Alone	54	28,7	34	27,2	20	31,7
	Family/friends	134	71,3	91	72,8	43	68,3
Following a diet program before	Yes	109	58	52	41,6	27	42,9
	No	79	42	73	58,4	36	57,1
Adherence to Mediterranean Diet Score	Low	106	56,4	70	56	36	57,1
	Acceptable	57	30,3	42	33,6	15	23,8
	High	25	13,3	13	10,4	12	19
Hearing mindful eating before	Yes	96	51,1	68	54,4	28	44,4
	No	92	48,9	57	45,6	35	55,6
BMI	Underweight	18	9,6	16	12,8	2	3,2
	Normal	115	61,2	92	73,6	23	36,5
	Overweight	41	21,8	14	11,2	27	42,9
	Obese	14	7,4	3	2,4	11	17,5



Graphic 4.1. Ways to Hear Mindful Eating

The answers of the participants about how the individuals knew about the mindful eating were given at Graphic 4.1. It was seen that 39.6% of them obtained this information via social media or TV, 32.3% of them as a result of their own research, 10.4% of them conferences, symposiums, etc. 9.4% of them the dietitian, 3.1% of them the doctor and the remaining from various sources.



Graphic 4.2. The Ways to Following a Diet Program

At Graphic 4.2. was given the ways in which the participants who had previously followed a diet program. 48.10% of the participants obtained a diet program with dietitian, 17.72% with doctor, 13.92% through social media / TV, 16.46% through their own studies, 3.80% through other ways.

At Table 4.2. MEQ-30 means, min, max and p values were given according to BMI classification of the participants. According to BMI classification, the mean of MEQ -30 was 3.50 ± 0.59 among underweight range individuals, 3.33 ± 0.52 among normal range individuals, 3.17 ± 0.57 among overweight range individuals, and 3.15 ± 0.50 among obese range individuals. The lowest MEQ -30 score was found among the obese individual and the highest score was found among underweight individual. However, no statistically significant result was found between the MEQ -30 and BMI classification ($p>0.05$).

Table 4. 2.MEQ -30 Values According to BMI Classes of The Participants

BMI	MEQ -30				Sig.
	n	$\bar{X} \pm SD$	Min	Max	p*
Underweight	18	$3,50 \pm 0,59$	1,80	4,40	,082
Normal	115	$3,33 \pm 0,52$	2,20	5	
Overweight	41	$3,17 \pm 0,57$	2,20	4,60	
Obese	14	$3,15 \pm 0,50$	2,40	3,80	

*p value calculated with Kruskal-Wallis Test.

^a $p<0.05$

MEDAS means, min, max and p values were given according to BMI classification of the participants in Table 4.3. According to the BMI classification, the mean of MEDAS was 6.50 ± 1.79 among underweight participants, 6.30 ± 1.71 among normal range individuals, 6.46 ± 2.12 among overweight range individuals, and 6.21 ± 2.77 among obese range individuals. The lowest MEDAS score was observed among the obese range individuals and the highest score were seen in the underweight individual. There was no statistically significant difference between the MEDAS and BMI classification ($p>0.05$).

Table 4. 3.MEDAS Values According to BMI Classes of The Participants

BMI	MEDAS				Sig.
	n	$\bar{X} \pm SD$	Min	Max	p*
Underweight	18	6,50±1,79	3	9	,944
Normal	115	6,30±1,71	3	10	
Overweight	41	6,46±2,12	3	12	
Obese	14	6,21±2,77	1	11	

*p value calculated with Kruskal-Wallis Test.

^a p<0.05

The demographic distributions of individuals according to their adherence to the Mediterranean diet were given in Table 4.4. When the adherence to the Mediterranean diet was examined by sexes, 66% of the women participants and 34% of the men low adhered to the Mediterranean diet. While 73.7% of women and 26.3% of men showed at an acceptable adherence. 52% of women and 48% of men showed high adherence to the Mediterranean diet. 30.2% of the participants showing low adherence were married and 69.8% of them were single. 38.6% of the participants who show an acceptable adherence were married and 61.4% of them were single. 40% of the participants who show high adherence to the Mediterranean diet were married and 60% of them were single. There was no statistically significant difference between adherence to the Mediterranean diet and marital status ($p>0.05$). When the physical activity levels of the participants with low adherence were questioned, 67.9% of the participants were <150 min / week, 32.1% of them were ≥ 150 min/week. The participants who show an acceptable adherence, 73.7% were <150 min / week, 26.3% ≥ 150 min / week. 76% of individuals with a high adherence were <150 min / week, 24% of them were 150 min/week. There was no statistically significant difference between adherence to the Mediterranean diet and physical activity level ($p>0.05$).

