T.C.

YEDITEPE UNIVERSITY

INSTITUTE OF HEALTH SCIENCES

DEPARMENT OF NUTRITION AND DIETETICS

THE RELATIONSHIP BETWEEN NUTRITIONAL LITERACY AND DIET SELF-EFFICACY IN INDIVIDUALS WHO HAVE CARDIOVASCULAR DISEASE OR CARDIOVASCULAR RISK FACTORS RECEIVING DIETARY THERAPY

MASTER OF SCIENCE THESIS

KÜBRA KAZAK

İstanbul-2020

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APPROVAL

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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.

Kübra KAZAK

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LIST OF ABBREVIATIONS

BMI	Body Mass Index
CAD	Coronary Artery Disease
CHD	Coronary Heart Disease
COPD	Chronic Obstructive Pulmonary Disease
CVD	Cardiovascular Disease
DALY	Disability Adjusted Life Years
EURIKA	European Study on Cardiovascular Risk Prevention and Management in Daily Practice
EUROASPIRE	European Action on Secondary and Primary Prevention through Intervention to Reduce Events
GAMI	Glucose Abnormalities in Patients with Myocardial Infarction
HDL	High Density Lipoprotein
HT	Hypertension
IFG	Impaired Fasting Glucose
IGT	Impaired Glucose Tolerance
LDL	Low Density Lipoprotein
MNT	Medical Nutrition Therapy
NLATA	Nutrition Literacy Assessment Tool in Adult
OGTT	Oral Glucose Tolerance Test
ONTARGET	Ongoing Telmisartan Alone and in combination with Ramipril Global Endpoint Trial
r	Spearman correlation coefficient
SD	Standard Deviation
T1DM	Type 1 Diabetes Mellitus
T2DM	Type 2 Diabetes Mellitus
TEKHARF	Türk Erişkinlerinde Kalp Hastalığı ve Risk Faktörleri (Heart Disease and Risk Factors in Turkish Adults)
	TRANSCEND Telmisartan Randomized Assessment
TURDEP	Türkiye Diyabet, Hipertansiyon, Obezite ve Endokrinolojik Hastalıklar Prevalans (Turkey Diabetes, Hypertension, Obesity and Endocrinology Diseases Prevalence)
WHO	World Health Organization

ABSTRACT

Kazak K, The Relationship Between Nutritional Literacy and Diet Self-Efficacy in Individuals who Have Cardiovascular Disease or Cardiovascular Risk Factors Receiving Dietary Therapy, Yeditepe University Institute of Health Sciences, Department of Nutrition and Dietetics Master of Science Thesis, İstanbul 2020.

This study aims to determine the nutritional literacy and diet self-efficacy levels of individuals who have a cardiovascular disease or risk factors and receive dietary therapy, and to determine the effect of nutritional literacy on diet self-efficacy. The study included 150 participants between November 2019 and February 2020. Participants' age, gender, place of residence, education level, current cardiovascular disease and risk factors, cardiovascular operations, other accompanying chronic diseases and previous dietary treatment were questioned; height, body weight and waist circumference were measured. "Nutrition Literacy Assessment Tool in Adults" to determine nutritional literacy levels; in order to determine dietary self-efficacy levels, "Self-Efficacy Scale in Regulate Nutritional Habits in Heart Patients" were used. According to the data obtained from the study, a significant difference was found between the education levels of the participants, their place of residence, and nutritional literacy levels ($p<0,05$). The nutritional literacy levels of all participants were determined to be "borderline". All individuals participating in the study were found to have low diet self-efficacy levels. A very significant positive correlation was found between diet self-efficacy levels and nutritional literacy levels and components of nutritional literacy among the individuals participating in the study ($p<0,01$). Dietary therapy and nutrition education plays an important role in individuals with cardiovascular disease and risk factors. In the light of the results of the study, it is thought that the nutrition education to be given to these individuals can be shaped by taking into consideration the nutritional literacy and diet self-efficacy of the individuals.

Key words: nutritional literacy, diet self-efficacy, cardiovascular disease and risk factors, nutrition education

ÖZET

Kazak K, Diyet Tedavisi Alan Kardiyovasküler Hastalık veya Kardiyovasküler Risk Faktörlerine Sahip Bireylerde Beslenme Okuryazarlığı ve Diyet Öz-Yeterliliği Arasındaki İlişki, Yeditepe Üniversitesi Sağlık Bilimleri Ensitüsü, Beslenme ve Diyetetik Anabilim Dalı Yüksek Lisans Tezi, İstanbul 2020.

Bu çalışma kardiyovasküler bir hastalığa veya risk faktörlerine sahip olup diyet tedavisi alan bireylerin beslenme okuryazarlığı düzeyi ile diyet öz-yeterlilik düzeylerini belirlemeyi ve beslenme okuryazarlığı düzeylerinin diyet öz-yeterlilik düzeylerine etkisini belirlemeyi amaçlamaktadır. Çalışmaya Kasım 2019-Şubat 2020 tarihleri arasında 150 katılımcı dahil edilmiştir. Katılımcıların yaş, cinsiyet, yaşadıkları yer, eğitim düzeyi, mevcut kardiyovasküler hastalık ve risk faktörleri, geçirmiş oldukları kardiyovasküler operasyonlar, eşlik eden diğer kronik hastalıklarının varlığı ve daha önce diyet tedavisi alma durumları sorgulanmış, boy uzunluğu, vücut ağırlığı ve bel çevreleri ölçülmüştür. Beslenme okuryazarlık düzeylerini saptamak için "Yetişkinlerde Beslenme Okuryazarlığı Değerlendirme Aracı", diyet öz-yeterlilik düzeylerini saptamak için ise "Kalp Hastalarında Beslenme Alışkanlıklarının Düzenlenmesinde Öz-yeterlilik Ölçeği" kullanılmıştır. Çalışmadan elde edilen verilere göre katılımcıların eğitim düzeyleri ve yaşadıkları yer ile beslenme okuryazarlık düzeyleri arasında anlamlı bir fark bulunmuştur ($p<0,05$). Tüm katılımcıların beslenme okuryazarlık düzeyleri "sınırda" olarak saptanmıştır. Çalışmaya katılan tüm bireylerin düşük diyet öz-yeterlilik düzeylerine sahip olduğu bulunmuştur. Çalışmaya katılan bireylerin; diyet öz-yeterlilik düzeyleri ile beslenme okuryazarlık düzeyleri ve beslenme okuryazarlığının bileşenleri arasında pozitif yönde çok anlamlı bir ilişki saptanmıştır ($p<0,01$). Kardiyovasküler hastalık ve risk faktörlerine sahip bireylerde tıbbi beslenme tedavisi önemli bir rol oynamaktadır. Tıbbi beslenme tedavisi kapsamında bireylere beslenme eğitimi verilmesi gerekmektedir. Çalışmadan çıkan sonuç ışığında kardiyovasküler hastalık ve risk faktörlerine sahip bireylere verilecek olan beslenme eğitiminin bireylerin beslenme okuryazarlığı ve diyet öz-yeterlilik düzeyleri dikkete alınarak şekillendirilebileceği düşünülmektedir.

Anahtar Sözcükler: beslenme okuryazarlığı, diyet öz-yeterlilik, kardiyovasküler hastalık ve risk faktörleri, beslenme eğitimi

1. INTRODUCTION AND PURPOSE

Cardiovascular disease (CVD) and risk factors are health problems that can be prevented by healthy diet and lifestyle change, or that can be controlled by medical therapy, nutritional therapy, and lifestyle changes after they occur (1). There are important factors to get successful results from nutritional therapy. Nutrition literacy is one of these elements, and understanding nutritional therapy is related to nutritional literacy level (2). Increasing rates of chronic diseases, especially cardiovascular disease and risk factors, suggest that low nutritional literacy levels may play a role in disease improvement and nutritional education is needed in the treatment of diseases. However, nutritional knowledge is complex and may require a high level of cognitive skills (2,3). Self-efficacy is an considerable factor for both nutritional therapy and lifestyle changes, and if the individual believes that he/she can not achieve behavioral modifications, he/she will not even try to change it; diet self-efficacy is seen as a factor that shows individuals' trust that they will adhere to their nutrition programs (4). Increasing evidence, with studies on mostly school children, adolescents, young people, and individuals with diabetes; suggests that interventions to improve nutritional literacy may have a positive effect on diet quality, with effects such as improving nutritional skills such as food selection and food preparation, and increased fruit-vegetable consumption, and increased levels of dietary self-efficacy (3,5). Despite the fact that nutrition has a critical preventive and therapeutic role in cardiovascular diseases, which has been the primary cause of death worldwide for years, the number of studies on nutrition literacy and dietary self-efficacy are few (6).

This study aims to determine the nutrition literacy and dietary self-efficacy levels of individuals who have a cardiovascular disease or risk factors and receive medical nutrition therapy (MNT), and to determine the relationship between them. Since nutritional literacy and dietary self-efficacy levels of individuals with cardiovascular disease and risk factors are determined and evaluated together, it provides information about nutritional literacy and dietary self-efficacy levels of individuals with CVD and risk factors. In the light of the results obtained from the study, it is thought that nutrition education to be given to individuals with CVD and risk factors can be shaped. Since this study explains the relationship between nutritional literacy and diet self-efficacy; it is aimed to emphasize the importance of nutritional literacy skills in compliance with diet, the necessity of organizing nutrition education to be given to patients by taking into

account the nutritional literacy level and in order to increase individuals' dietary self-efficacy beliefs, the necessity of providing the motivation required by individuals as part of nutritional education.

2. LITERATURE REVIEW

2.1. Cardiovascular Disease and Etiology

The cardiovascular system includes blood vessels and the heart that connect the heart and other systems to regulate nutrients and gas transport, regulation of metabolic functions, body temperature and pH, ensuring homeostasis and the functioning of the defense mechanism (7). Central control of the brain, a complicated organ that controls organ systems as well as intellectual functions, allows the body to respond quickly and coordinated to changes in the surrounding. The normal activity of the brain depends on the blood circulation. Two large vessels carrying blood from the heart to the brain extend along both sides of the neck. Blood vessels are divided into cerebral arteries. They carry oxygen and nutrients to all areas of the brain. In addition a well blood supply is crucial for the usual activity of the brain. A number of disorders of the blood vessels and heart, and vascular diseases of the brain are called cardiovascular diseases (8,9). Cardiovascular diseases can be examined in two groups as diseases associated with atherosclerosis and other cardiovascular diseases. Diseases associated with atherosclerosis; "coronary heart disease (CHD), which is a disease of blood vessels that supply the heart muscle and results in acute events such as a heart attack, cerebrovascular disease, which is a disease of blood vessels that nourish the brain and causes acute states such as a stroke, peripheral vascular diseases, which are the diseases of blood vessels that feed arms and legs, and diseases of the aorta and arteries progressing with hypertension (HT)". Atherosclerosis is a complicated pathological process that thrives on the inner surface of blood vessels for many years to come. The accumulation of fat substance and cholesterol in the lumen of the medium and large arteries is expressed as atherosclerosis and these accumulating that called plaques cause irregularity of the inner surface of arteries and narrowing of the lumen, making it difficult for blood to pass. Consequently, the plaque may rupture and trigger blood clot formation when the blood vessels lose flexibility. With the development of a blood clot in a coronary artery, a heart attack occurs, and when it develops in the brain, paralysis occurs. If these clots move to the heart and lungs, they can produce vein thrombosis and pulmonary embolism. These acute conditions caused by atheroslerosis are also cardiovascular diseases (9,10). Other cardiovascular diseases not related to atherosclerosis are; rheumatic heart disease caused by rheumatic fever caused by streptococcal bacteria and damage to the heart muscle and heart valves; congenital heart disease that occurs with malformations of the heart structure present at birth; cardiomyopathy and cardiac arrhythmias (9).

2.2. Cardiovascular Risk Factors and Etiology

There are many risk factors for CVDs. These risk factors are separated in 3 groups as “behavioral risk factors, metabolic risk factors and other risk factors” (9).

2.2.1. Behavioral Risk Factors

Major behavioral risk factors are; tobacco and tobacco products use, inadequate physical activity, unhealthy diet and harmful use of alcohol (9).

Tobacco is a plant that is grown for its dried and fermented leaves before it is put in tobacco products and contains nicotine, a substance that can cause addiction. For this reason, many people who use tobacco have difficulty quitting. There are other chemicals in tobacco that have the potential to harm the body as a result of burning. Tobacco is used by people in different ways (drinking, chewing, sniffing, etc.). Tobacco products are cigarettes, cigars, bidis, creteks and water pipes (11). Smoking is estimated to cause approximately 10.00% of CVDs globally (12). There is extensive proof from prospective cohort studies regarding the positive effect of quitting smoking on mortality of CHD (13). It has been shown that the age of quitting among smokers as a result of 50 years of follow-up of British doctors has a significant effect on the expectations of survival. Those who quit smoking between the ages of 35-44 were found to have the identical survival rates as those who never smoked (14).

Insufficient physical activity which another behavioral risk factor, can be defined as 1/2 hour of moderately activity less than 5 times a week or 1/3 hour of severe activity less than 3 times a week or its equivalent. Inadequate physical activity is the fourth leading risk factor for morbidity and mortality. Inadequate physical activity is responsible for nearly 32.1 million Disability Adjusted Life Years (DALY) and 3.2 million deaths each year (12). Individuals who are physically inactive have a 20.00% to 30.00% rose mortality risk for entire causes compared to those who do moderately intensity physical activity for at least 30 minutes on most days of the week (15). In adults, moderately physical activity (or equivalent) of 150 minutes each week is estimated to reduce the risk of ischemic heart disease by about 30.00% and diabetes risk by 27.00% (13). A numerous studies examining the relationship between physical activity and CVDs have reported decreased risk of death due to CHD, and entire CVD in dose response, decreased risk of CHD and stroke (13,15-17). Physical activity is a significant determinant of energy expenditures. Therefore, physical activity; as well as it is necessary for energy balance

and weight control, improves "endothelial function that improves vasodilation and vasomotor function in blood vessels" (18). Moreover, physical activity conduces to weight loss, glycemic control, and improves insulin sensitivity, lipid profile and blood pressure. The helpful effects of physical activity on cardiovascular risk are through these effects on other risk factors (19,20).

There is considerable evidence that nutrition is the background of the formation of CVD and risk factors, especially atesclerosis and coronary heart disease. Diet plans that comprise elevated levels of trans-fatty acids, saturated fatty acids, cholesterol and salt, and poor in terms of vegetable, fruit and fish consumption are linked to risk of CVD (12,15,21). Obesity, which occurs when there is an unbalance between dietary energy intake and expenditure, is a cardiovascular risk factor closely linked to poor physical activity and diet. Regularly physical activity can block obesity improve by rising the ratio of energy spent to energy received. Inadequate fruit and vegetable consumption causes nearly 16 million (1.00%) DALY and 1.7 million (2.80%) deaths in global (12). The amount of dietary salt consumed in terms of blood pressure levels and general cardiovascular risk is “a significant determinant” (21,22). Sufficient amounts of vegetable and fruit consumption decreases the risk of CVD (12,23). Compared to foods with low fat and sugar, frequent preference of foods with high fat and sugar increases obesity (24). A healthy diet can assist to access a desired lipid profile and blood pressure along with a healthy body weight (9). In individuals with high and/or normal blood pressure, a moderate decrease in salt consumption has a notable effect on the control of blood pressure (25). There is also a relationship between a decrease in salt intake interval of 3-12 grams/day and a decrease in blood pressure; if the lower the salt intake, the lower the blood pressure within normal limits (25,26). The high consumption of “trans fatty acids and saturated fat” is associated with CVD, and “eliminating trans fats and replacing saturated fats with polyunsaturated vegetable oils in the nutritional plan” decreases the risk of CHD (21).

The harmful use of alcohol includes many risk factors (acute myocardial infarction, liver cirrhosis, cardiac arrhythmia, cardiomyopathy, pancreatitis, hypertension, encephalopathy, neuropathy, sexually transmitted diseases, etc.) in terms of health and social consequences. Moreover, the relationship between alcohol intake and “CHD and cerebrovascular diseases” is complicated. This relationship withstand on the level and shape of alcohol intake. There is a immediate relationship between alcohol

consumption levels of higher and excessive (≥60 g/day of pure alcohol) and the risk of cardiovascular disease. Low levels of alcohol consumption without heavy drinking attacks may be related with a decrease in multiple cardiovascular results such as "general mortality from CVDs, mortality and incidence of CHD and stroke mortality and incidence" in some sections of the population (27). But if these forms of drinking are characterized by heavy long-term drinking, these effects tend to disappear (28,29). Various mechanisms are proposed for the protective effect of mild to moderately alcohol intake, including the useful effects of alcohol on "High Density Lipoprotein (HDL) level, thrombolytic profile, cholesterol level and platelet aggregation" (28). General alcohol intake is related with plural health risks that outweigh the potential benefits at the population level (9).

2.2.2. Metabolic Risk Factors

Metabolic risk factors of cardiovascular diseases; "high blood pressure (hypertension), high blood glucose levels (diabetes), high blood lipids and cholesterol, excess weight and obesity" (9).

According to the European Cardiology Association and European Hypertension Association 2018 guidelines and the "British National Institute of Health and Care Excellence 2019 guidelines" hypertension, based on evidence from randomized controlled trials that treatment-related blood pressure reductions are beneficial in patients with high blood pressure values, is defined as levels of systolic blood pressure >140 mmHg and/or diastolic blood pressure > 90 mmHg (30). With the "Global Burden of Disease Study" organized by the World Health Organization (WHO), hypertension has been considered as the most significant global risk factor for mortality and morbidity since 2003. Although hypertension does not cause cancer such as smoking, it is one of the potent risk factors for nearly all different CVDs (including coronary diseases such as valvular heart disease and left ventricular hypertrophy, including atrial fibrillation, cardiac arrhythmias, kidney failure and cerebral stroke) (31). In some age groups, the risk of CVD doubles for each 20/10 mmHg rise in blood pressure starting from 115/75 mmHg. Uncontrolled and/or undiagnosed HT that rises cardiovascular risk contributes significantly to stroke worldwide (9). To facilitate the diagnosis and treatment decision of hypertension, universally blood pressure values are classified in the European Cardiology Association and European Hypertension Association guidelines 2003 and 2007 (32). This classification is given in Table 2.1 (32).

Table 2.1. Definitions and classification of blood pressure levels (mmHg) (32)

CATEGORY	SYSTOLIC		DIASTOLIC
IDEAL	<120	and	<80
NORMAL	120–129	and/or	80–84
HIGH NORMAL	130–139	and/or	85–89
1. DEGREE HYPERTENSION	140–159	and/or	90–99
2. DEGREE HYPERTENSION	160–179	and/or	100–109
3. DEGREE HYPERTENSION	≥180	and/or	≥110
ISOLATED CISTOLIC HYPERTENSION	≥140	and	<90

To control hypertension, there are two different blood pressure targets in the European Cardiology Association and European Hypertension Association 2007 guide. These targets are set at <140/90 for low-to-medium risk hypertensives and <130/80 mmHg for high-risk hypertensives, ie individuals with diabetes, cerebrovascular disease, cardiovascular disease or kidney disease accompanying hypertension. "The European CVD Guidelines" recommended a target of <140/80 mmHg for patients with diabetes (32). Policies to decrease salt intake can alter the population dispersion of blood pressure, thereby reducing cardiovascular risk. High cardiovascular risk and/or high blood pressure risk of stroke and heart attack might be reduced by non-pharmacological measures and pharmacological measures such as salt restricted diet and physical activity. These measures are of great importance for individuals with diabetes, who are especially vulnerable to heart attacks and paralysis (9).

