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YEDITEPE UNIVERSITY

INSTITUTE OF HEALTH SCIENCES

DEPARTMENT OF NUTRITION AND DIETETIC

ATTITUDES AND APPROACHES OF NUTRITION AND DIETETIC STUDENTS AT DIFFERENT EDUCATION LEVELS TO DIETARY SUPPLEMENTS

MASTER OF NUTRITION AND DIETETIC THESIS

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

Prof. Dr. Bayram YILMAZ

Director of Institute of Health Sciences

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.

20.02.2022

Esra KÜLAHLI YONGACI

I dedicate this to my dearest Daughter…

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With all the effort paid, this thesis work has been such devotion to me and my dedicated supervisor Assist. Prof. Dr. İrem Kaya Cebioğlu. She has been sincerely giving and always there whenever I needed her. For the most part, it is a great honor to be her master's student, and I am willing to take our scientific relationship forward.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS AND ABBREVIATIONS

BMI	Body Mass Index
EFSA	European Food Safety Authority
FDA	Food and Drug Administration
N	Number
NHANES	National Health and Nutrition Examination Survey
PMS	Premenstrual Syndrome
SD	Standart Deviation
TBSA	Turkey Nutrition and Health Research
TNSA	Turkey Population Health Research
WHO	World Health Organization

ABSTRACT

Külahlı Yongacı, E. (2022). Attitudes and Approaches of Nutrition and Dietetic Students at Different Education Levels to Dietary Supplements. Yeditepe University, Institute of Health Science, Department of Nutrition and Dietetic, MSc thesis, İstanbul.

The aim of this study was to evaluate the changes in the opinions and attitudes of Nutrition and Dietetics students towards nutritional supplement products with the increase in their nutrition education levels. The study was conducted with the 118 students studying at Yeditepe University at the Nutrition and Dietetic department, and 60 of them are undergraduate first-year students, 37 of them last year students, and 21 of them master students. The data were collected face to face and online voluntarily with the data collection form prepared by us. Statistical evaluation of the data was made with SPSS 25.0 Windows version. The differences between the students' views and nutrition education levels were evaluated using the chi-square test. As a result of the study, it was determined that there were statistically significant differences between the students' views on dietary supplements and their nutrition education levels ($p<0.05$). The higher the nutrition education level, the higher the awareness of dietary supplements. However, the consumption and recommendation rates of these products are also quite high. As a result, it is important for public health to expand the curriculum on the rational use of dietary supplements and primarily to promote adequate and balanced nutrition.

Key Words: Dietary supplements, Nutrition, Nutrition and Dietetic, Students, Nutrition Education Level

ÖZET

Külahlı Yongacı, E. (2022). Farklı Eğitim Düzeylerindeki Beslenme ve Diyetetik Öğrencilerinin Diyet Takviyelerine İlişkin Tutum ve Yaklaşımları. Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik ABD., Master Tezi. İstanbul.

Bu çalışma Beslenme ve Diyetetik öğrencilerinin eğitim düzeylerinin artması ile birlikte besin destek ürünlerine yönelik görüş ve tutumlarında meydana gelen değişimleri değerlendirmek amacıyla Yeditepe Üniversitesi Beslenme ve Diyetetik bölümünde öğrenim görmekte olan 60 birinci sınıf öğrencisi, 37 son sınıf öğrencisi ve 21 yüksek lisans öğrencisi olmak üzere toplam 118 öğrenci ile yapılmıştır. Veriler tarafımızca hazırlanan veri toplama formu ile yüzyüze ve online olarak gönüllülük esası ile toplanmıştır. Verilerin istatistiksel değerlendirmesi SPSS 25.0 Windows versiyonu ile yapılmıştır. Öğrencilerin görüşleri ile eğitim düzeyleri arasındaki farklılıklar ki-kare testi ile değerlendirilmiştir. Çalışma sonucunda öğrencilerin besin destek ürünlerine yönelik görüşleri ile eğitim düzeyleri arasında istatistiksel olarak anlamlı farklılıklar olduğu saptanmıştır ($p<0.05$). Eğitim seviyesi yükseldikçe besin destek ürünlerine yönelik bilinç seviyesi yükselmektedir. Ancak bu ürünlerin tüketim ve tavsiye edilme oranları da oldukça yüksektir. Sonuç olarak, besin destek ürünlerinin akılcı kullanımı ile ilgili müfredatın genişletilmesi ve öncelikli olarak yeterli ve dengeli beslenmenin teşvik edilmesi halk sağlığı açısından önemlidir.

Anahtar Kelimeler: Besin Destek Ürünleri, Beslenme, Beslenme ve Diyetetik, Öğrenciler, Eğitim Düzeyi

1. INTRODUCTION AND PURPOSE

The dietary supplements market in Turkey is growing over time; new supplementary products are introducing the market, the range is expanding. Moreover, with the over-the-counter sales policy, the desire to consume these products is increasing. According to World Health Organization (WHO) reports, 70-80 % of the world population uses nutritional and/or herbal supplements, especially in countries where traditional and complementary medicine is actively used (1).

Dietary supplements are defined as the usable forms of high doses of vitamins and minerals as pills, capsules, and syrup. Dietary supplements include vitamins, minerals, fibers, aminoacids, phytochemicals, herbs, and botanical products (2).

In a study investigating the demographic characteristics of nutritional supplement consumers, it was found that individuals tend to seek to compensate for an unhealthy lifestyle by consuming these products (3).

In our society, the general perception defines these supplements as ‘‘herbal medicine’’ and sees them harmless. Besides, most of these products are easily available even from the internet. As a result of a research which studied online sources of herbal products, it was found that a total of 1178 websites, only 10,5% recommended consultation with a healthcare professional, and less than 8% of sites provided information about potential adverse effects and drug interactions (4). However, unconsciously using these products can lead to kidney failure, liver damage, and even death (5,6). For this reason, health professionals raising awareness of the community about using herbal products is a vital issue (7).

Dietary supplements that could have positive effects on health when used consciously can be viewed as dangerous by health professionals and approached with prejudice. Because of this approach, it is possible that consumers tend to hide the products they use from healthcare professionals (8).

Due to this mutually vicious circle of the behavior of health professionals and consumers of dietary supplements, the research area is narrowing; because of lack of feedback, stagnation occurs in areas that can provide significant improvements if known, such as the benefit or harm of nutritional support products, food-drug interaction.

It is undeniable that; the warning of health professionals, the level of consciousness and awareness of the consumer, the role of the media, the ethical attitude of the seller, and the government control play a role in the conscious use of these products (9).

Academy of Nutrition and Dietetics (AND) states that the use of micronutrient supplements is only necessary in cases the mentioned micronutrients cannot be taken in sufficient amounts with the diet or secondary situations such as chronic diseases, drug therapy, malabsorption, pregnancy, and lactation, and advanced age, where the need for micronutrients is increased, and stated that the routine and indiscriminate use of dietary supplements to prevent chronic diseases is not recommended and explained that there is not enough scientific evidence on this subject (10).

In the 2015-2020 Dietary Guidelines for Americans, it is underlined that nutritional needs should be met primarily from food and that the use of enriched foods and/or dietary supplements can only be beneficial if less than the recommended amounts of one or more nutrients are consumed (11). According to this information consciously using behavior and consciously using behavior, it seems possible that dietitians may develop the behavior of not choosing to use dietary supplements and/or not recommending them to their patients.

In this study, it is aimed that investigating the opinions, attitudes, and behaviors of Yeditepe University Nutrition and Dietetics Department 1st-year and 4th-year students who will be working as health professionals in the future and the dietitians continuing their master program towards dietary supplements, and by comparing the collected data and increasing nutrition education level, it is aimed to reveal the changes in attitudes. In our country, there are a limited number of studies that clarify the recognition, use, and effects of nutritional supplement products. In this context, determining the opinions, attitudes, and behaviors of nutrition and dietetics first-year and senior students who are health professional candidates and dietitians at master's level will contribute to the literature and guide new studies with different samples.

With the data collection form to be applied to the participants, it aims to answer questions such as how well the participants know and use dietary supplements, what their opinions are about dietary supplements, and whether they recommend using these supplements to their patients or not.

2. GENERAL INFORMATION

2.1. Nutrition and Health Relationship

According to the World Health Organization (WHO), health is not just the absence of disease and infirmity; It is a state of complete physical, mental and social well-being (12). Nutrition is the use of nutrients for growth, life maintenance, and health protection (13). Nutrition is at the forefront of human needs because it is not possible to live without eating. In this context, nutrition and health are directly related to each other. A healthy diet means that the body can meet all the macro and micro nutrients it needs in sufficient and balanced amounts. It has been shown by many scientific studies that various health problems occur in individuals who do not have a balanced and adequate diet and who adopt an unhealthy diet (14,15,16,17). Suppose the problem of insufficient and unbalanced nutrition starting from the fetal period is not resolved. In that case, other important health problems may occur at all stages of life, and thus an ongoing vicious circle occurs (14).

In developing countries, mortality rates of non-communicable chronic diseases such as coronary heart diseases, cerebrovascular diseases, some types of cancer, diabetes, and obesity, which are directly related to an unhealthy diet, are increasing every year. WHO reported that the death rate due to diabetes will be around 70% in 2020, and the number of individuals with diabetes will increase 2.5 times by 2025 (18).

2.2. Nutrition Deficiencies

Nutritional deficiency occurs when one or more nutritional elements are deficient in the diet. Nutritional deficiency can occur for many different reasons (19). In our country, the main diseases caused by unbalanced and insufficient diet are; cardiovascular diseases, hypertension, cancer, diabetes, obesity, osteoporosis, protein-energy malnutrition, rickets, and disorders due to vitamin-mineral deficiencies (20).

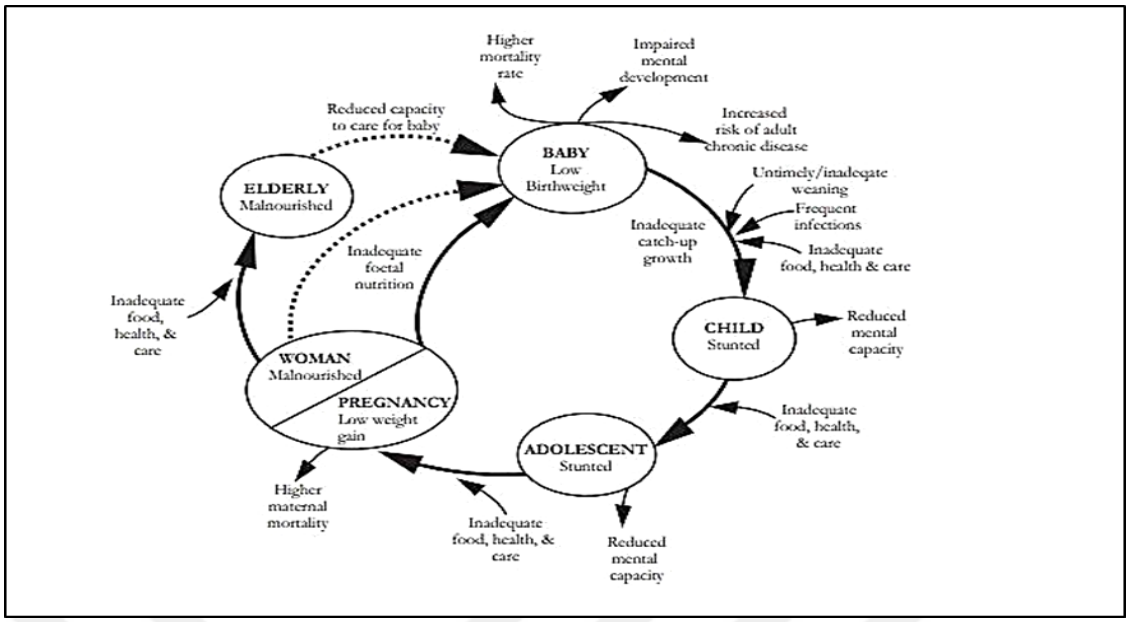


Figure 2.1. Undernutrition Throughout The Life Cycle

Source: Allen Lindsay H., Gillespie, Stuart R.. What Works? A Review of the Efficacy and Effectiveness of Nutrition Interventions. Asian Development Bank. 2001

Table 2.1. Conditions That Cause Nutritional Deficiencies

Factors affecting food intake	Low appetite
	Oral and dental disorders
	Disorders in the sense of taste
	The inability of an individual to carry out the nutrition on by own
Factors affecting food digestion and absorption	Digestive system diseases
	Using laxatives
Factors caused by metabolic disorders	Hypothyroidism
	Liver diseases
	Diabetes
Factors that increase the nutrient requirement	Growth and development
	Pregnancy and lactation
	Increased physical activity
Factors that increase nutrient excretion	Polyuria
	Excessive sweating
Factors that increase the nutrient breakdown	Lead poisoning
	Achlorhydria, alkali and sulfonamide therapy

Source: Kutluay Merdol T., Başoğlu S., Örer N.Beslenme ve Diyetetik Açıklamalı Sözlük. Ankara:Hatiboğlu Yayıncılık;2011.

2.3. Commonly Encountered Vitamin and Mineral Deficiencies

Although vitamin and mineral deficiencies are an important problem throughout the world, they can also be encountered in individuals from all age groups.

In the Guidelines on Food Fortification with Micronutrients, published in 2006 by WHO, it was stated that the most common micronutrient deficiencies worldwide are Iodine, Iron, and Vitamin A (21).

Iron deficiency anemia, and vitamin D deficiency are important public health problems in our country. Especially children aged 0-5, school-age children and teenagers, pregnant and lactating women are in the high-risk group for iron deficiency anemia. According to Turkey Nutrition and Health Research (TBSA) 2010 data, throughout the country, iron deficiency anemia was mostly seen in the 31-50 age group (14%) in women and the 75 and over age group (19.8%) in men. Severe Vitamin D deficiency was observed in 3.1% of men and 12.7% of women across the country. It has been determined that the dietary intake of vitamin D is less than the daily recommended amount of 99.1% of the individuals (22).

Although iodine deficiency is an important problem throughout the world, with the Turkish Food Codex Communique on Edible Salt published in our country in 1998, it became mandatory to fortification all table salt with iodine (23). According to Turkey Population Health Research (TNSA) 2008 data, the incidence of severe and moderate iodine deficiency in Turkey was 58%, while this rate decreased to 28.2% in 2008. Thus, growth and development retardation and mental retardation in infants and children due to iodine deficiency; many risks such as miscarriage and stillbirth in pregnant women and goiter in all age groups have been prevented greatly. According to TNSA 2008 data, while the rate of using iodized salt in our country was 18% in 1995, this rate increased to 85.4% in 2008 (24).

Apart from these, other vitamin and mineral deficiencies are also encountered in our country and the world. According to the results of the TBSA-2010 study, total vitamin and mineral deficiencies were determined in all age groups. Calcium (70.2%), vitamin B1 (55.4%), zinc (44.9%), vitamin C (35.4%), vitamin B6 (33.1%), vitamin A (31.6%), vitamin B2 (31.1%), and folate (%26.1) deficiencies were identified as

common problems (25). Diseases caused by vitamin and mineral deficiencies are given in Table 2.2. (26).

Table 2.2. Diseases Caused by Various Vitamin and Mineral Deficiencies

Vitamins	**Diseases**	**Minerals**	**Diseases**
Vitamin A	Night blindness, xeropthalmia, keratinization of the skin	Calcium	Failure to attain peak bone mass osteoporosis in later life
Vitamin D	Rickets, osteomalacia	Chromium	Severe deficiency can cause insulin resistance
Vitamin E	Rare- serious neurological dysfunction	İodine	Goitre, hypothyroidism, cretinism
Vitamin K	İmpaired blood clotting, hemorrhagic disease	Magnesium	Only in diseased states or caused by a rare genetic abnormality
Vitamin C	Scurvy	Phosphorus	Hypophosphataemia resulting in cellular dysfunction e can include anorexia, anemia, muscle weakness, bone pain, rickets and osteomalacia, general debility, increased infections, paraesthesia, ataxia, confusion
Vitamin B1	Beriberi, Wernicke-Korsakoff syndrome		
Vitamin B2	Lesions of the corner of mouth, lips, and tongue; seborrhoeic dermatitis		
Vitamin B3	Pellagra		
		Selenium	Keshan's disease cardiomyopathy affecting children and women of childbearing age
Vitamin B6	Disorders of aminoacid metabolism, convulsions		
Vitamin B9	Megaloblastic anemia, neural tube defect in babies	Sodium	Not diet-related e due only to clinical conditions, including major trauma
Vitamin B12	Pernicious anemia		
Vitamin B5	Neuromotor disorders, mental depression, gastrointestinal complaints and increased insulin sensitivity	Zinc	Growth retardation, susceptibility to infection, and loss of appetite
		Iron	Anemia, impairment of the immune response, adverse effect on psychomotor and mental development in children
Vitamin B7	Impaired fat&carbohydrate metabolism, dermatitis		

Source: Combet E. and Buckton C. Micronutrient deficiencies, vitamin pills and dietary supplements. Priciples Of Human Nutrition Medicine J, 2014. 43(2): p. 66-72

2.4. Dietary Supplements

In the Turkish Food Codex Communiqué No. 2013/49 on Supplementary Foods, dietary supplements are defined as "for the purpose of supplementing the normal diet, nutrients such as vitamins, minerals, proteins, carbohydrates, fibers, fatty acids, amino acids, or other the concentrate or extracts of plant, plant and animal origin substances, bioactive substances and similar substances that have nutritional or physiological effects, products for which daily intake is determined by preparing their own or mixtures in capsule, tablet, lozenge, disposable powder package, liquid ampoule, dropper bottle, and other similar liquid or powder forms" (27).

The first traces of dietary supplements, which have been used frequently from the past to the present, have been found among people who want to increase their energy and win sports competitions. It is a fact that there are athletes who ate mushrooms and human hearts to win the Olympic races, as well as those who lost their lives by using amphetamines (28).

In 2004 Food and Drug Administration (FDA) announced that it banned the sale of all products containing ephedra and ephedrine alkaloids due to the deaths of many people (29). If dietary supplements are used unconsciously, they can cause many side effects, including death. However, besides the conscious use, the licensing and effective inspection of these products is also extremely important. These products are controlled by FDA in America. The first regulation on dietary supplements was made in our country with the food and food supplements legislation published in 1923. In the period 1923-1983, checks about health made by Ministry of Health and Social Aid, quality and technological controls made by Ministry of Agriculture, import and export controls made by Ministry of Industry and Trade, in the period 1983-1995 all controls made by Ministry of Agriculture and Rural Affairs. In the period 1995-2004, licensing and all-controlling powers were shared by the Ministry of Health and the Ministry of Agriculture and Rural Affairs. Since 2013, all authority have been given to the Ministry of Food, Agriculture and Livestock (30). With the reorganization of the ministries in 2018, the Ministry of Agriculture and Forestry became the sole authority in this regard. Today, European Food Law, EFSA/European Food Safety Agency criteria, and the legal framework applied in the European Union are applied to dietary supplements (9).

According to the legislation, there are some mandatory phrases on the packaging of nutritional support products. These phrases are summarized in Figure 2.2. (27).

In supplementary foods, the groups of nutrients and/or other components that give the product its feature, their sources and the recommended daily intake dose should be specified.

1. "It is a food supplement. It cannot replace normal nutrition."
2. "Do not exceed the recommended daily dose."
3. "It is not a medicine, it cannot be used for the prevention or treatment of diseases."
4. "Consult your doctor in case of pregnancy and breastfeeding, illness or drug use."

Figure 2.2. Mandatory Phrases To Be Included in The Packaging of Dietary Supplements

Source: T.C Gıda Tarım ve Hayvancılık Bakanlığı, Türk Gıda Kodeksi Takviye Edici Gıdalar Tebliği. Tebliğ No:2013/49. Resmi Gazete, Tarihi: 16.08.2013, Sayısı: 28737

Apart from these, there cannot be any expression on the product labels, presentation, or advertisement stating, implying or emphasizing that the nutritional elements cannot be met with an adequate and balanced diet. However, the manufacturer does not have to prove the function of the product unless requested to do so. For this reason, it is necessary to be conscious of fake products and unrealistic discourses such as "cure-all, miracle cure, magic invention" used as product marketing policy (31).