Table 4 .4.Demographic Data of the Participants According to Their Adherence to the Mediterranean Diet

		Adherence to the Mediterrenean Diet						
		Low		Acceptable		High		Sig.
		Adherence		Adherence		Adherence		
		(n=106)		(n=57)		(n=25)		
		n	%	n	%	n	%	p*
Sex	Women	70	66	42	73,7	13	52	,158
	Men	36	34	15	26,3	12	48	
Marital status	Married	32	30,2	22	38,6	10	40	,444
	Single	74	69,8	35	61,4	15	60	
Physical Activity Status	<150 min/week	72	67,9	42	73,7	19	76	,613
	≥150 min/week	34	32,1	15	26,3	6	24	

* p value calculated with Crosstabs Test.

^a p<0.05

The nutritional data of individuals were given in Table 4.5. 30.2% of the participants who show low adherence to the Mediterranean diet preferred to eat alone, while 69.8% of the participants preferred to eat with their family / friends. Of the individuals who show acceptable adherence, 29.8% were eating alone and 70.2% with family / friends. 20% of individuals who are high adherence to the Mediterranean diet ate alone and 80% ate with their family / friends. There was a statistically significant difference between the Mediterranean diet and eating status ($p < 0.05$). Participants who eat with family / friends showed higher adherence with the mediterranean diet. 35.8% of the participants who show low adherence to the Mediterranean diet smoked and 64.2% did not. 33.3% of those who show acceptable adherence smoked, 66.7% did not smoke. 32% of those who show high adherence smoked, 68% did not smoke. No statistically significant difference was found between smoking status and Mediterranean diet

($p>0.05$). While 43.4% of the participants who show low adherence to the Mediterranean diet followed a diet before, 56.6% did not. In individuals with an acceptable adherence, 40.4% of them followed a diet before, 59.6% of participants did not. While 40% of the individuals who high adherence to the Mediterranean diet followed a diet program before, 60% did not follow a diet. There was no statistically significant difference between adherence to the Mediterranean diet and following a diet program before ($p>0.05$). When the participants was asked whether they have heard of the mindful eating before, 48,1% of individuals with low adherence have heard it, and 51.9% of them have not heard it before. Individuals with acceptable adherence stated that 49.1% of the individuals had heard it before and 50.9% had not heard it. Considering the results of individuals with high adherence, 40% of these individuals have heard it before, while 60% have not. No statistically significant difference was found between adherence to the Mediterranean diet and hearing mindful eating before ($p>0.05$).

Table 4. 5.Nutritional Data of the Participants According to Their Adherence to the Mediterranean Diet

		Adherence to the Mediterreanean Diet						
		Low Adherence (n=106)		Acceptable Adherence (n=57)		High Adherence (n=25)		Sig.
		n	%	n	%	n	%	p*
Eating Status	Alone	32	30,2	17	29,8	5	20	,048 ^a
	Family/ Friends	74	69,8	40	70,2	20	80	
Smoking	Yes	38	35,8	19	33,3	8	32	,910
	No	68	64,2	38	66,7	17	68	
Following a diet program before	Yes	46	43,4	23	40,4	10	40	,910
	No	60	56,6	34	59,6	15	60	
Hearing Mindful Eating Before	Yes	51	48,1	28	49,1	17	68	,190
	No	55	51,9	29	50,9	8	32	

* p value calculated with Crosstabs Test.

^a p<0.05

The BMI and MEQ -30 means, min, max and p values were given according to adherence to the Mediterranean diet of the participants in Table 4.6. The mean BMI of the participants with low adherence to the Mediterranean diet was 23.45 ± 3.73 and the mean for MEQ-30 was 3.27 ± 0.53 . The mean BMI of the participants with acceptable adherence to the Mediterranean diet was 22.70 ± 3.52 and the mean of MEQ-30 was 3.29 ± 0.54 . The mean BMI of the participants with high adherence to the Mediterranean diet was $24,02 \pm 4,30$ and the mean for MEQ-30 was $3,44 \pm 0,59$. No statistically significant difference was found between MEQ-30, BMI and adherence to the Mediterranean diet ($p > 0.05$).

Table 4. 6.BMI and MEQ-30 Values According to the Participants' Adherence to the Mediterranean Diet

	Adherence to the Mediterreanean Diet									Sig.
	Low adherence (n=106)			Acceptable adherence (n=57)			High adherence (n=25)			
	$\bar{X} \pm SD$	Min.	Max.	$\bar{X} \pm SD$	Min.	Max.	$\bar{X} \pm SD$	Min.	Max.	
BMI	23,45±3,73	17,68	33	22,70±3,52	17	31,50	24,02±4,30	17,92	33	,398
MEQ-30	3,27±0,53	2,40	5	3,29±0,54	1,80	4,20	3,44±0,59	2,20	5	,422

*p value calculated with Kruskal-Wallis Test.

^a p<0.05

The analysis results for the differences between MEDAS scores according to the demographic characteristics were shown in Table 4.7. The mean of men participants was 6.32 ± 1.67 , and women participants was 6.39 ± 2.29 . There was no statistically significant difference between sex and MEDAS score mean ($p > 0.05$). MEDAS mean score was 6.54 ± 1.95 for married individuals and 6.25 ± 1.87 for single individuals. Married individuals have higher mean scores. However, there was no statistically significant difference between MEDAS score and marital status. the MEDAS mean of participants who exercise <150 min/week was $6,42 \pm 1,85$, and the mean of individuals who exercise ≥ 150 min/week was $6,16 \pm 2,00$. There was no statistically significant difference between physical activity status and MEDAS score ($p > 0.05$).