Diabetes that causes hyperglycemia and insulin deficiency, characterized by the inability to produce or use insulin; It causes various macrovascular complications (including stroke and myocardial infarction) and microvascular (such as kidney disease and retinopathy), which reduces individuals' life expectancy and quality of life (33). Called pre-diabetes, Impaired Fasting Glucose (IFG) and Impaired Glucose Tolerance (IGT) reflect the natural history of progressing from normal blood glucose levels to Type 2 diabetes (T2DM) (34). According to the recommendations of "2006/2011 WHO" and

"2019 American Diabetes Association", the criteria for diagnosis of diabetes and pre-diabetes are given in Table 2.2 (34).

Table 2.2. Diabetes and Pre-Diabetes Diagnostic Criteria According to the Recommendations of 2006/2011 World Health Organization and 2019 American Diabetes Association (34)

Diagnostics / measurement	WHO 2006/2011	ADA 2019
DM		
	Usable	Suggested
HbA1c	≥% 6.5 (48 mmol / mol)	≥6.5% (48 mmol/mol)
	Suggested	
Fasting plasma glucose	≥7.0 mmol/L (126 mg/dL)	≥7.0 mmol/L (126 mg/dL)
	or	Or
Plasma glucose in 2 hours	≥11.1 mmol/L (≥200 mg/dL)	≥11.1 mmol/L (≥200 mg/dL)
Random plasma glucose	With symptoms ≥11.1 mmol/L (≥200 mg/dL)	With symptoms ≥11.1 mmol/L (≥200 mg/dL)
IGT		
Fasting plasma glucose	<7.0 mmol/L <126 mg/dL	<7.0 mmol/L <126 mg/dL
Plasma glucose in 2 hours	≥7.8 to <11.1 mmol/L ≥140-200 mg/dL	≥7.8 to <11.1 mmol/L ≥140-199 mg/dL
IFG		
Fasting plasma glucose	6.1-6.9 mmol/L (110-125 mg/dL)	5.6-6.9 mmol/L (110-125 mg/dL)
Plasma glucose in 2 hours	<7.8 mmol/L (<140 mg/Dl)	<7.8 mmol/L (<140 mg/ dl)

Diabetes is an important risk factor for CVDs. Impaired glucose tolerance and IFG are significant risk factors for the future improve of diabetes and CVDs. Individuals with type 1 diabetes (T1DM) or T2DM are two to three times more likely to have cardiovascular events, and risk is unproportional higher in female. In some age groups, individuals with diabetes have a double rise in stroke risk, and individuals with diabetes have a worse prognosis after cardiovascular events than individuals without diabetes. Cardiovascular risk rises with increased glucose values and abnormal glucose regulation tends to occur with other known cardiovascular risk factors (such as, high blood pressure, high triglyceride level, low HDL cholesterol and central obesity). Oral Glucose Tolerance

Tests (OGTT) performed in the study of "Glucose Abnormalities in Patients with Myocardial İnfarction (GAMI)" put forth diabetes or pre-diabetes was detected in two-thirds of individuals without a diagnosis of diabetes (9,34). Cardiovascular risk categories in individuals with diabetes are shown in Table 2.3 (34).

Table 2.3. Cardiovascular risk categories in individuals with diabetes (34)

VERY HIGH RISK	Patients diagnosed with DM and CVD or other target organ damage[a] or three or more main risk factors[b] or T1DM, which started early long (> 20 years)
HIGH RISK	Patients with DM duration> _ 10 years without target organ damage and any other additional risk factors
MEDIUM RISK	Young patients with DM duration <10 years and no other risk factors (T1DM under 35 or T2DM under 50)

CVD = cardiovascular disease; DM = diabetes mellitus; T1DM = type 1 diabetes mellitus; T2DM = type 2 diabetes mellitus

a: Proteinuria, renal failure, left ventricular hypertrophy or retinopathy, defined as eGFR <30 mL / min / 1.73 m2.

b: Age, hypertension, dyslipidemia, smoking, obesity.

Serum lipoproteins; "consists of Low Density Lipoprotein (LDL) cholesterol, HDL cholesterol and triglycerides". The excess energy taken into the body is converted into triglycerides and stored in the fat cells in the body (9). Total cholesterol is the amount of cholesterol carried in all molecules loaded with cholesterol in the blood, inclusive HDL and LDL cholesterol. The total cholesterol in blood is ≥240 mg/dL is called hypercholesterolemia. The ratio of total cholesterol to HDL cholesterol determines the cardiovascular risk, and this ratio of 3-4 shows low risk, whereas ≥5 indicates high cardiovascular risk. High triglyceride level significantly increases cardiovascular risk. A blood triglyceride level of ≥400 mg / dL is called hypertriglyceridemia. High cholesterol-carrying all lipoproteins are called hyperlipidemia, LDL cholesterol (≥130 mg / dL) and triglycerides are high and HDL cholesterol is low (≤40 mg / dL) is called dyslipidemia (35). Dyslipidemia is seen as the main factor in the formation of atherosclerosis (36).

The relationship between obesity and CVD is a subject that has been widely studied and researched. Obesity; It has proven effects on development of many CVDs (such as atherosclerosis, CAD, atrial fibrillation and heart failure). Previously, obesity and atherosclerosis; Although it is considered as triglyceride in adipose tissue and cholesterol accumulation in atheroma plaque, today it is thought that both are congenital

and acquired inflammatory conditions. There are common pathophysiological conditions shared by obesity and atherosclerosis. Dyslipidemia, which is a common pathophysiological condition, accompanies both atherosclerosis and obesity, and LDL cholesterol and free fatty acids trigger inflammation in these patients. Inflammation is related with obesity, insulin resistance, and T2DM. It is an accelerating factor along with initiating all the steps of atherosclerosis. The primary relationship between atherosclerosis and obesity is inflammation and adipocytokines released from adipose tissue; It contributes to atherosclerosis by creating systemic inflammation, endothelial dysfunction, hypercoagulability and insulin resistance. More complex coronary artery lesions are observed in individuals with high body mass index (BMI). Moreover, the existence period of obesity is also important. Studies have shown that obesity must have continued for ≥20 years to be an independent risk factor for CAD (37).

2.2.3. Other Risk Factors

The main other risk factors for cardiovascular disease are; low economic status, low education level, age, gender, genetic tendency and psychological factors such as stress, depression and excessive homocysteine levels. Age is seen as a strong factor and the Heart Disease and Risk Factors in Turkish Adults (TEKHARF) study data showed that aging every 11 years (= 1 Standard Deviation (SD)) in Turkish people increases the probability of coronary heart disease by 1.5 times (38). Although male gender is considered as a high risk factor, women are known to be affected by cardiovascular diseases as much as men (39). Homocysteine; It is a sulfur-including amino acid that occurs during methionine metabolism, and hyperhomocysteinemia is considered an independent risk factor for CHD (40).

2.3. Epidemiology of Cardiovascular Disease and Risk Factors

According to the WHO, cardiovascular disease in Turkey is held responsible for 34% of deaths (41). Turkey Household Health Survey of Non-Communicable Diseases Risk Factors 2017 Study (42) According to the data; “Ischemic heart disease (22%) and cerebrovascular disease (15%) are the most frequent cause of two deaths in Turkey”. Frequency of the population to have had chest pain or cerebrovascular accident due to heart attack or heart disease 5.0% ; it was estimated to be 5.20% for male and 4.80% for female. The incidence among women in all age groups is lower than men, except for the age groups “15-29” and “45-59”, but the frequency of having chest pain or cerebrovascular events due to heart attack or heart disease increases with age. While the

incidence in the “15-29” age group is 1.3%, it increases to 18.8% in the “≥70” age group (42). Turkey Household Health Survey of Non-Communicable Diseases Risk Factors Study in 2017; The most common chronic disease in the participants was determined as hypertension (42). The prevalence of hypertension, which is one of the leading risk factors in the improvement of atherosclerosis; According to the TEKHARF study 2009-2014 data; It was found to be 50% in individuals aged yaş ≥35 (38). Field studies have shown that the prevalence of dyslipidemia, another important risk factor for atherosclerosis, is approximately 80% in the Turkish adult population (36). The prevalence of obesity, which has common causes of dyslipidemia, according to the data of the WHO 2016; It was determined to be 32.00% in adults and 10% in adolescents in Turkish population. The prevalence of diabetes, which is an important factor for the risk of CVD, is according to World Health Organization 2014 data; It was announced as 13.0% in Turkey. The prevalence of risk factors that reflect the lifestyle of cardiovascular diseases; It was determined by the WHO as 31% for physical inactivity and 28% for tobacco use, while salt intake per person was 10 g daily and alcohol use was 2 liters of pure alcohol (41). “Turkey the Household Health Survey of Non-Communicable Disease Risk Factors 2017 Study” (42) in scope, according to the findings related to nutrition which is important in terms of cardiovascular risk; It is estimated that 87.80% of the population consumes less than five servings of vegetables and/or fruits on average per day.

2.4. Treatment Approaches in Cardiovascular Disease and Risk Factors

The approach in preventing cardiovascular diseases should be directed not at one risk factor, but at the general risk reduction, and should be multidisciplinary considering all risk factors. The purpose of protection from CVDs and the treatment of existing cardiovascular diseases is to reduce the for atherosclerotic cardiac and vascular events, complications and the need for percutaneous or surgical revascularization, increase the quality of life and prolong the duration of life. In order to achieve this goal, besides the medical treatment required, a healthy lifestyle arrangement is required. Healthy lifestyle arrangement contains individualized planned medical nutrition therapy, avoiding tobacco and alcohol use and being physically active (9,39).

2.4.1. Medical Nutrition Therapy

The nutritional plan for managing cardiovascular disease and risk factors should consist of various foods. Medical nutrition therapy should aim to achieve four main targets: maintaining a healthy diet in general, reaching and maintaining a healthy body

weight, achieving a desired lipid profile and desired blood pressure goals. There is powerful observational evidence for the benefits of reducing total fat to <30.00% of energy, saturated fat to <10.00% of energy and <5 g/day or 90 mmol/day of salt per day in regulated nutritional therapy. As it is beneficial to consume fruits and vegetables up to 400-500 g/day, it is recommended to encourage vegetable and fruit consumption (13,43). It is important to reduce the glycemic load of the diet, as it induces inflammation, which plays a significant role in the pathogenesis of cardiovascular disease and risk factors. In order to reduce the glycemic load the restriction of simple carbohydrates and the consumption of legumes and whole grains should be ensured instead of refined carbohydrate sources. Another factor that induces formation is the n-6/n-3 ratio of the diet. Although the n-6/n-3 ratio of the nutrition plan prepared is recommended to be lower than 7; There are studies showing that when this rate drops below 5, positive effects are seen on cardiovascular disease (44). Developing diets suitable for individual preferences and local traditions and ensuring the sustainability of the diet are important priorities in reducing cardiovascular risk (13,43).

2.4.1.1. Nutritional Literacy

The concept of nutritional literacy, which first entered the literature in 2001; It is one of the important issues in ensuring the sustainability of the food system, which has a important impact on public health and/or environmental health, and can play a crucial role in rising the quality of eating of individuals (45). According to Gibbs et al. (46), "Nutritional literacy is the knowledge that capacity to obtain information of nutritional principles and the necessary skills on how to obtain information". Nutrition literacy has some definitions according to "Nutbeam's triple model that takes into account the three literacy levels". These levels are; functional, interactive and critical nutrition is defined as literacy (45). "The lowest functional nutritional literacy is related to the fundamental reading and/or writing abilities required to understand and/or follow basic nutrition messages. The second level, interactive nutritional literacy, is developed literacy, which includes the cognitive and interpersonal abilities required to jointly manage nutritional problems with professionals. Examples of interactive level actions are the ability to interact with specialists to promote individuals' healthy diet and improve nutritional information. In a result, the third level is critical nutritional literacy, the skill to critically analyze nutritional information, raise awareness, and participate in action to overcome obstacles (47), that is, individuals' ability to use nutritional information (48)." "Nutrition

literacy is a relatively new field that represents the capacity to choose a healthy diet in daily life ”(49), an element that has been shown to affect healthy nutritional competence and healthy eating behaviors (50). “Nutrition literacy; Does a individuals understand nutrient density and/or how to read a food label? Does it understand labels on food packages and/or restaurant menus? Does it make the right food choices and/or other health-promoting actions (such as rose physical activity)? Does this person's quality of life improve? On the other hand, at what point is the individual no longer dependent on expert knowledge? When do food options reflect what is right for him between 80.00% and 90.00%? (51)” that seeking this answers to questions, “a personal matter related to the skill to understand the significance of well and diverse nutrition in maintaining health and well-being (52)” understood as. Increasing evidence; shows that most people face difficulties in using the information contained in food labels, especially individuals with low health literacy and /or numerical literacy have more difficulties and worse health consequences (3). Zoellner et al. (53) showed that the diet quality decreased as health literacy scores decreased in a low-income rural population. Since nutrition is a significant basic factor in the development and treatment of many diseases (diabetes, hypertension, hyperlipidemia and obesity); low nutritional literacy can be especially problematic. To identify the presence and potential outcomes of low nutritional literacy, researchers and clinicians should first be able to measure nutritional literacy (3).

2.4.1.2.Diet Self-Efficacy

Self-efficacy beliefs are an important part of individuals' behavior and motivation and affect actions that can change individuals' lives (54). While expressing the concept of self-efficacy, Bandura (55) as “his belief in his own abilities to plan and realize the actions he needs to manage forward-looking conditions”; Lunenburg expressed self-efficacy as an “action-specific version of self-esteem”. According to Remond (56), “The primary principle of Self-Efficacy Theory is that individuals are more likely to perform actions that they feel adequate, and that they are less probably to perform actions they think are not sufficient”. According to Gecas, “Self-efficacy functions as a self-validating prophecy because people behave in ways that confirm their original beliefs”. These explanations about the definition of the concept of self-efficacy are Mahatma Gandhi's “If I believe I can do it, I will find the power to do it even if I don't have it in the beginning” corresponds to the expression (54).

Self-efficacy is seen as a relationship between quality of life and health outcomes (57,58). There are hypotheses that argue that the self-efficacy supports long-term commitment and change for a long time many health-related for behaviors, including diet (59,60), compliance to treatment (61,62), exercise (63,64), and general health-promoting behaviors (65,66). It is suggested by the American Heart Association that increased self-efficacy can be included in behavioral interventions to reduce cardiovascular risk. (66,67). Diet self-efficacy is a factor associated with nutritional outcomes such as better nutritional attitude (68) and dietary behavior (69,70). Nastaskin and Fiocco (71) argued that overall self-efficacy does not directly match eating behavior, and therefore the use of dietary self-efficacy would be more appropriate when evaluating the role of self-efficacy in the relationship between food intake and stress. Dietary self-efficacy is defined as a component of self-efficacy, which depicts one's belief in the skill to manage the diet, even in the face of barriers such as stress or exposure to unhealthy food. Therefore, it is argued that dietary self-efficacy can act as a moderator between food intake behavior and stress (71). Studies in which higher dietary self-efficacy levels are related with higher levels of restrictive irregular eating behaviors, while lower dietary self-efficacy levels are related with binge eating and bulimic behaviors; It suggests that interventions aimed at increasing the level of dietary self-efficacy can help reduce binge eating and bulimic behavior, thereby reducing BMI levels (72). The study by Senécal and Nouwen (73) revealed that dietary self-efficacy is a good predictor of dietary adherence and good compliance in diabetic patients. As a common result of these studies, self-efficacy is seen as an important predictor of behavior related to participation in healthy eating habits (74). Diet self-efficacy level; It is known that it can be increased by various methods such as various behavior change techniques, stress management, self-monitoring of behaviors, behavioral rewards review, performance feedback and conditional rewards (75).

3. MATERIALS AND METHODS

3.1. Participants

The sample size of the study was calculated as n=138 individuals with 5% margin of error and 95% power value, by predicting a 0.3-level correlation between the "Nutrition Literacy Assessment Tool in Adults (NLATA) and the Self-Efficacy Scale" in the Regulation of Nutrition Habits in Heart Patients. Isparta City Hospital between November 2019 and February 2020 all individuals who applied to the Diet Policlinic and complied with the inclusion criteria were included in the study. Inclusion criteria; Being a volunteer cardiovascular disease or cardiovascular risk factors has to be on the medical nutrition therapy, to be between 18-64 years of age and is to be literate.

The study included 150 participants who met the inclusion criteria of the, who applied to Isparta City Hospital Diet Policlinic between November 2019 and February 2020 and approved the "informed consent" form (Appendix 1).

3.2. Data Collecting

This study is a survey-based, observational, cross-sectional, descriptive study conducted in the Diet Polyclinic of Isparta City Hospital between November 2019 and February 2020. Volunteering was based on participation in the study.

To the individuals participating in the research; in addition to two scales, namely the "Nutrition Literacy Assessment Tool in Adults" and "the Self-Efficacy Scale in the Regulation of Nutritional Habits in Heart Patients", a data collection form was used, in which socio-demographic characteristics, anthropometric measurements and disease information were questioned (Appendix 2).

Nutrition Literacy Assessment Tool in Adults; evaluating the health and nutrition literacy assessment tools used in the World and in Turkey, it was developed by Cesur, in 2015. It is a measurement tool to assess the nutritional literacy among people in Turkey. As a result of the validity and reliability analysis, it has been revealed that the "Nutrition Literacy Assessment Tool in Adults" is a valid and reliable tool and can be used to evaluate nutritional literacy. The Nutrition Literacy Assessment Tool in Adults consists of 5 parts. These sections are; general nutrition information section, reading comprehension section, food groups section, portion quantities section, numeracy literacy and food label reading section. The total score received from the vehicle is determined by summing the scores from the sub-sections. The highest score that can be obtained from

the vehicle is 35. The evaluation of the total score is as follows; 0-11 points are defined as insufficient, 12-23 points borderline, 24-35 points on the basis of sufficient nutritional literacy level (76).

The Turkish validity reliability of "Self-Efficacy Scale in the Regulation of Nutritional Habits in Heart Patients" developed by Bandura (77) was made by Argon and Sevinç in 2010 (78). The Self-Efficacy Scale in the Regulation of Nutritional Habits in Heart Patients determines the self-rating of the participants for their performance in the regular nutritional routine. The participants determine the scoring from 0 (not possible) to 50 (can be done at the intermediate level) and 100 (can be done precisely) at intervals of 10 units, depending on the strength of their efficacy beliefs. As the total score obtained from the scale increases, the self-efficacy of the individual is high, and the lower the self-efficacy as it decreases (78).

Anthropometric measurements of the participants were taken by the researcher. Body weight measurement of the participants was made with care that they were dressed as thin as possible with a weighing sensitive 0.1 kg. The height of the participants was measured with a stadiometer while the individual was in an upright position, while Frankfort was standing in the plane (the ear canal and the lower border of the orbital-eye socket, the gaze was parallel to the ground), with a sensitivity of 0.1 cm. Measurement of waist circumference of the participants was made by measuring the perimeter between the lower rib and iliac bone with the inelastic tape measure based on the recommendation of the World Health Organization (2000). Body mass index, calculated by dividing body weight by square meter of height [body weight (kg) / height (m)] (79). According to the World Health Organization, BMI classification is given in Table 3.1 (35).

Table 3.1. According to the World Health Organization, BMI classification (35)

Classification	**BMI (kg/m²)**
Underweight	<18.50
Normal body weight	18.50-24.99
Overweight	25.00-29.99
Class I. Obesity	30.00-34.99
Class II. Obesity	35.00-39.99
Class III. Obesity (Morbid Obese)	≥40.00

3.3. Statistical Analysis

Statistical evaluation, IBM Corp. Released 2010. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp. made using. After The appropriateness of the measurable data to normal distribution was examined by Shapiro Wilk test, for those with normal distribution, t-test and variance analysis were used in independent group, Mann Whitney U test and Kruskal Wallis variance analysis were used to evaluate data that did not conform to the normal distribution. The Pearson or Spearman correlation analysis who appropriate was used to examine the relationships between the variables. One of the chi-square tests suitable for qualitative data was used. Median (Min-Max) values and arithmetic Mean ± Standard Deviation and numbers and percentages were given as descriptive statistics. For all statistics, the significance limit was chosen as $p<0.05$.