2.4.1. What Are the Dietary Supplements?

Dietary supplements have a wide range of vitamins, minerals, fiber, amino acids, phytochemicals, herbs (herbal), and botanical products (2). According to TBSA 2017 data, it has been found that 6.1% of individuals aged 15-18, 9.7% of individuals aged 19-64, 14.3% of individuals aged 65 and over, in total 9.9% of individuals aged 15 and over are using the dietary supplements (22). Information about some of the dietary supplements is given subtitles.

2.4.1.1. Vitamins and Minerals

The use of vitamin and mineral supplements has been increasing rapidly in recent years. According to the data of the National Health and Nutrition Examination Survey (NHANES) study conducted in the USA, the rate of using nutritional support in adults under the age of 50 was 22% between 1971 and 1974, while this rate was recorded as 45% in 2006 (32).

The situation in our country is not much different from this. The increase in marketing strategies for dietary support products, especially in the last two years, including the pandemic period, is felt both on social media and in television advertisements. And it is more clearly understood when looking at the product stands that take up larger and more ostentatious space in markets and pharmacies.

According to the data of the Food Supplement Use and Nutritional Habits Measurement Survey report that published for the fifth time in July 2021, the rate of those who used dietary supplements in the last three months was 53%, and vitamins ranked first 88%, followed by minerals (33).

According to TBSA 2017 data, when looking at the most commonly used dietary supplements in all age groups; multivitamin and calcium took the first places among 15-18 age group, and vitamin B12 and vitamin D took the first two places among 19-64 age and 65 and over age groups (22). The marketing claims and efficacy of some vitamin and mineral supplements are given in Table 2.3. (34).

Table 2.3. The Marketing Claims and Efficacy of Some Vitamin and Mineral Supplements

Supplement	Marketing Claims	Efficacy
Vitamin A	Improves immunity	Possibly
	Improves skin disease	Yes
Vitamin D	↑Ca^{++} absorbtion & Bone health	Yes
	↓Cancer risk	Equivocal
Vitamin E	Improve Diabetes, Immunity	Possibly
	↓Heart attack, cataracts	Possibly
	Improve lung Fx, Psychiatric illness	Possibly

Vitamin C	Improve cold Sx	Equivocal
	↓ Heart disease	Equivocal
	Protects cancer, cataracts	Possibly
Vitamin B1	↑Energy	No
Vitamin B2	↑Energy	No
	Helps migraine	No
Vitamin B3	↓Cholesterol	Yes
Vitamin B6	Improves PMS and autism	Equivocal
	Improves heart Fx	Possibly
Vitamin B9	Prevents birth defects	Yes
Vitamin B12	Improves dementia, energy	No
Calcium	Prevents osteoporosis	Proven
	↓Blood pressure	Possibly
	↓Colon cancer risk	Equivocal
Magnesium	↓Cardiovascular disease	Equivocal
	↓Blood pressure	Equivocal
	↓Migraine	Equivocal
	↓PMS	Equivocal
Potassium	↓Blood Pressure	Possibly
Selenium	↓Cancer risk	Possibly
	Helps heart	Not proven
	Helps immune function	Not proven
Zinc	Improve cold Sx	Not proven
	↑Immunity, fertility, skin	No

Source: Alpers H,. Taylor B., Bier D., Klein S., Manuel of Nutritional Therapeutics. 6th ed. Lippincott Williams & Wilkins: Philadelphia; 2015. p.361-388.

Typically, most vitamins can be taken at any time of day however, some vitamins are better absorbed under special conditions; because of that, it is important to

know how and when to take a supplement to promote optimal absorption and thus the maximum possible benefit from vitamins can be provided.

Fat-soluble vitamins (A, D, E, K) are absorbed from the intestines into the circulation along with fats (35). So vitamins should be taken with fat-containing meals to ensure optimal absorption.

Vitamin A: To promote optimal absorption, you should take vitamin A supplements with an animal-sourced fat-containing meal (36).

Vitamin D: Vitamin D can be taken at any time of day, and most of these supplements should be taken with fat-containing meals or snacks to ensure optimal absorption (37).

Vitamin E: It's typically recommended that vitamin E supplements are taken with a meal. However, one 2019 study in 27 women found that as long as fat was ingested throughout the day, vitamin E was absorbed effectively. This means it may not be necessary to take vitamin E with a fat-containing meal as long as you consume enough fat at subsequent meals (38).

Vitamin K: At any time of day, with a meal or snack that contains fat. Taking vitamins D and K together can be beneficial, as these nutrients work synergistically to promote bone health and healthy calcium levels in your body (39).

2.4.1.2. Proteins and Amino Acids

Another group of dietary supplements that are widely used today are protein powders and amino acids. Many studies show that these products are often preferred by athletes, individuals who do fitness and bodybuilding exercises(40,41,42,43,44). According to a study conducted with 316 participants who have gym memberships in Italy, 85% of the participants stated that they used at least one type of nutritional supplement, 59.2% of them were whey protein users, and 39.2% of them were BCCA users (45). As a result of another study conducted with 299 gym members in Saudi Arabia, 37.8% of the participants used dietary supplements. The most commonly used dietary supplements were whey protein at 22.1% and amino acid derivatives at 16.8% (46). According to the results of a study conducted with 235 participants who have gym memberships in Eskişehir in our country, 47.2% of the participants stated that they use dietary supplements. Protein powders took first place with 34.2% in terms of

product types used by those who consume these products, and the rate of use of amino acid products was determined as 15.3% (47).

People who consume protein supplements have the opinion that protein consumption above the amount that should be taken daily will cause an increase in muscle mass together with an increase in sports performance. This common thought about protein consumption is generally based on non-scientific evidence-based sources such as coaches, team or sports partners, advertisements. Although the role of amino acid and protein synthesis in muscle development and strength increase is known, the use of protein powders and amino acids as supplements is still controversial. Consuming more protein than the daily required amount of protein is common among elite athletes and amateur athletes. However, there is little scientific evidence that these over-consumed protein and amino acid derivatives increase athletic performance and muscle mass (48).

It is not difficult to meet the daily protein requirement of a healthy athlete with an adequate and balanced diet, and there is no need for the additional protein under normal conditions. It is the safest way to follow to increase muscle mass (49).

In a study examining the effectiveness of protein and amino acid supplements in individuals who exercise, it was stated that protein supplements, especially milk protein, stimulate protein synthesis, post-exercise muscle recovery, and lean mass gain, but the results for amino acid supplements are doubtful (50).

Additionally, if these supplements are needed, it is important to know when to take a supplement to promote maximum possible benefit. The best time to take protein supplements differs according to the purpose of use.

- Losing weight: Between meals, with snacks like yogurt or shakes (51).
- Building muscle: Any time up to two hours after the workout (52).
- Preventing muscle loss: With breakfast (53).
- Attenuate muscle mass loss in elderly: Just before the bed time (54).

2.4.1.3. Essential Fatty Acids

Saturated fatty acids and monounsaturated fatty acids can be synthesized in the human body, but Linoleic acid (18:2 & Omega-6) and Linolenic acid (18:3 & Omega-3), which have double bonds in their structure, cannot be synthesized in the human

body, so they are called essential fatty acids. The omega-3 fatty acid is an essential fatty acid found mostly in fish living in cold seas. People need to eat fish several times a week to meet their Omega-3 needs, but researchers believe this essential oil cannot be taken in sufficient quantities. Symptoms such as growth problems and skin rashes can occur in essential fatty acid deficiency. Increasing omega-3 fatty acids in the diet is important for preventing coronary heart disease and inflammatory health problems (2,31).

According to the results of a study conducted with women with single pregnancies in Australia, women with low total omega-3 fatty acid levels have a higher risk of preterm birth, while Omega-3 supplementation tends to reduce this risk. On the other hand, in women with normal Omega-3 levels, the risk of preterm birth is less, but in this case, omega-3 supplementation may increase the risk of preterm birth for them (55).

In a study investigating the cognitive effects of consuming omega-3 fatty acids as nutritional support in children of pregnant and lactating mothers, no significant relationship was found between omega-3 supplementation and cognitive capacity or birth weight (56).

In a meta-analysis study in which studies conducted between 1965 and 2010 were examined, it was stated that omega-3 fatty acids supplementation had some effect in the treatment of attention deficit and hyperactivity disorder in children, but this effect varied depending on the dose and the type of omega-3 fatty acids (57).

A study investigating the effects of omega-3 and omega-6 fatty acids on cardiovascular diseases and metabolic syndrome found that omega-3 fatty acids reduced inflammation and had a positive effect on obesity and type 2 diabetes. It has also been noted to reduce the risk of cardiovascular disease significantly. On the other hand, the same effects were not observed for omega-6 (58).

In a study conducted in New Zealand with 334 participants aged 18 and over, 21.9% of the participants stated that they used fish oil. Participants explained the reasons for using fish oil as 72.6% for general well-being, 58.4% for improving brain functions, 31.5% for relieving pain/inflammation, and 12.3% for reducing cholesterol levels (59).

In a study investigating the use of nutritional support by healthcare professionals in our country, it was determined that the rate of those using Omega-3 supplements among 253 participants was 15% (60).

When needed to use, it is important to know how to use it. So for the maximum benefit and minimum side effects, Omega-3 and fish oil supplements could be taken any time of the day immediately before a solid meal and without further fluid and taking it by splitting into smaller doses (61).

2.4.1.4. Antioxidants

Antioxidants are molecules that help prevent cell damage by scavenging damaging molecules called free radicals in our cells. If these molecules are not suppressed, oxidative stress can cause much damages to the human body (62).

The increase of free radicals in the human body may increase the susceptibility to many health problems, from gastrointestinal diseases to infertility, from cardiovascular diseases to respiratory and excretory system disorders. In order to prevent these diseases, which are directly related to free radical levels, oxidant and antioxidant substances must be in balance with each other. With a balanced diet and adequate intake of antioxidants, it may be possible to avoid the negative effects of free radicals. However, antioxidant support can be recommended to reduce the risk of oxidant-related diseases (63).

Among the foods that naturally show antioxidant effects are foods such as broccoli, brussels sprouts, kiwi, lemon, etc. with high vitamin C content, foods such as almonds, avocados, sunflower seeds with high vitamin E content, foods rich in selenium and zinc, as well as quercetin (red wine, onion), catechin (green tea, cocoa, berries), resveratrol (red and white wine, grapes) together with phenolic compounds can be given as examples (64).

3. MATERIALS AND METHODS

3.1. Research Location, Time, and Sample Selection

This study was carried out on Yeditepe University Nutrition and Dietetics Department 1st-year and 4th-year students and dietitians who were continuing their Master's program between September and December 2021. 60 first-year students, 37 fourth-year students, and 21 master students voluntarily participated in the study.

The forms that were determined to be filled by the participants outside the 1st-year, 4th-year, and master classes, whose answers were insufficient during the data collection phase and were not included in the research criteria, were not included in the study.

The study was accepted to be carried out within the scope of the nutrition and dietetics master's program with the decision of the Board of Directors of Yeditepe University Health Sciences Institute, dated 27.04.2021 and numbered 18897253-4000/ (Appendix 1).

Ethics Committee Permission of the Study was obtained from Yeditepe University Non-Interventional Clinical Research Ethics Committee with the decision dated 21.06.2021 and numbered 24 (Appendix 2).

3.2. General Plan of The Research

Information about the participants was collected through a data collection form (Appendix 3) prepared by the researcher, face-to-face and online. Participants were informed about the purpose of the study, and signed an informed consent form (Appendix 4).

The data collection form applied to the participants consists of three main parts. In the first part, demographic information such as age, sex, education level, and BMI of the participants were questioned. In the second part, the opinions of the participants about dietary supplements were investigated. It has been tried to determine whether they find nutritional supplement products healthy and reliable, whether they find the state control for these products sufficient, and their views on over-the-counter sales policy. In this section, the use and recommendation of dietary supplements are also investigated. There are questions about the participants who receive nutritional support,

which support they use for what purpose, where they get the products they use, and whose advice is effective in using these products. At the same time, the opinions of the participants about recommending nutritional supplement products to their patients/clients were investigated, and it was tried to determine which dietary supplements they recommended in which situations and for what purpose. In the third part, by giving a list of nutritional support products that are frequently encountered in the Turkish market, whether the participants know the product / whether they use it / if they use it, how often they use Likert scale options were presented.

3.3. Statistical Evaluation of Data

The reliability analysis of the data collection form applied to the participants was carried out using the Cronbach's Alpha method, and the reliability coefficient was calculated as 0.876. Internal consistency analysis was calculated by the Split Half method and was found to be 0.748. Statistical evaluation of data; it was made in Windows environment with SPSS 25.0 statistical package program. The conformity of the variables to the normal distribution was examined using the Kolmogorov-Smirnov test. Descriptive analyzes were calculated as mean ± standard deviation for normally distributed variables. Descriptive statistics of the variables not suitable for normal distribution were calculated as median and quarter. Nominal variables are given using frequency and percentages (%). Hypothesis tests between the group means of normally distributed continuous and ordinal variables were performed with t-test for paired groups and Analysis of Variance for triple groups. The Mann-Whitney U test for paired groups and the Kruskal Wallis test for more than two groups were used to determine whether there was a significant difference between the continuous and ordinal variable groups that did not have a normal distribution. The variables with both nominal characteristics (independence research) were compared using the Chi-square test. The confidence interval was accepted as 95% and statistical significance $p<0.05$ for all analyzes.

4. RESULTS

4.1. General Characteristics of Participants

This study was conducted with a total of 118 students, 10 male (8.47%) and 108 female (91.5%) studying at Yeditepe University, whose educational status was changed as Undergraduate 1st-year students, Undergraduate 4th-year students and Master's Degree.

The distribution of the participants according to some demographic characteristics is given in Table 4.1.

Table 4.1. Frequency Distributions According to Some Demographic Characteristics of The Participants

		n	%
Sex	Woman	108	91.53
	Men	10	8.47
Educational Status	Undergraduate/1st Class	60	50.85
	Undergraduate/4th Class	37	31.36
	Degree	21	17.80
Educational Status (Undergraduate/Master's)	Undergraduates (1st or 4th year)	97	82.20
	Master Degree	21	17.80
Body Mass Index	Underweight (< 18.5)	21	17.80
	Normal (≥ 18.5 - ≤ 24.9)	91	77.12
	Overweight (≥ 25 - ≤ 29.9)	4	3.39
	Obese (≥ 30 - ≤ 39.9)	2	1.69

91.5% of the participants were female, and 8.47% were male. Undergraduate 1st-year group of 60 students constitute 50.8% of the total, undergraduate 4th-year group of 37 persons constitute 31.6% of the total, and a master’s group of 21 persons constitute 17.8% of the total. In total, 82.2% of the participants are in the undergraduate group.

When their distribution according to body mass index is examined, 17.8% of the participants are underweight, 77.1% are at a normal weight, 3.4% are overweight, and 1.7% are obese. There is no morbidly obese person among the participants.

The findings regarding the age and BMI measurements of the participants are given in Table 4.2. When the whole group is considered, the mean age is 21.38±2.75 years, the mean height is 166.49±6.681 cm, the mean weight is 58.08±8.963 kg, and the mean BMI is 20.90±2.77 kg/m².

Table 4.2. Age's and BMI's of The Participants

	Total		Women		Men	
	Min. - Max.	**Mean ± SD**	**Min. - Max.**	**Mean ± SD**	**Min. - Max.**	**Mean ± SD**
Age	17 - 38	21.38 ± 2.750	17 - 38	21.46 ± 2.853	19 - 22	20.50 ± 0.850
BMI(kg/m^2)	16.45- 33.00	20.90 ± 2.77	42 - 81	20.64 ± 2.70	21.03- 27.10	23.63 ± 2.06

4.2. Distribution of Participants' Views on Dietary Supplements

While 86.44% of the participants think that dietary supplements are healthy and safe, 13.56% think the opposite.

The rate of those who say that there is no harm in using dietary supplements is 71.55%, while those who say that there is a drawback are 28.45%. The distribution of these rates according to nutrition education level is given in Table 4.3.

Table 4.3. Distribution of Opinions on Whether There is Any Objection to The Use of Dietary Supplements According to Nutrition Education Level

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Sig.
		n	**%**	**n**	**%**	**n**	**%**	**p**
Are there any drawbacks to the use of dietary supplements?	**No**	51	87.9	21	56.8	11	52.4	0.000*
	Yes	7	12.1	16	43.2	10	47.6	

*According to chi-square test results $p<0.05$

Opinions on whether there is any objection to the use of dietary supplements differ significantly according to the level of education ($p<0.05$). The rate of those who say that there is no harm in using dietary supplements is 87.9% in the undergraduate 1st-year group, 56.8% in the undergraduate 4th-year group, and 52.4% in the master group.

74.58% of the participants stated that they do not know which institution inspects nutritional support products. The distribution of answers to this question according to nutrition education level is given in Table 4.4.

Table 4.4. Distribution of The Answers Given About Which Institution Inspects Dietary Supplements by Nutrition Education Level

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Sig.
		n	**%**	**n**	**%**	**n**	**%**	**p**
Do you know which institution inspects dietary supplements?	**No**	54	90	26	70.3	8	38.1	0.000*
	Yes	6	10	11	29.7	13	61.9	

*$p<0.05$ according to chi-square test results

There is a statistically significant difference between those who say they know which institution inspects dietary supplements and their nutrition education levels. While 90% of undergraduate 1st-year students say they do not know, this rate is 70.3% for undergraduate 4th-year students and 38.1% for master students.

The proportion of those who gave the correct answer to the question of which institution inspects nutritional supplement products, the Ministry of Agriculture and Forestry, was 64.7% in the undergraduate group covering the 1st-year and 4th-year students while this rate was calculated as 84.6% in the master group.

While 50% of the participants found the state inspection for nutritional support products sufficient, 50% stated that they found it insufficient. Table 4.5. shows the distribution of opinions on state control by nutrition education level.

Table 4.5. Distribution of Opinions on State Control by Nutrition Education Level

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Sig.
		n	**%**	**n**	**%**	**n**	**%**	**p**
Do you find the state inspection for dietary supplements sufficient?	**Yes**	40	67.8	13	40.6	2	10.5	0.000*
	No	19	32.2	19	59.4	17	89.5	

*p<0.05 according to chi-square test results

A statistically significant difference was found between the views on state control and the nutrition education level of the participants. While the rate of finding sufficient for undergraduate 1st-year students was 67.8%, this rate was recorded as 40.6% for undergraduate 4th-year students and 10.5% for graduate students.

When examining the reasons for those who do not find the state inspection for dietary supplements sufficient, 9.1% of the undergraduate students cited the excess of under-the-counter products as the reason, and 4.5% stated that they would prefer these products to be inspected by the Ministry of Health. For master students, this rate is 31.3% excess of products under-the-counter, 25.0% preferring the inspection by the Ministry of Health (p=0.020).

While 41.07% of the participants find it right to sell dietary supplements according to the over-the-counter policy, 58.93% find this policy wrong. Table 4.6. shows the distribution of opinions on this subject by nutrition education level.

Table 4.6. Distribution of Views on Over-The-Counter Sales Policy by Nutrition Education Level

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Sig.
		n	**%**	**n**	**%**	**n**	**%**	**p**
Do you think it is right to sell dietary supplements according to the over-the-counter sales policy?	**Yes**	33	55.0	9	26.5	4	22.2	0.005*
	No	27	45.0	25	73.5	14	77.8	

*According to chi-square test results p<0.05

A statistically significant difference was found between the views on over-the-counter sales policy and the nutrition education level of the participants. While 55.0% of undergraduate 1st-year students find this policy correct, it is 26.5% in undergraduate 4th-year and 22.2% in master degrees.