Table 4. 7.Differences Between MEDAS Scores According to Demographic Characteristics

		MEDAS				Sig.
		N	$\bar{X} \pm SS$	Min	Max	p*
Sex	Female	125	6,32±1,67	3	10	,803
	Male	63	6,39±2,29	1	12	
Marital status	Married	64	6,54±1,95	3	11	,355
	Single	124	6,25±1,87	1	12	
Physical Activity Status	<150 min/week	133	6,42±1,85	3	11	,400
	≥150 min/week	55	6,16±2,00	1	12	

*p calculated with Mann-Whitney Test.

^a p<0.05

The analysis results for the differences between MEDAS scores according to the nutritional characteristics were shown in Table 4.9. At Table 4.8. The mean MEDAS score was 6.29 ± 1.65 in individuals who eat alone, and 6.37 ± 1.99 in those who eat with family / friends. The mean of smokers was 6.49 ± 1.71 , and for non-smokers was 6.27 ± 1.99 . The MEDAS mean of individuals who have heard of mindful eating before was 6.62 ± 2.00 , for those who do not hear it was 6.06 ± 1.75 . When the individuals were asked if they had followed a diet program before, the mean of those who followed it was 6.27 ± 1.90 , and for those who did not, it was 6.40 ± 1.90 . According to the results of the difference analysis, there was no statistically significant difference between the MEDAS mean and eating status, marital status, smoking, physical activity level, hearing of mindful eating and following a diet program before ($p > 0.05$).

Table 4 .8.Differences Between MEDAS Scores According to Nutritional Characteristics

		MEDAS				Sig.
		N	$\bar{X} \pm SD$	Min	Max	p*
Eating Status	Alone	54	6,29±1,65	3	10	,890
	Family/friends	134	6,37±1,99	1	12	
Smoking	Yes	65	6,49±1,71	3	12	,057
	No	123	6,27±1,99	1	11	
Hearing Mindful Eating before	Yes	96	6,62±2,00	1	12	,573
	No	92	6,06±1,75	3	10	
Following a diet program before	Yes	79	6,27±1,90	1	11	,746
	No	109	6,40±1,90	3	12	

*p calculated with Mann-Whitney Test.

^a p<0.05

The analysis results for the differences between MEQ-30 scores according to demographic characteristics were shown in Table 4.9. The MEQ-30 mean score of men participants was 3.31 ± 0.56 , and 3.28 ± 0.52 for women. There was no statistically significant difference between sex and MEQ-30. The mean of MEQ-30 was 3.45 ± 0.55 for married individuals and 3.22 ± 0.53 for single individuals. A statistically significant difference was found between marital status and MEQ-30 ($p < 0.05$). Married individuals have higher mindful eating score. Considering the physical activities of individuals according to the MEQ-30 score means, the MEQ mean of participants who exercise < 150 min/week was 3.22 ± 0.53 , and the mean of individuals who exercise ≥ 150 min/week was 3.33 ± 0.55 . There was no statistically significant difference between physical activity status and MEQ-30 ($p > 0.05$).

Table 4 .9.Differences Between MEQ-30 Scores According to Demographic Characteristics

		MEQ-30				Sig.
		N	$\bar{X} \pm SD$	Min	Max	p*
Sex	Women	125	3,31±0,56	1,80	5	,657
	Men	63	3,28±0,52	2,40	4,60	
Marital status	Married	64	3,45±0,55	2,20	5	,018 ^a
	Single	124	3,22±0,53	1,80	4,40	
Physical Activity Status	<150 min/week	133	3,22±0,53	1,80	5	,186
	≥150 min/week	55	3,33±0,55	2,40	4,60	

*p calculated with Mann-Whitney Test.

^a p<0.05

The analysis results for the differences between MEQ-30 scores according to nutritional characteristics were shown in Table 4.10. The mean of MEQ-30 for individuals who eat alone was 3.25 ± 0.59 , and 3.32 ± 0.53 for individuals who eat with family/friends. No statistically significant difference was determined between MEQ-30 and eating status ($p>0.05$). The mean of smokers was 3.39 ± 0.46 , and for non-smokers it was 3.25 ± 0.58 . No statistically significant difference was found between smoking and y($p>0.05$). For individuals who have heard about the mindful eating before, the mean MEQ-30 score was 3.27 ± 0.52 , and for those who do not hear it was 3.25 ± 0.54 . No statistically significant difference was found between the MEQ-30 and the hearing mindful eating before ($p>0.05$). When the individuals were asked if they had followed a diet program before, the mean of those who followed it was 3.18 ± 0.53 , and for those who did not, it was 3.38 ± 0.54 . According to the results of the difference analysis, a statistically significant difference was found in the category of following a diet program

before and MEQ-30 ($p<0.05$). Mindful eating scores of participants who did not follow a diet program before were higher. These participants have higher mindfulness.