3.4. Ethics

The research was started after approval from the Yeditepe University Clinical Research Ethics Committee dated 06.11.2019 (Appendix 3) after obtaining the necessary permissions (Appendix 4) from Isparta Provincial Health Directorate.

4. RESULTS

This study was done with 150 participants who applied to Isparta City Hospital Diet Policlinic. Participant's, 109 (72.66%) of them were female and 41 (27.33%) were male.

Age characteristics of the female and male participants are given in Table 4.1.

Table 4.1. Distribution of the female and male participants by age ranges

Age Range (years)	Total (n=150)					
	Female (n=109)			Male (n=41)		
	n	%	Mean±SD	n	%	Mean±SD
18-24	2	1,80		0	0,00	
25-30	2	1,80		0	0,00	
31-37	3	2,80	52,56±8,86	1	2,40	56,00±6,55
38-50	26	23,90		8	19,50	
51-64	76	69,70		32	78,00	
Total	109	100,00		41	100,00	

The individuals who 69.70% of the female individuals participating in the study and 78.00% of the male were in the 51-64 age range. The average age of female and male participants was 52.56±8.86 and 56.00±6.55 years, respectively.

Demographic characteristics of the participants are given in Table 4.2.

Table 4.2. Demographic characteristics of the participants

Demographic Features	Female (n=109)		Male (n=41)		Total (n=150)	
	n	%	n	%	n	%
Education status						
Primary school	57	52,30	17	41,50	74	49,30
Secondary school	13	11,90	7	17,10	20	13,30
High school	23	21,10	12	29,30	35	23,30
Undergraduate	14	12,80	3	7,30	17	11,30
Graduate	1	0,90	1	2,40	2	1,30
Postgraduate	1	0,90	1	2,40	2	1,30
Marital status						
The married	90	82,60	36	87,80	126	84,00
Single	19	17,40	5	12,20	24	16,00
Working status						
Working	13	11,90	13	31,70	26	17,30
Not working	96	88,10	28	68,30	124	82,70
Health assurance						
Yes	107	98,20	39	95,10	146	97,30
No	2	1,80	2	4,90	4	2,70
Place of residence						
City	80	73,40	23	56,10	103	68,70
Rural	29	26,60	18	43,90	47	31,30

When the individuals participating in the study are evaluated according to their educational status, the majority (49.30%) are primary school graduates. 84.00% of the participants are married and 82.70% are not working. While 97.30% of the individuals have health insurance, 68.70% of them live in the city.

The evaluation of the participants in terms of cardiovascular disease and risk factors by gender is given in Table 4.3.

Table 4.3. Evaluation of the participants in terms of cardiovascular disease and risk factors by gender

Cardiovascular Disease and Risk Factors	Total (n=150)			
	Female (n=109)		Male (n=41)	
	n	%	n	%
Coronary artery disease	12	6,10	10	10,60
Chronic heart disease	17	8,70	9	9,60
Chronic heart failure	5	2,60	1	1,10
Myocardial infarction	5	2,60	11	11,70
Cerebrovascular accident	3	1,50	2	2,10
Hypertension	90	45,90	33	35,10
Hyperlipidemia	16	8,20	5	5,30
Dyslipidemia	4	2,00	4	4,30
Hypercholesterolemia	40	20,40	19	20,20
Other	4	2,00	0	0,00
Total	196	100,00	94	100,00

n>150 (Multiple Response Question)

Hypertension that has the highest incidence of cardiovascular disease and risk factors among participants is 45.90% of female participants and 35.10% of male participants with hypertension. In terms of incidence, hypercholesterolemia is following hypertension (female=20.40%, male=20.20%).

The evaluation of the participants in terms of having cardiovascular previous operation by gender is given in Table 4.4.

Table 4.4. Evaluation of the participants in terms of having cardiovascular previous operation by gender

Cardiovascular Operation	Total (n=150)			
	Female (n=109)		Male (n=41)	
	n	%	n	%
Coronary by-pass operation	6	5,50	7	16,70
Heart valve operation	2	1,80	1	2,40
Other	14	12,80	11	26,20
No	87	79,80	23	54,80
Total	109	100,00	42	100,00

n>150 (Multiple Response Question)

The participants who 79.80% of female and 54.80% of male participants did not have any cardiovascular operations. The most common cardiovascular operation among the participants was coronary by-pass with 5.50% in female and 16.70% in male.

The evaluation of the participants in terms of their presence other chronic diseases by gender is given in Table 4.5.

Table 4.5. Assessment of participants' other chronic disease states by gender

Chronic Disease	Total (n=150)			
	Female (n=109)		Male (n=41)	
	n	%	n	%
Diabetes	60	28,20	22	28,60
Metabolic syndrome	1	0,50	2	2,60
Obesity	100	46,90	31	40,30
COPD	4	1,90	2	2,60
Asthma	24	11,30	7	9,10
Chronic renal failure	1	0,50	3	3,90
Other	21	9,90	5	6,50
No	2	0,90	5	6,50
Total	213	100,00	77	100,00

COPD: Chronic Obstructive Pulmonary Disease, n>150(Multiple Response Question)

Many of the participants have multiple chronic diseases as well as cardiovascular disease and risk factors. While the highest rate in these chronic diseases is obesity, it is followed by diabetes. While obesity is present in 46.90% of female participants and 40.30% of male participants, there are 28.20% and 28.60% diabetes in female and male, respectively. Other chronic diseases of the participants are; metabolic syndrome, Chronic Obstructive Pulmonary Disease (COPD), asthma, chronic kidney failure, gout, cancer, non-alcoholic liver fatty and rheumatic diseases.

Dietary therapy status of participants by gender is given in Table 4.6.

Table 4.6. Dietary therapy status of participants by gender

Dietary Therapy Status	Total (n=150)			
	Female (n=109)		Male (n=41)	
	n	%	n	%
No	34	31,20	17	41,50
1 time	39	35,80	19	46,30
> 1 time	36	33,00	5	12,20
Total	109	100,00	41	100,00

Dietary treatment status of female and male participants are respectively; 31.20% and 41.50%, who received no dietary treatment, 35.80% and 46.30% once, 33.00% and 12.20% received more than one time.

The arithmetic mean, standard deviation and min-max values of the anthropometric measurements of the participants by gender are given in Table 4.7.

Table 4.7. The arithmetic mean, standard deviation and min-max values of the anthropometric measurements of the participants by gender

Parameters	Total (n=150)			
	Female (n=109)		Male (n=41)	
	Mean±SD	Min-Max	Mean±SD	Min-Max
Body Weight (kg)	92,16±13,81	64,30-147,00	93,50±12,14	60,80-126,50
Height (m)	1,58±0,06	1,45-1,78	1,68±0,073	1,45-1,83
BMI (kg / m²)	36,93±6,23	27,40-65,30	33,39±5,21	21,00-47,30
Waist Circumference (cm)	125,47±19,22	85,00-220,00	124,85±26,03	88,00-203,00

BMI: Body mass index

Body weights of female and male individuals who participated in the study were 92,16±13,81 kg and 93,50±12,14 kg, respectively. The height and BMI average of female individuals are 1.58±0.06 m and 36.93±6.23 kg / m², respectively. The height and BMI average of male individuals are 1.68±0.073 m and 33.39±5.21 kg / m², respectively.

Distribution of participants' BMI values according to WHO evaluation is shown in Table 4.8.

Table 4.8. BMI evaluation of the participants

BMI evaluation	Female (n=109)	Male (n=41)	Total (n=150)	x^2 p
	n	n	%	
Underweight	0	0	0,00	
Normal body weight	0	1	0,70	
Overweight	9	9	12,00	
Class I. Obesity	37	19	37,30	x^2=13,735 p=0,008*
Class II. Obesity	35	8	28,70	
Class III. Obesity (Morbid Obese)	28	4	21,30	
Total	109	41	100,00	

BMI: Body Mass Index, In-Group Analysis: chi-square test, p<0.05

When 109 female individuals and 41 male individuals participating in the study are evaluated according to BMI, 37.30% are class I. obese and 28.70% are class II. obese. A significant difference was found in BMI assessment by gender, and it was found that female participants had significantly higher BMI values than male participants (p=0,008, p<0.05).

Health risks assessment of the participants according to waist circumference by gender are given in Table 4.9.

Table 4.9. Health risk assessment of the participants according to waist circumference by gender

Health Risk by Waist Circumference	Female (n=109)			Male (n=41)			Total (n=150)
	n	%	x^2 p	n	%	x^2 p	
No risk	1	0,92	x^2=1,151 p=0,562	1	2,44	x^2=4,796 p=0,091	
Risky	2	1,83		3	7,32		
High Risk	106	97,25		37	90,24		
Total	109	100,00		41	100,00		

In-group analysis: chi-square test, p<0.05

The waist circumference of 97,25% of female participants is higher than 88 cm and the waist circumference of 90,24% of male participants are higher than 102 cm and they are in high risk in terms of disease. No significant relationship was found between gender and waist circumference (p>0.05).

The mean, standard deviation and min-max values of the total and sub-division scores of the participants' Nutrition Literacy Assessment Tool in Adults by gender are given in Table 4.10.

Table 4.10. The mean, standard deviation and min-max values of total and sub-section scores of Nutrition Literacy Assessment Tool in Adults by gender

Sections of Nutrition Literacy Assessment Tool in Adults	Total (n=150)					
	Female (n=109)			Male (n=41)		
	Mean±SD	Min-Max	Literacy Level	Mean±SD	Min-Max	Literacy Level
General Nutrition Information	7,16±2,54	0-10	Sufficient	6,27±2,57	1-10	Borderline
Reading Comprehension	3,68±1,90	0-6	Borderline	3,41±1,80	1-6	Borderline
Food Groups	6,79±3,45	0-10	Borderline	7,90±3,11	0-10	Sufficient
Portion Quantities	1,37±0,94	0-3	Borderline	1,41±1,02	0-3	Borderline
Numeracy Literacy and Food Label Reading	1,39±1,62	0-6	Insufficient	1,56±1,43	0-6	Insufficient
Total Score	20,31±7,62	0-34	Borderline	20,56±7,41	3-35	Borderline

When the scores of the Participants' Nutrition Literacy Assessment Tool in Adults are evaluated by gender; The average general nutritional information section score of female and male individuals is 7.16±2.54 (sufficient) and 6.27±2.57 (borderline), respectively. The reading comprehension score average is 3.68±1.90 (borderline) and 3.41±1.80 (borderline), respectively. Food groups section average score is 6.79±3.45 (borderline) and 7.90±3.11 (sufficient). Portion quantities section average score is 1.37±0.94 (borderline) and 1.41±1.02 (borderline), respectively. The numeracy literacy and food label reading section average score is 1.39±1.62 (insufficient) and 1.56±1.43 (insufficient), respectively. The total score of the Nutrition Literacy Assessment Tool in Adults is 20.31±7.62 (borderline) and 20.56±7.41 (borderline) for female and male, respectively.

The general nutrition information score assessment of the Participants' Nutrition Literacy Assessment Tool in Adults by gender is given in Table 4.11.

Table 4.11. Nutrition Literacy Assessment Tool in Adults general nutritional information score assessment by gender

Parameters	GENERAL NUTRITIONAL INFORMATION SCORES													
	Total (n=150)													
	Female (n=109)							Male (n=41)						
	Insufficient		Borderline		Sufficient		x^2 p	Insufficient		Borderline		Sufficient		x^2 p
	n	%	n	%	n	%		n	%	n	%	n	%	
Education Status														
Primary school	9	15,80	32	56,10	16	28,10		4	23,50	10	58,80	3	17,60	
Secondary school	2	15,40	4	30,80	7	53,80	x^2=27,935 p=0,000*	1	14,30	4	57,10	2	28,60	x^2=12,242 p=0,057
High school	1	4,30	4	17,40	18	78,30		1	8,30	6	50,00	5	41,70	
Undergraduate and above	0	0,00	2	12,50	14	87,50		0	0,00	0	0,00	5	100,00	
Age														
18-24	1	50,00	0	0,00	1	50,00		0	0,00	0	0,00	0	0,00	
25-30	0	0,00	0	0,00	2	100,00	x^2=16,523	0	0,00	0	0,00	0	0,00	x^2=3,865
31-37	0	0,00	0	0,00	3	100,00	p=0,035*	0	0,00	1	100,00	0	0,00	p=0,425
38-50	0	0,00	8	30,80	18	69,20		1	12,50	2	25,00	5	62,50	
51-64	11	14,50	34	44,70	31	40,80		5	15,60	17	53,10	10	31,30	
Place of Residence														
City	7	8,80	23	28,80	50	62,50	x^2=17,502	3	13,00	7	30,40	13	56,50	x^2=9,397
Rural	5	17,20	19	65,50	5	17,20	p=0,000*	3	16,70	13	72,20	2	11,10	p=0,009*
Dietary Therapy Status														
No	7	20,60	12	35,30	15	44,10	x^2=4,778	4	23,50	8	47,10	5	29,40	x^2=2,430
1 time	3	7,70	15	38,50	21	53,80	p=0,311	2	10,50	9	47,40	8	42,10	p= 0,657
>1 time	2	5,60	15	41,70	19	52,80		0	0,00	3	60,00	2	40,00	

0-3 points: insufficient literacy level, 4-7 points: borderline literacy level, 8-10 points: sufficient literacy level, In-group analysis: chi-square test analysis, p*<0.05

When the general nutritional information section scores of the participants are evaluated according to gender; While there was a significant difference between the educational status, age and place of residence and nutritional knowledge scores in female participants (p=0,000, p<0.05), there was no significant difference between the dietary treatment status and nutritional information scores (p>0.05). In male, a significant difference was found only between the place of residence and nutritional information scores (p=0,009, p<0.05). When evaluated according to the level of education; The majority of female (56.10%), who are primary school graduates, have a borderline general nutritional information levels; The majority of those with secondary, high school, undergraduate and higher education levels (53.80%, 78.30% and 87.50%, respectively) have sufficient general nutritional information levels. It was found that the general nutritional information levels of primary school graduate female participants were significantly lower than those of secondary school or higher education level (p=0,000, p<0.05). When evaluated by age; It was determined that the majority of female individuals between the ages of 51-64, the highest age group in the study, had a borderline general nutritional information levels, while the majority of individuals in all other age groups had sufficient general nutritional information levels. Younger female participants were found to have a significantly higher level of general nutritional information (p=0,035, p<0.05). When evaluated according to the place where individuals live; the majority of city residents (62.05% and 56.50% respectively) in female and male have sufficient general nutritional information levels, while the majority of rural residents (65.50% and 72.20% respectively) have borderline general nutritional information levels. It was found that individuals living in the city in both genders had significantly higher general nutritional information levels than those living in the rural areas (p=0,000 female and p=0,009 male, p<0.05).

The reading comprehension section score assessment of the Participants' Nutrition Literacy Assessment Tool in Adults by gender is given in Table 4.12

Table 4.12. Nutrition Literacy Assessment Tool in Adults reading comprehension section score assessment by gender

Parameters	READING COMPREHENSION SCORES													
	Total (n=150)													
	Female (n=109)							Male (n=41)						
	Insufficient		Borderline		Sufficient		x^2 p	Insufficient		Borderline		Sufficient		x^2 p
	n	%	n	%	n	%		n	%	n	%	n	%	
Education Status														
Primary school	29	50,90	16	28,10	12	21,10		10	58,80	4	23,50	3	17,60	
Secondary school	5	38,50	2	15,40	6	46,20	x^2=30,240	3	42,90	2	28,60	2	28,60	x^2=9,340
High school	2	8,70	7	30,40	14	60,90	p=0,000*	3	25,00	4	33,30	5	41,70	p=0,155
Undergraduate and above	0	0,00	3	18,80	13	81,30		0	0,00	1	20,00	4	80,00	
Age														
18-24	0	0,00	1	50,00	1	50,00		0	0,00	0	0,00	0	0,00	
25-30	0	0,00	0	0,00	2	100,00	x^2=12,897	0	0,00	0	0,00	0	0,00	x^2=3,099
31-37	0	0,00	1	33,30	2	66,70	p=0,115	1	100,00	0	0,00	0	0,00	p=0,541
38-50	4	15,40	7	26,90	15	57,70		3	37,50	1	12,50	4	50,00	
51-64	32	42,10	19	25,00	25	32,90		12	37,50	10	31,30	10	31,30	
Place of Residence														
City	19	23,80	18	22,50	43	53,80	x^2=20,344	6	26,10	6	26,1	11	47,8	x^2=5,129
Rural	17	58,60	10	34,50	2	6,90	p=0,000*	10	55,60	5	27,8	3	16,7	p=0,077
Dietary Therapy Status														
No	18	52,90	7	20,60	9	26,50		5	29,40	5	29,40	7	41,20	
1 time	12	30,80	8	20,50	19	48,70	x^2=11,970	9	47,40	5	26,30	5	26,30	x^2=1,511
>1 time	6	16,70	13	36,10	17	47,20	p=0,018*	2	40,00	1	20,00	2	40,0	p=0,825

0-2 points: insufficient literacy level, 3-4 points: borderline literacy level, 5-6 points: sufficient literacy level, In-group analysis: chi-square test analysis, *p<0.05

When the participants' reading comprehension section scores are evaluated by gender; While there was a significant difference between the educational status, place of residence and dieting therapy status and reading comprehension section scores in female participants ($p<0.05$), there was no significant difference between age and reading comprehension section scores ($p>0.05$). In male, no significant difference was found between education, age, place of residence and dietary therapy status and reading comprehension section scores ($p>0.05$). When evaluated according to the level of education; The majority of female (50.90%) of primary school graduates have insufficient reading comprehension skills level; It has been determined that the majority of those who have secondary school, high school, undergraduate and higher education levels (46.20%, 60.90% and 81.30% respectively) have sufficient reading comprehension skills level. It was found that the level of reading comprehension skills of female primary school graduates was significantly lower than those of secondary school or higher education status ($p=0,000$, $p<0.05$). When evaluated according to the place where individuals live; It was found that the majority of the female participants living in the city (53.80%) had sufficient reading comprehension skills levels and the majority of the female participants living in the rural areas (58.60%) had insufficient reading comprehension skills levels. It was found that female participants living in the city had significantly higher levels of reading comprehension skills than those living in rural areas ($p=0,000$, $p<0.05$). When the is evaluated according to the dietary treatment status; While the vast majority of female participants who have never received dietary treatment previously (52.90%) have insufficient reading comprehension skills levels, the majority of female participants who have received one or more dietary therapy (48.70% and 47.20%, respectively) have sufficient reading comprehension skill levels. It has been found that female participants who have never received diet therapy before have significantly lower reading comprehension skills levels than those who have received dietary therapy once or more ($p=0,018$, $p<0.05$).

The food groups section score assessment of the Participants' Nutrition Literacy Assessment Tool in Adults by gender is given in Table 4.13.