When the reasons of the participants who do not find this policy correct are examined, the rate of those who think it may cause unconscious use was 59.6%. This rate is 58.3% for undergraduate students and 63.6% for master students.

When an evaluation was made among all the participants, 53.4% of the participants stated that they found right the products to be easily accessible, while 46.6% stated that they did not find it right. When the distribution of those who agree with this view is analyzed according to nutrition education level, 70% of undergraduate 1st-year students, 40.5% of undergraduate 4th-year students, and 28.6% of graduate students find this policy correct. There is a statistically significant difference between them. These distributions are shown in Table 4.7.

Table 4.7. Distribution of Opinions About Easy Accessibility by Nutrition Education Level

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Total	Sig.
		n	**%**	**n**	**%**	**n**	**%**	**%**	**p**
Do you find it right that dietary supplements are easily accessible?	**Yes**	42	70.0	15	40.5	6	28.6	53.4	0.001*
	No	18	30.0	22	59.5	15	71.4	46.6	

*p<0.05 according to chi-square test results

When the views of the participants on the effect of the media on dietary supplements were investigated, no significant difference was found between their views on this issue and their nutrition education level (p>0.05). While 26.27% of the participants found the effect of the media positive, 73.73% stated that they found it negative. The distribution of opinions on the effect of the media on dietary supplements by nutrition education level is shown in Table 4.8.

Table 4.8. Distribution of Views on The Effect of Media on Dietary Supplements by Nutrition Education Level

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Total	Sig.
		n	**%**	**n**	**%**	**n**	**%**	**%**	**p**
Do you find the effect of the media on dietary supplements positive?	**Yes**	20	33.3	7	18.9	4	19.0	26.3	0.208*
	No	40	66.7	30	81.1	17	81.0	73.7	

*According to the results of the chi-square test p>0.05

4.3. Attitudes of Participants Towards Some Dietary Supplements

According to the nutrition education level of the participants, their recognition of some dietary supplements and their attitudes towards these supplements are shown in Table 4.9.

Table 4.9. Recognition of Some Dietary Supplements According to The Nutrition Education Levels of The Participants

		I've never heard of this product		I've heard but haven't tried		I tried but I don't consume		I consume occasionally		I consume often	
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Multivitamins	1st-year students	1	1.67	26	43.33	8	13.33	18	30.00	7	11.67
	4th-year students	-	-	9	24.32	7	18.92	18	48.65	3	8.11
	Master degrees	-	-	5	23.81	6	28.57	6	28.57	4	19.05
Minerals	1st-year students	1	1.67	32	53.33	10	16.67	11	18.33	6	10.00
	4th-year students	-	-	15	40.54	6	16.22	11	29.73	5	13.51
	Master degrees	-	-	8	38.10	1	4.76	8	38.10	4	19.05
Omega-3	1st-year students	-	-	21	35.00	17	28.33	16	26.67	6	10.00
	4th-year students	-	-	15	40.54	10	27.03	8	21.62	4	10.81
	Master degrees	-	-	1	4.76	7	33.33	11	52.38	2	9.52
Fish Oils	1st-year students	-	-	21	35	17	28.33	14	23.33	8	13.33
	4th-year students	-	-	12	32.43	15	40.54	7	18.92	3	8.11
	Master degrees	-	-	9	42.86	6	28.57	4	19.05	2	9.52
Antioxidants	1st-year students	2	3.33	49	81.67	3	5.00	4	6.67	2	3.33
	4th-year students	-	-	27	72.97	4	10.81	4	10.81	2	5.41
	Master degrees	-	-	13	61.90	4	19.05	2	9.52	2	9.52

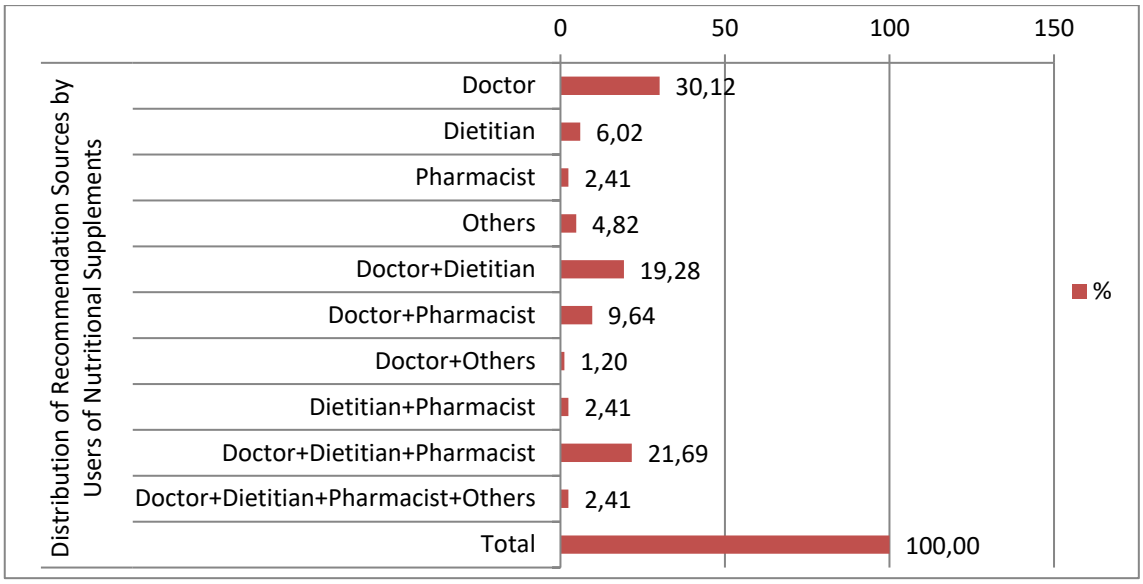
Probiotics & Prebiotics	1st-year students	-	-	30	50.00	9	15.00	18	30.00	3	5.00
	4th-year students	-	-	10	27.03	11	29.73	10	27.03	6	16.22
	Master degrees	-	-	-	-	5	23.81	10	47.62	6	28.57
Herbal Products	1st-year students	-	-	21	35.00	13	21.67	21	35.00	5	8.33
	4th-year students	-	-	20	54.05	8	21.62	7	18.92	2	5.41
	Master degrees	-	-	13	61.90	2	9.52	5	23.81	1	4.76
Propolis	1st-year students	10	16.67	27	45.00	8	13.33	9	15.00	6	10.00
	4th-year students	-	-	12	32.43	13	35.14	12	32.43	-	-
	Master degrees	-	-	10	47.62	5	23.81	4	19.05	2	9.52
Glucosamine	1st-year students	33	55.00	22	36.67	4	6.67	1	1.67	-	-
	4th-year students	7	18.92	26	70.27	4	10.81	-	-	-	-
	Master degrees	2	9.52	18	85.71	1	4.76	-	-	-	-
Collagen	1st-year students	3	5.00	43	71.67	8	13.33	6	10.00	-	-
	4th-year students	-	-	28	75.68	6	16.22	2	5.41	1	2.70
	Master degrees	-	-	15	71.43	4	19.05	-	-	2	9.52

There is a statistically significant difference between their knowledge about glucosamine, and their nutrition education level ($p<0.05$), the number of undergraduates and master degrees who know and do not know glucosamine are shown in Table 4.9. The higher the nutrition education level, the higher the recognition of this product.

4.4. Opinions of the Participants on The Use of Dietary Supplements

There was no statistically significant difference between the participants' use of dietary supplements and their nutrition education levels ($p=0.092$). Among the participants, the rate of those who use dietary supplements is 65.3% (77 participants), while those who do not use them is 34.7% (41 participants).

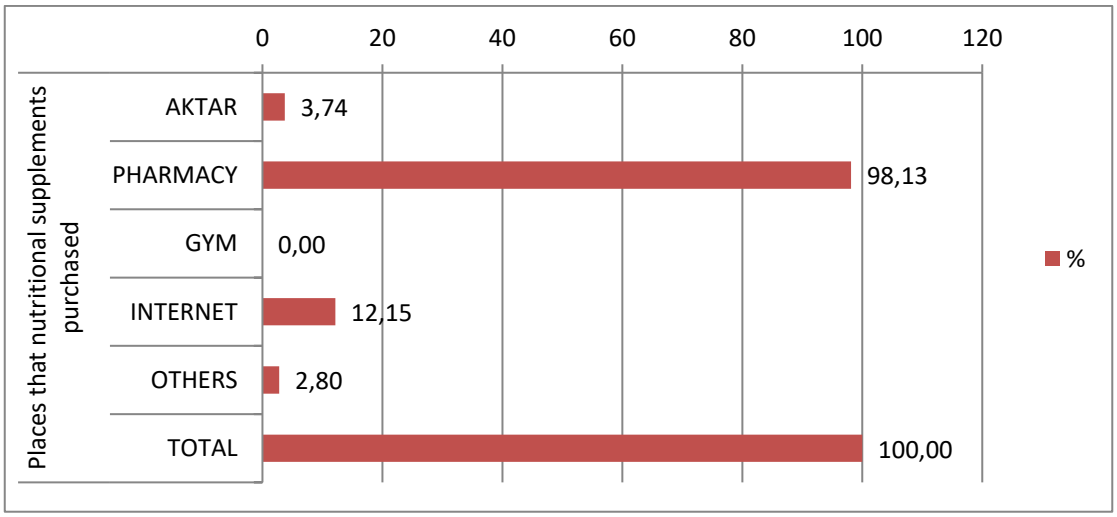
When asked whether it would be effective to recommend these products to you in the use of dietary supplements, 76.1% of the participants said that it would be effective, and 23.8% said it would not be effective. There was no significant difference between nutrition education level and getting advice ($p=0.688$). When it was questioned from whom they received advice from those who said it would be effective, their answers mostly focused on Doctor, Dietitian, and Pharmacist. Recommendation sources such as herbalists, neighbors, and family members were grouped under the heading "Others," and 4.8% of the participants stated that they received advice from these sources. All of the participants who stated that they received advice from other sources are in the undergraduate group. The distribution of the sources from which the users of dietary supplements receive advice is shown in the Figure 4.1.



* Evaluation was made based on more than one answer option.

Figure 4.1. Distribution of Recommendation Sources by Users of Dietary Supplements

Among the participants, 25 students (30.1%) only care about doctor's advice, 5 students (6.02%) only care about dietitian advice, and 2 students (2.41%) only care about pharmacist advice. The rate of those who care about the advice of doctors and dieticians is 19.28%, while the rate of those who care about the advice of all doctors, dieticians, and pharmacists is 21.7%.



*Answers were evaluated over more than one option.

Figure 4.2. Places that Dietary Supplements Purchased

The Figure 4.2. shows where the participants bought their dietary supplements. There is no statistically significant relationship between the place where the participants bought the products and their nutrition education level (p=0.414).

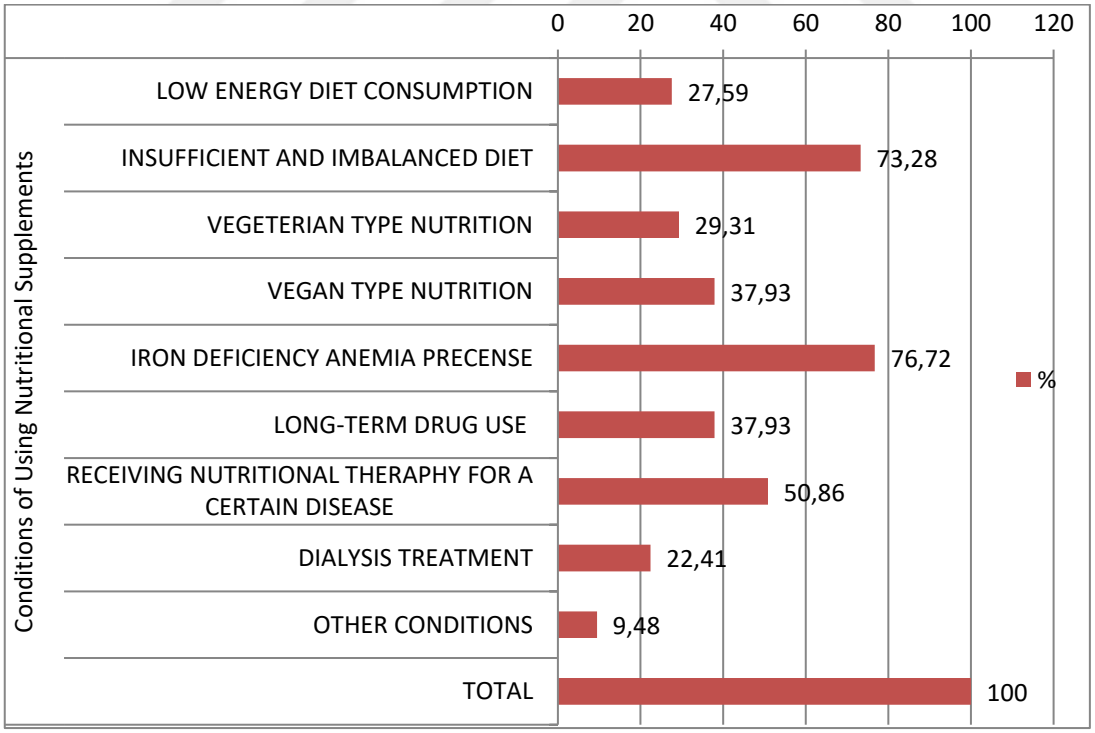
98.13% of the participants stated that they buy the products from the pharmacy. All 4 students who say that they bought the products from herbalists are 1st-year undergraduate students. There is no participant who prefers to purchase products from the gym.

Regardless of nutrition education level, 83% of all participants stated that they prefer to buy dietary supplements from the pharmacy because of safety.

A statistically significant relationship was found between the reasons why the participants chose the place where they bought the products and their gender (p=0.007), 86% of the female participants preferred to buy from the pharmacy because of safety, while 50% of the men preferred the pharmacy because of safety.

Participants who prefer to buy products from the internet stated that they prefer the internet because they think it is easily accessible, fast, and safe.

The distribution of the participants according to the conditions of using dietary supplements is shown in the Figure 4.3.



*Evaluated over multiple answers.

Figure 4.3. Distribution of The Participants According to The Conditions of Using Dietary Supplements

Table 4.10. shows the distrubition of the participants by the levels of nutrition education according to the conditions of using dietary supplements.

There is no statistically significant difference between choosing the option of consuming a low-energy diet and the nutrition education level of the participants ($p=0.201$). Regardless of the nutrition education level, 72.9% of the participants stated that they would not use dietary supplements in this situation.

The rate of participants who stated that they would use dietary supplements in case of insufficient and imbalanced nutrition is 72.3%. There was no significant difference between nutrition education levels and this option ($p=0.742$).

There is a statistically significant difference between the rate of using dietary support in the case of a vegetarian diet and the nutrition education level of the participants ($p<0.001$). 10% of undergraduate 1st-year students, 45.9% of undergraduate 4th-year students, and 52.4% of master students stated that they would use dietary supplements in case of a vegetarian diet.

In the case of a vegan diet, the results are similar to a vegetarian diet. There is a statistically significant difference between the nutrition education level and the use of nutritional support in the vegan diet ($p<0.001$). 10% of undergraduate 1st-year students, 64.9% of undergraduate 4th-year students and 66.7% of master students stated that they would use nutritional support in case of a vegan diet.

In the presence of iron deficiency anemia, a statistically significant difference was found between the use of nutritional support and the level of education ($p=0.048$). While 68.3% of the 1st-year undergraduate level participants stated that they would use dietary supplements in iron deficiency anemia, this rate was recorded as 75.7% in the 4th-year undergraduate and 95.2% in the master level.

There is a statistically significant difference between using nutritional support and nutrition education level in the case of long-term drug use ($p=0.002$). The rate of participants who say that they use dietary supplements in case of long-term use of drugs is 21.7% for undergraduate 1st-year students, 54.1% for undergraduate 4th-year students, and 52.4% for master students.

There is a significant difference between the tendency to use nutritional support and nutrition education level in the case of receiving nutritional therapy for a certain disease (p=0.001). In such a case, the rate of participants who said they would use dietary supplements is 33.3% for undergraduate 1st-year, 73.0% for undergraduate 4th-year, and 57.1% for master's degree.

There is a statistically significant difference between the tendency to use dietary supplements in case of dialysis treatment and the nutrition education level of the participants (p<0.001). In this case, 6.67% of the participants who stated that they would use dietary supplements were 1st-year undergraduate students, 43.2% were 4th-year undergraduate students, and 28.6% were master students.

Table 4.10. Distribution of The Participants According to The Conditions of Using Dietary Supplements by The Levels of Nutrition Education

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Sig.
		n	**%**	**n**	**%**	**n**	**%**	**p**
Low-energy diet consumption	**Yes**	14	23.3	9	24.3	9	42.9	0.201*
	No	46	76.7	28	75.7	12	57.1	
Insufficient and imbalanced diet	**Yes**	44	73.3	25	67,6	16	76.2	0.742*
	No	16	26.7	12	32.4	5	23.8	
Vegeterian diet	**Yes**	6	10.0	17	45.9	11	52.4	0.000*
	No	54	90.0	20	54.1	10	47.6	
Vegan diet	**Yes**	6	10.0	24	64.9	14	66.7	0.000*
	No	54	90.0	13	35.1	7	33.3	

Iron deficiency anemia presence	**Yes**	41	68.3	28	75.7	20	95.2	0.048*
	No	19	31.7	9	24.3	1	4.8	
Long-term drug use	**Yes**	13	21.7	20	54.1	11	52.4	0.002*
	No	47	78.3	17	45.9	17	47.6	
Receiving nutritional theraphy for a certain disease	**Yes**	20	33.3	27	73.0	12	57.1	0.001*
	No	40	66.7	10	27.0	9	42.9	
Dialysis treatment	**Yes**	4	6.7	16	43.2	6	28.6	0.000*
	No	56	93.3	21	56.8	15	71.4	

*According to the chi-square test results.

The participants' findings regarding the purpose of using dietary supplement products are given in the Figure 4.4. and the distribution of the participants according to the purposes of using dietary supplements by the levels of nutrition education is given in the Table 4.11.

The rate of participants who prefer to use dietary supplements for preventive purposes is 52.4%. The rate of those who say they use it as a preventative against cancer is 12.7%, the rate of those who say they use it as an anti-aging agent is 11.86%, and the rate of those who say they use it as a reducer of the harmful effects of cigarettes and alcohol is 13.5%. There was no statistically significant difference between the use of dietary supplements for these purposes and the nutrition education level of the participants ($p>0.05$)

Opinions on the use of dietary supplements for strengthening purposes differ according to nutrition education levels ($p=0.015$).