Table 4 .10.Differences Between MEQ-30 Scores According to Nutritional Characteristics

		MEQ-30				Sig.
		N	$\bar{X} \pm SD$	Min	Max	p*
Eating Status	Alone	54	3,25±0,59	1,80	4,40	,675
	Family/friends	134	3,32±0,53	2,20	5	
Smoking	Yes	65	3,39±0,46	2,60	4,60	,104
	No	123	3,25±0,58	1,80	5	
Hearing Mindful Eating	Yes	96	3,27±0,52	2,20	5	,430
	No	92	3,25±0,54	1,80	4,60	
Following a diet program before	Yes	79	3,18±0,53	2,20	5	,011 ^a
	No	109	3,38±0,54	1,80	5	

*p calculated with Mann-Whitney Test.

^a $p<0.05$

MEDAS, MEQ-30 and BMI mean, min, max and p values according to sexes of the participants were shown in Table 4.11. The mean MEDAS for women was 6.32 ± 1.67 , and 6.39 ± 2.29 for men. There was no statistically significant difference between sex and MEDAS ($p>0.05$). The mean of MEQ-30 in women was 3.31 ± 0.56 , and it was 3.28 ± 0.52 in men. There was no statistically significant difference between MEQ-30 and sex ($p>0.05$). The mean BMI was 21.87 ± 3.01 in women and 26.15 ± 3.47 in men. A statistically significant difference was found between BMI and sex ($p<0.05$). Men participants have higher BMI values.

Table 4. 11. MEDAS, MEQ-30 and BMI Values According to the Sex of The Participants

	Women				Men				Sig.
	n	$\bar{X} \pm SD$	Min	Max	n	$\bar{X} \pm SD$	Min	Max	p*
MEDAS	125	6,32±1,67	3	10	63	6,39±2,29	1	12	,803
MEQ-30	125	3,31±0,56	1,80	5	63	3,28±0,52	2,40	4,60	,657
BMI	125	21,87±3,01	17	32	63	26,15±3,47	18,40	33	,000 ^a

*p value calculated with Kruskal-Wallis Test.

^a, p<0.05

The relationship between the individuals' BMI, MEDAS and MEQ-30 were given in Table 4.12. As a result of the analysis performed using Spearman's rho correlation test, a weakly negative and non-significant relationship were found between BMI and MEDAS ($r_s = -0.001$, $p = 0.990$). When we look at the relationship between BMI and MEQ-30, it was found that there is a weakly negative relationship and a statistically significant relationship ($r_s = -0.240$ $p = 0.001$). When the relationship of MEQ-30 with MEDAS was examined, it was found that it was positively related and there was no statistically significant difference ($r_s = 0.128$ $p = 0.080$).

Table 4. 12. Relationship Between Participants' BMI, MEDAS and MEQ-30

		BMI	MEDAS	MEQ-30
1. BMI	r_s	1,000		
	p	-		
2. MEDAS	r_s	-0,001	1,000	
	p	0,990	-	
3. MEQ-30	r_s	-0,240	0,128	1,000
	p	0,001 ^a	0,080	-

^a The significance of the differences is at the level of $p < 0.001$.

5.DISCUSSION AND CONCLUSION

5.1. Discussion

Socioeconomic status (education, occupation, income) is a powerful factor that determines the eating habits of individuals. Individuals who have low socioeconomic level tend to consume less healthy foods (67, 69). Education level, which is one of the socioeconomic factors, greatly affects the eating habits of individuals. High education level is one of the most important factors that shape and affect the nutrition of individuals. Individuals with a high level of education know the role of foods on diseases and follow dietary recommendations more easily (37). Also, since these individuals have more knowledge on cooking techniques, they apply healthy cooking techniques (55). That is why it was important to select individuals with a high level of education as the target population for the study. Individuals with a high level of education in the Mediterranean type diet, which is the basis of a healthy diet, are more likely to adhere to this diet (13, 54).

Mindful eating is an approach that has focused on eating behavior in recent years and is frequently used in weight management, portion control and eating disorders (8). In the literature, although there is no study investigating the relationship between the education level of individuals and mindful eating, it is seen that there is an increase in the mindful eating score with the training given (49, 51).

When the ages of the participants in the study are examined, it was seen that the youngest individual was 22 years old and the oldest was 65 years old, while the mean age was 33.69 ± 11.13 . In a study evaluating the adaptation of young individuals to the Mediterranean diet in Northern Cyprus, the mean age was found to be 34.27 ± 10.68 (70). The mean age of the participants in our study is similar to this study conducted on young individuals.