Table 4.13. Nutrition Literacy Assessment Tool in Adults food groups section score assessment by gender

Parameters	FOOD GROUPS SCORES													
	Total (n=150)													
	Female (n=109)							Male (n=41)						
	Insufficient		Borderline		Sufficient		x² p	Insufficient		Borderline		Sufficient		x² p
	n	%	n	%	n	%		n	%	n	%	n	%	
Education Status														
Primary school	21	36,80	10	17,50	26	45,60		4	23,50	1	5,90	12	70,60	
Secondary school	1	7,70	8	61,50	4	30,80	x²=37,176	2	28,60	0	0,00	5	71,40	x²=3,774
High school	0	0,00	3	13,00	20	87,00	p=0,000*	1	8,30	1	8,30	10	83,30	p=0,707
Undergraduate and above	0	0,00	2	12,50	14	87,50		0	0,00	0	0,00	5	100,00	
Age														
18-24	0	0,00	0	0,00	2	100,00		0	0,00	0	0,00	0	0,00	
25-30	0	0,00	0	0,00	2	100,00	x²=7,505	0	0,00	0	0,00	0	0,00	x²=1,075
31-37	0	0,00	0	0,00	3	100,00	p=0,483	0	0,00	0	0,00	1	100,00	p=0,898
38-50	3	11,50	7	26,90	16	61,50		1	12,50	0	0,00	7	87,50	
51-64	19	25,00	16	21,10	41	53,90		6	18,80	2	6,30	24	75,00	
Place of Residence														
City	18	22,50	15	18,80	47	58,80	x²=1,587	5	21,70	1	4,30	17	73,90	x²=0,813
Rural	4	13,80	8	27,60	17	58,60	p=0,452	2	11,10	1	5,60	15	83,30	p=0,666
Dietary Therapy Status														
No	10	29,40	10	29,40	14	41,20		5	29,40	0	0,00	12	70,60	
1 time	8	20,50	5	12,80	26	66,70	x²=7,895	2	10,50	0	0,00	17	89,50	x²=17,894
>1 time	4	11,10	8	22,20	24	66,70	p=0,095	0	0,00	2	40,00	3	60,00	p=0,001*

0-3 points: insufficient literacy level, 4-7 points: borderline literacy level, 8-10 points: sufficient literacy level, In-group analysis: chi-square test analysis, *p<0.05

When the food groups section scores of the participants are evaluated by gender; A significant difference was found between the only educational status of female participants, and the dietary treatment status of male participants and food groups section scores ($p<0.05$). When evaluated according to the educational situation; The majority of female participants with high school or higher education levels (87.00% and 87.50%, respectively), 45.60% of primary school graduate female participants have the knowledge level of "sufficient" food groups; The majority of female secondary school graduates (61.50%) were found to have the knowledge level of "borderline" food groups. It was found that female participants with high school or higher education levels had significantly higher levels of food groups information than other education levels ($p=0,000$, $p<0.05$). When the is evaluated according to the dietary treatment status; It was found that the majority of male participants had the knowledge level of "sufficient" food groups, but those who have received dietary treatment once have a higher level of knowledge of "sufficient" food groups than those who have never received it. While it was determined that male participants who have received dietary treatment once, have a significantly higher level of food groups information than those who have never received; It has been found that individuals who have received dietary therapy more than once have significantly lower knowledge levels of "sufficient" food groups than others ($p=0,001$, $p<0.05$).

The portion quantities section score assessment of the Participants' Nutrition Literacy Assessment Tool in Adults by gender is given in Table 4.14.

Tablo 4.14. Nutrition Literacy Assessment Tool in Adults portion quantities section score assessment by gender

Parameters	PORTION QUANTITIES SCORES													
	Total (n=150)													
	Female (n=109)							Male (n=41)						
	Insufficient		Borderline		Sufficient		x^2 p	Insufficient		Borderline		Sufficient		x^2 p
	n	%	n	%	n	%		n	%	n	%	n	%	
Education Status														
Primary school	40	70,20	12	21,10	5	8,80		10	58,80	6	35,30	1	5,90	
Secondary school	9	69,20	2	15,40	2	15,40	x^2=12,742	3	42,90	3	42,90	1	14,30	x^2=4,511
High school	7	30,40	10	43,50	6	26,10	p=0,047*	6	50,00	4	33,30	2	16,70	p=0,608
Undergraduate and above	8	50,00	6	37,50	2	12,50		1	20,00	2	40,00	2	40,00	
Age														
18-24	2	100,00	0	0,00	0	0,00		0	0,00	0	0,00	0	0,00	
25-30	0	0,00	2	100,00	0	0,00	x^2=14,263	0	0,00	0	0,00	0	0,00	x^2=5,573
31-37	0	0,00	2	66,70	1	33,30	p=0,075	1	100,00	0	0,00	0	0,00	p=0,233
38-50	12	46,20	9	34,60	5	19,20		2	25,00	3	37,50	3	37,50	
51-64	50	65,80	17	22,40	9	11,80		17	53,10	12	37,50	3	9,40	
Place of Residence														
City	42	52,50	25	31,30	13	16,30	x^2=4,849	9	39,10	8	34,80	6	26,10	x^2=5,742
Rural	22	75,90	5	17,20	2	6,90	p=0,089	11	61,10	7	38,90	0	0,00	p=0,057
Dietary Therapy Status														
No	26	76,50	8	23,50	0	0,00		11	64,70	5	29,40	1	5,90	
1 time	22	56,40	9	23,10	8	20,50	x^2=11,367	8	42,10	8	42,10	3	15,80	x^2=5,425
>1 time	16	44,40	13	36,10	7	19,40	p=0,023*	1	20,00	2	40,00	2	40,0	p=0,246

0-1 point: insufficient literacy level, 2 points: borderline literacy level, 3 points: sufficient literacy level, In-group analysis: chi-square test analysis, p*<0.05

When the portion quantities section of the participants are evaluated by gender; There was a significant difference between the educational status and diet therapy and portion quantities section scores in female participants ($p<0.05$). In male, there was no significant difference between the portion quantities section scores and these parameters ($p>0.05$). When evaluated according to the educational situation; the majority of female participants of primary, secondary, undergraduate and higher education levels (70.20%, 69.20% and 50.00% , respectively) are at the insufficient portion quantities information levels, and the majority of female participants who are high school graduates (43.50%) it has been found to have borderline portion quantities information levels. It has been found that the knowledge levels of portion quantities of female participants who are high school graduates are significantly higher than those of other education levels ($p=0,047$, $p<0.05$). When the is evaluated according to the dietary treatment status; Although the majority of female participants have insufficient portion quantities knowledge levels; it was found that these rates are highest in those who have never received dietary treatment (76.50%), and those rates that are once (56.40%) and those who have received dietary treatment more than once (44.40%) are increasingly low. According to those who have received dietary treatment more than once, those who have received dietary treatment once; according to those who have received dietary treatment once, and those who have never received dietary treatment; It was found that significantly had higher portion quantities knowledge levels ($p=0,023$, $p<0.05$).

The numeracy literacy and food label reading section score assessment of the Participants' Nutrition Literacy Assessment Tool in Adults by gender is given in Table 4.15.

Tablo 4.15. Nutrition Literacy Assessment Tool in Adults numeracy literacy and food label reading section score assessment by gender

Parameters	NUMERACY LITERACY AND FOOD LABEL READING SCORES													
	Total (n=150)													
	Female (n=109)							Male (n=41)						
	Insufficient		Borderline		Sufficient		x^2 p	Insufficient		Borderline		Sufficient		x^2 p
	n	%	n	%	n	%		n	%	n	%	n	%	
Education Status														
Primary school	54	94,70	3	5,30	0	0,00		17	100,00	0	0,00	0	0,00	
Secondary school	12	92,30	1	7,70	0	0,00	x^2=42,787	7	100,00	0	0,00	0	0,00	x^2=13,856
High school	12	52,20	10	43,50	1	4,30	p=0,000*	8	66,70	3	25,00	1	8,30	p=0,031*
Undergraduate and above	6	37,50	6	37,50	4	25,00		2	40,00	2	40,00	1	20,00	
Age														
18-24	1	50,00	0	0,00	1	50,00		0	0,00	0	0,00	0	0,00	
25-30	1	50,00	0	0,00	1	50,00	x^2=31,923	0	0,00	0	0,00	0	0,00	x^2=3,128
31-37	1	33,30	1	33,30	1	33,30	p=0,000*	1	100,00	0	0,00	0	0,00	p=0,537
38-50	17	65,40	7	26,90	2	7,70		5	62,50	2	25,00	1	12,50	
51-64	64	84,20	12	15,80	0	0,00		28	87,50	3	9,40	1	3,10	
Place of Residence														
City	56	70,00	19	23,80	5	6,30	x^2=8,541	16	69,60	5	21,70	2	8,70	x^2=6,606
Rural	28	96,60	1	3,40	0	0,00	p=0,014*	18	100,00	0	0,00	0	0,00	p=0,037*
Dietary Therapy Status														
No	28	82,40	6	17,60	0	0,00		15	88,20	1	5,90	1	5,90	
1 time	33	84,60	4	10,30	2	5,10	x^2=7,054	16	84,20	2	10,50	1	5,30	x^2=4,432
>1 time	23	63,90	10	27,80	3	8,30	p=0,133	3	60,00	2	40,00	0	0,00	p=0,351

0-2 points: insufficient literacy level, 3-4 points: borderline literacy level, 5-6 points: sufficient literacy level, In-group analysis: chi-square test analysis, p*<0.05

When the numeracy literacy and food label reading section scores of the participants are evaluated by gender; A significant difference was found between the educational status, age and place of residence in female participants, the educational status and place of residence in male participants, and the numeracy literacy and food label reading section scores ($p<0.05$). When evaluated according to the educational situation, female and male participants; the majority of primary school (94.70% and 100.00% respectively), secondary school (92.30% and 100.00% respectively), and high school graduates (52.20% and 66.70% respectively) have insufficient numeracy literacy and food label reading skills levels; It was found that the ratio of individuals with insufficient (37.50% and 40.00% respectively) and borderline (37.50% and 40.00% respectively) numeracy literacy and food label reading skills levels were equal on undergraduate and higher level. It was found that this rate decreased significantly as the level of education increased, as the majority of the participants had insufficient numeracy literacy and food label reading skill levels ($p=0,000$ female and $p=0,031$ male, $p<0.05$). When evaluated by age; The vast majority of female participants in the 38-50 and 51-64 age groups (65.40% and 84.20% respectively) have insufficient numeracy literacy and food label reading skills levels; it was found that this rate was significantly lower in female participants in younger age groups ($p=0,000$, $p<0.05$). Younger female participants were found to have significantly higher numeracy literacy and food label reading skill levels than female participants aged 38 and over ($p=0,000$, $p<0.05$). When evaluated according to where they live; It was determined that the majority of male and female participants had insufficient numeracy literacy and food label reading skill levels; it was found that individuals living in rural areas (96.60% and 100.00% respectively) had a significantly higher proportion of individuals with insufficient numeracy literacy and food label reading skills levels than those living in the city (70.00% and 69.60% respectively) ($p=0,014$ female and $p=0,037$ male, $p<0.05$).

The total score assessment of the Participants' Nutrition Literacy Assessment Tool in Adults by gender is given in Table 4.16.

Table 4.16. Nutrition Literacy Assessment Tool in Adults of total score assessment by gender

Parameters	TOTAL SCORE													
	Total (n=150)													
	Female (n=109)							Male (n=41)						
	Insufficient		Borderline		Sufficient		x^2 p	Insufficient		Borderline		Sufficient		x^2 p
	n	%	n	%	n	%		N	%	n	%	n	%	
Education Status														
Primary school	11	19,30	39	68,40	7	12,30		4	23,50	11	64,70	2	11,80	
Secondary school	3	23,10	6	46,20	4	30,80	x^2=42,769	1	14,30	4	57,10	2	28,60	x^2=14,596
High school	1	4,30	4	17,40	18	78,30	p=0,000*	1	8,30	5	41,70	6	50,00	p=0,024*
Undergraduate and above	0	0,00	4	25,00	12	75,00		0	0,00	0	0,00	5	100,00	
Age														
18-24	0	0,00	1	50,00	1	50,0		0	0,00	0	0,00	0	0,00	
25-30	0	0,00	0	0,00	2	100,0	x^2=18,314	0	0,00	0	0,00	0	0,00	x^2=3,865
31-37	0	0,00	0	0,00	3	100,0	p=0,019*	0	0,00	1	100,00	0	0,00	p=0,425
38-50	1	3,80	10	38,50	15	57,70		1	12,50	2	25,00	5	62,50	
51-64	14	18,40	42	55,30	20	26,30		5	15,60	17	53,10	10	31,30	
Place of Residence														
City	10	12,50	30	37,50	40	50,00	x^2=20,262	4	17,40	6	26,10	13	56,50	x^2=11,495
Rural	5	17,20	23	79,30	1	3,40	p=0,000*	2	11,10	14	77,80	2	11,10	p=0,003*
Dietary Therapy Status														
No	8	23,50	20	58,80	6	17,60		4	23,50	7	41,20	6	35,30	
1 time	4	10,30	20	51,30	15	38,50	x^2=12,112	2	10,50	10	52,60	7	36,80	x^2=2,282
>1 time	3	8,30	13	36,10	20	55,60	p=0,017*	0	0,00	3	60,00	2	40,00	p=0,684

0-11 points: insufficient literacy level, 12-23 points: borderline literacy level, 24-35 points: sufficient literacy level, In-group analysis: chi-square test analysis, p*<0.05

When the NLATA total scores of participants are evaluated by gender; A significant difference was found between the educational status, age, place of residence and diet therapy in female participants, and the educational status and place of residence in male participants, and NLATA total scores ($p<0.05$). When evaluated according to the educational situation; the majority of the participants who graduated from primary school (68.40% and 64.70% respectively) and secondary school (46.20% and 57.10% respectively) in female and male participants had borderline nutritional literacy level; The majority of the participants who have a high school (78.30% and 50.00%) and undergraduate and above (75.00% and 100.00% respectively) were found to have sufficient nutritional literacy levels. As the education level increased, the rate of individuals with sufficient nutritional literacy level increased significantly ($p=0,000$ female and $p=0,024$ male, $p<0.05$). When evaluated by age; It was determined that the majority of the female participants in the 31-50 age group had sufficient literacy levels and the majority of the female participants in the 51-64 age group had borderline nutritional literacy level. Nutritional literacy levels of female participants in the 51-64 age group were found to be significantly lower compared to younger participants ($p=0,019$, $p<0.05$). When evaluated according to where they live; it was determined that the majority of urban residents (50.00% females and 56.50% males) were sufficient, while the majority of rural residents (females 79.30% and males 77.80%) had borderline nutritional literacy levels. Nutritional literacy level of urban residents was found to be significantly higher than rural residents ($p=0,000$ female and $p=0,003$ male, $p<0.05$). When evaluated according to the conditions of receiving dietary treatment; The majority of female (58.80% and 51.30%, respectively) who have never received dietary treatment and who have taken it once, have borderline nutritional literacy level, and the majority of those who have received dietary treatment more than once (55.60%) have sufficient nutritional literacy level. Nutritional literacy levels of those who have received dietary treatment once are significantly higher than those who have never received dietary treatment, and nutritional literacy levels of those who have received dietary treatment more than once have been found significantly higher than those who have received dietary treatment once ($p=0,017$, $p<0.05$).

Assessment of the Participants' Nutrition Literacy Assessment Tool in Adults total score by BMI and gender is given in Table 4.17.

Table 4.17. Evaluation of Total Nutrition Literacy Assessment Tool in Adults by BMI and gender

BMI	Total (n=150)													
	Female (n=109)							Male (n=41)						
	Insufficient		Borderline		Sufficient		x^2 p	Insufficient		Borderline		Sufficient		x^2 p
	n	%	n	%	n	%		n	%	n	%	n	%	
Underweight	0	0,00	0	0,00	0	0,00		0	0,00	0	0,00	0	0,00	
Normal body weight	0	0,00	0	0,00	0	0,00		0	0,00	1	100,00	0	0,00	
Overweight	2	22,20	3	33,30	4	44,40		0	0,00	4	44,40	5	55,60	
Class I. Obesity	5	13,50	17	45,90	15	40,50		3	15,80	9	47,40	7	36,80	
Class II. Obesity	5	14,30	15	42,90	15	42,90	x^2=4,441	3	37,50	3	37,50	2	25,00	x^2=7,969
Class III. Obesity (Morbid Obese)	3	10,70	18	64,30	7	25,00	p=0,617	0	0,00	3	75,00	1	25,00	p=0,437

BMI: Body mass index, 0-11 points: insufficient literacy level, 12-23 points: borderline literacy level, 24-35 points: sufficient literacy level, In-group analysis: chi-square test analysis, p*<0.05

When NLATA total scores of individuals are evaluated by gender; No significant difference was found between BMI value of female and male and NLATA total score (p>0.05).

In female participant assessment of the Nutrition Literacy Assessment Tool in Adults according to the total score and the differences between age, body weight, height, BMI, waist circumference variables are given in Table 4.18.

Table 4.18. In female participant Assessment of the Nutrition Literacy Assessment Tool in Adults according to the total score and the differences between age, body weight, height, BMI, waist circumference variables

Parameters	TOTAL SCORE ASSESSMENT OF THE NUTRITION LITERACY ASSESSMENT TOOL IN ADULTS				
	Female (n=109)				
	Insufficient[1]	Borderline[2]	Sufficient[3]	Kruskal Wallis test	Mann-Whitney U test
	Mean±SD	Mean±SD	Mean±SD		
Age	55,60±5,05	55,02±7,89	48,27±9,58	x^2=16,252 p=0,000*	p^{1-2}=0,982 p^{1-3}=0,004* p^{2-3}=0,000*
Body weight	90,12±14,15	94,41±15,69	89,99±10,57	x^2=1,359 p=0,507	-
Height	1,58±0,07	1,58±0,06	1,59±0,05	x^2=1,105 p=0,576	-
BMI	36,47±6,52	37,93±7,34	35,81±4,16	x^2=1,253 p=0,534	-
Waist circumference	120,53±24,31	128,53±22,52	123,32±10,29	x^2=2,517 p=0,284	-

BMI: Body Mass Index, Kruskal Wallis test (comparison between groups), Mann-Whitney U test (multiple comparison), *p<0.05

According to the nutritional literacy levels of female individuals participating in the study; When age, body weight, BMI and waist circumference are evaluated; only a significant difference was found between with age (p=0,000, p<0.05). By making multiple comparisons between the groups, this difference was found to be between the level of sufficient literacy and levels of insufficient and borderline literacy (p^{1-3}=0,004, p^{2-3}=0,000, p<0.05). It was found that the average age of the female participants, who have sufficient nutritional literacy level, was significantly lower than those of the insufficient and borderline nutrition literacy level (p^{1-3}=0,004, p^{2-3}=0,000, p<0.05).

In male participant assessment of the Nutrition Literacy Assessment Tool in Adults according to the total score and the differences between age, body weight, height, BMI, waist circumference variables are given in Table 4.19.

Table 4.19. In male participant Assessment of the Nutrition Literacy Assessment Tool in Adults according to the total score and the differences between age, body weight, height, BMI, waist circumference variables

Parameters	TOTAL SCORE ASSESSMENT OF THE NUTRITION LITERACY ASSESSMENT TOOL IN ADULTS				
	Male (n=41)				
	Insufficient[1]	Borderline[2]	Sufficient[3]	Kruskal Wallis test	Mann-Whitney U test
	Mean±SD	Mean±SD	Mean±SD		
Age	57,33±4,68	56,50±7,65	54,80±5,72	x^2=1,788 p=0,409	-
Body weight	95,60±6,38	93,44±14,57	92,73±10,77	x^2=0,791 p=0,673	-
Height	1,67±0,04	1,67±0,07	1,70±0,08	x^2=1,777 p=0,411	-
BMI	34,45±2,34	33,96±6,43	32,21±4,13	x^2=2,190 p=0,335	-
Waist circumference	121,50±7,56	127,35±28,81	122,87±27,75	x^2=0,828 p=0,661	-

BMI: Body Mass Index, Kruskal Wallis test (comparison between groups), Mann-Whitney U test (multiple comparison), *p<0.05

When the age, body weight, BMI and waist circumference according to the nutritional literacy levels of male individuals participating in the study were evaluated; There was no significant difference between any parameters (p>0.05).