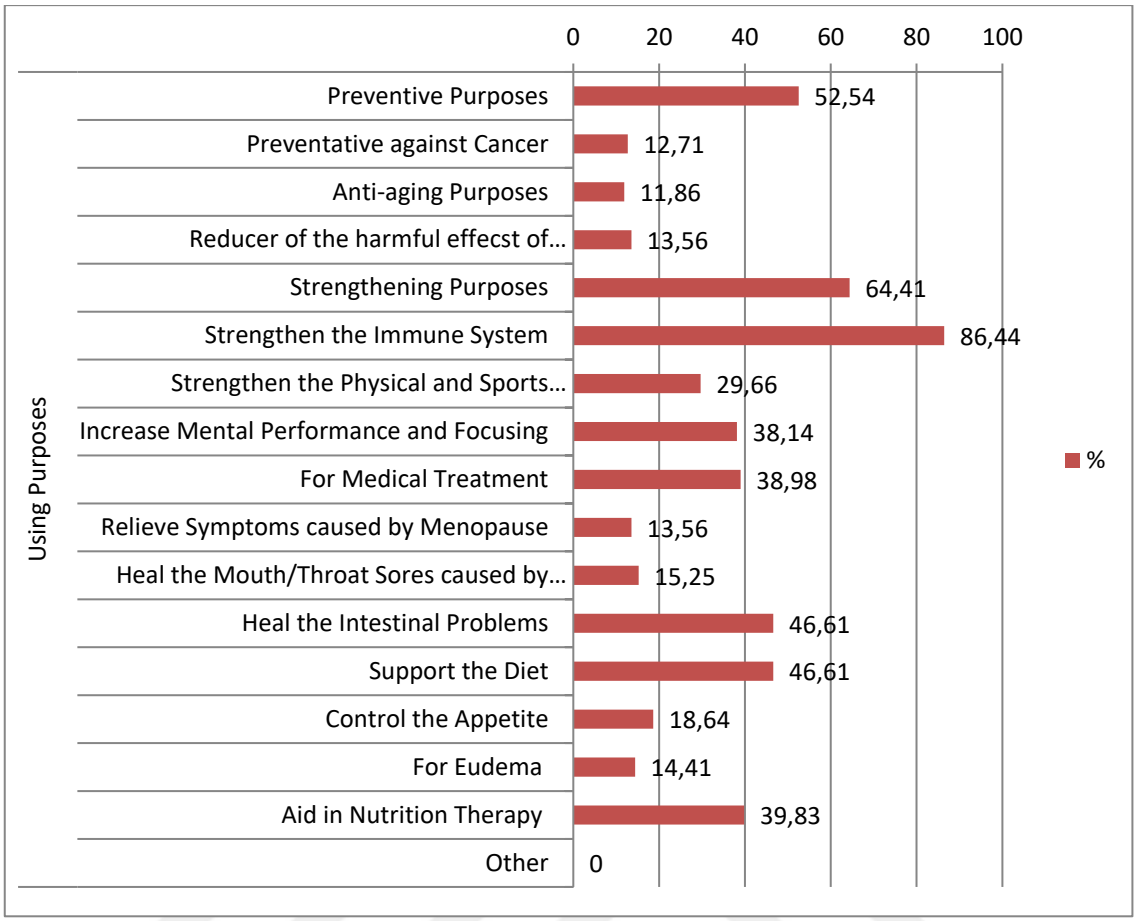


Figure 4.4. The Purpose of Using Dietary Supplements

While the rate of those who said they would use it for strengthening purposes in the undergraduate 1st-year group was 76.7% , this rate was 48.6% in the undergraduate 4th-year group and 57.1% in the master group.

There was no significant relationship between the use of it to strengthen the immune system and the level of education (p=0.317). The rate of participants who say they use dietary supplements to strengthen the immune system is 88.7%. In addition, 86.7% of undergraduate 1st-year students, 81.1% of undergraduate 4th-year students and 95.2% of master students stated that they use nutritional support products to strengthen their immune system.

The rate of participants who say that they use dietary supplements to strengthen physical and sports performance is 29.6%, and the rate of those who say that they use it to increase mental performance and focus is 38.1%. There was no significant difference between the use for these purposes and the nutrition education level of the participants (p=0.127, p=0.147).

Table 4.11. Distribution of Dietary Supplement Using Purposes According to Nutrition Education Levels

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Sig.
		n	**%**	**n**	**%**	**n**	**%**	**p**
Preventive purposes	**Yes**	30	50.0	17	45.9	15	71.4	0.149*
	No	30	50.0	20	54.1	6	28.6	
Preventive against cancer	**Yes**	8	13.3	5	13.5	2	9.5	0.889*
	No	52	86.7	32	86.5	19	90.5	
Anti-aging purposes	**Yes**	6	10.0	3	8.1	5	23.8	0.168*
	No	54	90.0	34	91.9	16	76.2	
Reducer of the harmful effects of cigarette and alchohol	**Yes**	7	11.7	8	21.6	1	4.8	0.163*
	No	53	88.3	29	78.4	20	95.2	
Strenghtening purposes	**Yes**	46	76.7	18	48.6	12	57.1	0.015*
	No	14	23.3	19	51.4	9	42.9	
Strenghten the immune system	**Yes**	52	86.7	30	81.1	20	95.2	0.317*
	No	8	13.3	7	18.9	1	4.8	
Strenghten the physical and sports performance	**Yes**	13	21.7	13	35.1	9	42.9	0.127*

	No	47	78.3	24	64.9	12	57.1	
Increase the mental performance and focusing	**Yes**	24	40.0	10	27.0	11	52.4	0.147*
	No	36	60.0	27	73.0	10	47.6	
For medical treatment	**Yes**	17	28.3	17	45.9	12	57.1	0.038*
	No	43	71.7	20	54.1	9	42.9	
Relieved symptoms caused by menopause	**Yes**	6	10.0	7	18.9	3	14.3	0.457*
	No	54	90.0	30	81.1	18	85.7	
Heal the Mouth/Throat Sores caused by Cancer	**Yes**	6	10.0	9	24.3	3	14.3	0.161*
	No	54	90.0	28	75.7	18	85.7	
Heal the intestinal problems	**Yes**	20	33.3	18	48.6	17	81.0	0.001*
	No	40	66.7	19	51.4	4	19.0	
Support the diet	**Yes**	25	41.7	20	51.4	10	47.6	0.491*
	No	35	58.3	17	45.9	11	52.4	
Control the appetite	**Yes**	13	21.7	7	18.9	2	9.5	0.469*
	No	47	78.3	30	81.1	19	90.5	
For edema	**Yes**	12	20.0	3	8.1	2	9.5	0.210*

	No	48	80.0	34	91.9	19	90.5	
Aid in nutrition theraphy	**Yes**	24	40.0	16	43.2	7	33.3	0.759*
	No	36	60.0	21	56.8	14	66.7	

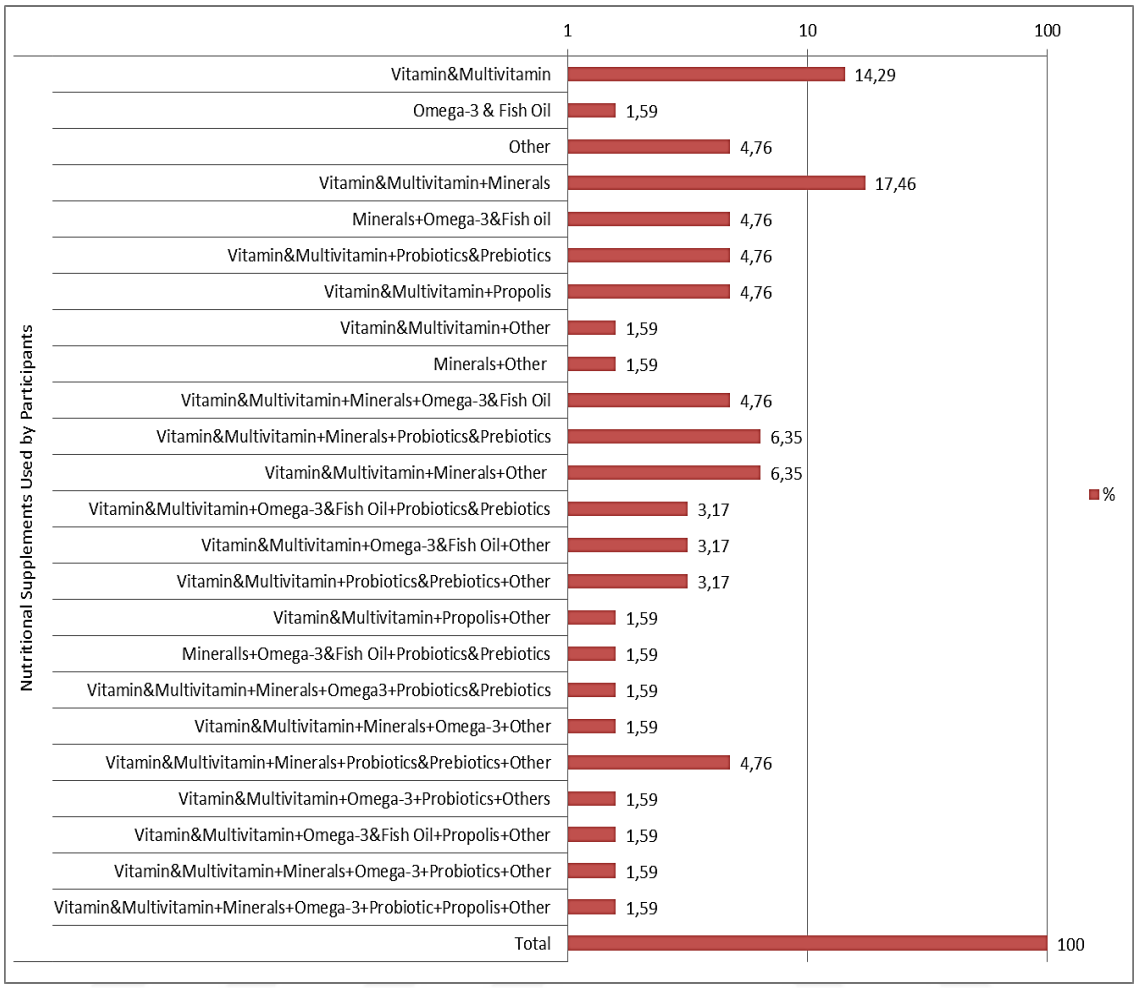
*According to chi-square test results.

The rate of participants who say they use dietary supplements for medical treatment is 28.3% in undergraduate 1st-year, 45.9% in undergraduate 4th-year, and 57.1% in master's group. There is a statistically significant difference between them (p=0.038).

The rate of participants who say they use dietary supplements to relieve symptoms caused by menopause is 13.5%, the rate of those who say they use it to heal mouth and throat sores caused by cancer is 15.2%. There is no statistically significant difference between them (p=0.457, p=0.161).

A statistically significant difference was found between the opinion of using it to solve intestinal problems and the nutrition education level of the participants (p=0.001). The rate of those who said they would use dietary supplements to relieve intestinal problems was 33.3% in the undergraduate 1st-year, 48.6% in the undergraduate 4th-year, and 81% in the master group.

The rate of participants who say they use dietary supplements to support diet is 46.6%, the rate of participants who say they use dietary supplements to control appetite is 18.6%, the rate of those who say they use it for edema relief is 14.4%, and the rate of those who say they use it as an aid in nutrition therapy 39.8%. There was no significant difference between the view of using dietary supplements for these purposes and the nutrition education level of the participants (p=0.491, p=0.469, p=0.210, p=0,759).



*Evaluation was made with more than one answer.

Figure 4.5. Frequency Distribution of Dietary Supplements Used by Participants

The frequency distributions of the dietary supplements used by the participants are shown in Figure 4.5.

The participants stating the dietary supplements they use for certain purposes constitute 53.4% of the total participants with 63 people.

A significant difference was found between the distribution of dietary supplements used and the nutrition education level of the participants (p=0.013). As the nutrition education level of the participants increases, the product range they use expands. While the rate of participants using 3 or more products is 71.7% in the master group, this rate is 31% in the undergraduate group. While the rate of those using a single type of product is 23.8% in the undergraduate group, it is 14.3% in the master group. The most commonly used product group is vitamins with a ratio of 14.3%, and

the most commonly used together product group is vitamins and minerals with a ratio of 17.5%.

90.5% of the participants who stated that they used dietary supplements are using vitamin & multivitamins, 49.1% mineral, 28.6% omega-3 & fish oil, 30.2% probiotic, 9.5% propolis.

4.5. Opinions of Participants on Recommending Dietary Supplements

There was no statistically significant difference between the nutrition education level of the participants and their views on recommending dietary supplements (p=0.311). While 84.5% of undergraduate students said that they would recommend dietary supplements to their clients in the future, 90.5% of master students stated that they recommend dietary supplements to their patients/clients.

The conditions of the participants to recommend dietary support products were investigated based on a total of 11 risky groups such as those who consume a low-energy diet, those who cannot provide adequate and balanced nutrition, vegetarians and vegans, those with iron deficiency anemia, infants and children, pregnant and lactating, and the elderly.

The conditions for the participants to recommend dietary supplements are shown in Figure 4.6.

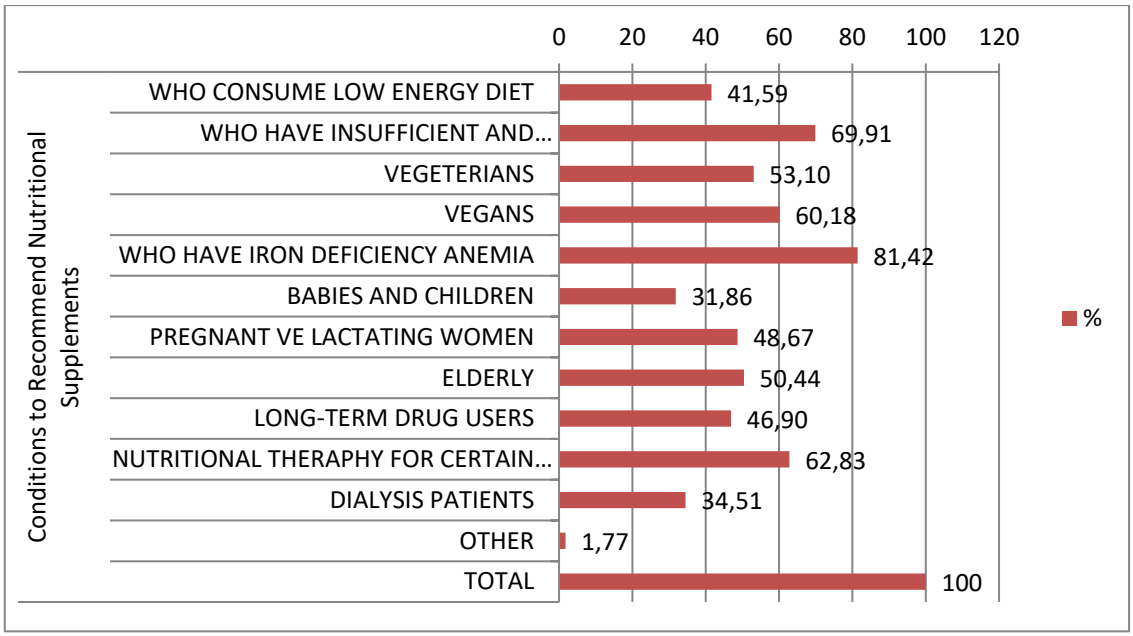


Figure 4.6. Conditions to Recommend Dietary Supplements

Table 4.12. shows the conditions to recommend dietary supplements according to increasing nutrition education levels.

Table 4.12. Distribution of The Participants According to The Conditions of Recommending Dietary Supplements by The Levels of Nutrition Education

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Sig.
		n	**%**	**n**	**%**	**n**	**%**	**p**
Low-energy diet consumption	**Yes**	22	36.7	12	32.4	13	61.9	0.068*
	No	38	63.3	25	67.6	8	38.1	
Insufficient and imbalanced diet	**Yes**	41	68.3	23	62.2	15	71.4	0.731*
	No	19	31.7	14	37.8	6	28.6	
Vegeterian diet	**Yes**	25	41.7	19	51.4	16	76.2	0.024*
	No	35	58.3	18	48.6	5	23.8	
Vegan diet	**Yes**	28	46.7	21	56.8	19	90.5	0.002*
	No	32	53.3	16	43.2	2	9.5	
Iron deficiency anemia presence	**Yes**	47	78.3	26	70.3	19	90.5	0.203*
	No	13	21.7	11	29.7	2	9.5	
Babies and Children	**Yes**	17	28.3	12	32.4	7	33.3	0.870*
	No	43	71.7	25	67.6	14	66.7	

Pregnant and Lactating Women	**Yes**	24	40.0	17	45.9	14	66.7	0.108*
	No	36	60.0	20	54.1	7	33.3	
Elderly	**Yes**	25	41.7	18	48.6	14	66.7	0.143*
	No	35	58.3	19	51.4	7	33.3	
Long-term drug users	**Yes**	21	35.0	18	48.6	14	66.7	0.037*
	No	39	65.0	19	51.4	7	33.3	
Nutritional Theraphy for Certain Diseases	**Yes**	32	53.3	24	64.9	15	71.4	0.270*
	No	28	46.7	13	35.1	6	28.6	
Dialysis treatment	**Yes**	14	23.3	18	48.6	7	33.3	0.036*
	No	46	76.7	19	51.4	14	66.7	

*According to chi-square test results.

While 41.5% of the participants recommend dietary supplements to those who consume a low-energy diet, the rate of those who do not is 58.5%. While the rate of master group participants who said they would recommend nutritional support to this group was 61.9%, this rate was 36.7% for 1st-year undergraduate students. There was no significant difference between opinions depending on nutrition education level (p=0.06).

The rate of those who recommend nutritional support to those who cannot provide adequate and balanced nutrition is 69.9%, while the rate of those who do not is 30.1%. Undergraduate 1st-year group recommends 68.3% , 62.2% in undergraduate 4th-year, 71.4% in master group, no statistically significant difference was found between the groups.

A statistically significant difference was found between the tendency to recommend dietary supplements for vegetarians and the nutrition education level of the participants (p=0.024). The rate of those who said I would recommend nutritional support to vegetarian individuals was 76.1% in the master group, 51.3% in the 4th-year undergraduate group, and 41.6% in the undergraduate 1st-year group. When looking at the total, 53.1% of the group suggested nutritional support products, while 46.9% stated that they would not recommend dietary supplement products for vegetarian individuals.

There is a statistically significant difference between the tendency to recommend dietary supplements for vegan individuals and the nutrition education level of the participants (p=0.002). The rate of those who say they recommend nutritional support to vegan individuals is 90.5% in the master group, 56.8% in the 4th-year undergraduate group, and 46.7% in the undergraduate 1st-year group. When looking at the total, 60.1% of the participants stated that they would recommend nutritional support to vegans, while 39.9% would not.

The tendency of the participants to recommend dietary supplements to those with iron deficiency anemia was higher than those who did not recommend them for every nutrition education level. Still, there was no statistically significant difference between the groups (p=0.203). While 81.4% of the participants say they recommend it, the rate of those who do not is 18.6%.

The rate of the participants who said they would recommend products for babies and children was lower than those who said they would not recommend for every education level, and there was no significant difference depending on the nutrition education level of the groups (p=0.870). While 31.8% of the total group recommends nutritional support for infants and children, 68.1% does not.

The rate of participants who said they would recommend dietary supplements to pregnant and lactating women is 40.0% in the undergraduate 1st-year group, 45.9% in the undergraduate 4th-year group, and 66.7% in the master group.

The rate of participants who said that they would recommend nutritional supplement products for the elderly is 50.4% in the whole group. 41.7% of the participants in the undergraduate 1st-year group, 48.6% in the undergraduate 4th-year

group, and 66.7% in the master group stated that they would recommend nutritional support products for the elderly. There was no statistical difference between the groups (p=0.143).

The rate of those who recommend dietary supplements for long-term drug users was recorded as 66.7% in the master group, 48.6% in the 4th-year undergraduate group, and 35% in the undergraduate 1st-year group, and a statistically significant difference was found between the groups (p=0.037).

The rate of those who recommend nutritional support products for those who receive nutritional therapy for a certain disease is 62.8%. The recommendation rate of undergraduate 1st-year students is 53.3%, the rate of undergraduate 4th-year students is 64.9%, and the recommendation rate for master students is 71.4%. There is no statistically significant difference between the groups (p=0.270).

The rate of those who recommend nutritional support products for those undergoing dialysis treatment is 34.5% in the whole group. It is recommended by 23.3% in the undergraduate 1st-year group, 48.6% in the undergraduate 4th-year group, and 33.3% in the master group. A statistically significant difference was found between the groups (p=0.036).

In the Figure 4.7. the aims of the participants to recommend nutritional support products to their patients/clients are shown.