Obesity, a multifactorial and complex disease that negatively affects health, is an important public health problem. Many factors such as age, sex, educational status, lack of physical activity, marital status, different eating habits, smoking and alcohol consumption are effective in the formation of obesity (71). According to WHO, obesity

is classified as a serious and chronic disease in developed and developing countries (72). Considering this situation, 12.8% of the women participants are in the 13.6% overweight and obese categories 3.2% of the men participants were, 60.4% overweight and obese. In terms of the adherence to the Mediterranean diet, Although the BMI of those with unexpectedly high adherence was higher (24.02 ± 4.30), the differences in BMI between the adherence categories to the Mediterranean diet were not significant ($p > 0.05$). Similar to our findings, another study observed that the Mediterranean diet score was not related to BMI and waist-to-hip ratio (73). When adherence to the Mediterranean diet and BMI was evaluated in the cross-sectional study, which included only women, a decrease in the prevalence of overweight and obesity was observed as adherence to the Mediterranean diet increased (74). In another study, about adherence to the Mediterranean diet scale, the mean BMI of those had the low score (0-2 score) was 23.1 kg/m^2 , the low-moderate score (3-4) 23.5 kg/m^2 , the moderate-high score (5-6) 23.7 kg/m^2 and the high score (7-9) 23.9 kg/m^2 . It was concluded that as the Mediterranean diet score increased, the mean BMI increased (75). Different results between studies may be due to the differences in population groups and the self-reported of the participants taking height-weight measurements. Physical activity levels of individuals may have affected adherence to the Mediterranean diet. At the same time, failure to take food consumption record from individuals may have caused the MEDAS scale to be incorrectly filled.

In a study conducted by Moor et al. among university students, a negative relationship was found between BMI and mindful eating score. Participants with high mindful eating were found to have lower BMI values (10). In another study by Köse, it was seen that as the body weight and BMI of individuals increased, their mindful eating scores decreased, but this relationship was found to be statistically insignificant (76). In a pilot study conducted by Dalen et al. obese participants were followed up for 12 weeks by applying a 6-week mindfulness program. At the end of the study, there was a loss of -1.3 kg in the mean BMI of the individuals (77). In our study, the mean BMI of the participants was found to be statistically higher who have less mindful eating score ($p < 0.05$). In our study, the MEQ-30 mean of overweight and obese individuals was found to be lower, but this is not a statistically significant differences.

In a cross-sectional study investigating the determinants of adherence to the Mediterranean diet with only women, It has been observed that people with high

education level, being married and smoking less have higher adherence to the Mediterranean diet. These individuals with high adherence have lower BMI values. The high level of physical activity of individuals has a positive effect on their adherence to the Mediterranean diet (74). In a study evaluating adherence to the Mediterranean diet and risk factors, whose data were taken from the PREvencion con DIeta MEDiterranea (PREDIMED) study, it was observed that men and women participants with low physical activity, smoking and low education levels showed low adherence to the Mediterranean diet. It was also found that married men show high adherence to the Mediterranean diet (78). In another study similar to those studies, high level of physical activity was found to increase adherence to the Mediterranean diet (79). According to the results of our study, individuals with a physical activity level of <150 min / week have a higher mean MEDAS. Also, no significant difference was found between the physical activity level, marital status and smoking of the participants with the Mediterranean diet ($p>0.05$). Because of the homogeneous structure of the participants in the study in terms of social and educational level, some factors are not explanatory for our results.

The Mediterranean diet pyramid suggests eating with family, friends or loved ones (15). It is stated that in the Mediterranean diet model, in addition to nutrition, shared meals give more pleasure (80). In line with these suggestions, a statistically significant difference between adherence to the Mediterranean diet and eating status (family/friend or alone) ($p<0.05$). The mean MEDAS of individuals who prefer to eat with their family/friends was found to be higher.

In a thesis study investigating the effect of mindful eating on obesity and diabetes, no statistically significant difference was observed between mindful eating and marital status, and smoking but a significant difference was observed between the level of physical activity and mindful eating (81). In our study, there was a statistically significant difference between marital status and MEQ-30 ($p<0.05$) and this indicates that the mean MEQ-30 scores of married individuals were higher. In this case, marriage has been found to be a factor that increases mindful eating scores.

A study evaluating the relationship between adherence to the Mediterranean diet and sex included 366 individuals with ischemic heart disease. At the end of the study, it was concluded that 81 (22%) individuals had a low adherence to the Mediterranean diet,

and 285 (78%) individuals showed medium-high adherence. In the study, no statistically significant difference was found between sex and adherence to the Mediterranean diet. It has been observed men traits regardless of sex (risk taking, independence, competitive attitude) are less likely to adhere with the Mediterranean diet (82). In another study, participants were given nutrition and group training for 12 weeks. In the study, the food frequency questionnaire was applied to the individuals to evaluate the Mediterranean diet score and a three-factor eating questionnaire to evaluate eating behaviors. After the 12-week training, information was obtained from the individuals again at 3 and 6 weeks. At the end of the study, no statistically significant difference was found in the Mediterranean diet score according to sex. While there is a greater loss in waist circumference in men than in women during the intervention and follow-up period, the change in women is only a decrease in response to the intervention (83). In our study, according to the results of the difference analysis, MEDAS means of men and women participants were very similar. There was no statistically significant difference between sex and MEDAS score ($p>0,05$).