In female participants, relationship between the Nutrition Literacy Assessment Tool in Adults scores and age, educational status, marital status, place of residence, body weight, BMI, waist circumference and dietary treatment status are given in Table 4.20.

Table 4.20. In female participants, relationship between the Nutrition Literacy Assessment Tool in Adults scores and age, educational status, marital status, place of residence, body weight, BMI, waist circumference and dietary treatment status

Parameters	Female (n=109)					
	General Nutritional Information	Reading Comprehension	Food Groups	Portion Quantities	Numeracy Literacy and Food Label Reading	Total
Age	r=-0,344** p=0,000	r=-0,339** p=0,000	r=-0,161 p=0,093	r=-0,143 p=0,137	r=-0,348** p=0,000	r=-0,372** p=0,000
Educational Status	r=0,479** p=0,000	r=0,550** p=0,000	r=0,385** p=0,000	r=0,251** p=0,008	r=0,612** p=0,000	r=0,634** p=0,000
Marital Status	r=0,045 p=0,644	r=0,118 p=0,221	r=0,071 p=0,462	r=0,111 p=0,251	r=0,114 p=0,240	r=0,051 p=0,598
Place Of Residence	r=-0,431** p=0,000	r=-0,444** p=0,000	r=0,046 p=0,631	r=-0,218* p=0,023	r=-0,260** p=0,006	r=-0,334** p=0,000
Body Weight	r=-0,063 p=0,518	r=-0,019 p=0,845	r=0,008 p=0,931	r=-0,066 p=0,497	r=0,026 p=0,792	r=-0,051 p=0,596
BMI	r=-0,084 p=0,386	r=-0,002 p=0,982	r=-0,089 p=0,359	r=-0,109 p=0,258	r=-0,031 p=0,753	r=-0,090 p=0,352
Waist Circumference	r=0,002 p=0,987	r=0,034 p=0,725	r=0,001 p=0,991	r=-0,052 p=0,588	r=-0,025 p=0,794	r=-0,007 p=0,945
Dietary Treatment Status	r=-0,164 p=0,088	r=-0,125 p=0,197	r=-0,177 p=0,065	r=-0,154 p=0,110	r=0,022 p=0,821	r=-0,172 p=0,074

BMI: Body Mass Index, r: Spearman correlation coefficient, p*<0.05, p**<0.01

When NLATA scores of the participants are evaluated; in female individuals; It was found that there was a very significant negative correlation between the general nutritional knowledge, reading comprehension, numeracy literacy and food label reading sections score and nutrition literacy total scores, and age ($p<0.01$). It was determined that the level of nutritional literacy and general nutrition knowledge, reading comprehension, numeracy literacy and food label reading skills decreased significantly as the age increased. A very significant moderate positive correlation was found between the educational status and the scores obtained from all sections of NLATA and their total scores ($p=0,000$, $p<0.01$). As the education level increased, it was determined that the level of nutrition literacy and general nutrition knowledge, reading comprehension, knowledge of nutritional groups, knowledge of portion quantities, numeracy literacy and

food label reading skills increased significantly. Between place of residence and all other department scores and total scores, except NLATA food groups and portion quantities; very significant moderate negative correlation was found (p=0,000, p<0.01). Between the place of residence and portion quantities section scores; A significant low severity negative correlation was found (p=0,023, p<0.05). It was found that female participants living in the city had significantly higher levels of nutritional literacy and general nutritional knowledge, reading comprehension, portion quantities, numeracy literacy and food label reading skills compared to those living in rural areas.

In male participants, relationship between the Nutrition Literacy Assessment Tool in Adults scores and age, educational status, marital status, place of residence, body weight, BMI, waist circumference and dietary treatment status are given in Table 4.21.

Table 4.21. In male participants, relationship between the Nutrition Literacy Assessment Tool in Adults scores and age, educational status, marital status, place of residence, body weight, BMI, Waist Circumference and dietary treatment status

Parameters	Male (n=41)					
	General Nutritional Information	Reading Comprehension	Food Groups	Portion Quantities	Numeracy Literacy and Food Label Reading	Total
Age	r=-0,293 p=0,063	r=-0,063 p=0,695	r=-0,157 p=0,327	r=-0,198 p=0,214	r=-0,151 p=0,348	r=-0,285 p=0,071
Educational Status	r=0,507** p=0,001	r=0,450** p=0,003	r=0,284 p=0,072	r=0,298 p=0,058	r=0,457** p=0,003	r=0,608** p=0,000
Marital Status	r=-0,050 p=0,759	r=-0,055 p=0,735	r=-0,181 p=0,257	r=-0,227 p=0,153	r=-0,027 p=0,868	r=-0,093 p=0,564
Place Of Residence	r=-0,391* p=0,011	r=-0,356* p=0,022	r=-0,004 p=0,978	r=-0,396* p=0,010	r=-0,367* p=0,018	r=-0,433** p=0,005
Body weight	r=0,032 p=0,841	r=0,074 p=0,646	r=-0,307 p=0,051	r=-0,252 p=0,113	r=-0,103 p=0,522	r=-0,095 p=0,556
BMI	r=-0,064 p=0,689	r=-0,039 p=0,809	r=0,457** p=0,003	r=-0,226 p=0,156	r=-0,003 p=0,983	r=-0,168 p=0,294
Waist Circumference	r=0,050 p=0,755	r=-0,059 p=0,713	r=0,420** p=0,006	r=-0,342* p=0,028	r=0,067 p=0,677	r=-0,141 p=0,378
Dietary Treatment Status	r=-0,092 p=0,567	r=0,242 p=0,127	r=-0,217 p=0,174	r=-0,140 p=0,382	r=-0,052 p=0,748	r=-0,038 p=0,813

BMI: Body Mass Index, r: Spearman correlation coefficient, p*<0.05, p**<0.01

When the NLATA scores of the participants are evaluated; in male individuals; It was found that there was a very significant moderate positive correlation between general nutritional information, reading comprehension, numeracy literacy and food label reading sections scores and total scores, and educational status ($p<0.01$). As the education level increased, it was determined that the level of nutritional literacy and general nutritional information, reading comprehension, numeracy literacy and food label reading skills increased significantly. A significant low-level negative correlation ($p<0.05$) was found between the place of residence and all the scores of the sections except for the NLATA food groups section, and a very significant moderate negative correlation was found between the place of residence and the total score ($p=0,005$, $p<0.01$). It was determined that male participants living in the city had significantly higher level of nutritional literacy and general nutritional information, reading comprehension, portion quantities knowledge, numeracy literacy and food label reading skills compared to those living in rural areas. A very significant moderate negative correlation was found between the food groups section scores and waist circumference and BMI values ($p=0,006$ and $p=0,003$, respectively, $p<0.01$). As the knowledge level of food groups increases; waist circumference and BMI values were found to decrease significantly.

Diet Self-Efficacy Scale mean scores, standard deviation and min-max values of the participants are given in Table 4.22.

Table 4.22. Diet Self-Efficacy Scale mean scores, standard deviation and min-max values of the participants

Scale	Female (n=109)		Male (n=41)		Total (n=150)	
	Mean±SD	Min-Max	Mean±SD	Min-Max	Mean±SD	Min-Max
Diet Self-Efficacy Scale total score	1467,71±740,96	0,00-2850,00	1347,56±727,07	300,00-3000,00	1434,87±736,72	0,00-3000,00
Diet Self-Efficacy Scale average score	48,73±24,71	0,00-95,00	44,91±24,24	10,00-100,00	47,69±24,56	0,00-100,00

The average of the total scores of participants on the diet self-efficacy scale is 1434.87±736.72.

The evaluation of the total score of the Diet Self-Efficacy Scale of the participants according to their educational status, age, place of residence and dietary treatment status by gender is given in Table 4.23.

Table 4.23. Evaluation of the total score of the Diet Self-Efficacy Scale of the participants according to their educational status, age, place of residence and dietary treatment status by gender

Parameters	DIET SELF-EFFICACY SCALE SCORES									
	Total (n=150)									
	Female (n=109)					Male (n=41)				
	Low		High		x^2 p	Low		High		x^2 p
	n	%	n	%		n	%	n	%	
Educational Status										
Primary school	35	61,40	22	38,60	x^2=10,585 p=0,014*	14	82,40	3	17,60	x^2=7,132 p=0,068
Secondary school	9	69,20	4	30,80		5	71,40	2	28,60	
High school	7	30,40	16	69,60		7	58,30	5	41,70	
Undergraduate and above	5	31,30	11	68,80		1	20,00	4	80,00	
Age										
18-24	2	100,00	0	0,00	x^2=8,614 p=0,072	0	0,00	0	0,00	x^2=3,895 p=0,143
25-30	0	0,00	2	100,00		0	0,00	0	0,00	
31-37	1	33,30	2	66,70		1	100,00	0	0,00	
38-50	9	34,60	17	65,40		3	37,50	5	62,50	
51-64	44	57,90	32	42,10		23	71,90	9	28,10	
Place of Residence										
City	36	45,00	44	55,00	x^2=4,894 p=0,027*	12	52,20	11	47,80	x^2=4,360 p=0,037*
Rural	20	69,00	9	31,00		15	83,30	3	16,70	
Dietary Therapy Status										
No	20	58,80	14	41,20	x^2=3,398 p=0,183	11	64,70	6	35,30	x^2=2,014 p=0,365
1 time	22	56,40	17	43,60		14	73,70	5	26,30	
>1 time	14	38,90	22	61,10		2	40,00	3	60,00	

0-1500 points: low self-efficacy level, 1500+ points: high self-efficacy level, In-group analysis: chi-square test analysis, p*<0.05

A significant difference was found between the diet self-efficacy scale total scores of the female participants and their educational status and place of residence (p=0,014 and p=0,027, respectively, p<0.05). It was found that the majority of primary school graduate and secondary school graduate female participants have low diet self-efficacy levels and the majority of female participants with high school and undergraduate and higher education levels had high diet self-efficacy levels. It was found that female participants with high school or higher education levels had significantly higher diet self-efficacy levels compared to primary and secondary school graduates (p=0,014, p<0.05). In male individuals, a significant difference was found between the total score of the diet self-efficacy scale and only place of residence (p=0,037, p<0.05). When evaluated according to where they live; in female participants; The majority of rural residents (69.00%) were found to have low diet self-efficacy levels, while the majority of urban residents (55.00%) had high levels of diet self-efficacy. Diet self-efficacy levels of female participants living in the city; It was found to be significantly higher than those living in rural areas (p=0,027, p<0.05). Although the majority of male participants had low diet

self-efficacy levels, this rate was found to be significantly lower in urban residents (p=0,037, p<0.05).

Evaluation of female and male participants' total score of diet self-efficacy scale according to BMI values is given in Table 4.24.

Table 4.24. Evaluation of female and male participants' total score of diet self-efficacy scale according to BMI values

BMI	DIET SELF-EFFICACY SCALE TOTAL SCORES									
	Total (n=150)									
	Female (n=109)					Male (n=41)				
	Low		High		x^2 p	Low		High		x^2 p
	n	%	n	%		n	%	n	%	
Underweight	0	0,00	0	0,00		0	0,00	0	0,00	
Normal body weight	0	0,00	0	0,00	x^2=6,134	0	0,00	1	100,00	x^2=4,728
Overweight	4	44,40	5	55,60	p=0,105	4	44,40	5	55,60	p=0,316
Class I. Obese	17	45,90	20	54,10		14	73,70	5	26,30	
Class II. Obese	15	42,90	20	57,10		6	75,00	2	25,00	
Class III. Obese	20	71,40	8	28,60		3	75,00	1	25,00	

BMI: body mass ındex, 0-1500 points: low self-efficacy level, 1500+ points: high self-efficacy level, In-group analysis: chi-square test analysis, p*<0.05

There was no significant difference between the total score of the diet self-efficacy scale and BMI of the individuals who participated in the study by gender (p>0.05).

Evaluation of age, body weight, BMI and waist circumference variables according to the total score of the female and male participants' diet self-efficacy scale is given in Table 4.25.

Table 4.25. Evaluation of age, body weight, BMI and waist circumference variables according to the total score of the female and male participants' Diet Self-Efficacy Scale

Parameters	DIET SELF-EFFICACY SCALE TOTAL SCORE					
	Total (n=150)					
	Female (n=109)			Male (n=41)		
	Low	High		Low	High	
	Mean±SD	Mean±SD		Mean±SD	Mean±SD	
Age (year)	53,93±9,17	51,11±8,37	Z=-2,262 p=0,024*	57,04±6,44	54,00±6,54	Z=-1,561 p=0,121
Body weight (kg)	93,24±13,57	91,01±14,10	Z=-1,194 p=0,232	95,31±11,42	89,99±13,13	Z=-1,334 p=0,185
BMI (kg/m²)	37,52±5,99	36,31±6,48	Z=-1,470 p=0,141	34,31±5,07	31,62±5,21	Z=-1,389 p=0,167
Waist circumference (cm)	125,05±18,73	125,91±19,91	Z=-0,837 p=0,402	127,63±23,69	119,50±30,25	Z=-1,981 p=0,048*

0-1500 points: low self-efficacy level, 1500+ points: high self-efficacy level, Intergroup analysis: Mann-Whitney U Test, *p<0.05

In female participants, a significant difference was found between diet self-efficacy total score and age variable only (p=0,024, p<0.05). The average age of the individuals scoring lower than the diet self-efficacy scale was found to be significantly higher than the individuals scoring high. In male participants, a significant difference was found between total score of diet self-efficacy scale and only waist circumference. It was determined that the waist circumference of male individuals with high diet self-efficacy level was significantly low. (p=0,048, p<0.05).

The relation of the participants' Diet Self-Efficacy Scale scores with their age, education status, body weight, BMI, waist circumference and dietary therapy status are given in Table 4.26.

Table 4.26. The relation of the participants' Diet Self-Efficacy Scale scores with their age, education status, body weight, BMI, waist circumference and dietary therapy status

Parameters	Diet Self-Efficacy Scale Total Score	Diet Self-Efficacy Scale Average Score
Age	r=-0,190* p=0,020	r=-0,195* p=0,017
Education Status	r=0,247** p=0,002	r=0,252** p=0,002
Body Weight (Kg)	r=-0,149 p=0,070	r=-0,139 p=0,089
BMI	r=-0,127 p=0,120	r=-0,117 p=0,154
Waist Circumference	r=-0,102 p=0,215	r=-0,092 p=0,263
Dietary Therapy Status	r=-0,015 p=0,852	r=-0,016 p=0,841

BMI: Body Mass Index, r: Spearman correlation coefficient, r *: p<0.05, r **: p<0.01

With the total score of the diet self-efficacy scale of the individuals participating in the study; While a very weak negative significant correlation was found between the age variable (p=0,020, p<0,05), a weak positive very significant correlation was found between the educational status variable (p=0,002, p<0,01). It was found that diet self-efficacy level decreased significantly as age increased and diet self-efficacy level increased significantly as education level increased.

Evaluation of Nutrition Literacy Assessment Tool in Adults sections and total scores according to the diet self-efficacy level of the participants are given in Table 4.27.

Table 4.27. Evaluation of Nutrition Literacy Assessment Tool in Adults sections and total scores according to the diet self-efficacy level of the participants

Scale sections	Diet Self-Efficacy Scale Total Score		
	Low	High	Z
	Mean+SD	Mean+SD	p
General Nutritional Information Score	6,02±2,64	8,02±2,01	Z=-4,715 p=0,000*
Reading Comprehension Score	2,82±1,77	4,58±1,51	Z=-5,700 p=0,000*
Food Groups Score	6,27±3,77	8,12±2,51	Z=-2,915 p=0,004*
Portion Quantities Score	0,99±0,92	1,87±0,78	Z=-5,630 p=0,000*
Numeracy Literacy and Food Label Reading Score	0,99±1,40	2,00±1,59	Z=-4,327 p=0,000*
Total Score	16,99±7,35	24,58±5,37	Z=-6,153 p=0,000*

0-1500 points: low self-efficacy level, 1500+ points: high self-efficacy level, Intergroup analysis: Mann Whitney U test, *p<0.05

With the diet self-efficacy levels of the participants; A significant difference was found between the scores obtained from all sections and the total of the Nutrition Literacy Assessment Tool in Adults. Individuals with high diet self-efficacy level compared to individuals with low level; It was determined that they scored significantly higher than NLATA sections and total (p=0,000, p<0.05).

Evaluation of Diet Self-Efficacy Scale scores according to the nutritional literacy levels of the participants is given in Table 4.28.

Table 4.28. Evaluation of diet self-efficacy scale scores according to the nutritional literacy levels of the participants

Diet Self-Efficacy Scale Total Score	**Nutrition Literacy Assesment Tool in Adult Total Score**				
	Insufficient[1] Mean±SD	Borderline[2] Mean±SD	Sufficient[3] Mean±SD	Kruskal Wallis Test	Mann Whitney U test
	561,91±212,22	1413,84±674,39	1789,64±662,50	x^2=46,920 p=0,000*	p^{1-2}=0,000* p^{1-3}=0,000* p^{2-3}=0,002*
	General Nutritional Information Section Score				
	Insufficient[1] Mean±SD	Borderline[2] Mean±SD	Sufficient[3] Mean±SD	Kruskal Wallis Test	Mann Whitney U test
	917,78±556,91	1197,74±702,50	1777,86±647,85	x^2=31,971 p=0,000*	p^{1-2}=0,091 p^{1-3}=0,000* p^{2-3}=0,000*
	Reading Comprehension Section Score				
	Insufficient[1] Mean±SD	Borderline[2] Mean±SD	Sufficient[3] Mean±SD	Kruskal Wallis Test	Mann Whitney U test
	1026,15±544,85	1494,62±751,67	1755,59±711,55	x^2=27,997 p=0,000*	p^{1-2}=0,002* p^{1-3}=0,000* p^{2-3}=0,092
	Food Groups Section Score				
	Insufficient[1] Mean±SD	Borderline[2] Mean±SD	Suficient[3] Mean±SD	Kruskal Wallis Test	Mann Whitney U test
	929,31±765,32	1536,40±636,82	1561,15±692,34	x^2=19,508 p=0,000*	p^{1-2}=0,001* p^{1-3}=0,000* p^{2-3}=0,921
	Portion Quantities Section Score				
	Insufficient[1] Mean±SD	Borderline[2] Mean±SD	Sufficient[3] Mean±SD	Kruskal Wallis Test	Mann Whitney U test
	1168,69±716,23	1692,22±545,23	1948,10±733,13	x^2=27,524 p=0,000*	p^{1-2}=0,000* p^{1-3}=0,000* p^{2-3}=0,117
	Numeracy Literacy and Food Label Reading Section Score				
	Insufficient[1] Mean±SD	Borderline[2] Mean±SD	Sufficient[3] Mean±SD	Kruskal Wallis Test	Mann Whitney U test
	1338,81±701,38	1774,00±679,67	1842,86±1087,61	x^2=8,953 p=0,011*	p^{1-2}=0,005* p^{1-3}=0,198 p^{2-3}=0,721

Intergroup analysis: Kruskal Wallis Test, Multiple comparison: Mann Whitney U test, *p<0.05

With the nutritional literacy levels determined by the participants' total score obtained from the nutritional literacy assessment tool in adults; A significant difference was found between total scores of diet self-efficacy scale. Diet self-efficacy scores; of individuals with insufficient nutritional literacy levels were found to be significantly lower compared to individuals with borderline and sufficient levels, and individuals with nutritional literacy levels borderline compared to individuals at sufficient levels

(p^{1-2}=0,000, p^{1-3}=0,000, p^{2-3}=0,002, p<0.05). A significant difference was found between the nutritional literacy levels and diet self-efficacy scores determined according to the score obtained from the general nutritional information section of the participants. It was found that individuals with level of sufficient general nutritional knowledge had significantly higher diet self-efficacy scores than individuals with levels of borderline and level of insufficient general nutritional knowledge (p=0,000, p<0.05). A significant difference was found between the nutritional literacy levels and diet self-efficacy scores determined according to the score obtained from the reading comprehension section of the participants. It was found that individuals who had insufficient reading comprehension skills had significantly lower diet self-efficacy scores than those who had levels of borderline and sufficient reading comprehension skills (p^{1-2}=0,002, p^{1-3}=0,000, p<0.05). A significant difference was found between the nutritional literacy levels and diet self-efficacy scores determined according to the scores obtained from the food groups section of the participants. It was found that individuals with insufficient levels of food groups had significantly lower diet self-efficacy scores than those individuals with borderline and sufficient levels (p^{1-2}=0,001, p^{1-3}=0,000, p<0.05). A significant difference was found between the nutritional literacy levels and diet self-efficacy scores determined according to the score obtained from the portion quantities section of the participants. It was found that individuals with insufficient portion quantities of knowledge had significantly lower diet self-efficacy scores than those individuals with borderline and sufficient levels (p=0,000, p<0.05). A significant difference was found between the nutritional literacy levels and diet self-efficacy scores determined according to the score obtained by the participants from the numeracy literacy and food label reading section. When analyzed by in-group analysis, it was found that this difference is only between the insufficient and borderline levels. Individuals with borderline numeracy literacy and food label reading skills levels were found to have significantly higher diet self-efficacy scores than those with insufficient levels (p=0,005, p<0.05).