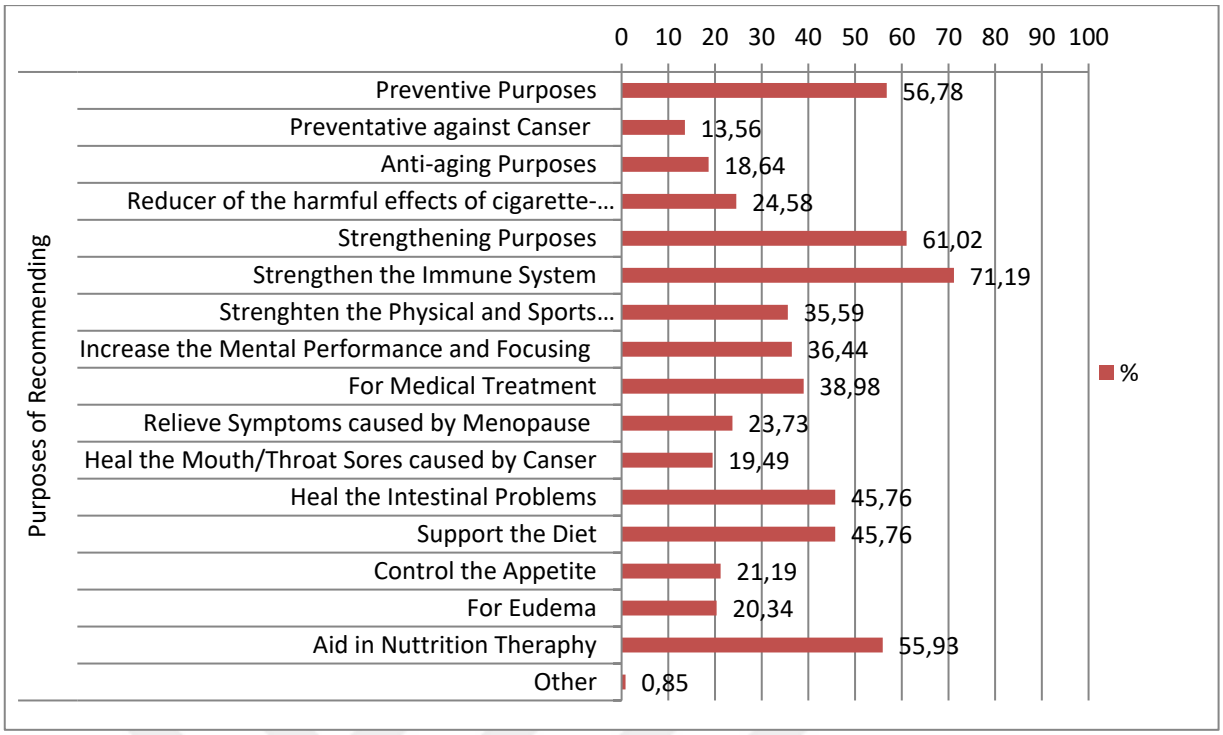


Figure 4.7. The Purpose of Recommending Dietary Supplements

A significant difference was found between recommending dietary supplements for preventive purposes and nutrition education level (p=0.021). Undergraduate 1st-year group tends to recommend dietary supplements as a preventive 56.7%, undergraduate 4th-year group is 43.2%, while the rate was 81.0% at the master group.

The rate of those who recommend dietary supplements as a preventative from cancer is 13.5%, and the rate of those who recommend it as a retarder of aging is 18.6%. For these purposes, there was no significant difference between the nutrition education levels of those recommending dietary supplements (p>0.05).

The rate of those who recommend dietary supplements as reducing the harmful effects of smoking and alcohol is 24.5%. However, a significant difference was found between this view and the nutrition education level of the participants (p=0.007). While the recommendation rate for undergraduate students is 19.6%, this rate is 47.6% for master students.

61% of the participants stated that they recommend dietary supplements for strengthening purposes. However, a statistically significant difference was found between the nutrition education level of the participants and their recommendation status (p=0.009). While the rate of those who stated that they would recommend dietary

supplements for strengthening purposes in undergraduate 1st-year students is 70.0%, this rate is 40.5% in 4th-year students and 71.4% in master group.

71.2% of the participants stated that they recommend dietary supplements to strengthen the immune system. There was no significant difference between the nutrition education level of the participants and their recommendation status (p=0.162).

The rate of those who recommend dietary supplements to increase physical performance and sports performance is 35.6%. 35% of the participants in the undergraduate 1st-year group, 24.3% in the undergraduate 4th-year group, and 57.1% in the master group stated that they would recommend dietary supplements for this purpose. There is a statistically significant difference between nutrition education level and this opinion (p=0.043).

There was a difference between the status of recommending dietary supplements to strengthen mental performance and focus and the nutrition education level of the participants (p=0.001). The rate of those who stated that they would recommend dietary supplements for this purpose is 41.7% in undergraduate 1st-year students and 13.5% in 4th-year students. In the master group, the rate of those recommending dietary supplements for this purpose is 61.9%. When evaluated as undergraduate and master groups, 61.9% of the master group recommends, while this rate is 30.9% in the undergraduate group.

A significant difference was found between recommending dietary supplements for medical treatment and the nutrition education level of the participants (p=0.018). While the rate of those who recommended it was 34.0% in the undergraduate group, this rate was 61.9% in the master group.

The rate of participants recommending dietary supplements to relieve symptoms caused by menopause is 23.7%. For this purpose, a statistically significant difference was found between the nutrition education levels of the participants who tended to recommend dietary supplements (p=0.023). While the rate of recommending dietary supplements to relieve the symptoms caused by menopause is 19.6% for undergraduate level students, this rate is 42.9% for master level students.

The rate of those who recommend nutritional support products to heal mouth-throat wounds caused by cancer is 19.4%, it can be seen in Figure 4.7. There was no significant difference between the recommendation status and nutrition education level (p=0.923).

A significant difference was found between the status of recommending dietary supplements to eliminate intestinal problems and the nutrition education level of the participants (p<0.001). 30.0% of undergraduate 1st-year students, 51.4% of undergraduate 4th-year students and 81.0% of master students stated that they would recommend dietary supplements to eliminate intestinal problems.

As shown in Figure 4.7. 45.8% of the participants stated that they would recommend dietary supplements in order to support the diet. There was no significant difference between the recommendation status and nutrition education level (p=0.955).

The rate of those who recommend nutritional support products to provide appetite control is 21.1%, the rate of those who recommend nutritional support products to help edema removal is 20.3%. 56% of the participants stated that they would recommend nutritional support products as an adjunct to nutritional therapy, these datas are shown in Figure 4.7. There was no significant difference between the recommendations made for these purposes and the nutrition education levels of the participants (p>0.05). Table 4.12. shows the distribution of dietary supplement recommendation purposes according to 1st-year, 4th-year and master students.

Table 4.13. Distribution of Dietary Supplement Recommendation Purposes According to Nutrition Education Levels

		Undergraduate 1st Class		Undergraduate 4th Class		Master's Degree		Sig.
		n	**%**	**n**	**%**	**n**	**%**	**p**
Preventive purposes	**Yes**	34	56.7	16	43.2	17	81.0	0.021*
	No	26	43.3	21	56.8	4	19.0	

Preventive against cancer	**Yes**	10	16.7	2	5.4	4	19.0	0.209*
	No	50	83.3	35	94.6	17	81.0	
Anti-aging purposes	**Yes**	12	20.0	3	8.1	7	33.3	0.052*
	No	48	80.0	34	91.9	14	66.7	
Reducer of the harmful effects of cigarette and alchohol	**Yes**	14	23.3	5	13.5	10	47.6	0.014*
	No	46	76.7	32	86.5	11	52.4	
Strenghtening purposes	**Yes**	42	70.0	15	40.5	15	71.4	0.009*
	No	18	30.0	22	59.5	6	28.6	
Strenghten the immune system	**Yes**	43	71.7	23	62.2	18	85.7	0.162*
	No	17	28.3	14	37.8	3	14.3	
Strenghten the physical and sports performance	**Yes**	21	35.0	9	24.3	12	57.1	0.043*
	No	39	65.0	28	75.7	9	42.9	
Increase the mental performance and focusing	**Yes**	25	41.7	5	13.5	13	61.9	0.001*
	No	35	58.3	32	86.5	8	38.1	
For medical treatment	**Yes**	21	35.0	12	32.4	13	61.9	0.058*
	No	39	65.0	25	67.6	8	38.1	

Relieved symptoms caused by menopause	**Yes**	12	20.0	7	18.9	9	42.9	0.075*
	No	48	80.0	30	81.1	12	57.1	
Heal the Mouth/Throat Sores caused by Cancer	**Yes**	11	18.3	8	21.6	4	19.0	0.923*
	No	49	81.7	29	78.4	17	81.0	
Heal the intestinal problems	**Yes**	18	30.0	19	51.4	17	81.0	0.000*
	No	42	70.0	18	48.6	4	19.0	
Support the diet	**Yes**	28	46.7	17	45.9	9	42.9	0.955*
	No	32	53.3	20	54.1	12	57.1	
Control the appetite	**Yes**	15	25.0	6	16.2	4	19.0	0.569*
	No	45	75.0	31	83.8	17	81.0	
For edema	**Yes**	14	23.3	5	13.5	5	23.8	0.460*
	No	46	76.7	32	86.5	16	76.2	
Aid in nutrition theraphy	**Yes**	36	60.0	20	54.1	10	47.6	0.593*
	No	24	40.0	17	45.9	11	52.4	

*According to chi-square test results.

In the Figure 4.8. the opinions of the participants on whether various characteristics of the individuals whom they recommend dietary supplements are effective in recommending these products to them are shown.

89.6% of the participants stated that the demographic characteristics, socio-cultural and economic levels of the patients/clients they recommended nutritional support products were effective in recommending these products. A significant relationship was found between nutrition education level and agreeing with this view (p=0.010). The higher the nutrition education level, the higher the proportion of those who agree with this view. While these features are effective in recommending 81% of undergraduate 1st-year students, this rate is 97.2% in undergraduate 4th-year students and 100% in master students.

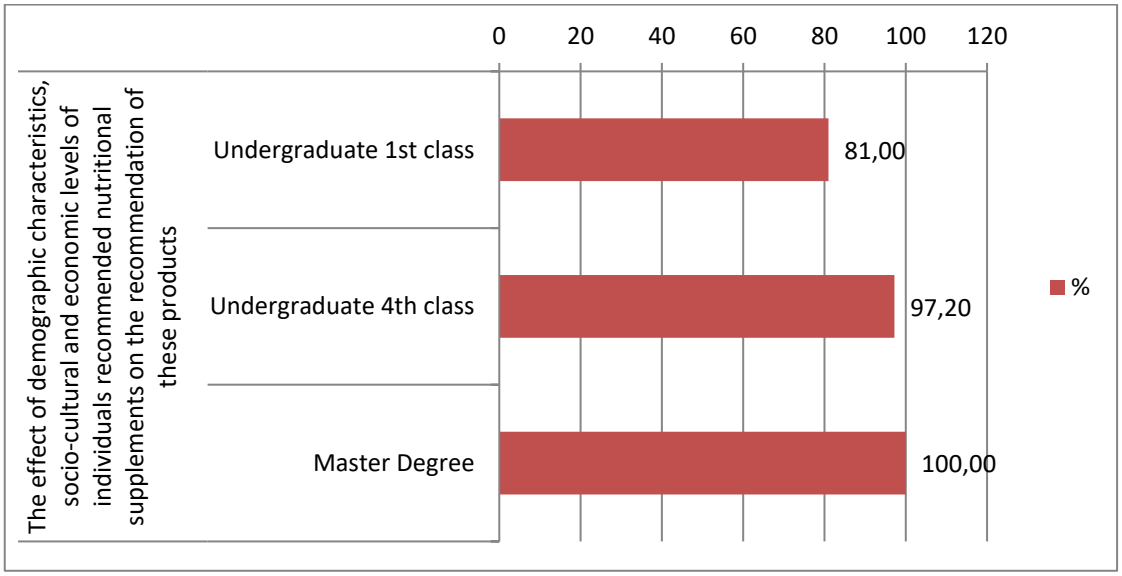


Figure 4.8. The Effect of Demographic Characteristics, Socio-cultural and Economic Levels of Individuals Recommended Dietary Supplements

The characteristics of the clients/patients were divided into items as age, gender, nutrition education level, income level and demand, and which items had an effect on the participants' recommendation of dietary supplements were examined.

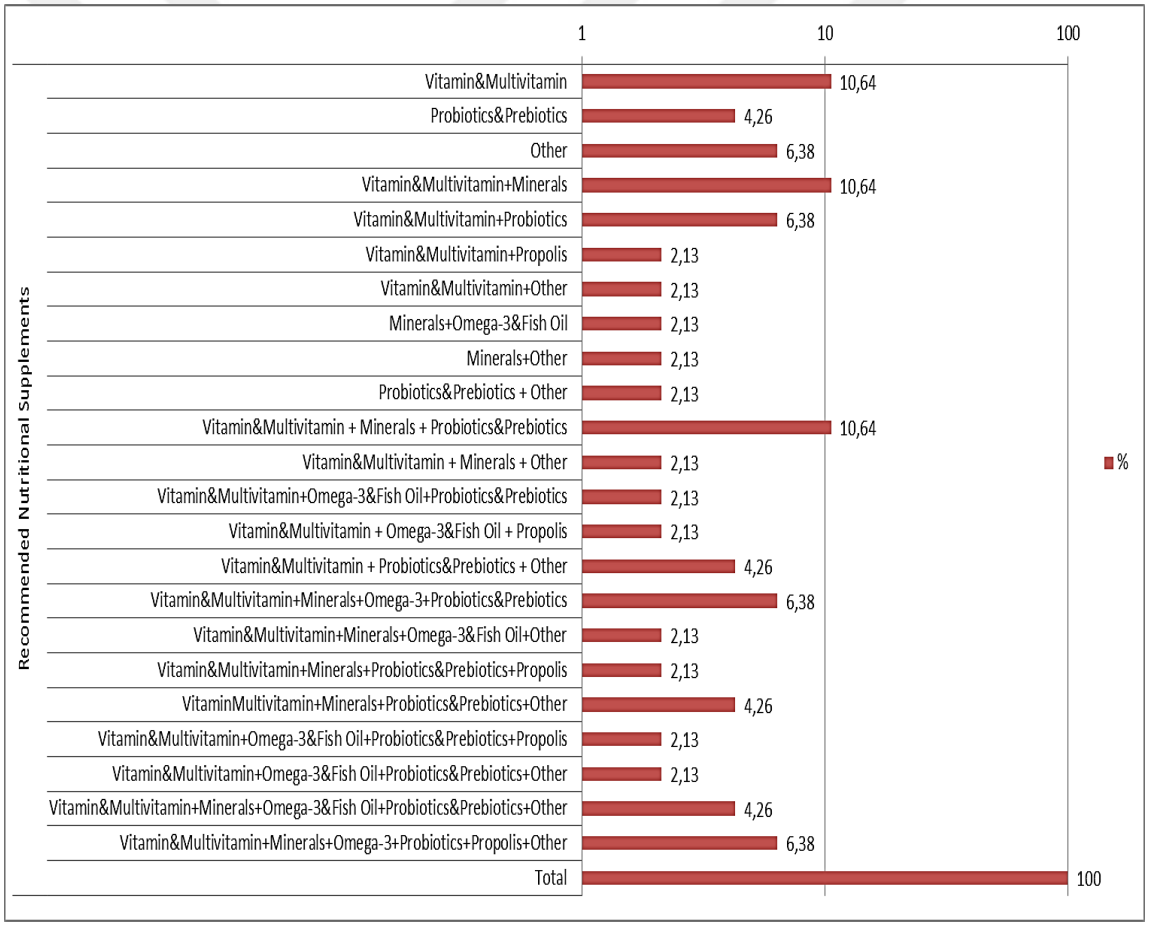
A significant relationship was found between the high education level of the counselees and the nutrition education level of the participants (p<0.001). The rate of participants who said that the education level of the patient/client would be effective in their recommendation of dietary supplements is 5% for undergraduate 1st-year students, 27% for undergraduate 4th-year students and 52.4% for master students.

A significant relationship was found between the high income level of the counselees and the nutrition education level of the participants (p=0.001). The rate of participants who said that the income level of the client would be effective in their

recommendation of dietary supplements is 33.3% for undergraduate 1st-year students, 59.5% for undergraduate 4th-year students and 76.2% for master students.

There was no significant relationship between the age, gender and demand of the counselees and the nutrition education level of the participants ($p>0.05$). Regardless of nutrition education level, the rate of those who say that the age of the client will be effective in recommending nutritional supplement is 73.73%, the rate of those who say that their gender will be effective in recommending is 43.22%, and the rate of those who say that the client's request will be effective in recommendation is 60.17%.

The Figure 4.9. shows the distribution of dietary supplements recommended by the participants.



*Evaluation made with more than one answer.

Figure 4.9. Distribution of Dietary Supplements Recommended by Participants

Those who recommend dietary supplements for certain purposes constitute 39.8% of the participants with 47 people .

There is a significant difference between the nutrition education level of the participants and the distribution of the dietary supplements they recommend (p=0.021). As the nutrition education level of the participants increases, the product range they recommend expands. There is no one in the master group who recommends one type of product, all of this group recommends at least two types of products. The rate of those recommending one type of product in the undergraduate group is 32.3%. In the question in which the participants stated more than one product category, the rate of those recommending vitamins & multivitamins in the undergraduate group is 80.6%, while this rate is 87.5% in the master group. The rate of those recommending minerals is 45.1% in the undergraduate group and 68.7% in the master group. Those who recommended omega-3 were recorded as 16.1% in the undergraduate group and 56.2% in the master group. While the rate of those recommending probiotics is 42% for the undergraduate group, this rate is 87.5% for the master group. The majority of the participants recommending propolis are undergraduate students, while 19.3% of the undergraduate group recommends propolis, this rate is 6.2% in the master group. The rate of those who said that they would recommend other dietary supplements was recorded as 29% for the undergraduate group and 56.2% for the master group.

5. DISCUSSION AND CONCLUSION

This study was conducted with a total of 118 students, 60 of whom were first-year undergraduate students, 37 undergraduate students were fourth-year students, and 21 master students were studying at Yeditepe University. In the study, answers were sought to questions such as whether the participants knew and used dietary supplements, what their opinions were about dietary supplements, and whether they recommended the use of these supplements.

5.1. Opinions of Participants on Dietary Supplements

86.4% of the participants think that nutritional support products are healthy and safe. Provided that the content of nutritional support products is sure, they are healthy and safe when used in the appropriate dose and correctly, under expert control, when needed.

71.5% of the participants think that there is no harm in using nutritional support products. As the nutrition education level increases, the rate of those who think that there are some drawbacks to the use of dietary supplements increases. This rate is 12.1% for 1st-year students, 43.2% for 4th-year students, and 47.6% for master students. It is not correct to say that there is no harm in dietary supplements. If used unconsciously, side effects may occur due to drug-nutrient interaction; excessive consumption may cause toxicity, and may lead to consequences such as kidney failure, liver damage, and even loss of life (1,65). It has been observed that the rate of awareness of such side effects of nutritional supplement products increases with the increase in the level of education.

In our country, the Ministry of Agriculture and Forestry conducts the licensing and inspection of nutritional support products. The rate of knowing this by the participants increases with the level of education. 64.7% of undergraduate students and 84.6% of master students know which institution inspects nutritional support products in our country. However, the rate of participants who find the state control of these products insufficient is not to be underestimated. 41.8% of undergraduate students and 89.5% of master students stated that they found the state inspection insufficient with the increase in the level of education, the rate of those who think that the state control of dietary supplements is insufficient increases. When the reasons for the participants with

this view to find the inspection insufficient, it was noted that the participants were worried that the products on the market were not original and would prefer the inspections to be carried out by the Ministry of Health. Dietary supplements include vitamins-minerals and herbal products. It has been emphasized in studies that these herbal products may contain foreign substances and that this situation should be controlled just like pharmaceutical drugs (66).

There is no mandatory prescription system for dietary supplements. They can be bought from pharmacies with a doctor's prescription or purchased from market shelves, herbalists, and even the internet by individuals' wishes. The rate of participants who think this over-the-counter sales policy will encourage individuals to use unconsciously is 58.3% in the undergraduate group and 63.6% in the master group. Furthermore, 46.6% of the participants state that they do not find it right that products are easily accessible in this way. As the level of education increases, the rate of participation of the students in this view also increases.