In another study the relationship between BMI, sex and health-promoting lifestyle and mindful eating among university students were investigated. MEQ-30 and Health Promoting Lifestyle Profile II (HPLP-II) were applied in the study. At the end of the study, no statistically significant difference was found between men and women in MEQ and HPLP-II scores (63). In our study, no significant difference was found between the MEQ-30 scores of men and women participant ($p>0.05$).

Self-Efficacy Scale for Adherence to the Mediterranean Diet (SESAMED) and mindful eating questionnaire were applied in a thesis study. At the end of the study, a positive and statistically significant relationship was found between SESAMED and all sub-factors of mindful eating (84). In our study, according to correlation analysis, no statistically significant ($r = 0.128$, $p = 0.080$) relationship was observed between mindful eating and adherence to the Mediterranean diet. In a study investigating the relationship between mindful eating and BMI and including 368 people, it was found that preobese-obese individuals had a lower MEQ-30 score. It has been observed that as BMI increases, mindful eating decreases. A significant relationship was found between BMI and mindful eating (63). In our study, a significant relationship was found between BMI and mindful eating ($r = -0.240$, $p = 0.001$). At the end of a study investigating the relationship of the

Mediterranean diet with BMI and waist-hip for 5 years, no relationship was found between adherence to the Mediterranean diet and BMI in both sexes. Only a weakly relationship was observed with the waist-to-hip ratio in women (85). In another study found an inverse relationship between adherence to the Mediterranean diet and BMI (86). According to the results of our study, there is a negative, weak and insignificant relationship between BMI and MEDAS ($r=-0.001$, $p=0.990$).

There are some limitations of this present study. The sample size targeted at the beginning of the study could not be reached due to COVID-19. The study was terminated with 188 participants as online education was started because of the epidemic. The fact that the desired sample size could not be reached may have affected the results of the study.

When we look at the literature review, although there are many studies investigating mindful eating and the Mediterranean diet, there is no study that combines two scales in a single study.

5.2. Conclusion

One of the most important factors affecting our food choices is the high education level. As the education level of individuals increases, their knowledge about foods increases and they can follow nutritional recommendations more easily. Therefore, it is possible to gain healthier eating habits by increasing the education level of individuals. The main purpose of the study is to investigate the relationship between adherence to the Mediterranean diet and mindful eating in people with high education levels. For this purpose, the sample of the study was chosen as academicians at Yeditepe University.

Although there are many studies investigating the effect of education level on the Mediterranean diet in our country and in the world, there is no study covering the mindful eating. In this respect, this research can be a new perspective in the literature evaluating the relationship between adherence to the Mediterranean diet and mindful eating. In future studies in this field, instead of applying a questionnaire to the participants, the participants can be given mindful eating training and their adherence to the Mediterranean diet can be evaluated before and after. Taking anthropometric measurement and food

frequency questionnaire from the participants by a professional helps us keep the errors in the study at a lower level.



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7. APPENDICES

7.1. Ethical Approval


T.C. YEDİTEPE ÜNİVERSİTESİ

Sayı : 37068608-6100-15- 1779

Konu: Klinik Araştırmalar
Etik kurul Başvurusu hk.

21/11/2019

İlgili Makama (Halide Yıldırım)

Yeditepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik Bölümü Dr. Öğr. Üyesi İrem Kaya Cebioğlu'nun sorumlu araştırmacı olduğu **"Yüksek Eğitim Düzeyine Sahip Bireylerde Akdeniz Diyetine Bağlılığının Yeme Farkındalığı İle İlişkisi"** isimli araştırma projesine ait Klinik Araştırmalar Etik Kurulu (KAEK) Başvuru Dosyası **(1763)** kayıt Numarası KAEK Başvuru Dosyası, Yeditepe Üniversitesi Klinik Araştırmalar Etik Kurulu tarafından **20.11.2019** tarihli toplantıda incelenmiştir.

Kurul tarafından yapılan inceleme sonucu, yukarıdaki isimi belirtilen çalışmanın yapılmasının etik ve bilimsel açıdan uygun olduğuna karar verilmiştir (**KAEK Karar No: 1124**).

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

Yeditepe Üniversitesi 26 Ağustos Yerleşimi, İnönü Mahallesi Kayışdağı Caddesi 34755 Ataşehir / İstanbul
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7.2.Permission Slip

Yeditepe Üniversitesi
Klinik Araştırmalar Etik Kurulu Başkanlığı'na

Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü Beslenme ve Diyetetik Anabilim Dalı öğrencisi Dyt. Halide Yıldırım 'Yüksek eğitim düzeyine sahip bireylerde Akdeniz diyetine bağlılığın yeme farkındalığı ile ilişkisi ' isimli araştırmayı yapmasında herhangi bir sakınca bulunmamaktadır.

Bilgilerinize arz ederim.