The relationship between the participants' Nutrition Literacy Assessment Tool in Adults score and Diet Self-efficacy Scale scores is given in Table 4.29.

Table 4.29. The relationship between the participants' Nutrition Literacy Assessment Tool in Adult score and Diet Self-efficacy Scale scores

Nutrition Literacy Assessment Tool in Adults Sections	Diet Self-Efficacy Scale	
	r	p
General Nutritional Information	0,427**	0,000
Reading Comprehension	0,459**	0,000
Food Groups	0,289**	0,000
Portion Quantities	0,510**	0,000
Numeracy Literacy and Food Label Reading	0,387**	0,000
Total Score	0,534**	0,000

r: Spearman correlation coefficient, r *: p<0.05, r **: p<0.01

A very significant positive correlation was found between the diet self-efficacy scale total scores of the individuals participating in the study and the sections and total scores nutrition literacy assessment tool in adults, (p=0,000, p<0.01). While a moderate positive correlation was found between diet self-efficacy scale total score and NLATA total and portion amounts section scores, a weak relationship was found between other departments (p=0,000, p<0.01). As the level of nutritional literacy and general nutritional information, reading comprehension, food groups, portion quantities, numeracy literacy and food label reading skill levels increased, diet self-efficacy levels increased significantly.

5. DISCUSSION AND CONCLUSION

Although CVD are the number one cause of death worldwide, individuals who have cardiovascular disease or who have high risk of CVD can be provided with beside healthy lifestyle arrangement proper use of medications, as well as controlling the disease and preventing risk factors. The goals of healthy lifestyle regulation are; stopping tobacco and alcohol use, maintaining weight control, lowering blood lipids aggressively, controlling blood pressure and diabetes (7,80).

Age and gender are considered as an unavoidable risk factor and are a strong risk factor for CVD in male over 45 years old and in female over 55 years old (81). In female, the disease develops 7-10 years later than male (39). In "Ongoing Telmisartan Alone and in combination with Ramipril Global Endpoint Trial (ONTARGET) and Telmisartan Randomized Assessment (TRANSCEND)" studies (9.378 female and 22.168 male), that 31.000 patients were followed for an average of 56 months, female were found to have an average of 20% less risk than male (82). In the study of Assessment of Factors Affecting Cardiovascular Diseases and Comparison of Cardiovascular Risk Scores conducted by Dülek et al. (83), in accordance with the literature; The risk level in male cases was found to be statistically significantly higher than female cases. In Primary Care Health Service Chronic Disease Monitoring Field Application Study; It is seen that 50.00% of the participants in the study are between 40-54 years old and 70.00% are female (84). The low participation of male, and the increase in participation over 70 years of age was based on the fact that it may be due to the work of male, and the distant health centers to his workplaces (84). When the cardiovascular risk assessment data were analyzed by gender, 42.60% of male were in the high and very high risk group, while this ratio was 19.70% in female and this difference was statistically significant ($p<0.05$). In this case, gender, which is an important factor in cardiovascular risk assessment, emphasizes the importance of male's participation in this study (84). Similarly, in this study, 72.66% of the participants are female and 69.70% of the female individuals participating in the study and 78.00% of the male individuals are in the 51-64 age range. The average age of female and male participants is 52.56±8.86 and 56.00±6.55 years, respectively (Table 4.1). As stated in the Primary Care Health Service Chronic Disease

Monitoring Field Application Study, the low male participation in the study and the average age of the male in the study were higher than the female; It is thought that the fact that male apply less to health centers because they work at the ages when they are "active" may be related to their early retirement and more frequent post-retirement (84).

Hypertension, diabetes, prediabetes, hyperlipidemia, dyslipidemia, hypercholesterolemia, excess body weight and obesity; are the metabolic risk factors of CVD. The most important and most common of the metabolic risk factors is hypertension, and coronary heart disease is 2-3 times more common in hypertensives than ormotensives (83). According to the study of "Epidemiological study of European Cardiovascular Risk patients: Disease prevention and management in usual Daily practice (EURIKA)"; In subjects without known cardiovascular disease in Turkey, the most common risk factor was hypertension 66,50%. In almost all of the other European countries participating in the study, the most common risk factor was stated to be hypertension and the incidence in Europe was found to be 71.90% (85). According to TEKHARF Study's 2009-2014 data; Hypertension was detected in 53.40% of male and 63.50% of female in Turkey. It has been found that hypertension is present in the 50-59 age group in half to half, in three out of every 4 people aged 60 and over (38). In this study, similar to the studies in the literature, hypertension has the highest incidence of cardiovascular disease and risk factors in the participants, and it was found that 45.90% of female participants and 35.10% of male participants are hypertensive (Table 4.3). Hypercholesterolemia, hyperlipidemia and dyslipidemia are other important risk factors. It is known that hypercholesterolemia treatment prevents coronary artery disease in individuals with high cardiovascular risk (86). "Turkey European Action on Secondary and Primary Prevention through Intervention to Reduce Events-III (EUROASPIRE-III)" according to data of 50,20's% of patients undergoing coronary events was found to have low HDL cholesterol levels (87). In the study of "Cardiovascular Risk Factors and Quality of Life" by Sağıroğlu et al.(88), the prevalence of hyperlipidemia was 42.80% according to total cholesterol level and 30.30% according to LDL cholesterol level. Today, it has been shown that the risk of CHD decreases significantly with a decrease in blood cholesterol levels (83). In this study, the frequency of hypercholesterolemia in female and male respectively is 20.40% and 20.20%, the frequency of hyperlipidemia is 8.20% and 5.30%, and the frequency of dyslipidemia is 2.00% and 4.30% (Table 4.3). Overweight and obesity; Although it causes negative metabolic effects on blood pressure, triglycerides,

cholesterol and insulin resistance, it is among the metabolic risk factors. The risks of CHD, ischemic stroke and T2DM increase steadily with increasing BMI (9). According to the 2010 Turkey Demographic Health Survey data, 16.90% of individuals aged 15 and above is obese and overweight 33.00% (89). Considering "Turkey Diabetes, Hypertension, Obesity and Endocrinology Diseases Prevalence I-II (TURDEP I-II)" studies, the prevalence of obesity in Turkish adult society was 22.30% in 1998; It was determined that it reached 31.20% in 2010 and there was a 40.00% increase in obesity prevalence (37). Dülek et al. (83), in the of Assessment of Factors Affecting Cardiovascular Diseases and Comparison of Cardiovascular Risk Scores Study, 12.80% of the participants were observed to be normal weight, 38.00% were overweight, 43.80% were obese and 5,40% were morbidly obese. Similarly, in this study, 46.90% of female participants and 40.30% of male participants had obesity, 12.00% of the participants were overweight, 37.30% of them were Class I. obese, 28.70% of Class II. obese was found to be 21.30% morbidly obese (Table 4.5, Table 4.8). Recent studies show that waist circumference and dyslipidemia are related, and waist circumference is a determinant of cardiovascular disease (90,91). Central obesity is a significant risk factor for cardiovascular health and waist circumference is considered to reflect this risk better. According to WHO, the waist circumference in female is 88 cm and above and 102 cm and above in male indicates the presence of central obesity and the risk of disease. While the prevalence of central obesity in TURDEP-I was 34.00% in the general population (49.00% in female, 17.00% in male); In TURDEP-II, it increased to 53.00% (female 64.00%, male 35.00%) (37). In this study, the waist circumference of 97.25% of female participants is higher than 88 cm and the waist circumference of 90.24% of male participants are higher than 102 cm and they are in a high risk group in terms of disease (Table 4.9). There was no significant relationship between gender and waist circumference ($p>0.05$), and it is thought that there could not be a meaningful result due to the unequal number of female and male participants.

Diabetes and pre-diabetes are important metabolic risk factors, and diabetes alone increases the risk of CVD 2-4 times (92). In the Nurses Health Study, it was observed that the risk of CVD increases 5-fold in diabetic patients compared to non-diabetic patients (83). According to Turkey EUROASPIRE III results; In patients with CAD, the frequency of diabetes is 33.60% (87). Dülek et al. (83) the study done by; shows that one in three patients with cardiovascular risk factors has diabetes. In this study, besides cardiovascular

disease and risk factors, the most common chronic disease was obesity, its followed by diabetes, and there were 28.20% and 28.60% diabetes in female and male participants, respectively (Table 4.5).

The most important step in achieving cardiovascular goals is medical nutrition therapy. MNT is an individualized nutrition education designed and run by a dietician to treat a specific nutritional diagnosis; treatment is derived from an in-depth nutritional assessment (93). Individualized nutrition education is an effective way to improve diet among many population groups (94,95). MNT has been shown to be effective in increasing dietary adherence among individuals with chronic diseases (96). Medical nutrition therapy; Since there are contraindications among some drugs and nutrients, it is an essential co-therapy when individuals with chronic disease are treated pharmacologically (97). MNT is designed to affect the nutritional knowledge about the individual's health, and the increased information is aimed to improve individual nutritional behavior later (97). Randomized control studies revealed that participants who received medical nutrition therapy showed more adherence to diet protocols (97). Made studies; medical nutrition therapy has shown that it is effective in improving hyperlipidemia and reduces cholesterol-lowering medication, saving $ 638 per person (98,99). In Primary Care Health Service Chronic Disease Monitoring Field Application Study; When the treatment arrangement status of the family physicians was examined for the people who had high systolic blood pressure at the time of application during screening and monitoring of hypertension; It was observed that the physician told healthy nutrition recommendations to 82.40% of the participants, and the rate of referral to the dietitian for healthy nutrition recommendations was only 30.00%. Since the institution's dieticians are only in Community Health Centers, it is stated that the rate of receiving medical nutrition therapy is low since the doctors refer their patients to the dieticians outside the institution (84). Similar to this study, in our study, in a sample where medical nutrition therapy was essential due to the presence of one or more cardiovascular diseases and risk factors, as well as other accompanying chronic diseases, it was determined that the majority of the participants had never received medical nutrition therapy before. Female and male participants, respectively; 31,20% and 41,50% have never received dietary treatment before, 35,80% and 46,30% received dietary treatment once, 33,00% and 12,20% received dietary treatment more than once. (Table 4.6). The reasons for the low level of medical nutrition treatment may be that the diagnosing physician does not

refer patients to a dietitian and does not know that patients can control their disease with dietary therapy.

Nutritional literacy; Besides the ability to obtain and understand nutritional information, it is the state of having the ability to make the right decisions in order to be fed. Individuals with sufficient nutritional literacy level have basic nutritional knowledge and have the skills to understand informations about food items and food groups, to read food labels and to control portion (76,100). In order for individuals receiving medical nutrition therapy due to cardiovascular disease or risk factors to understand and follow their diets; They need to know the content of the nutrients contained in their diets, be able to provide portion control and choose products that are suitable for their diet by reading the label. Nutritional literacy skills are essential for all this (100). Costarelli et al. (101) In the study of Greek adults with chronic diseases on health and nutritional literacy levels in 2019, the majority of the sample had cardiovascular disease and risk factors; The average total score obtained from the nutritional literacy scale was 22.11±5.67, indicating sufficient nutritional literacy levels, while 89.20% of the participants fell into this category. There is also a distinct difference between male and female, and males have been found to have lower nutritional literacy levels. In this study, the average scores of female and male participants on the nutritional literacy scale are respectively; 20.31±7.62 and 20.56±7.41, and nutritional literacy levels are borderline (Table 4.10). There was no significant difference between female and male participants ($p>0.05$). When two studies are compared; One of the reasons for the difference between the findings may be that Costarelli et al. worked with a sample with a lower average age (44.52±17.44 years), and the level of education may be one of the reasons for this difference. There are a limited number of studies examining the relationship between nutritional literacy and education. In the study conducted by Aihara and Minai (102) on the barriers of nutrition literacy among the elderly Japanese people; low education level was associated with limited nutritional literacy among females. In this study, a very significant strong correlation was found between nutritional literacy level and education in male and female participants ($p<0.01$) (Table 4.20, Table 4.21). It was found that as the participants' education levels increased, their nutritional literacy levels also increased. Costarelli et al. (103) in the study in which the levels of health and nutritional literacy in Greek adults were examined in relation to age and gender; They found that male over 65 years old and female over 56 years of age had significantly lower nutritional literacy levels compared to younger age,

and stated that age and gender played a crucial role as predictive factors for health and nutritional literacy levels. In this study, when we look at age and nutritional literacy levels; only in female, a very significant negative correlation was found between age and nutritional literacy ($p<0.01$) (Table 4.20). The average age of female participants with sufficient nutritional literacy level was found to be significantly lower than that of female participants who were insufficient and borderline ($p<0.05$) (Table 4.18). Since the place where individuals live can be one of the factors affecting the nutritional literacy level, in this study unlike other studies; nutritional literacy level was evaluated according to the situation of living in the city and the countryside. In female and male participants; It was determined that most of the urban residents had significant "sufficient" nutritional literacy levels (%50,00 ve %56,50, respectively), while the majority of rural residents had significant "borderline" literacy literacy levels (%79,30 and %77,80, respectively) ($p<0,05$) (Table 4.16). When nutritional literacy levels are analyzed according to dietary treatment status; only a significant difference was found in female participants ($p<0.05$) (Table 4.16). The majority of those who have never received dietary treatment before and those who took it once; While "borderline" nutrition has literacy levels (58.80% and 51.30%, respectively), the majority of those who received dietary treatment more than once received significantly higher scores; it has been found to have an "sufficient" nutritional literacy level (55.60%).

Nutritional information assessment is a significant component in nutritional research and is a prerequisite for the implementation of many policies and programs aiming at improving eating behavior (104). Putnoky et al. (104) in the “validity and reliability study of the General Nutrition Information Questionnaire conducted in Romanian adults”; In the general population, female were found to have higher nutritional knowledge than male, while middle-aged and older adults also had higher nutritional knowledge than young adults. High nutritional knowledge levels have been associated with higher education levels. Common characteristics of individuals with low nutritional knowledge levels are; being male, having high school or less education level and not having nutritional education. Similarly in this study; Nutritional knowledge scores of female are 7.16±2.54 on average, while had sufficient nutritional knowledge levels, males' nutritional knowledge scores are on average 6.27±2.57 and nutritional knowledge levels are borderline (Table 4.10). When the relationship between education level and nutritional knowledge level is examined; It was found that there was a very significant

positive relationship, and as the education levels of the individuals increased, the nutritional knowledge levels increased ($p<0.01$) (Table 4.20, Table 4.21). Between age and nutritional knowledge level; only in female participants; It was determined that there was a very significant negative relationship, and the nutritional knowledge levels of the at younger ages female were higher ($p<0.01$) (Table 4.20). When nutritional information levels are evaluated according to where individuals live; a significant difference was found in both genders ($p<0.05$) (Table 4.11). While the majority of rural female and male individuals have "borderline" nutritional information (65.50% and 72.20%, respectively), the majority of female and male individuals living in the city have "sufficient" nutritional information (62.50% and 56.50% respectively). Unlike the findings of Putnoky et al. no significant relationship was found between dietary treatment recieve status before and the level of nutritional knowledge. It is thought that this may be due to the effectiveness of dietary therapy or the fact that nutrition education has not been given to the patient in the context of dietary therapy.

Literacy skills; are significant determinants of health and affect individuals' ability to prevent, manage and treat disease (105). There are no adequate studies on reading comprehension skills in chronic diseases. In the study conducted by Kozan (106), obese and non-obese female were examined; It was found that the participants with sufficient reading comprehension level were in the majority (86.80% in obese female and 86.40% in non-obese female). In the study by Cesur (76) with 367 adults living in Sivas city center; The level of reading comprehension of most of the participants was found to be sufficient (79.30%). In this study, the average reading comprehension score was 3.68±1.90 in female and 3.41±1.80 in male, and the level of reading comprehension of all participants was found to be borderline (Table 4.10). If the studies are compared, it is thought that the reason for the difference in findings may be due to the difference in the mean age and gender distribution of the samples. Unlike these studies, in our study, according to the level of education, age, where the individuals live, and their diet treatment receive status; reading comprehension skills were evaluated. A very significant positive relationship was found between the education level of the female and male participants and their reading comprehension skills ($p<0.01$) (Table 4.20, Table 4.21). When the ability to reading comprehension according to age was evaluated, a very significant negative relationship was found between the ages of female participants and their reading comprehension levels ($p<0.01$) (Table 4.20). It was determined that the level

of reading comprehension of female individuals at a younger age is higher. When individuals' reading comprehension skill is evaluated according to their place of residence; A very significant relationship ($p<0.01$) was found in female participants and a significant ($p<0.05$) relationship in male participants (Table 4.20, Table 4.21). While the majority of female and male participants living in the city (53.80% and 47.80%, respectively) have sufficient reading comprehension level, the majority of rural female and male participants (58.60% and 55.60%, respectively) have insufficient reading comprehension level (Table 4.12). According to the state of receiving dietary treatment before; a significant difference was found in the level of reading comprehension of only female participants ($p<0.05$) (Table 4.12). The majority of female participants (52.90%) who have never received dietary therapy before, have the level of "insufficient" reading, and the majority of female participants who have received dietary therapy once, and more than once; (48.70% and 47.20%, respectively) were found to have the level of "sufficient" reading comprehension.