Advertising films and product promotions for dietary supplements in the media have increased recently, perhaps with the effect of the pandemic. There are many product promotions in social media shared by both independent users and marketers. When the views of the participants on the effect of the media on nutritional support products were examined, 73.7% of them stated that they found the media effect negative. In a study investigating the relationship between the media and the consumption of dietary supplements, it was shown that the use of image-based social media such as Instagram and Facebook was associated with a negative body image on users and increased the use of dietary supplements (67).

5.2. Attitudes of Participants Towards Recognizing and Using Some Dietary Supplements

Within the study's scope, the participants' attitudes towards recognizing and using some dietary supplements were investigated with a Likert scale question type. According to the data obtained here, glucosamine is the least known nutritional supplement among students. The rate of undergraduate 1st-year students who say they have never heard of this product is 55%, the rate of undergraduate 4th-year students is 18.9%, and the rate of master students is 9.5% ($p<0.05$). The rate of those who say they have heard but not tried is 36.6% in 1st-year students, 70.2% in 4th-year students, and

85.7% in master students. The rate of those who said they tried, but I do not consume is 6.6%, 10.81%, and 4.7% for the three groups, respectively. The rate of those who say they consume occasionally is 1.67% for undergraduate 1st-year; there is no participant in the 4th-year and master group who says they consume occasionally. No participant in any of the groups stated that they consumed glucosamine frequently. Other dietary supplements investigated are multivitamins, minerals, omega-3 and fish oils, antioxidants, probiotics and prebiotics, herbal products, propolis, and collagen. 1.67% of undergraduate 1st-year students stated that they had never heard of these products for multivitamins and minerals, and 5% for collagen. An unknown product other than glucosamine was not detected in undergraduate 4th-year and master groups. In the study conducted by Ergen and Bekoğlu, the rate of those who do not know glucosamine is 53.6%, the rate of those who do is 39.3%, and the rate of those who use it is 7.2% (9).

5.3. Attitudes and Behaviors of Participants About Using Dietary Supplements

It was determined that 65.3% of the participants used dietary supplements, and 34.7% did not. In a study conducted at Gazi University in 2014 to determine the use of vitamin and mineral supplements by university students, it was determined that 40.8% of the students used vitamin and mineral supplements (68). In a study investigating the use of dietary supplements by healthcare professionals in 2020, it was determined that 12.6% of the participants used herbal products, and 24.9% used vitamins and minerals (60). In Lee et al.'s study with dietitians, it was noted that 84% of the group used dietary supplements (69).

The rate of those who stated that the recommendation of these products would be effective in the use of dietary supplements is 76.1%. 95.2% of the participants get advice about these products from doctors, dieticians, and pharmacists. 4.8% of the participants get advice from sources such as family members, neighbors, and friends. According to Kara's study, the most recommended sources when starting nutritional supplements were 34.3% doctors and 17.1% pharmacists (70). According to the research conducted by Ayrancı et al., the most frequently used sources are TV (76.3%) and newspapers and magazines (41.5%). In Pillay's study with nutrition and dietetics students, it was noted that 72.2% of the participants used the internet as a source of information, and 41.7% benefited from the courses in the faculty

(71). According to the data obtained in this study, it is observed that the undergraduate and master students of the nutrition and dietetics department give more importance to the opinions of experts in the field and prefer more reliable sources when getting advice on dietary supplements.

98.1% of the participants buy the products from the pharmacy. 83% of the participants who preferred to purchase dietary supplements from the pharmacy stated that they preferred to buy them from the pharmacy because they thought they were reliable. After the pharmacy, the internet with 12.1% and herbalist with 3.7% are preferred. It is possible to come across an unlicensed/unauthorized product sold on the Internet or social media with many unfounded claims such as slimming, muscle builder, and sexual performance enhancers. In the Turkish market, it is possible to see many packaged or unpackaged products sold under the heading of herbal products in herbalists. The origin of various herbs, which are sold with the claim of being natural, is unknown; they can be mixed with similar plants, and many invisible dangers such as aflatoxin can arise due to storage conditions. It is vital to obtain dietary supplements from reliable sources for these reasons.

Tek and Pekcan listed the conditions in which the use of dietary supplements is necessary as consuming a low- energy diet, insufficient and inbalanced nutrition, vegetarian diet, vegan diet, presence of iron deficiency anemia, long-term use of medication, taking nutritional therapy due to a certain disease and receiving dialysis treatment (2). Within the scope of the study, it was investigated which of these conditions the participants would use dietary supplements in case of existence. Statistically significant differences were found between the nutrition education levels of the students and for all conditions except that consuming a low-energy diet and insufficient-inbalanced diet conditions($p<0.05$). It was observed that as the nutrition education level increased, the tendency of the participants to use dietary supplements in the specified conditions increased. The situation is slightly different for long-term drug use, nutritional therapy for a certain disease, and dialysis treatment. In case of long-term drug treatment, 21.7% of undergraduate 1st-year students, 54.1% of undergraduate 4th-year students and 52.4% of master students stated that they would use nutritional support($p=0.002$). In the case of receiving nutritional therapy for a certain disease, it was determined as 33.3% for undergraduate 1st-year students, 73.0% for undergraduate 4th-year students, and 57.1% for master students ($p=0.001$).

Respectively, the proportion of participants who stated that they would use dietary supplements in case of dialysis treatment was 6.67% for undergraduate 1st-year, 43.2% for undergraduate 4th-year, and 28.6% for master students ($p<0.001$). In the presence of these conditions, the tendency to use dietary supplements is at the highest level for 4th-year students, at the lowest level for 1st-year students, and at medium level for master students when compared between groups. It is thought that this situation arises with the freshness of the knowledge learned in theory and when its reinforcement in practical internships and because master students may not encounter these cases very often in practice, it may ocur due to forgetting in theoretical information, but research is needed to determine the reasons.

When the participants' purposes of using nutritional support products are listed, strengthening the immune system comes first with a rate of 88.7%. This is followed by the options of using for strengthening with 76.7% and using for protective purposes with 52.4%. It is thought that the reason why the use for these purposes is so high may be related to the Covid-19 pandemic, which started in 2019 and still continues. In Akgün's study, it has been identified that 27.1% of the participants used vitamin and mineral supplements, 9.9% started using them during the pandemic period, and 22.1% used dietary supplements and 14.3% started using these products during the pandemic period (72). Sharma et al in their study, it was determined that the most common purposes of using nutritional supplement users are 40.1% to maintain good health and 36.9% to worry about not eating enough (73). In Al Naggar and Chen's study, 80% of the participants stated that they use dietary supplements to protect their health (74). In our study significant differences were found between the participants' use of dietary supplements for different purposes and their nutrition education levels ($p<0.05$). The rate of those who said they would use dietary supplements for strengthening purposes was 76.7% in the undergraduate 1st-year, 48.6% in the undergraduate 4th-year, and 57.1% in the master group ($p=0.015$). There was no significant difference between the nutrition education levels of the participants who said they would use it to strengthen the immune system ($p>0.05$). The rate of participants who stated that they used dietary supplements to improve physical and sports performance was 29.6%, no significant difference was found depending on nutrition education level ($p>0.05$). According to Ayrancı et al study significant gender differences were found; It was determined that 74.3% of men used dietary supplements to build muscle and 59.1% to improve athletic

performance (75). In this study, no significant gender-related difference was found in the using dietary supplements for increase physical and sports performance ($p>0.05$). The rate of those who say they use dietary supplements to increase mental performance and focus is 38.1%. In the study conducted by Tunçer et al, the rate of those who use nutritional support to increase mental performance was recorded as 5.9% (76). There is a statistically significant difference between the participation rates of the students who say they use dietary supplements for medical treatment and their nutrition education levels ($p<0.05$). 28.3% of undergraduate first-year students, 45.9% of fourth-year students, and 57.1% of master students agree with this view. As the nutrition education level increases, the tendency to use dietary supplements for medical treatment increases. Bulbul et al. in their study, they recorded the rate of participants whose reasons for using vitamins were medical treatment as 13.7% (77). A statistically significant difference was found between the nutrition education levels of the participants who said they would use dietary supplements to relieve intestinal problems ($p<0.05$). The rate of those who use dietary supplements for this purpose among 1st-year undergraduate students is 33.3%, 48.6% in undergraduate 4th-year and 81% in master students.

Within the scope of the research, the participants were asked to indicate the dietary supplements they used. Among the products mentioned, vitamins and multivitamins (90.5%), minerals (49.2%), omega-3 and fish oils (28.6%), probiotics and prebiotics (30.2%) and propolis (9.5%) were recorded as frequently used products. Kara in her study determined that 14% of the participants use vitamins, 9.3% use minerals, 32.5% use vitamin+mineral, and 44.2% use other dietary supplements (70). Lieberman et al. in their study with university students, it was noted that 42% of the participants used multivitamin-mineral supplement (78). Akarsu et al found in their study that 85.8% of the participants used vitamin-mineral supplements and 87% used herbal supplements as a complementary health approach (79). It was determined that there was a significant difference between the distribution of dietary supplements used in this study and the nutrition education level of the participants ($p=0.013$). As the nutrition education level increases, the product range used by the participants expands. The rate of participants using 3 or more products was recorded as 71.7% in the master group and 31% in the undergraduate group. The tendency of the participants to use dietary

supplements was found to be high. The rational use of such products should be encouraged.

5.4. Attitudes and Behaviors of Participants in Recommending Dietary Supplements

There was no statistically significant difference between the nutrition education levels of the participants and their views on recommending dietary supplements ($p>0.05$). While 84.5% of undergraduate students stated that they would recommend dietary supplements to their patients/clients in the future, 90.5% of master students stated that they recommend dietary supplements to their patients/clients. In the study of Dickinson et al 97% of the dietitians answered yes to the question of whether you would recommend dietary supplements to your patients (80).Cashman et al in the study they carried out, 37% of the dietitians stated that they used herbs and 22% recommended them to their patients/clients, and it was determined that there was a significant relationship between the dietitians' knowledge about the products and their personal use and recommending them to their patients/clients (81). In our study, it could not be determined which nutritional supplement used and/or recommended by the participants for which purpose. It is thought-provoking that the tendency of the participants to recommend nutritional support products is so high. It should be emphasized that individuals should be encouraged to have an adequate and balanced diet instead of recommending dietary supplements, except for risky and obligatory groups to use dietary supplements due to certain conditions, and the fact that a healthy individual who is fed an adequate and balanced diet does not need to use dietary supplements.

It was questioned whether the participants would recommend nutritional supplement products for the risk groups where the use of dietary supplements highlighted in Tek and Pekcan's study is necessary. It was determined that as the nutrition education level increased, the tendency of the participants to recommend dietary supplements to the determined risk groups increased ($p<0.05$). The risk groups with the highest tendency to recommend dietary supplements are those with iron deficiency anemia, those who cannot provide adequate and balanced nutrition, and those who receive nutritional therapy due to a certain disease.

When questioned for what purpose the participants recommend dietary supplements, the most common goals are recorded as to strengthen the immune

system 71.2%, for strengthening 61%, for preventive purposes 56.7%, to aid nutritional therapy 56%, to support diet 45.7% and to eliminate intestinal problems 45.7%. In the study of Dickinson et al the most common reasons for dietitians to recommend dietary supplements are bone health (70%), filling nutritional gaps (67%) and maintaining health (49%) (80).

When comparing the undergraduate and master students, it was found that the tendency of master students to recommend dietary supplements for certain purposes was higher. But when the 3 groups as undergraduate 1st-year, undergraduate 4th-year and master students are compared, the increase in the tendency to recommend dietary supplements is not always linear. It is thought that the factors causing this difference may be due to differences in theoretical knowledge and practice, but it should be investigated in different studies. In the study of Lederman et al no positive correlation was found between the knowledge of dietitians about dietary supplements and their age and experience in the field (82).

When it was investigated whether the demographic characteristics and socio-cultural characteristics of the patients/clients were effective in recommending nutritional support products, 89.6% of the participants said that they were effective. As the level of education increases, the proportion of those who agree with this view increases. As the nutrition education level of the participants increases, their tendency to care about the nutrition education level and income level of the clients to whom they recommend dietary supplements also increases. On the other hand Coşkun and Turhan's study which conducted by a group representing different sociocultural groups in Istanbul on the habits of vitamin use, it was determined that the group that regularly uses vitamins is the group with higher education and income levels (83). The results of the two studies show parallelism in this sense.

When the dietary supplements recommended by the participants were examined, the most commonly recommended products were vitamins & multivitamins 83%, probiotics 57.4% and minerals 53.1%. As the nutrition education level of the participants increases, the product range they recommend expands, but the reason for this has not been determined. It is thought that the increase in the level of knowledge about dietary supplements, may be the patient distribution of the dietitians participating in the study and the needs of these patients may also affect the results.

Another point to consider, when this study designed and the data collection form created, the Covid-19 pandemic had not yet started, but when the implementation phase started, we were in the pandemic period. The high rate of use various type of supplements and recommend them to the others especially to increase immunity in the results can be explained by the fact that the participants have sought various remedies to protect themselves against a disease for which there is no preventive treatment or cure yet.

There are many studies about the promising effects of dietary supplements in COVID-19 which are still continuing, some of them are researching the following; quarcetine phytosome, a dietary supplement containing resistant starch, probiotics, Vitamin D, selenium, zinc, an oral supplement enriched in antioxidants, Vitamin B complex (84,85,86,87,88).

Furthermore, there are completed studies which show the effects of different dietary supplements on COVID-19. One of them is a study which investigating the effect of colchicine, the results of the study said that when compared with placebo, colchine probably results in a slight reduction of hospital admissions or deaths within 28 days, and the rate of serious adverse events (89). Another study says that there is evidence of the potential protective and therapeutic roles of vitamin C, D, zinc, and selenium in COVID-19 (90). In another single-center, retrospective cohort study says, likely deficient vitamin D status was associated with increased COVID-19 risk (91). In Hassan's research N-acetylglucosamine administration was associated with reduced hospital length-of-stay, intensive care unit admission rates, and death rates in adults with COVID-19 compared to those who received standard care alone (92). In another research, Nigella Sativa Oil supplementation was associated with faster recovery of symptoms than usual care alone for patients with mild COVID-19 infection (93). In a review study which signifies a potential effect of propolis and honey on COVID-19 recorded that in clinical trials propolis or honey could probably improve clinical COVID-19 symptoms and decrease viral clearance time (94).

Most of these are among the dietary supplements that in our study participants stated they used and/or recommended. For our study, if there was a question about the pandemic in the data collection form, then it could be determined whether the

participants used/recommended the dietary supplements they mentioned because of COVID-19, however in this situation it is only a guess.

In conclusion, in this study, significant differences were found between the nutrition education levels of the participants and their views, attitudes and behaviors towards dietary supplements. It was determined that as the nutrition education level of the participants increased, they became more conscious about the reliability of dietary support products, the sources from which advice was taken, and the places where the products were obtained. However, the tendency of the participants to use dietary supplements and recommend them to their patients/clients was found to be high, that might be due to the COVID-19 pandemic. It is still important to promote adequate and balanced nutrition first. It may be beneficial for public health to establish a more comprehensive education program on dietary supplements and to continue these education programs after graduation.

REFERENCES

1) World Health Organization et al. WHO traditional medicine strategy 2002-2005. Geneva:World Health Organization 2002.
2) Pekcan G., Tek N. Besin Destekleri Kullanılmalı Mı ? Ankara: Türkiye Cumhuriyeti Sağlık Bakanlığı; 2008.
3) Jong N., Ocké MC., Branderhorst H., Friele R. Demographic and lifestyle characteristics of functional food consumers and dietary supplement users. *British J of Nutr*. 2003. 89(2): 273-281.
4) Owens C., Baergen R., Puckett D. Online sources of herbal product information. *Am J Med.* 2014. 127(2): 109-115.
5) Kirk J., Dunker KS. Dietary counseling: the ingredient for successfully addressing the use of herbal supplements and probiotics in chronic kidney disease. *Adv Chronic Kidney Dis*. 2014. 21(4): 377-384
6) Couturier FJ, Colemont LJ, Fierens H, Verhoeven VM. Toxic hepatitis due to a food supplement: "Natural" is no synonym for "harmless". *Clin Res Hepatol Gastroenterol*. 2016. 40(4): 38-43
7) Marcus DM. Dietary supplements: What's in a name? What's in the bottle? *Drug Test Anal.* 2016. 8(3-4): 410-412.
8) Halsted CH. Dietary supplements and functional foods: 2 sides of a coin? *Am J Clin Nutr.* 2003. **77**(4): 1001-1007
9) Ergen A., Bekoğlu F. Türkiye'de besin destek ürünlerine yönelik görüşler ve tüketici profilini tanımlamaya yönelik bir araştırma. *Journal of Business Research-Türk*; 2016 8(1): 323-341
10) Ventura Marra M., Bailey LR. Position of the Academy of Nutrition and Dietetics: Micronutrient Supplementation. JAcad Nutr Diet; 2018. 118(11):2162-2173
11) 2015-2020 Dietary Guidelines for Americans. 8th ed. 2015. Available from: https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf
12) World Health Organization. *Constitution of the World Health Organization*; 1948
13) Baysal A. *Beslenme.* Ankara: Hatiboğlu Yayıncılık; 2012
14) Allen Lindsay H., Gillespie, Stuart R.. What Works? A Review of the Efficacy and Effectiveness of Nutrition Interventions. *Asian Development Bank.* 2001

15) Shao Z, Chen C, Li W, Ren H, Chen W. Assessment of the risk factors in the daily life of stroke patients based on an optimized decision tree. *Technol Health Care*. 2019;27(S1):317-329. doi:10.3233/THC-199030

16) Kutkienė S, Petrulionienė Ž, Laucevičius A, et al. Severe dyslipidemia and concomitant risk factors in the middle-aged Lithuanian adults: a cross-sectional cohort study. *Lipids Health Dis*. 2018;17(1):88. Published 2018 Apr 19. doi:10.1186/s12944-018-0731-7

17) Anand P, Kunnumakkara AB, Sundaram C, et al. Cancer is a preventable disease that requires major lifestyle changes [published correction appears in Pharm Res. 2008 Sep;25(9):2200. Kunnumakara, Ajaikumar B [corrected to Kunnumakkara, Ajaikumar B]]. Pharm Res. 2008;25(9):2097-2116. doi:10.1007/s11095-008-9661-9

18) Who, J., & Consultation, F. E. Diet, nutrition and the prevention of chronic diseases. *World Health Organ Tech Rep Ser*, 2003; *916*(i-viii), 1-149.

19) Kutluay Merdol T., Başoğlu S., Örer N.*Beslenme ve Diyetetik Açıklamalı Sözlük*. Ankara:Hatiboğlu Yayıncılık;2011.

20) Pekcan G., Soydal F., Haznedaroğlu D., Çelik Ş., Ekşi A. *III. Uluslararası Beslenme ve Diyetetik Kongresi 12-15 Nisan 2000 Panel: Türkiye'de Beslenme Yetersizliği Sorunları, Besin ve Beslenme Politikaları.* J Nutr and Diet, 2018. 30(1): p. 45-7.

21) L. Allen, B. Benoist, O. Dary and R. Hurrell. *Guidelines on Food Fortification with Micronutrients* WHO— Word Health Organization, FAO—Food and Agricultural Organization of the United Nations, WHO, Geneva, 2006.

22) *Türkiye Beslenme ve Sağlık Araştırması (TBSA)*, T.C. Sağlık Bakanlığı Halk Sağlığı Genel Müdürlüğü, Yayın No:1132, Ankara , 2019.

23) Dilek E. and Tütüncüler F. The Current Status of Iodine Deficiency Disorders in the World and Turkey. *Turkiye Klinikleri J Pediatr Sci*. 2016. 12(2): p. 7-13

24) Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü (2009) *Türkiye Nüfus ve Sağlık Araştırması, 2008.* Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, Sağlık Bakanlığı Ana Çocuk Sağlığı ve Aile Planlaması Genel Müdürlüğü, Başbakanlık Devlet Planlama Teşkilatı Müsteşarlığı ve TÜBİTAK, Ankara, Türkiye.