7.3. Questionnaire Form

Bilgilendirilmiş Onam Formu

Katılımınızı talep ettiğimiz “**Yüksek Eğitim Düzeyine Sahip Bireylerde Akdeniz Diyetine Bağlılığın Yeme Farkındalığı ile İlişkisi**” adlı bu çalışma İstanbul Yeditepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik bölümü yüksek lisans öğrencisi Dyt. Halide Yıldırım tarafından yürütülen bir araştırmadır.

Çalışmada kesinlikle yaşadıklarınız (özeliniz) sorulmayacaktır. Genel olarak akdeniz diyetine bağlılık ve yeme farkındalığı ilişkisi incelenecektir.

Araştırmada alınacak tüm bilgiler araştırma kapsamı dışında hiçbir kişiyle kesinlikle paylaşılmayacaktır. Elde edilecek olan bilgiler, Etik Kurul, kurum ve diğer sağlık otoritelerinin orijinal tıbbi kayıtlarına doğrudan erişimleri olacaktır. Fakat bu gönüllü onam formunun imzalanmasıyla bu bilgiler gizli tutulacaktır.

Bu çalışmaya katılmayı reddedebilirsiniz. Çalışmanın herhangi aşamasında da katılım onayınızdan vazgeçebilirsiniz.

Araştırmaya katılımınız için sizden herhangi bir ücret istenmeyecek ve katılımınız karşılığında size herhangi bir ücret ödenmeyecektir. Sizden beklenen, bilgilendirilmiş onam formunu imzalayıp, bu araştırmaya katkı sağlamayı kabul ettikten sonra, talep edilecek olan veri formunun doldurulmasıdır.

Sorumlu Araştırmacı: Dr. Öğr. Üyesi İrem KAYA CEBİOĞLU
Yeditepe Üniversitesi Beslenme ve Diyetetik Bölümü Öğretim Üyesi

Araştırmacı: Dyt. Halide Yıldırım
Yeditepe Üniversitesi Beslenme ve Diyetetik Bölümü Yüksek Lisans Öğrencisi

Bilgilendirilmiş Gönüllü Olur Formundaki tüm açıklamaları okudum. Bana, yukarıda konusu ve amacı belirtilen araştırma ile ilgili açıklamalar, yukarıda adı belirtilen diyetisyen tarafından yapıldı. Araştırmaya gönüllü olarak katıldığımı, istediğim zaman gerekçeli veya gerekçesiz olarak araştırmadan ayrılabilceğimi biliyorum. Söz konusu araştırmaya, hiçbir baskı ve zorlama olmaksızın kendi rızamla katılmayı kabul ediyorum.

Ad, Soyadı:

Tarih:

Genel Bilgiler

1. Çalıştığı fakülte:.....
2. Eğitim durumu:.....
3. Cinsiyet: Erkek Kadın
4. Yaş:
5. Medeni Hali: Evli Bekar
6. Boy uzunluğu:cm+
7. Vücut ağırlığı:kg BMI:
8. Sigara içiyor musunuz? Evet: Hayır:
9. Yemeklerinizi nasıl yersiniz? Yalnız başıma Arkadaşlarımla Ailemle birlikte
10. Günde kaç öğün tüketirsiniz?
11. Fiziksel aktivite düzeyiniz?
Orta düzeyde aerobik aktivite: <150 dakika/hafta ≥ 150 dakika/hafta
12. Daha önce hiç özel bir diyet programı uyguladınız mı? Hayır Evet
Evet ise; en son ne zaman uyguladınız?
Son 3 ay Son 6 ay Son 1 yıl Son 5 yıl 5 yıldan daha uzun süre önce
Diyeti size kim önerdi?
Diyetisyen Hekim TV/Sosyal medya aracılığı ile öğrendim
Arkadaşımlın/Akrabamın diyetini yaptım Kendi kendime yaptım Diğer.....
13. Daha önce hiç “Yeme Farkındalığı” kavramını duydunuz mu? Hayır Evet
Evet ise; nereden bu bilgiyi edindiniz?
Diyetisyenden Hekimden Katıldığım sempozyum/kongre/konferanstan
Kendi araştırmalarımla TV/Sosyal medya aracılığı ile Diğer.....

Akdeniz Diyeti Bağlılık Ölçeği (MEDAS)