Nutrition education; It can be understood as a strategy to create and share personal and group habits and attitudes about a healthy diet, aimed at guaranteeing food and nutritional safety and improving health. In this context; food and nutrition education has a role in producing and disseminating dietary information that can help in selecting healthy foods. One of the most important information given in nutritional education is food groups (107). In the study of Cesur (76), it was found that those with sufficient knowledge of nutrient groups were in the majority (87.20%). In this study, differently, the knowledge level of the food groups was evaluated according to gender, and the average scores from the food groups section were 6.79±3.45 for female participants and 7.90±3.11 for male participants. It was determined that female participants had the knowledge level of "borderline" food groups and male participants had the knowledge level of "sufficient" food groups (Table 4.10). The reason for the difference in the findings between the two studies is that the average age of the sample may be different or it may be that the rate of receiving dietary treatment before. Education level was thought to be one of the factors affecting the level of food groups knowledge and when the level of food groups knowledge was evaluated according to the education level; female participants only; A very significant positive correlation was found between education level and level of food groups knowledge ($p<0.01$) (Table 4.20). It was determined that as the education level increased, the level of the food groups knowledge increased. Unlike the studies

conducted in the literature, according to the dietary treatment receive status, food groups knowledge level were evaluated; a significant difference was found only in males according to dietary treatment receive status ($p<0.05$) (Table 4.13). In male participants; While the rate of having "sufficient" level of food groups knowledge was 70.60% in those who have never been on dietary treatment before, the rate of having level of "sufficient" food groups knowledge in those who received dietary therapy once was 89.50%; is significantly higher. However, although the majority (60.00%) of individuals who receive dietary treatment more than once have the level of "sufficient" food groups knowledge, they have a lower rate than those who did not receive any dietary treatment and once. This is because; Due to the low rate of dietary treatment receive in male participants, it is considered that there are not enough participants who have received more than one dietary treatments. When we look at the level of knowledge of insufficient food groups; This rate was found to be significantly higher in those who never received diet therapy (29.40%) than those who received once and more (10.50 and 0.00%, respectively) ($p<0.05$). Although the number of participants who have received more than one dietary treatment is small; It was concluded that a lower level of "insufficient nutritional knowledge level" is observed in those who have taken it once compared to those who have not received any dietary therapy, and those who have taken it more than once compared to those who have received dietary therapy once. When we evaluate according to anthropometric measurements; in male participants only; There was a very significant negative relationship between BMI and waist circumference and food groups knowledge level ($p<0.01$) (Table 4.21). BMI and waist circumference increase as the level of knowledge of food groups decreases in male participants.

Hutchison et al. (108) for individuals with hypertension or other chronic diseases; Along with the importance of understanding the nutritional guidelines required for diseases, such as managing their diets, following the information provided by food labels, choosing the appropriate food and portion sizes; and numeracy literacy, which is a component of nutritional literacy; improve food label comprehension and dietary adherence; He emphasized that he can offer skills in the form of understanding, interpretation, prediction and measurement. In the study of Cesur (76), it was found that the ratio of those whose knowledge of portion quantities was sufficient (11.70%) was quite low. Similarly, in this study, the mean scores from the portion quantities section were found to be 1.37±0.94 in female and 1.41±1.02 in male and it was determined that

all participants had an average "borderline" portion quantities knowledge level (Table 4.10). Considering the relationship between education level and portion quantities knowledge level; only in female; a very significant positive correlation was found ($p<0.01$) (Table 4.20). It has been determined that as the level of education in female participants increases, the amount of portion quantities knowledge level increases. When evaluated with anthropometric measurements; only in male participants; There was a significant negative relationship with waist circumference ($p<0.05$) (Table 4.21). It was concluded that the waist circumference increased as the amount of portion quantities knowledge level decreased in male participants. When the portion quantities knowledge level is evaluated according to the diet treatment status; only in female; There was a significant relationship ($p<0.05$) (Table 4.14). Although the rate of "having sufficient amount of portion quantities knowledge level" in female participants is low, when evaluated according to the status of receiving dietary treatment; according to the individuals who have never received dietary therapy, those who have taken it once; according to the individuals who have received dietary treatment once, those who have taken more than once; rates of having insufficient portion quantities knowledge level; It was found to be significantly lower. When the portion quantities knowledge levels according to the place living of individuals were evaluated, a significant relationship was found in both genders ($p<0.05$) (Table 4.20, Table 4.21). It has been determined that individuals living in the city have higher portion quantities knowledge levels than those living in rural areas.

Numeracy literacy skills as a component of nutritional literacy, has been associated with a better understanding of food labels by Rothman et al. (109). Martin et al. (105) In the "literacy skills and 10-year calculated risk of coronary heart disease" study; higher numeracy literacy skills in female have been related with a significantly lower 10-year cardiovascular risk. In Cesur's (76) study; the rate of those with sufficient numeracy literacy and food label reading level (9.50%) was found to be quite low. Similarly, in this study, the average scores of female and male participants from the numeracy literacy and food label reading section were found to be 1.39±1.62 and 1.56±1.43, respectively, and It was found to generally participants have "insufficient" numeracy literacy and food label reading level (Table 4.10). Güneş et al. (110), in the study of "Consumers' attitudes and behaviors towards food labels"; The habit of reading labels among consumers is 56.00%, and a positive relationship has been found between

the increase in education level and reading habit ($p<0.05$). Similarly, in this study, a very significant positive correlation was found between numeracy literacy and food label reading level and education level in both genders ($p<0.01$) (Table 4.20, Table 4.21). The relationship was stronger among female participants ($r>0.6$). Güneş et al. (110) in his study, although there is no relationship between label reading habit and gender, age, BMI, occupational groups, unlike in this study; in this study only in female participants; a very significant negative relationship was found between age and numeracy literacy and food label reading level ($p<0.01$) (Table 4.20). It was determined that female literacy and food label reading levels were higher in female participants at a young age. When the individuals' place of residence and numeracy literacy and food label reading skills were evaluated, it was found that those living in city in both genders had a significantly higher numeracy literacy and food label reading level than those living in the rural ($p<0.05$) (Table 4.20, Table 4.21). In this study, since the average age of female participants was lower than male participants, in female participants; made it convenient to evaluate between age groups.

Diet compliance is important in healthy lifestyle regulation. Individuals must demonstrate determination and individual competence to comply with diet (78). Self-efficacy belief is called the belief that "the individual has the capacity to organize and successfully perform the activity necessary to perform a certain performance". It can be said that the individual self-efficacy belief in the conduct of a behavior affects and directs the done of that behavior. This "I can do it belief" reflects the feeling of controlling the conditions of the individual, and if the individual believes that he / she can achieve results, he / she determines the course of his life by acting more actively. According to the self-efficacy theory, if the individual believes that he / she can reach a result, he acts more actively and can control the life (54,78).

There are many studies on self-efficacy and diet (78). The study conducted by Luszczynska and Haynes (111) in nurses and midwives and found that self-efficacy belief is effective on diet and exercise, and the study that Baş and Dönmez (112) found that self-efficacy has an important role in weight control behavior in obesity treatment; only two of them. In the Turkish Validity and Reliability of Self-Efficacy Scale in the Regulation of Nutritional Habits in Heart Patients by Sevinç and Argon (78), the average age of the participants was 63.65±12.11, 55.70% were male, 74.30% were married, 57.70% of them are primary school graduates and 37.30% are retired. The mean diet self-efficacy

scale score of the participants was 65.15±17.41, and it was determined that the dietary self-efficacy levels were high. In this study, although the average age of the participants and the ratio of primary school graduate individuals (49.30%) were lower, the average score of the participants was 47.69±24.56 and it was found that the diet self-efficacy levels of the participants were low (Table 4.22). When these two studies are compared, the reason for the difference in the findings; as, in this study, it may be that the obese individuals are forming the majority (87.30%), it is thought that participants' previously diet treatment receiving status and nutritional literacy levels may also affect the score obtained from the scale. In the study by Sevinç and Argon (78), only 26.00% of the participants had obesity, while there was no information about the participants' previous diet treatment receiving status, and nutritional literacy levels. Hassan and Poddar (113) stated in their study that low education level and high BMI are among the factors that may affect self-efficacy in female. In this study, when the relationship between education level, which is one of the factors that may affect dietary self-efficacy level, and dietary self-efficacy level is examined; A very significant positive relation was found between education level and dietary self-efficacy levels in female and male participants ($p<0.01$) (Table 4.26). When anthropometric measurements and diet self-efficacy level are related; There was no significant relationship between BMI and diet self-efficacy level in both genders ($p>0.05$), a significant difference was found between waist circumference according to the diet self-efficacy levels of only male participants ($p<0.05$) (Table 4.25). Waist circumference of male participants with a low self-efficacy level was found to be significantly higher. When evaluated by age, a negative and significant relationship was found between diet self-efficacy and age in both genders ($p<0.05$) (Table 4.26). Dietary self-efficacy was found significantly higher at younger ages. A significant difference was found when diet self-efficacy levels were evaluated according to the place of individuals live ($p<0.05$). It has been determined that the majority of female (55.00%) living in the city have "sufficient",diet self-efficacy levels, while the majority of the rural residents (69.00%) have "insufficient" diet self-efficacy levels. In male, although the majority of urban and rural residents have insufficient diet self-efficacy level; This rate was found to be significantly lower in urban residents (52.20%) than rural residents (83.30%) (Table 4.23). When the dietary self-efficacy levels of the participants were evaluated according to their dietary treatment status, no significant relationship was found in both genders ($p>0.05$) (Table 4.23).

Self-efficacy of patients is very important in controlling heart disease and preventing risk factors, which is the number one cause of death in our country and in the world, and which requires diet. The dietary self-efficacy level of individuals shows their ability to create behavior change and follow the diet. It is thought that nutrition education can be shaped according to the diet self-efficacy level of individuals. It is anticipated that if the self-efficacy of the patients is low, nutrition education to be provided can be enriched by providing the necessary motivation and by offering solutions to the problems of the individuals, thus increasing the self-efficacy belief of the patient and ensuring compliance with the diet (78). In this study, according to the diet self-efficacy levels of the participants; nutritional literacy levels and components of nutritional literacy; general nutritional knowledge, reading comprehension skills, food groups information, portion quantities information, and numeracy literacy and food label reading skill levels were analyzed by inter-group analysis, and a significant difference was found between all parameters ($p<0.05$) (Table 4.27). Participants with a high level of diet self-efficacy were found to have significantly higher levels of nutritional literacy, general nutritional knowledge, reading comprehension, food groups information, portion quantities information, and numeracy literacy and food label reading skills.

A significant difference was found when diet self-efficacy levels were evaluated according to the nutritional literacy levels of the participants ($p<0.05$) (Table 4.28). Diet self-efficacy scores; of individuals with insufficient nutritional literacy levels were found to be significantly lower compared to individuals with borderline and sufficient levels, and individuals with nutritional literacy levels borderline compared to individuals at sufficient levels ($p<0.05$) (Table 4.28). When the diet self-efficacy levels were evaluated according to the general nutritional knowledge levels of the participants, a significant difference was found. ($p<0,05$). It was found that individuals with level of sufficient general nutritional knowledge had significantly higher diet self-efficacy scores than individuals with levels of borderline and level of insufficient general nutritional knowledge ($p<0.05$) (Table 4.28). When the diet self-efficacy levels were assesment according to the reading comprehension levels of the participants, a significant difference was found ($p<0.05$). It was found that individuals who had insufficient reading comprehension skills had significantly lower diet self-efficacy scores than those who had levels of borderline and sufficient reading comprehension skills. ($p<0.05$) (Table 4.28). A significant difference was found when diet self-efficacy levels were assesment

according to the food groups knowledge levels of the participants ($p<0.05$). It was found that individuals with insufficient levels of food groups had significantly lower diet self-efficacy scores than those individuals with borderline and sufficient levels ($p<0.05$) (Table 4.28). A significant difference was found when the diet self-efficacy levels of the participants were evaluated according to their portion quantities information levels ($p<0.05$). It was found that individuals with insufficient portion quantities of knowledge had significantly lower diet self-efficacy scores than those individuals with borderline and sufficient levels ($p<0.05$) (Table 4.28). A significant difference was found when the diet self-efficacy levels were evaluated according to the numeracy literacy and food label reading skill levels of the participants ($p<0.05$). When analyzed by in-group analysis, it was found that this difference is only between the insufficient and borderline levels. Individuals with borderline numeracy literacy and food label reading skills levels were found to have significantly higher diet self-efficacy scores than those with insufficient levels ($p<0.05$) (Table 4.28).

The individuals participating in the study; with diet self-efficacy levels; nutritional literacy levels and components of nutritional literacy; general nutritional knowledge, reading comprehension skill, food groups knowledge, portion quantities knowledge and numeracy literacy and food label reading skill levels; A very significant positive correlation was found between ($p<0,01$). Diet self-efficacy level, and nutritional literacy and portion quantities knowledge levels are among; While there was a positive correlation with moderate severity, a weak correlation was found between other departments and diet self-efficacy ($p<0.01$) (Table 4.29).

The results of this study; It emphasizes the importance of medical nutrition therapy in the management of cardiovascular disease and risk factors, the necessity of organizing medical nutrition therapy for these individuals by a dietician and providing nutrition education to individuals the scope of medical nutrition therapy. As a result of the study, it was concluded “that as the nutrition literacy levels of individuals increase, dietary self-efficacy levels also increase”. According to this result, it is recommended to determine the nutrition literacy levels of individuals and intended for plan the nutrition education to increase the nutrition literacy levels of individuals while planning the nutritional education to be given to individuals with the scope of medical nutrition therapy. It is emphasized that nutrition education aimed at increasing the nutritional

literacy level can increase the success rate of medical nutrition therapy by increasing the diet self-efficacy levels, which are the indicators of individuals' behavior change capacity.

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7.APPENDICES

Appendix 1.(Informed Consent Form)

BİLGİLENDİRİLMİŞ ONAM FORMU

Araştırmanın Adı: Diyet Tedavisi Alan Kardiyovasküler Hastalık veya Kardiyovasküler Risk Faktörlerine Sahip Bireylerde Beslenme Okuryazarlığı ve Diyet Öz-Yeterliliği Arasındaki İlişki

Değerli katılımcı

Bu form araştırmanın neden ve nasıl yapıldığını size açıklamak amacı ile oluşturulmuştur. Aşağıda ifade edilen bilgileri dikkatlice okumanızı ve konu hakkında yeterli bulmadığınız açıklamaları araştırmacı ile paylaşmanızı rica ederiz. Bu araştırma Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü Beslenme ve Diyetetik Anabilim Dalı'nda yüksek lisans öğrenimine devam eden Diyetisyen Kübra KAZAK tarafından yürütülmektedir. Çalışma Yüksek Lisans Tezi için bir parçayı oluşturmaktadır. Tezin ise danışmanlığı Dr. Öğr. Üyesi BİNNUR OKAN BAKIR tarafından yürütülmektedir. Araştırma; kardiyovasküler bir hastalığa veya risk faktörlerine sahip olup tıbbi beslenme tedavisi alan bireylerin beslenme okuryazarlık düzeyi ile diyet öz-yeterlilik düzeylerini belirlemeyi ve aralarındaki ilişkiyi saptamayı amaçlamaktadır. Bu çalışma kalp hastalarının beslenme okuryazarlık düzeylerini ve diyet öz-yeterliliklerini ortaya koyacağından hastalara uygulanacak tıbbi beslenme tedavisinin bir parçası olan beslenme eğitiminin şekillenmesine ışık tutacağı umulmaktadır. Bu çalışmaya katılım tamamen sizin isteğinize bağlı olarak gönüllülük esasına göre gerçekleşmektedir. Katılmanız veya katılamamanız halinde hiçbir maddi veya manevi yaptırımı yoktur. Araştırmaya katılmanız durumunda sizden hiçbir kimlik bilgisi istenmeyecektir. Araştırma için verdiğiniz bütün bilgiler gizli kalacaktır. Araştırma anketinde doldurduğunuz bütün bilgiler Dyt. Kübra KAZAK tarafından korunacaktır ve sadece bilimsel amaçlı kullanılacaktır.

Yukarıda verilen araştırma hakkındaki bilgileri okudum. Bunlar hakkında bana istediğim yazılı ve sözlü açıklamalar yapıldı. Bu koşullar altında söz konusu araştırmaya katılmayı kendi hür iradem ile kabul ediyorum.

Tarih :

Ad-Soyad :

İmza :

Yardımcı Araştırmacı Sorumlu Araştırmacı Koordinatör

Dyt. Kübra KAZAK Uzm. Dr. Serkan KAVAKLI Dr. Öğr. Üyesi Binnur OKAN BAKIR
Tel:05319585191

Appendix 2.(Data Forms)

DİYET TEDAVİSİ ALAN KARDİYOVASKÜLER HASTALIK VEYA KARDİYOVASKÜLER RİSK FAKTÖRLERİNE SAHİP BİREYLERDE BESLENME OKURYAZARLIĞI VE DİYET ÖZ-YETERLİLİĞİ ARASINDAKİ İLİŞKİ

DEMOGRAFİK BİLGİLER FORMU

1. Cinsiyetiniz : 1) Kadın 2)Erkek

2. Doğum Tarihiniz (gün/ay/yıl) …… Doğum Yeriniz:……..

3. Yaşınız ……

4. Eğitim Durumunuz:

1) Okur-yazar 2) Okur-yazar değil 3) İlkokul mezunu 4) Ortaokul mezunu

5) Lise mezunu 6) Lisans mezunu 7) Yüksek lisans mezunu 8) Doktora mezunu

5. Medeni Durumunuz: 1) Bekâr 2) Evli 3) Boşanmış 4) Dul 4) Ayrı yaşıyor

Diğer (lütfen belirtiniz) …….

6. Herhangi bir işte çalışıyor musunuz? 1) Evet 2) Hayır

Çalıştığınız iş ……..

7. Sağlık güvenceniz var mı? Varsa hangisi? 1) Evet 2) Hayır

Diğer (lütfen belirtiniz)……..

8. Yaşadığınız yer : 1) Kent 2) Kırsal

ANTROPOMETRİK ÖLÇÜMLER FORMU

1. Vücut ağırlığınız : …….. kg

2. Boy uzunluğunuz : ……m

3. Bel çevreniz :..... cm

HASTALIK BİLGİLERİ FORMU

1. Tanı almış olduğunuz kardiyovasküler(kalp) hastalığınız var mı: 1) Evet 2) Hayır

2.Tanı almış olduğunuz kardiyovasküler hastalığınızı işaretleyiniz:

1) Koroner Arter Hastalığı (damar tıkanıklığı) 2) Kronik Kalp Hastalığı

3) Kronik Kalp Yetmezliği 4) Miyokard Enfarktüsü (Kalp Krizi) 5)İnme (Serebrovasküler Olay)

6) Hipertansiyon(tansiyon yüksekliği) 7)Hiperlipidemi 8) Dislipidemi

9) Hiperkolesterolemi(kolesterol yüksekliği) Diğer(belirtiniz): .....

3.Kardiyovasküler hastalık nedeniyle geçirdiğiniz operasyon varsa işaretleyiniz:

1) Koroner By-pass Operasyonu 2) Kalp Kapağı Operasyonu 3) YOK

Diğer(belirtiniz): .....

4.Tanı almış olduğunuz diğer kronik hastalığınız varsa işaretleyin:

1) Diyabet 2) Metabolik Sendrom 3) Obezite 4) KOAH 5) Astım 6) Kronik Böbrek Yetmezliği 7) YOK Diğer(belirtiniz): .....

5. Daha önce diyet tedavisi aldınız mı :

1) Bir defa aldım 2) Bir defadan fazla aldım 3) Hiç almadım

YETİŞKİNLERDE BESLENME OKURYAZARLIĞI DEĞERLENDİRME ARACI

1. Bölüm Genel Beslenme Bilgisi

1. Sağlık açısından en yararlı tahıl ürünü aşağıdakilerden hangisidir?

a.Makarna b.Pirinç pilavı c. Mısır unu d.Tam buğday ekmeği

2. Hangisi en sağlıklı yağ kaynağıdır?

a.Margarin b.Kuyrukyağı c.Mısır özü yağı d.Zeytinyağı

3. Diş sağlığı için hangisi gereklidir?

a.Demir b. İyot c. Sodyum d. Flor

4. Hangisi yüksek oranda tuz içeren bir besin değildir?

a.Sucuk b. Turşu c. Zeytin d. Taze bezelye

5. Kemik sağlığı için ……. gereklidir.

a.Kalsiyum b.Magnezyum c.Potasyum d.İyot

6. Yetişkinler her gün ……. su içmelidir.

a.Bir – iki bardak

b. Üç- dört bardak

c. Sekiz –on bardak

d.Susadıkça

7 . Yemekle birlikte …….. gibi içeceklerin tüketilmesi, vücudunuzun demirden yararlanmasını azaltır.

a.Portakal suyu b. Limonata c. Ihlamur d. Çay

8. …….. grip, nezle gibi hastalıklara karşı korur, diş etlerimizin daha sağlıklı olmasını sağlar.

a.C vitamini b. B vitamini c. A vitamini d. D vitamini

Ayşe Hanım, market alışverişinde balık, ekmek, kutu süt, konserve, yumurta, domates alıyor. Yapması gereken diğer işlerini tamamlıyor ve iki buçuk saat sonra eve dönüyor. Eve gelir gelmez sütü ve dondurulmuş balığı buzdolabına koyuyor.

9. Ayşe Hanım'ın aldığı yiyeceklerden en erken bozulabilecek olan hangisidir?

a. Balık

b. Süt

c. Domates

d. Yumurta

10 . Balığın en geç kaç saat içinde buzdolabına konması gerekir?

a. 2 saat

b. 3 saat

c. 4 saat

d. 5 saat

2. Bölüm (Okuduğunu Anlama)

Doğumdan itibaren büyüme ve gelişme, sağlıklı ve uzun bir yaşam için vücudumuza gerekli olan bütün maddeleri besinlerle alırız. Her öğünde aynı içeriğe sahip yiyeceklerle beslenirsek eksik ve tek yönlü beslenmiş oluruz. Bu tür beslenme sağlıklı değildir. Sağlıklı beslenmek için, her gün sebze, meyve, et, süt ve tahıl ürünleri gibi değişik besin gruplarından yeterince tüketilmesi, doymuş yağ, trans yağ, kolesterol, tuz ve şeker içeren besinlerin ise az tüketilmesi gerekir. Besin gruplarından herhangi biri alınmadığında, gereğinden az ya da çok alındığında ya da yağ, kolesterol, tuz, şeker oranı yüksek besinler fazla tüketildiğinde büyüme ve gelişme engellenir ve sağlık bozulur. Günümüzde insanların beslenme alışkanlıklarının değişmesi ile birlikte hareketsiz bir yaşam sürdürmesi sonucunda kalp-damar hastalıkları, pek çok kanser türü, kansızlık, yüksek tansiyon, şeker hastalığı, kemik erimesi, şişmanlık gibi sağlık sorunlarının temelinde beslenme alışkanlıkları önemli bir rol oynamaktadır. Gıdaların sağlığı olumsuz yönde etkilememesi için besinlerin taze ve temiz olması da önemlidir. Bu nedenle satın alınacak ürünlerin üretim tarihi, son kullanma tarihi, bakanlıktan izin yazısı gibi etiket bilgileri incelendikten sonra alınmalıdır.

1. Sağlıklı beslenmek için et, süt gibi besinler …….tüketilmelidir.

a. Fazla
b. Yeterince

c. Az
d. Nadir

2. Olumsuz beslenme alışkanlıkları olan insanlarda …….. gibi hastalıklar gelişebilir.

a. AİDS
b. Hepatit B
c. Yüksek tansiyon
d. Kızamık

3……gibi bazı besinler sağlıklı beslenme için sınırlı alınmalıdır.
a. Sebze
b. Tuz
c. Süt
d. Tahıl ürünleri

4. Her öğünde …… içeriğe sahip besinlerle beslenirsek sağlıklı beslenmiş oluruz.

a. Aynı
b. Çeşitli
c. Benzer
d. Az

5. Sizden sağlıklı bir besin seçmeniz istense aşağıdaki fotoğraflarda yer alan yiyeceklerden hangisini tercih edesiniz?
a.Hamburger menü b. Salata ve balık c. Kızarmış patates d.Domates soslu makarna




6. Aldığınız ürünün son kullanma tarihinin geçmiş olduğunu fark ettiğinizde ne yaparsınız?

a. Tarihi çok geçmemişse kullanırım

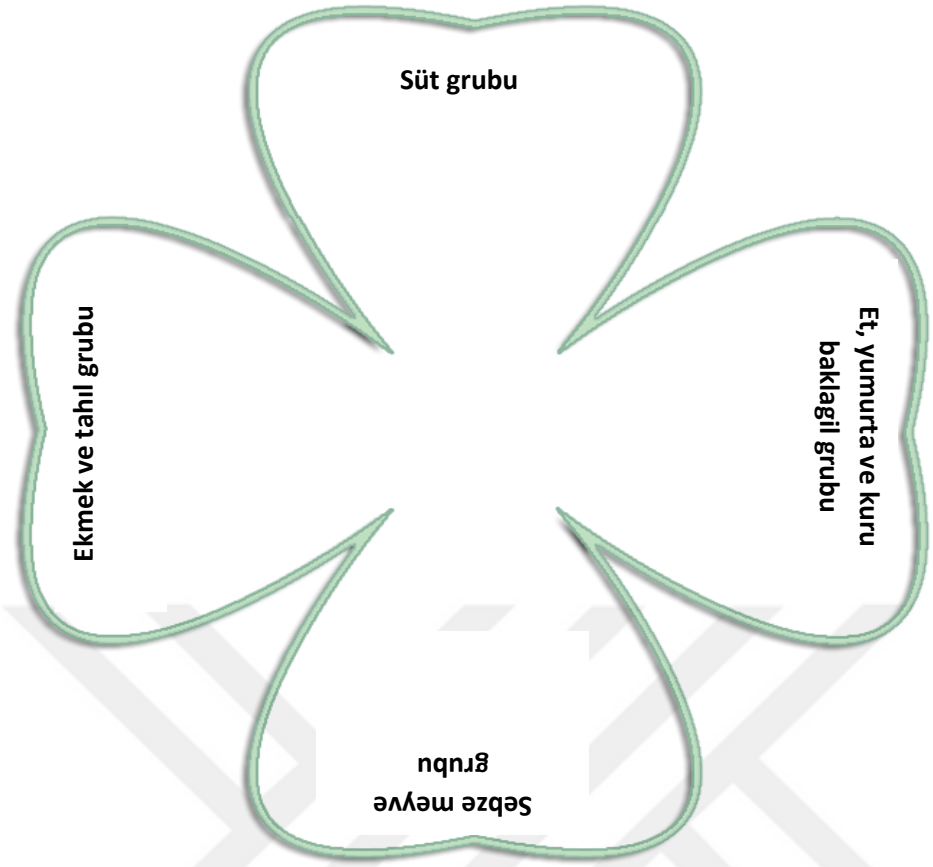
b. Üründe renk değişimi, kötü koku vb. yoksa kullanırım

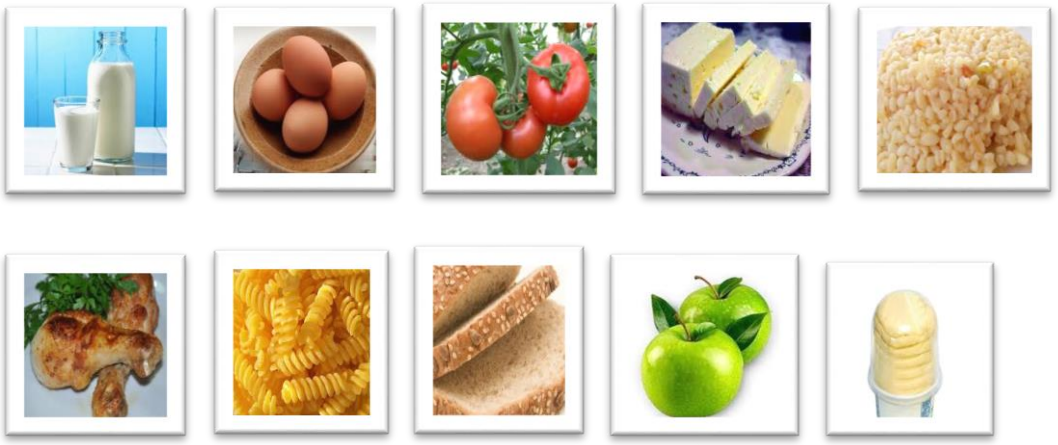
c. İade ederim ve satıcıyı uyarırım

d. Kullanmam, çöpe atarım

3. Bölüm (Besin Grupları)

Resimlerle gösterilen besinlerin üzerindeki harfleri şekilde yer alan uygun besin grupları bölümüne yazınız.





A B C D E

F G H J K

4. Bölüm (Porsiyon Miktarları)

Not: Besinlerin bir porsiyon miktarları soruların yanındaki kutucuklarda belirtilmiştir.

1. Süt grubu besinler günde ……. tüketilmelidir.

a.Bir porsiyon

b.İki porsiyon

c.Dört porsiyon

d.Beş porsiyon

Süt bir su bardağı (200g)

2 kibrit kutusu büyüklüğünde peynir (60 g)

2. Et, yumurta, kurubaklagil grubundan günde …… tüketilmelidir.

a.Bir porsiyon

b.İki porsiyon

c.Dört porsiyon

d.Beş porsiyon

Kurubaklagil bir çay bardağı (90 g)

Et, tavuk, balık vb. 50-60 g(iki ızgara köfte kadar)

2 yumurta

3. Sağlıklı yaşam için hergün …….. kuruyemiş yenmelidir.

a. Sıfır
b. Bir avuç
c. İki avuç
d. Üç avuç

Ceviz, fındık badem vb. bir avuç (30 g)

5.Bölüm (Sayısal Okuryazarlık ve Gıda Etiketi Okuma)

Beden Kitle İndeksi: $\frac{\text{Ağırlık (kg)}}{\text{Boy uzunluğunun karesi}(m^2)}$

a. Zayıf: <20 **b.** Normal: 20.0-24.9 **c.** Kilolu: 25.0-29.9 **d.** Şişman: 30.0-Üstü

1.BKİ: **2. Değerlendirme:**

İçindekiler: Buğday unu, bitkisel yağ, glikoz şurubu, aroma verici, tuz, şeker, peynir altı suyu tozu,domates salçası, patates unu,kabartıcılar(sodyum ve hidrojen amonyum karbonat)

Parti-Seri no: 100003335-5444 Üretim Yeri: Sivas Türk Malı Net: 90 g

Gıda Tarım ve Hayvancılık Bakanlığı'nın 2013 tarih ve 10002 sayılı izni ile üretilmiştir.

Besin Öğeleri	100 g	1 paket (90 g)
Enerji(kcal)	456	410
Protein(g)	7.2	6.5
Karbonhidrat (g)	63.3	57.0
Yağ (g)	19.3	17.3
Sodyum (mg)	907	816

3.Bu yiyecekten üç paket yediğinizde kaç kalorilik enerji almış olursunuz?

a. 1230

b. 1368

c. 410

d. 820

4. Ürünün 100 gramındaki yağ miktarının enerji değeri kaç kaloridir? (1g yağ 9 kcal)

a. 36.6 kcal

b. 155.7 kcal

c. 456 kcal

d. 173.7 kcal

5. Hangi hastalığı olanlar bu yiyeceği dikkatli tüketmelidir/fazla tüketmemelidir?

a. Kansızlık

b. Yüksektansiyon

c. Kanser

d. Kemik erimesi

6. Gıda etiketi üzerinde zorunlu olarak bulunması gereken bilgilerden hangisi yukarıdaki gıda etiketinde bulunmamaktadır?

a. Tarım ve Hayvancılık Bakanlığının izni

b. Türk Standartları Enstitüsü'nün logosu

c. Son kullanma tarihi

d. Gıdanın üretildiği ülke

KALP HASTALARINDA BESLENME ALIŞKANLIKLARININ DÜZENLENMESİNDE ÖZ- YETERLİLİK ÖLÇEĞİ

Sayın katılımcı;

Düşük yağlı diyetlere bağlı kalmayı zorlaştıran bazı durumlar aşağıda tanımlanmıştır. Aşağıda gösterilen sütunda belirtilen durumlardan hangisinde düzenli olarak diyetinize sadık kalabileceğiniz konusunda kendinize puan veriniz.

Güven düzeyinizi 0-100 arasında puanlandırınız.

0 10 20 30 40 50 60 70 80 90 100

Hiç yapamam *Orta düzeyde yapabilirim* *Büyük olasılıkla yapabilirim*

	Güven Düzeyi 0-100
1- Televizyon izlerken	
2- Sıkıldığınızda ya da huzursuzluk hissettiğinizde	
3- İzin zamanlarında	
4- İşe bağlı nedenlerle gergin ya da üzgün hissettiğinizde	
5- Bir arkadaşın evinde akşam yemeği yerken	
6- Başkaları için yemek hazırlarken	
7- Restoranda tek başına yemek yerken	
8- Kızgın ya da sinirliyken	
9- Çok açken	
10- Depresyondayken	
11- Oturup arkanıza yaslanıp, yemekten zevk almak istediğinizde	
12- Evde yağ oranı yüksek yiyeceklerden fazla miktarda bulunduğunda	
13- Başkaları ile kutlama yapıyormuş gibi hissettiğinizde	
14- Biri size yağ oranı yüksek yiyecek önerdiğinde	
15- Sevdiğiniz yağ oranı yüksek bir besini yemek için güçlü bir istek duyduğunuzda	
16- Misafirlerle eğlenirken	

17- Tatillerde _____

18- Dışarıda yemek yerken diğerleri yağ oranı yüksek yiyecekler sipariş ettiğinde _____

19- İştah açıcı yağ oranı yüksek yiyeceklerin çokça ikram edildiği toplantılarda _____

20- Yağ oranı yüksek yiyeceklerin ikram edildiği sportif ya da eğlence aktivitelerinde _____

21- Bir kenti gezerken, hızlı yemek yemek gerektiğinde _____

22- Uçak/otobüs seyahatinde yağ oranı yüksek besinler ikram edildiğinde _____

23- Bir kenti gezerken yöresel yiyecekleri ve restoranları denemek istediğinizde _____

24- Yağ oranı yüksek besinler sunulan tatiller ve kutlamalarda _____

25- Aile sorunları nedeniyle üzüldüğünüzde _____

26- Diyetinizde çeşitlilik istediğinizde _____

27- Restoranda kahvaltı yaparken _____

28- Başkaları yağ oranı yüksek yiyecekler getirdiğinde ya da ikram ettiğinde _____

29- Kendi yemeğinizi hazırlamanız gerektiğinde _____

30- Markette çekici, yağ oranı yüksek besinleri gördüğünüzde _____

Anketimiz bitmiştir katılımınız için teşekkürler.

Appendix 3. (Ethical Committee Declaration)

T.C. YEDİTEPE ÜNİVERSİTESİ

Sayı : 37068608-6100-15- 1760 **07/11/2019**
Konu: Klinik Araştırmalar
Etik kurul Başvurusu hk.

İlgili Makama (Kübra Kazak)

Yeditepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik Bölümü Dr. Öğr. Üyesi Binnur Okan Bakır'ın sorumlu araştırmacı olduğu **"Diyet Tedavisi Alan Kardiyovasküler Hastalık veya Kardiyovasküler Risk Faktörlerine Sahip Bireylerde Beslenme Okuryazarlığı ve Diyet Öz-Yeterliliği Arasındaki İlişki"** isimli araştırma projesine ait Klinik Araştırmalar Etik Kurulu (KAEK) Başvuru Dosyası **(1748)** kayıt Numaralı KAEK Başvuru Dosyası ,Yeditepe Üniversitesi Klinik Araştırmalar Etik Kurulu tarafından **06.11.2019** tarihli toplantıda incelenmiştir.

Kurul tarafından yapılan inceleme sonucu, yukarıdaki isimi belirtilen çalışmanın yapılmasının etik ve bilimsel açıdan uygun olduğuna karar verilmiştir (**KAEK Karar No: 1105**).

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

Yeditepe Üniversitesi 26 Ağustos Yerleşimi, İnönü Mahallesi Kayışdağı Caddesi 34755 Ataşehir / İstanbul
T. 0216 578 00 00 www.yeditepe.edu.tr F. 0216 578 02 99

Appendix 4. (Institution Permit)

ISPARTA İL SAĞLIK MÜDÜRLÜĞÜ - ISPARTA İDARİ HİZMETLER BİRİMİ
26/11/2019 10:37 / 16657963 / 799 / 174
00106556076

ARAŞTIRMA-GELİŞTİRME KOMİSYONU DEĞERLENDİRME FORMU

Yeditepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme ve Diyetetik bölümü yüksek lisans öğrencisi Kübra KAZAK'ın **"Diyet Tedavisi Alan Kardiyovasküler Hastalık veya Kardiyovasküler Risk Faktörlerine Sahip Bireylerde Beslenme Okuryazarlığı ve**

Diyet Öz-Yeterliliği Arasındaki İlişki" konulu araştırma tezi ile ilgili çalışmasını Ekim 2019-Nisan 2020 tarihleri arasında Isparta Şehir Hastanesi'nde, çalışma kapsamında dahil olma kriterlerini karşılayan ve kardiyoloji uzmanı tarafından tıbbi beslenme tedavisi alması kararlaştırılan bireylere uygulama talebi;

Retrospektif dosya taraması yapılmadan, kimlik ve kişisel bilgilerin herhangi bir yerde yayınlanmaması, kullanılmaması, bakanlığımızın izni olmadan yapılan çalışma sonuçlarının çalışma amacı dışında paylaşılmaması ve araştırma yapılacak bölümün kurallarına uyulması kaydı ile komisyonumuzca uygun görülmüştür.

Komisyon Üyesi	**Komisyon Üyesi**
e-imzalıdır Dr. Özlem DEMER DORUM Destek Hizmetleri Başkanı	e-imzalıdır Op. Dr. Mehmet Zafer DİRİK Kamu Hastaneleri Hizmetleri Başkanı
Komisyon Üyesi	**Komisyon Üyesi**
e-imzalıdır Dr. Mehmet Nazif AYDIN Halk Sağlığı Hizmetleri Başkanı	e-imzalıdır Şb. Müd. Ramazan KORKMAZ Eğitim ve İstatistik Birim Sorumlusu

ONAY
…../11/2019

e-imzalıdır
Dr. Mehmet KARAKAYA
İl Sağlık Müdürü

Evrakın elektronik imzalı suretine http://e-belge.saglik.gov.tr adresinden 91411f43-0e7e-46fd-8ef7-214ff67f5a40 kodu ile erişebilirsiniz.
Bu belge 5070 sayılı elektronik imza kanuna göre güvenli elektronik imza ile imzalanmıştır.

Appendix 5.(Curriculum Vitae)

Kişisel Bilgiler

Adı	Kübra	**Soyadı**	Kazak
Doğum Yeri	Kula	**Doğum Tarihi**	20.11.1995
Uyruğu	Türk	**TC Kimlik No**	11417763594
E-mail	kubra.kazak1@hotmail.com	**Tel**	05319585191

Öğrenim Durumu

Derece	Alan	Mezun Olduğu Kurumun Adı	Mezuniyet Yılı
Doktora			
Yüksek Lisans	Beslenme ve diyetetik	**Yeditepe Üniversitesi**	2020
Lisans	Beslenme ve diyetetik	**Aydın Adnan Menderes Üniversitesi**	2018
Lise	Sayısal	**Uşak Uftade Anadolu Lisesi**	2014

Bilgisayar Bilgisi

Program	**Kullanma becerisi**
Microsoft office	Çok iyi

*****Çok iyi, iyi, orta, zayıf olarak değerlendirin

Katıldığı kurslar ve kongreler

Fetal Hayattan Çocukluğa İlk 1000 Gün Anne - Çocuk Beslenmesi ve Sağlığı Kursu
5.International Eurasıan Congress on Natural Nutrition, Healthy Lıfe &Sport
Uluslararası Sağlıklı Beslenme Kongresi
II. Klinik Nütrisyon Öğrenci Kongresi
Hastalıklarda Güncel Nütrisyon Yaklaşımları Sempozyumu-II
Moleküler Beslenme Diyetisyenliği Kursu