25) *Türkiye Beslenme Rehberi TÜBER 2015*, T.C. Sağlık Bakanlığı Yayın No: 1031, Ankara

26) Combet E. and Buckton C. Micronutrient deficiencies, vitamin pills and dietary supplements. *Priciples Of Human Nutrition Medicine J*, 2014. 43(2): p. 66-72

27) T.C Gıda Tarım ve Hayvancılık Bakanlığı, Türk Gıda Kodeksi Takviye Edici Gıdalar Tebliği. Tebliğ No:2013/49. Resmi Gazete, Tarihi: 16.08.2013, Sayısı: 28737

28) Ersoy, G. *Egzersiz ve Spor Yapanlar İçin Beslenme Soru ve Cevaplar ile Açıklamalı Sözlük.* Ankara: Nobel Akademik Yayıncılık; 2012.
29) Rados, C. Ephedra Ban: No Shortage of Reasons. FDA Consum. 2004. 38(2):6-7.
30) Karaarslan T., Özdemir E., Sungur S. Besin Destek Ürünleri ve İlaçlarla Etkileşimleri: Vitamin ve Mineraller. *Journal of Medical Sciences*, 2019. 2: p.9-18
31) Apllegate L., Özpınar H. *Beslenme ve Diyet Temel İlkeler.* İstanbul ; İstanbul Medikal Yayıncılık; 2011.
32) Dickinson, A. *The Benefits of Dietary supplements*. 4th ed.Council for responsible nutrition (CRN), Washington D.C.; 2012.
33) *Gıda Takviyesi Kullanımı ve Beslenme Alışkanlıkları Ölçümü Araştırması-5.* Gıda ve Beslenme Dergisi (10)
34) Alpers H,. Taylor B., Bier D., Klein S., *Manuel of Nutritional Therapeutics*. 6th ed. Lippincott Williams & Wilkins: Philadelphia; 2015. p.361-388.
35) İlhan S., Oktar S., Şahna E. Fat-soluble vitamins. Turkiye Klinikleri J Int Med Sci. 2006;2(35):8-23
36) Hu X, Jandacek RJ, White WS. Intestinal absorption of beta-carotene ingested with a meal rich in sunflower oil or beef tallow: postprandial appearance in triacylglycerol-rich lipoproteins in women. *Am J Clin Nutr*. 2000;71(5):1170-1180. doi:10.1093/ajcn/71.5.1170
37) Dawson-Hughes B, Harris SS, Lichtenstein AH, Dolnikowski G, Palermo NJ, Rasmussen H. Dietary fat increases vitamin D-3 absorption. *J Acad Nutr Diet*. 2015;115(2):225-230. doi:10.1016/j.jand.2014.09.014
38) Traber MG, Leonard SW, Ebenuwa I, et al. Vitamin E absorption and kinetics in healthy women, as modulated by food and by fat, studied using 2 deuterium-labeled α-tocopherols in a 3-phase crossover design [published correction appears in Am J Clin Nutr. 2020 Jul 1;112(1):239]. *Am J Clin Nutr*. 2019;110(5):1148-1167. doi:10.1093/ajcn/nqz172
39) van Ballegooijen AJ, Pilz S, Tomaschitz A, Grübler MR, Verheyen N. The Synergistic Interplay between Vitamins D and K for Bone and Cardiovascular Health: A Narrative Review. *Int J Endocrinol*. 2017;2017:7454376. doi:10.1155/2017/7454376
40) Attlee A, Haider A, Hassan A, Alzamil N, Hashim M, Obaid RS. Dietary Supplement Intake and Associated Factors Among Gym Users in a University Community. J Diet Suppl. 2018;15(1):88-97. doi:10.1080/19390211.2017.1326430

41) Knapik JJ, Steelman RA, Hoedebecke SS, Austin KG, Farina EK, Lieberman HR. Prevalence of Dietary Supplement Use by Athletes: Systematic Review and Meta-Analysis. *Sports Med*. 2016;46(1):103-123. doi:10.1007/s40279-015-0387-7

42) Ruano J, Teixeira VH. Prevalence of dietary supplement use by gym members in Portugal and associated factors. *J Int Soc Sports Nutr*. 2020;17(1):11. Published 2020 Feb 24. doi:10.1186/s12970-020-00342-z

43) Abo Ali EA, Elgamal HH. Use of dietary supplements among gym trainees in Tanta city, Egypt. *J Egypt Public Health Assoc*. 2016;91(4):185-191. doi:10.1097/01.EPX.0000511736.22873.57

44) Radwan H, Hasan HA, Ghanem L, et al. Prevalence of Dietary Supplement Use and Associated Factors Among College Students in the United Arab Emirates. *J Community Health*. 2019;44(6):1135-1140. doi:10.1007/s10900-019-00700-2

45) Mazzilli M, Macaluso F, Zambelli S, Picerno P, Iuliano E. The Use of Dietary Supplements in Fitness Practitioners: A Cross-Sectional Observation Study. International Journal of Environmental Research and Public Health. 2021; 18(9):5005. https://doi.org/10.3390/ijerph18095005

46) Jawadi AH, Addar AM, Alazzam AS, et al. Prevalence of Dietary Supplements Use among Gymnasium Users. *J Nutr Metab*. 2017;2017:9219361. doi:10.1155/2017/9219361

47) Argan, M., Köse, H. Sporcu Besin Desteklerine (Sports Supplements) Yönelik Tutum Faktörleri: Fitness Merkezi Katılımcıları Üzerine Bir Araştırma. *Hacettepe J of Sport Sciences*, 2009; 20(4):p.152-164.

48) Kafkas E., Demirtaş E., Kafkas A. Anabolik Etkiye Sahip Besin Takviyeleri: Potansiyel Mekanizmalar Ve Kas Gelişimi. *İnönü Üniversitesi, Beden Eğitimi ve Spor Bilimleri Dergisi*, 2017; 4(2):p.48-56.

49) Duygu, A. *Dr. Aminoasit*. İstanbul: İstanbul Medikal Sağlık ve Yayıncılık;2016. p.159-161.

50) Master PBZ, Macedo RCO. Effects of dietary supplementation in sport and exercise: a review of evidence on milk proteins and amino acids. *Crit Rev Food Sci Nutr*. 2021;61(7):1225-1239. doi: 10.1080/10408398.2020.1756216.

51) Ortinau LC, Hoertel HA, Douglas SM, Leidy HJ. Effects of high-protein vs. high- fat snacks on appetite control, satiety, and eating initiation in healthy women. *Nutr J*. 2014;13:97. Published 2014 Sep 29. doi:10.1186/1475-2891-13-97

52) Kerksick CM, Arent S, Schoenfeld BJ, et al. International society of sports nutrition position stand: nutrient timing. *J Int Soc Sports Nutr*. 2017;14:33. Published 2017 Aug 29. doi:10.1186/s12970-017-0189-4

53) Kim HK, Chijiki H, Fukazawa M, et al. Supplementation of Protein at Breakfast Rather Than at Dinner and Lunch Is Effective on Skeletal Muscle Mass in Older Adults. *Front Nutr*. 2021;8:797004. Published 2021 Dec 21. doi:10.3389/fnut.2021.797004

54) Trommelen J, van Loon LJ. Pre-Sleep Protein Ingestion to Improve the Skeletal Muscle Adaptive Response to Exercise Training. *Nutrients*. 2016;8(12):763. Published 2016 Nov 28. doi:10.3390/nu8120763

55) Simmonds LA, Sullivan TR, Skubisz M, et al. Omega-3 fatty acid supplementation in pregnancy-baseline omega-3 status and early preterm birth: exploratory analysis of a randomised controlled trial. *BJOG*. 2020; 127(8):975-981. doi: 10.1111/1471-0528.16168

56) Lehner A, Staub K, Aldakak L, Eppenberger P, Rühli F, Martin RD, Bender N. Impact of omega-3 fatty acid DHA and EPA supplementation in pregnant or breast-feeding women on cognitive performance of children: systematic review and meta-analysis. *Nutr Rev*. 2021; 79(5):585-598. doi: 10.1093/nutrit/nuaa060.

57) Richardson, J A. Review: ω-3 fatty acids produce a small improvement in ADHD symptoms in children compared with placebo. *Evidence-Based Mental Health* 2012; 15 (2):p .46. doi:10.1136/ebmental-2011-100523

58) Tortosa-Caparrós E, Navas-Carrillo D, Marín F, Orenes-Piñero E. Anti-inflammatory effects of omega 3 and omega 6 polyunsaturated fatty acids in cardiovascular disease and metabolic syndrome. *Crit Rev Food Sci Nutr*. 2017;57(16):3421-3429. doi:10.1080/10408398.2015.1126549.

59) Mengelberg A, Leathem J, Podd J. Fish oil supplement use in New Zealand: A cross-sectional survey. *Complement Ther Clin Pract*. 2018;33:118-123. doi:10.1016/j.ctcp.2018.09.005.

60) Koyu E., Çalık G., Tohtak G., Yıldırım G. Sağlık çalışanlarının besin desteği kullanma durumları ve ilişkili etmenler. *DEU Tıp Derg* 2020;34(2):141-151 doi:10.5505/deutfd.2020.69772

61) Cleland LG, James MJ, Proudman SM. Fish oil: what the prescriber needs to know [published correction appears in Arthritis Res Ther. 2006;8(4):402]. *Arthritis Res Ther*. 2006;8(1):202. doi:10.1186/ar1876

62) Shinde A., Ganu J., Naik P. Effect of free radicals & antioxidants on oxidative stress: A Review. *J Dent Allied Sci.* 2012; 1(2): 63-66

63) Karabulut H., Gülay Ş. Antioksidanlar. *MAE Vet Fak Derg.* 2016;1(1): 65-76

64) Carlsen, M.H., Halvorsen, B.L., Holte, K. et al. The total antioxidant content of more than 3100 foods, beverages, spices, herbs and supplements used worldwide. *Nutr J*. 2010; 9(3): https://doi.org/10.1186/1475-2891-9-3

65) Ronis, M., Pedersen, K. B., & Watt, J. Adverse Effects of Nutraceuticals and Dietary Supplements. *Annual review of pharmacology and toxicology*, 2018; 58 p. 583–601. https://doi.org/10.1146/annurev-pharmtox-010617-052844

66) Türkmen Z, Türkdoğru S, Mercan S, Açıkkol M. Bitkisel ürünlerin ve gıda destek ürünlerinin içeriklerinin adli ve hukuki boyutu. *Adli Tıp Bülteni* 2014;19(1):38-48.

67) Hilkens, L., Cruyff, M., Woertman, L. et al. Social Media, Body Image and Resistance Training: Creating the Perfect 'Me' with Dietary Supplements, Anabolic Steroids and SARM's. *Sports Med* . 2021; 81(7). https://doi.org/10.1186/s40798-021-00371-1

68) Keser A,Ayhan N. Y, Öztürk M. E. Üniversite öğrencilerinin vitamin ve mineral desteği kullanım durumları. *Sağlık Bilimleri Dergisi.* 2014; 23(2): 108-113

69) Lee, YK., Georgiou, C., Raab, C. The Knowledge, Attitudes, and Practices of Dietitians Licensed at Oregon regarding Functional Foods, Nutritient Supplements, and Herbs as Complementary Medicine. *J Am Diet Assoc.* 2000; 100(5): 543-548

70) Kara B. Determining The Use of Dietary Supplements Among University Students. Gaziantep, Hasan Kalyoncu University, 2019.

71) Pillay L. Dietary Supplement use among dietetic students at the University of KwaZulu-Natal. Pietermaritzburg, KwaZulu-Natal University, 2017.

72) Akgün M. Investigation of the factors affecting the healthy lifestyle behaviors of individuals during the covid-19 pandemic. Ankara, Hacettepe University; 2021.

73) Sharma A., Adiga S., M A. Knowledge, attitude and practices related to dietary supplements and micronutrients in health sciences students. *Journal of Clinical and Diagnostic Research* 2014; 8(8): 10-13.

74) Al-Naggar R.A., Chen R. Prevelance Of Vitamin-Mineral Supplements Use and Associated Factors Among Young Malaysians. *Asian Pacific Journal of Cancer Prevention. 2011;* 12: 1023-1029

75) Ayrancı U., Son N., Son O. Prevelance of nonvitamin, nonmineral supplement usage among students in a Turkish University . *BMC Public Health* 2005; 5(1):47.

76) Tunçer E., Özdemir V., Şimşek H.,Karaağaç Y., Ayhan N. Üniversite öğrencilerinin Besin desteği kullanma durumlarının değerlendirilmesi. *Kırşehir Ahi Evran Üniversitesi Sağlık Blimleri Enstitüsü Dergisi* 2020; 1(2): 91-101.

77) Bülbül, S., Sürücü, M., Aşık, G. Vitamin kullanım alışkanlıkları ve etkileyen faktörler. Çocuk Sağlığı ve Hastalıkları Dergisi, 2014; 57(4), 241-245.

78) Lieberman HR, Marriott BP, Williams C, Judelson DA, Glickman EL, Geiselman PJ, Dotson L, Mahoney CR. Patterns of dietary supplement use among college students. *Clin Nutr*. 2015;34(5):976-85. doi: 10.1016/j.clnu.2014.10.010.

79) Akarsu, R. H., Güleroğlu, F. T., Alsaç, S. Y. Üniversiteli kız öğrencilerin tamamlayıcı sağlık yaklaşımlarını kullanma durumları ve etkileyen faktörler. *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi*. 2020; 3(1): 10-16. doi:10.38108/ouhcd.684721

80) Dickinson A., Bonci L., Boyon N., Franco, C. J. Dietitians Use And Recommend Dietary Supplements: Report Of A Survey. Nutrition Journal 2012; 11(14)

81) Cashman, S. L., Burns, T. J.,Otıeno, M. I., Fung, T. Massachusetts Registered Dietitians' Knowledge, Attitudes, Opinions, Personal Use, and Recommendations to Clients About Herbal Supplements. *J Altern Complement Med.* 2003; 9(5): 735-746

82) Lederman, G. V., Huffman, G. F., Enrione B. E. Practices, Attitudes, and Beliefs Regarding Dietary Supplements Among Florida's Dietitians and Nurses. *J Dietary Suppl* 2009; 6(2): 124-141

83) Coşkun F., Turhan H. İstanbul'da vitamin kullanım alışkanlıkları ve bu alışkanlıkları etkileyen faktörler üzerine bir araştırma. *Marmara Pharmaceutical Journal* 2014; 14(1):21-28

84) Colunga Biancatelli RML, Berrill M, Catravas JD, Marik PE. Quercetin and Vitamin C: An Experimental, Synergistic Therapy for the Prevention and Treatment of SARS-CoV-2 Related Disease (COVID-19). *Front Immunol*. 2020;11:1451. Published 2020 Jun 19. doi:10.3389/fimmu.2020.01451

85) The Role of Resistant Starch in COVID-19 Infection. *ClinicalTrials.gov identifier (NCT number): NCT04342689*

86) Changes in Viral Load in COVID-19 After Probiotics. *ClinicalTrials.gov identifier (NCT number): NCT04666116*

87) Anti-inflammatory/Antioxidant Oral Nutrition Supplementation in COVID-19 (ONSCOVID19). *ClinicalTrials.gov identifier (NCT number): NCT04323228*

88) Phase 3, Randomized, Double-Blind, Placebo-Controlled Trial to Evaluate Efficacy and Safety of Nitazoxanide for Treatment of Mild or Moderate COVID-19 in Subjects at High Risk of Severe Illness. *ClinicalTrials.gov identifier (NCT number): NCT05157243*
89) Mikolajewska A, Fischer AL, Piechotta V, et al. Colchicine for the treatment of COVID-19. *Cochrane Database Syst Rev*. 2021;10(10):CD015045. Published 2021 Oct 18. doi:10.1002/14651858.CD015045
90) Pedrosa LFC, Barros ANAB, Leite-Lais L. Nutritional risk of vitamin D, vitamin C, zinc, and selenium deficiency on risk and clinical outcomes of COVID-19: A narrative review. *Clin Nutr ESPEN*. 2022;47:9-27. doi:10.1016/j.clnesp.2021.11.003
91) Meltzer DO, Best TJ, Zhang H, Vokes T, Arora V, Solway J. Association of Vitamin D Status and Other Clinical Characteristics With COVID-19 Test Results. *JAMA Netw Open*. 2020;3(9):e2019722. Published 2020 Sep 1. doi:10.1001/jamanetworkopen.2020.19722
92) Hassan AE. An observational cohort study to assess N-acetylglucosamine for COVID-19 treatment in the inpatient setting. *Ann Med Surg (Lond)*. 2021;68:102574. doi:10.1016/j.amsu.2021.102574
93) Koshak AE, Koshak EA, Mobeireek AF, et al. Nigella sativa for the treatment of COVID-19: An open-label randomized controlled clinical trial. *Complement Ther Med*. 2021;61:102769. doi:10.1016/j.ctim.2021.102769
94) Dilokthornsakul W, Kosiyaporn R, Wuttipongwaragon R, Dilokthornsakul P. Potential effects of propolis and honey in COVID-19 prevention and treatment: A systematic review of in silico and clinical studies. *J. Integr. Med.* 2022;20:1. doi:10.1016/j.joim.2022.01.008

APPENDICES

7.1. Ethical Approvel

T.C. YEDİTEPE ÜNİVERSİTESİ
GİRİŞİMSEL OLMAYAN KLİNİK ARAŞTIRMALAR ETİK KURULU

Versiyon No 1.0
Sayfa 1 / 2

KARAR FORMU

3.07.2021

ETİK KURUL BİLGİLERİ		
	Etik Kurulun Adı	Yeditepe Üniversitesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu
	Açık Adres	Yeditepe Üniversitesi Diş Hekimliği Fakültesi, Bağdat Cad. No. 238 Göztepe 34728 Kadıköy, İstanbul
	İnternet Sayfası	[redacted]
	Telefon	[redacted]
	E-posta	[redacted]

DEĞERLENDİRİLEN BELGELER	
	Islak imzalı başvuru dosyası, CD'si ve elektronik başvuru ☒
	Araştırma başlığı ve araştırmacıların isimleri ☒
	Başvuru dilekçesi ☒
	Araştırmanın; ☒
	• Niteliği ☒
	• Önemi ve özgün değeri ☒
	• Amaç ve hedefleri ☒
	• Yöntemi ☒
	• Yönetimi ☒
	• Yaygın etkisi ☒
	• Araştırma bütçesi (Mevcutsa) ☒
	• Süresi ve uygunluğu (Zaman cetveli) ☒
	• Kaynakları ☒
	Araştırma izin belgesi / belgeleri ☒
	Bilgilendirilmiş Gönüllü Olur Formu (yapılan araştırmaya özel olarak hazırlanmış) ☒
	Taahhütname-1 ☒ Dünya Tıp Birliği Helsinki Bildirgesinin son versiyonunun ve Sağlık Bakanlığı'nın ilgili tüm kılavuzlarının okunmasına dair taahhüt
	Taahhütname-2 ☒ Daha önce yapılmış etik kurul başvuruları mevcut olup olmadığına dair taahhüt
	Taahhütname-3 ☒ Araştırma sırasında araştırma bütçesinde yer almayan ve gönüllünün kendisine veya Sosyal Güvenlik Kurumuna ek yük getirecek hiçbir işlem uygulanmayacağına dair taahhüt
	Taahhütname-4 ☒ COVID-19 hastalarında tedavi yaklaşımları ve bilimsel araştırmalar genelgesi okunmasına dair taahhüt
	Araştırmacıların her birisine ait özgeçmiş formu ☒
	Ek belgeler (Varsa kullanılan ölçek izinleri vb.) ☒

KARAR BİLGİLERİ		
	Başvuru Numarası	202105050
	Toplantı Tarihi	21.06.2021
	Toplantı Yeri	Çevrim içi (Google Meet)
	Karar No	24

Araştırmanın Başlığı	**Beslenme ve Diyetetik Bölümü Öğrencilerinin Eğitim Düzeyinin Artması ile Besin Destek Ürünlerine Yönelik Görüşleri, Tutum ve Davranışlarındaki Değişimin Saptanması**
Araştırmacılar	**Esra Külahlı Yengacı, İrem Kaya Cebioğlu**

BAŞVURU NUMARASI: 202105050

KARAR 3.07.2021

☒ KABUL	☐ RET ☐ *KAPSAM DIŞI (GİRİŞİMSEL)* ☐ *BİLİMSEL VE/VEYA ETİK KURALLARA AYKIRI* ☐ *BİR SORUMLU ARAŞTIRMACININ (TEZ İSE TEZ DANIŞMANI), BİR TOPLANTIYA* ***İKİ (2)*** *ADETTEN FAZLA ÇALIŞMA BAŞVURUSUNDA BULUNMASI* ☐ *KURUM İÇİ BAŞVURULARINDA* ***YEDİTEPE UZANTILI E-POSTA HESABI*** *İLE GİRİŞ YAPILMAMIŞ OLMASI* ☐ *ŞARTLI KABULDE BELİRTİLEN REVİZYONLARIN ZAMANINDA VE/VEYA İSTENİLDİĞİ ŞEKİLDE YAPILMAMIŞ OLMASI*

Prof. Dr. Didem ÖZDEMİR ÖZENEN Başkan				Doç. Dr. Gökhan ERTAŞ Başkan Yardımcısı				Doç. Dr. Elif SUNGURTEKİN EKÇİ Raportör			
Katılım		İlişki		Katılım		İlişki		Katılım		İlişki	
☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok

Prof. Dr. Feryal SUBAŞI Üye				Prof. Dr. Şenay UZUN Üye				Doç. Dr. Mehmet Engin CELEP Üye			
Katılım		İlişki		Katılım		İlişki		Katılım		İlişki	
☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok

Dr. Öğr. Üyesi E. Çiğdem ALTUNOK Üye				Dr. Öğr. Üyesi Binnur OKAN BAKIR Üye				Dr. Öğr. Üyesi E. Nur ÖZDAMAR Üye			
Katılım		İlişki		Katılım		İlişki		Katılım		İlişki	
☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok	☐Var	☐Yok

Araştırmanın Başlığı	**Beslenme ve Diyetetik Bölümü Öğrencilerinin Eğitim Düzeyinin Artması ile Besin Destek Ürünlerine Yönelik Görüşleri, Tutum ve Davranışlarındaki Değişimin Saptanması**
Araştırmacılar	**Esra Külahlı Yongacı, İrem Kaya Cebioğlu**

7.2. Institution Approvel

T.C
YEDİTEPE ÜNİVERSİTESİ
SAĞLIK BİLİMLERİ ENSTİTÜSÜ

Sayı: 18897253-4000/ **27.04.2021**
Konu:Tez Araştırma İzni Hk.