Sorular	Yanıt	Puanlama Ölçütü	Puan
1.Yemeklerde temel yağ olarak zeytinyağı kullanıyor musunuz?		Haftada en az 2 kez salata, sebze et, veya balık yemeklerinde	
2.Günde ne kadar zeytinyağı tüketiyorsunuz? (Kızartmalarda, salatalarda, ev dışında yenilen yemeklerde kullanılanlarda vb.) (1 yemek kaşığı=13.5 g*)		Günde > 48 g	
3. Günde kaç porsiyon sebze tüketiyorsunuz? (1 porsiyon= 200 g)		Günde 2 porsiyon ve fazlası	
4. Günde kaç porsiyon meyve (taze sıkılmış meyve suları dahil) tüketiyorsunuz? (Toplam meyve porsiyonu= Total meyve g/80) (Taze meyve suyu porsiyonu= Her 100 ml** için 1 porsiyon)		Günde ≥ 3 porsiyon	
5. Günde kaç porsiyon kırmızı et tüketiyorsunuz?		Günde < 100 g	
6. Günde kaç porsiyon tereyağı veya margarin tüketiyorsunuz? (1 yemek kaşığı=12 g)		Günde < 1 porsiyon	
7. Günde ne kadar şekerli ya da tatlandırılmış içecekler tüketirsiniz? (1 porsiyon=100 ml)		Günde < 1 porsiyon	
8. Şarap içer misiniz? Haftada ne kadar tüketiyorsunuz? (1 kadeh= 125 ml)		Haftada ≥ 7 kadeh	
9.Haftada kaç porsiyon kuru baklagil yemeği tüketirsiniz? (1 porsiyon=8 YK)		Haftada ≥ 3 porsiyon	
10.Haftada kaç porsiyon balık / deniz ürünü tüketiyorsunuz? (1 porsiyon = 100-150 g balık veya 4-5 adet veya 200 g kabuklu deniz ürünleri)		Haftada ≥ 3 porsiyon	
11. Haftada kaç kez işlenmiş tatlı ya da hamur işi (ev yapımı olmayan) tüketiyorsunuz?		Haftada ≤ 3 porsiyon	
12. Haftada kaç defa fındık (yer fıstığı dahil) tüketiyorsunuz? (1 porsiyon = 30 g)		Haftada ≥ 3 porsiyon	
13. Sığır eti, domuz eti, hamburger veya sosis yerine tavuk, hindi veya tavşan eti yemeyi mi tercih edersiniz?		Beyaz et tüketimi > kırmızı et tüketimi	
14.Haftada kaç kere haşlanmış sebze, makarna, pilav veya diğer yemeklerinize domates, sarımsak, soğan veya pırasa soslu zeytinyağı kullanırsınız?		Haftada ≥ 2 defa	

*g: gram

**ml: mililitre

Yeme Farkındalığı Ölçeği (YFÖ-30)

1 Hiç	2 Nadiren	3 Bazen	4 Sık sık	5 Her zaman
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		1	2	3	4	5
1.	Besinlerin kalorileri hakkında bilgim vardır.					
2.	Ana öğünümü ekmeksiz yiyemem.					
3.	Lokmalarımı çiğnemedten yutarım.					
4.	Sevdiğim yiyeceklerden birini yerken, doydüğumu fark edemem.					
5.	Fast food olmayan bir hayat düşünemiyorum.					
6.	Çevremdekiler çok hızlı yemek yediğimi söyler					
7.	Gaz yapan yiyecekleri yemekten kaçınırım					
8.	Yemeden önce yiyeceklerin görüntüsü ve kokusundan keyif alırım.					
9.	Dün akşam ne yediğimi hatırlayabilirim.					
10.	Bir şey ikram edildiğinde düşünmeden yerim.					
11.	Yüksek kalorili besinlerden uzak dururum.					
12.	Protein içeriği yüksek besinleri yemeyi tercih ederim.					
13.	Yediğim besinlerdeki ince tatları fark ederim.					
14.	Birden bire çok acıktığımı fark edip ne bulsam yiyecek duruma gelirim.					
15.	Yediğim her lokmanın tadına varırım.					
16.	Sık sık diyet yaparım.					
17.	Tok olsam bile bir yiyeceğin aklımı çeldiği olur.					
18.	Yemeklerimi saatli yerim.					
19.	Yemeği kaşıkla yerim.					
20.	Tıka basa yemek yerim.					
21.	Evin bir yerlerinde dondurma, kurabiye ya da cips varken yemeden duramam.					
22.	Moralim bozulunca ilk aklıma gelen şey yemek olur.					
23.	Sıkıntıdan yerim.					
24.	Sağlıklı beslenirim.					
25.	Yemek çok sıcak ise biraz soğumasını beklerim.					
26.	Yediğimi fark etmeden atıştırırım.					
27.	Küçük lokmalarla yerim.					
28.	Stresli hissettiğimde abur cubur yerim.					
29.	Yerken otomatik pilota bağlarım.					
30.	Mutlu olmak için çikolata yerim.					

8. CURRICULUM VITAE

Personal Informations

Name	Halide	Surname	Yıldırım
Place of Birth		Date of Birth	
Nationality		TR ID Number	
E-mail		Phone number	

Education

Degree	Department	The name of the Institution Graduated From	Graduation year
Master	Nutrition and Dietetics	Yeditepe University	2021
University	Nutrition and Dietetics	Yeditepe University	2018
High school	Science and Mathematics	Celal Bayar High School	2013

Languages	Grades (#)
English	71 Higher Education Institutions Foreign Language Exam

Work Experience (Sort from present to past)

Position	Institute	Duration (Year - Year)
Nutritionist	MediSport	11.2020-12.2020

Computer Skills

Program	Level
Word	Good
SPSS	Basic