İLGİLİ MAKAMA

Enstitümüz Beslenme ve Diyetetik Anabilim Dalı 20173036001-Y No'lu Yüksek Lisans öğrencisi Esra KÜLAHLI'nın, Dr. Öğr. Üyesi İrem KAYA CEBİOĞLU danışmanlığında yürüttüğü, ''Beslenme ve Diyetetik Bölümü Öğencilerinin Eğitim Düzeyinin Artması İle Besin Destek Ürünlerine Yönelik Görüşleri, Tutum ve Davranışlarındaki Değişimin Saptanması.'' konulu tez çalışmasını, Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü Beslenme ve Diyetetik Anabilim Dalı Yüksek Lisans öğrencileri üzerinde gönüllülük esasına uygun bir şekilde yürütülmesi uygun görülmüştür.

Prof. Dr. Bayram YILMAZ
Sağlık Bilimleri Enstitü Müdürü

7.3. Data Collection Form

Beslenme ve Diyetetik Bölümü Öğrencilerinin Eğitim Düzeyinin Artması ile Besin Destek Ürünlerine Yönelik Görüşleri, Tutum ve Davranışlarındaki Değişimin Saptanması

Değerli Katılımcı,

Bu anket, Beslenme ve Diyetetik Bölümü Öğrencilerinin Eğitim Düzeyinin Artması ile Besin Destek Ürünlerine Yönelik Görüşleri, Tutum ve Davranışlarındaki Değişimin Saptanması başlıklı yüksek lisans tez çalışması için hazırlanmış olup Yeditepe Üniversitesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu'nun 03.07.2021 tarihli 202105050 numaralı kararı ile uygun bulunmuştur.
Bu çalışmanın amacı eğitim düzeyindeki artışın besin destek ürünlerine yönelik tutum ve davranışlardaki yansımasını değerlendirmektir.
Çalışmaya katılımda gönüllülük esastır. Çalışmanın herhangi bir safhasında ayrılmak istemeniz durumunda bir yaptırım uygulanmayacaktır. Çalışma süresince toplanan veriler yalnızca bilimsel ve akademik makalelerde kullanılacak olup üçüncü şahıslar ile paylaşılmayacaktır.
Anket formu 3 ana kısımdan oluşmaktadır, bu 3 ana kısımda siz değerli katılımcılarımızın demografik bilgileri, besin destek ürünlerinin kullanımına yönelik görüşleri ve besin destek ürünleri ile ilgili bilgi durumlarının saptanarak değerlendirilmesi amaçlanmıştır. Tek seferlik bir anket çalışmasıdır. Soruları cevaplamak için herhangi bir süre kısıtlaması bulunmamaktadır.
Konu ile ilgili tüm sorularınız için araştırmacıya sonda yer alan iletişim bilgileri üzerinden ulaşabilirsiniz.
Çalışmaya katılımınız için teşekkür ederiz.
Diyetisyen Esra Külahlı Yongacı

Veri Toplama Formu

KİŞİSEL BİLGİLER *

Ad-Soyad:	
Yaş:	
Cinsiyet:	
Eğitim Seviyesi/ Sınıf:	
Boy:	
Kilo:	
BKİ:	

BESİN DESTEK ÜRÜNLERİ HAKKINDAKİ GÖRÜŞLERİNİZ DOĞRULTUSUNDA CEVAPLAYINIZ.

BESİN DESTEK ÜRÜNLERİ SAĞLIKLI VE GÜVENİLİR MİDİR? *

- ◯ evet
- ◯ hayır

BESİN DESTEK ÜRÜNLERİNİN KULLANILMASINDA BİR SAKINCA VAR MIDIR? *

Cevabınız "Evet" ise lütfen açıklayınız.

- ◯ Hayır
- ◯ Evet

BESİN DESTEK ÜRÜNLERİNİN HANGİ KURUM TARAFINDAN DENETLENDİĞİNİ BİLİYOR MUSUNUZ? *

Cevabınız "Evet" ise lütfen kurum adı belirtiniz.

- ◯ Hayır
- ◯ Evet - Kurum Adı:

BESİN DESTEK ÜRÜNLERİ İÇİN YAPILAN DEVLET DENETİMİNİ YETERLİ BULUYOR MUSUNUZ? *

Cevabınız "Hayır" ise lütfen sebebini açıklayınız.

- ◯ Evet
- ◯ Hayır

BESİN DESTEK ÜRÜNLERİ SATIŞININ TEZGAH ÜSTÜ SATIŞ POLİTİKASINA GÖRE YAPILMASINI DOĞRU BULUYOR MUSUNUZ ? *

Cevabınız "Hayır" ise lütfen açıklayınız.

- ◯ Evet
- ◯ Hayır

BESİN DESTEK ÜRÜNLERİN KOLAY ULAŞILABİLİR OLMASINI DOĞRU BULUYORMUSUNUZ ? *

- ◯ evet
- ◯ hayır

MEDYANIN BESİN DESTEK ÜRÜNLERİ KONUSUNDAKİ ETKİSİNİ OLUMLU BULUYOR MUSUNUZ? *

- ◯ evet
- ◯ hayır

BESİN DESTEK ÜRÜNLERİNİ KULLANIR MISINIZ? *

Cevabınız evet ise aşağıdaki soruları cevaplayınız.

- ◯ evet
- ◯ hayır

KULLANDIĞINIZ BESİN DESTEK ÜRÜNLERİ NELERDİR ? *

BESİN DESTEK ÜRÜNLERİNİ KULLANMANIZDA BU ÜRÜNLERİN SİZE TAVSİYE EDİLMESİ ETKİLİ OLUR MU ? *

Cevabınız evet ise lütfen kimin önerisinin etkili olacağını belirtiniz (Doktor/ Eczacı/ Diyetisyen/Aktar/ Komşu vs.)

- ◯ Hayır
- ◯ Evet

KULLANDIĞINIZ BESİN DESTEK ÜRÜNLERİNİ NEREDEN ALMAYI TERCİH EDERSİNİZ? *

- ☐ AKTAR
- ☐ ECZANE
- ☐ SPOR SALONU
- ☐ İNTERNET
- ☐ DİĞER(LÜTFEN BELİRTİNİZ)

BESİN DESTEK ÜRÜNLERİNİ ALDIĞINIZ YERİ TERCİH ETMENİZDEKİ SEBEPLER NELERDİR ? *

BESİN DESTEK ÜRÜNLERİNİ BELİRTİLEN KOŞULLARDAN HANGİLERİNİN MEVCUT OLMASI DURUMUNDA KULLANIRSINIZ ? *

- [ ] DÜŞÜK ENERJİ İÇEREN DİYET TÜKETME
- [ ] YETERLİ VE DENGELİ BESLENEMEME
- [ ] VEJETERYAN TİPİ BESLENME
- [ ] VEGAN TİPİ BESLENME
- [ ] DEMİR EKSİKLİĞİ ANEMİSİ VARLIĞINDA
- [ ] UZUN SÜRE İLAÇ KULLANMA DURUMUNDA
- [ ] BELLİ BİR HASTALIĞA BAĞLI NUTRİSYON TEDAVİSİ ALMA DURUMUNDA
- [ ] DİYALİZ TEDAVİSİ GÖRME DURUMUNDA
- [ ] DİĞER (LÜTFEN BELİRTİNİZ) _____

(YALNIZCA LİSANS ÖĞRENCİSİ İSENİZ CEVAPLAYINIZ)
GELECEKTE HASTALARINIZA/DANIŞANLARINIZA BESİN DESTEK ÜRÜNLERİNİ KULLANMALARINI ÖNERİR MİSİNİZ?

- ◯ evet
- ◯ hayır

(YALNIZCA YÜKSEK LİSANS ÖĞRENCİSİ İSENİZ CEVAPLAYINIZ)
HASTALARINIZA/DANIŞANLARINIZA BESİN DESTEK ÜRÜNLERİNİ KULLANMALARINI ÖNERİR MİSİNİZ?

- ◯ evet
- ◯ hayır

BESİN DESTEK ÜRÜNLERİNİ BELİRTİLEN KOŞULLARDAN HANGİLERİNİ SAĞLAYAN HASTALARINIZA/DANIŞANLARINIZA TAVSİYE EDERSİNİZ ? *

- [ ] DÜŞÜK ENERJİ İÇEREN DİYET TÜKETENLER
- [ ] YETERLİ VE DENGELİ BESLENMEYİ SAĞLAYAMAYANLAR
- [ ] VEJETERYANLAR
- [ ] VEGANLAR
- [ ] DEMİR EKSİKLİĞİ ANEMİSİ OLANLAR
- [ ] BEBEKLER VE ÇOCUKLAR
- [ ] GEBE VE EMZİKLİ KADINLAR
- [ ] YAŞLILAR
- [ ] UZUN SÜRE İLAÇ KULLANANLAR
- [ ] BELLİ BİR HASTALIĞA BAĞLI NUTRİSYON TEDAVİSİ ALANLAR
- [ ] DİYALİZ TEDAVİSİ GÖRENLER
- [ ] DİĞER(LÜTFEN BELİRTİNİZ)

BESİN DESTEK ÜRÜNLERİNİ HANGİ AMAÇLA KULLANIRSINIZ ? *

- [ ] Koruyucu amaçlı
- [ ] Güçlendirme amaçlı
- [ ] Tıbbi tedavi amaçlı
- [ ] Diyeti destekleme amaçlı
- [ ] Kanserden koruyucu olarak
- [ ] Bağışıklık sistemini güçlendirmek için
- [ ] Menapozdan kaynaklanan semptomları gidermek için
- [ ] İştah kontrolünü sağlamaya yardımcı olarak
- [ ] Yaşlandırmayı geciktirici olarak
- [ ] Fiziksel performansı-Spor performansını arttırmak için
- [ ] Kanserden kaynaklanan ağız/boğaz yaralarını iyileştirmek için
- [ ] Ödem atımına yardımcı olarak
- [ ] Sigara-Alkol vb. zararlı etkilerini azaltıcı olarak
- [ ] Mental performans ve odaklanmayı güçlendirmek için
- [ ] Bağırsak problemlerini gidermek için
- [ ] Beslenme tedavisine yardımcı olarak
- [ ] DİĞER(LÜTFEN BELİRTİNİZ)

BİR ÖNCEKİ SORUDA İŞARETLEMİŞ OLDUĞUNUZ SEÇENEKLERE YÖNELİK OLARAK KULLANDIĞINIZ BESİN DESTEK ÜRÜNLERİ NELERDİR? *

BESİN DESTEK ÜRÜNLERİNİ HASTALARINIZA/DANIŞANLARINIZA HANGİ AMAÇLA TAVSİYE EDERSİNİZ ? *

- [ ] Koruyucu amaçlı
- [ ] Güçlendirme amaçlı
- [ ] Tıbbi tedavi amaçlı
- [ ] Diyeti destekleme amaçlı
- [ ] Kanserden koruyucu olarak
- [ ] Bağışıklık sistemini güçlendirmek için
- [ ] Menapozdan kaynaklanan semptomları gidermek için
- [ ] İştah kontrolünü sağlamaya yardımcı olarak
- [ ] Yaşlandırmayı geciktirici olarak
- [ ] Fiziksel performansı-Spor performansını arttırmak için
- [ ] Kanserden kaynaklanan ağız/boğaz yaralarını iyileştirmek için
- [ ] Ödem atımına yardımcı olarak
- [ ] Sigara-Alkol vb. zararlı etkilerini azaltıcı olarak
- [ ] Mental performans ve odaklanmayı güçlendirmek için
- [ ] Bağırsak problemlerini gidermek için
- [ ] Beslenme tedavisine yardımcı olarak
- [ ] DİĞER(LÜTFEN BELİRTİNİZ)

BİR ÖNCEKİ SORUDA İŞARETLEMİŞ OLDUĞUNUZ SEÇENEKLERE YÖNELİK OLARAK HASTALARINIZA/DANIŞANLARINIZA TAVSİYE ETTİĞİNİZ BESİN DESTEK ÜRÜNLERİ NELERDİR? *

BESİN DESTEK ÜRÜNLERİNİ ÖNERDİĞİNİZ HASTALARINIZIN/DANIŞANLARINIZIN DEMOGRAFİK ÖZELLİKLERİ, SOSYOKÜLTÜREL VE EKONOMİK DÜZEYLERİ BU ÜRÜNLERİ ÖNERMENİZDE ETKİLİ MİDİR ? *

- ◯ evet
- ◯ hayır

Bir önceki soruya cevabınız "Evet" ise lütfen aşağıda belirtilenler arasından size en yakın gelen seçenekleri işaretleyiniz.

- [ ] Hastanın/Danışanın yaşı takviye önermemde etkili olur.
- [ ] Hastanın/Danışanın cinsiyeti takviye önermemde etkili olur.
- [ ] Eğitim düzeyinin yüksek olması takviye önermemde etkili olur.
- [ ] Gelir seviyesinin yüksek olması takviye önermemde etkili olur.
- [ ] Hastanın/Danışanın bu konudaki talebi takviye önermemde etkili olur.
- [ ] DİĞER(LÜTFEN BELİRTİNİZ)

AŞAĞIDA TÜRKİYE PAZARINDA YAYGIN OLARAK BULUNAN BESİN DESTEK GRUPLARINDAN BAZILARI SIRALANMIŞTIR, BU GRUPLAR HAKKINDAKİ GÖRÜŞLERİNİZİ LÜTFEN SİZE EN UYGUN SEÇENEĞİ İŞARETLEYEREK BELİRTİNİZ.
(BU GRUPLARA AİT BESİN DESTEK ÜRÜNLERİ İÇİNDE ÖZELLİKLE TERCİH ETTİĞİNİZ BİR ALT GRUP BESİN DESTEK ÜRÜNÜ VARSA LÜTFEN BELİRTİNİZ.) *

	Bu ürünü hiç duymadım	Duydum ama denemedim	Denedim ama tüketmiyorum	Ara sıra tüketiyorum	Sık sık tüketiyorum
Multivitaminler	◯	◯	◯	◯	◯
Mineraller	◯	◯	◯	◯	◯
Omega-3	◯	◯	◯	◯	◯
Balık Yağları	◯	◯	◯	◯	◯
Antioksidanlar	◯	◯	◯	◯	◯
Probiyotik ve Prebiyotikler	◯	◯	◯	◯	◯
Bitkisel Ürünler	◯	◯	◯	◯	◯
Propolis	◯	◯	◯	◯	◯
Glukozamin	◯	◯	◯	◯	◯
Kolajen	◯	◯	◯	◯	◯
DİĞER(LÜTFEN BELİRTİNİZ)	◯	◯	◯	◯	◯

Anketi başarıyla tamamladınız. Katılımınız için teşekkür ederiz.

Pencereyi kapatabilirsiniz.

7.4. Informed Consent Form

Tarih:.....

BİLGİLENDİRİLMİŞ ONAM FORMU

Bu formun amacı katılmanız rica edilen araştırma ile ilgili olarak sizi bilgilendirmek ve katılmanız ile ilgili izin almaktır.

Bu kapsamda "Beslenme ve Diyetetik bölümü öğrencilerinin eğitim düzeyinin artması ile besin destek ürünlerine yönelik görüşleri, tutum ve davranışlarındaki değişimin saptanması " başlıklı araştırma "Dyt. Esra KÜLAHLI YONGACI" tarafından **Yeditepe Üniversitesi Beslenme ve Diyetetik Bölümü 1. Ve 4. Sınıf ve master öğrencileri ile** yürütülmektedir. Araştırma sırasında sizden alınacak bilgiler gizli tutulacak ve sadece araştırma amaçlı kullanılacaktır. Araştırma sürecinde konu ile ilgili her türlü soru ve görüşleriniz için aşağıda iletişim bilgisi bulunan araştırmacıyla görüşebilirsiniz. Bu araştırmaya **katılmama** hakkınız bulunmaktadır ancak katılmanız araştırma sonucunda daha doğru veriler elde etmeye yardımcı olacaktır. Bu formu onaylamanız, **araştırmaya katılım için onam verdiğiniz** anlamına gelecektir.

Araştırmayla İlgili Bilgiler:

Araştırmanın Amacı: Eğitim düzeyinin artması ile birlikte beslenme ve diyetetik lisans ve yüksek lisans öğrencilerinin besin desteklerine yönelik düşünce, tutum ve davaranışların ne yönde değiştiğinin belirlenmesi

Araştırmanın Metodu: Anket

Araştırmanın Yürütüleceği Yer: İstanbul / Yeditepe Üniversitesi

Çalışmaya Katılım Onayı:

Katılmam beklenen çalışmanın amacını, nedenini, metot ve yeri ile ilgili bilgileri okudum ve gönüllü olarak çalışma süresince üzerime düşen sorumlulukları anladım. Çalışma ile ilgili ayrıntılı açıklamalar sözlü olarak araştırmacı tarafından yapıldı. Bu çalışma ile ilgili faydalar ve riskler ile ilgili bilgilendirildim.

Bu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum.

Katılımcının (Islak imzası ile)

Adı-Soyadı:
İmzası:

Araştırmacının

Adı-Soyadı:
e-posta:

İmzası:

Tanık Olanın

Adı-Soyadı:
İmzası: