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

INVESTIGATION OF THE KNOWLEDGE AND BEHAVIOR OF PEOPLE APPLIED TO A PRIVATE DIET CONSULTING CENTER AGAINST NON-LOCAL NUTRITIONAL FOODS

MASTER OF SCIENCE THESIS

HATİCE KÜBRA BAL

İSTANBUL-2019

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DECLARATION

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

.... / .... / ……

Hatice Kübra BAL

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF SYMBOLS AND ABBREVIATIONS

AD	Alzehimer's Disease
ALA	Alpha-linolenic Acid
BC	Before Christ
BCE	Before Commen Era
BMI	Body Mass Index
CI	Confidence Intervals
CSA	Community Supported Agriculture
EPA	Eicosapentaenoic Acid
EU	European Union
FAO	Food and Agriculture Organization of United Nations
HBP	High Blood Pressure
HDL	High Density Lipoprotein
HIV	Human Immunodeficiency Virus
LA	Linoleic Acid
LDL	Low Density Lipoprotein
MUFA	Monounsaturated Fatty Acids
PTMIs	Potentially Toxic Metals
PTWIs	Provisional Tolerable Weekly Intakes
PUFA	Polyunsaturated Fatty Acids
RDA	Reccomended Dietery Allowence
SDF	Soluble Dietery Fiber
SFA	Saturated Fatty Acids
TDF	Total Dietary Fiber
TGC	Triglycerides
T2DM	Type 2 Diabetes Mellitus
US	United States

ABSTRACT

Bal H.K. (2019). Investigation of the Knowledge and Behavior of People Applied to a Private Diet Consulting Center Against Non-local Nutritional Foods. Yeditepe University, Institute of Health Science, Department of Nutrition And Dietetics, MSc Thesis, İstanbul.

This study was conducted on 143 females (88.8%) and 18 males (11.2%) who applied to a private counseling center and 18-65 years old in February 2019. For the study, the non-local food (avocado, chia seeds, gojiberry, coconut, buckwheat, mango, black rice and teff seeds) which are not cultivated in Turkey but attracted the attention of people through different media in recent years were chosen. As a result, the people who consumed these nutrients, indicated that mostly they wanted to try and to provide an alternative to the daily diet. According to this outcome it seems that although people come across non-local food in their environments, social and conventional media since they do not consume them regularly they did not integrate to their diet and they do not have sufficient information about the contribution of these foods to their health.

Keywords: local food, non-local food, avokado, black rice, buckwheat, chia seed, coconut, gojiberry, mango, teff.

ÖZET

Bal H.K. (2019). Özel Bir Danışmanlık Merkezine Başvuran Kişilerin Yerel Olmayan Besinlere Karşı Bilgi ve Davranışlarının İncelenmesi. Yeditepe Üniversitesi Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Bölümü, Master Tezi, İstanbul.

Bu çalışma, özel bir danışmanlık merkezine başvuran 18-65 yaş arası 143 kadın (%88.8) ve 18 erkek (%11.2) danışan üzerinde 2019 yılı Şubat ayında yapıldı. Anavatanı Türkiye olmayan, sosyal ve görsel medya aracılığıyla duyulan ve diyetisyene başvuran kişilerin ilgisini çeken bazı yerel olmayan besinler seçildi (avokado, çiya tohumu, gojiberry, hindistan cevizi, karabuğday, mango, siyah piniç ve tef tohumu) ve kişilerin bu yerel olmayan gıdalara karşı bilgi ve davranışlarına bakıldı. Sonuç olarak, bu besinleri tüketen kişiler, çoğunlukla denemek amacıyla ve günlük beslenmesine alternatif kattığı için tükettiğini belirtmiştir. Bu durum, yerel olmayan gıdaların markette, çevrelerinde, sosyal, yazılı ve görsel medyada bu besinlerle karşılaştığını ancak tekrar tekrar tüketmediklerinden ötürü günlük beslenmelerine entegre etmediğini ve bu besinlerin sağlığa katkılarıyla ilgili yeterli bilgi sahibi olmadıkları sonucu çıkarılmaktadır.

Anahtar Kelimeler: yerel gıda, yerel olmayan gıda, avokado, çiya tohumu, gojiberry, hindistan cevizi, karabuğday, mango, siyah pirinç, teff tohumu.

1. INTRODUCTION AND PURPOSE

In recent years, the importance of food and food consumption has increased in general. Nowadays, food has become a subject of interest to many people, especially the origins of food products and production methods.Foods have turned into people's way of expression. Nowadays, there are options such as being a part of the society, eating what they want, choosing the producer and living their own food culture, and in recent years "good food" has become a part of the life people look for (1).

Globalized markets produce many products and brands of foreign origin. This raises the use of subjective criteria, such as the country in which the product is produced or imported, as well as objective criteria in the assessment of consumers regarding these products and brands (2).

Products can be expressed in terms of their two features. These are “internal" properties depending on the physical properties and performance of the product, and the "external" features such as packaging, brand, and guarantee. Consumers and businesses, especially since the 90s, use country of origin in the assessment of product. There are four main reasons for this, according to Dosen et al. The first one is that many consumers perceive the country of origin and brand name as an indicator of quality and acceptability and use it as a distinctive factor because of the rapid globalization process; secondly, there are a lot of producers and marketers, so that in a market where products and sales methods resemble each other, the country of origin is distinctive for consumers; third, the knowledge of the country of origin presents an important competitive advantage for multinational enterprises due to the fact that it gives the image of developed country; the last one is the fact that consumers, through the global mass media, have positive feelings for foreign products (3).

2. LITERATURE REVIEW

2.1. The Concept of Local Foods

There is no commonly accepted definition of "local "food in the literature. Although "local "has a geographical connotation, a definition of the distance between production and consumption is not agreed.

The geographical distance between production and sales definitions vary according to regions, companies, consumers and local food markets. According to the definition adopted by the U.S. Congress in the 2008 Food, Conservation, and Energy Act the total distance that a product can be transported and still be considered a “locally or regionally produced agricultural food product” is less than 400 miles from its origin, or within the state in which it is produced. Definitions based on market arrangements, including direct-to-consumer arrangements such as regional farmers’ markets, or direct-toretail/foodservice arrangements such as farm sales to schools, are well-recognized categories and are used in this report to provide statistics on the market development of local foods. Researches illustrates that definition of local food is not a clear concept both for aouthorities and buyers. Consumers think that local foods is distinctive, real foods with the particular flavor. Moreover, what they consider local food consumers 50% answered as the food made in an area covering 100 miles and 37% of surveyed people stated that the food produced in their country. Furthermore, buyers claimed that they are inclined to buy the products of their areas. The idea of "local" can be evaluated as a geographical term generally used in research. Some studies reveal the fact that when people think about local food they imagine trustworthy, clean and fresh food. So “local” in the field could be accepted a concept related to geography (4). Today, many people are very interested in what they eat, where their food comes from and how they are produced. This situation leads to localization of food production in the world and increase in local production. Localization is increasing rapidly in the world due to the increased sensitivity of consumers to environmental issues, reduction of carbon footprint, support of local producers and the country's economy, and reduction of environmental costs of food production. Although the local food production and consumption have social and economic benefits in terms of the sustainability of natural resources, the only issue is not the environmental impact that occurs during the transport of food. Although there is no

legal regulation about the concept of local food, the generally accepted definition on the subject in England is on the distance. Foods produced at a maximum distance of 30 miles to a particular area have been accepted as local food. However, in terms of the direction of the food chain, there are approaches that are considered to be local food. The concept of local food often refers to local food systems or foods from regions close to consumers. The definition of the concept of locality is a bit more complex (the distance perceived by the consumer) but it has two basic elements. These are the place of production and receiving the product or food from a source which is expressed / perceived local. Local food and beverages can be a attraction for a region. Mainly local foods are food, whose production, cooking, consumption, presentation and taste are different and are specific to a certain region. Local foods cover a wide range of characteristics, from production techniques, culture and the use of ingredients used to obtain the product in that region (5).

Regional food products are defined as the products that reflect the traditions and cultures of the local people living and producing in a region and these products' quality is related to the effects of natural conditions, human factors, knowledge and experiences depending on the location. Local food products are expressed as cultural and social use assets that have become an integral part of the life of the local population (6).

The increasing sensitivity to food origin is a predictable result of an increasingly competitive global food system; as the supply of commodities is becoming increasingly complex, consumers are looking for simple ways to identify desirable characteristics (7).

According to Zepeda and Leviten (2004), local food means many things to many people: Food grown in a county followed by food grown in a state is the two most popular definitions (8).

Although the term "local "food is commonly used, in the United States there are no standards to define it. When asked to use political borders, consumers generally define the term as food grown in a county or neighboring counties or in a state (7).

Many local food studies have based their research on the definition of the term "local. " Due to the absence of official definition and regulation by means of standardized labels, it is not only difficult for consumers to identify local products, but there is no guarantee that products labeled as local also meet the expectations of consumers. The

absence of a universal definition of "local "makes the creation of a standardized label for local food almost impossible. The concepts analyzed in the works investigated, change in distance, geographic limits and explicit principles, comprehensive methodologies, which additionally comprise enthusiastic or moral measurements, like individual connections with the local area. The global nature of nourishment creation and supply systems, shrinking of the production process and scandals prompted purchasers for more noteworthy straightforwardness and data about sustenance production ares in the United States and Europe. The increasing number of buyers who are conscious about food production have created their own newtworks for food. Also, Slowfood, Locavoresi upheld horticulture. In the meantime, some stores in the United States and Europe have begun to advertise nearby food to satisfy purchaser need (9). In the United States, demand for alternative foods, such as organic and local products, is dramatically increasing. Between 1990 and 2001, organic sales increased nine times, while local food outlets increased sharply (8).

According to Brown (2003), when the food is cheap for the standard farming supplies, producers and administrations try to create some new ways to increase the sales of local products. Generally, advertising the agricultural products directly to the buyers is a significant method which is used (10).

There are numerous causes behind customers' choices of localy produced food. While a few purchasers oppose the idea of import food due to its impact on environment, others prefer local production for its freshness. Due to the lack of a clearly defined "local food" concept bot buyers and administrations consider it in different ways. The search for information and consumer knowledge of local food influences their attitudes and translates into purchasing behavior depending on the interests of individual consumers. Demographic, contextual and habits also interact with the behavior of consumers to buy food. In particular, it is very important to identify preferences and underlying food values, as they can help improve food marketing, communication and communication. Making policy. The concept of local food, consumer perceptions and their willingness to pay for local food has been published in numerous scientific studies (9).

Local food has no technical definition. The general idea of eating locally is based on the following ideas: Eating food grown or produced within 100 miles of where you live, buying food directly from local farmers with whom you interact, buying food from

local farms / markets, growing / hunting / fishing your own food with the increasing frequency of imports and exports of food, an even broader idea of local food may include It refers both to geographical proximity and to a more direct relationship with producers (11).

In this study, the knowledge and behavior of people regarding non-local food, which are either produced in Turkey or imported from other countries will be evaluated. The names and properties of these foods are as follows.

2.1.1 Avocado

The homeland of avocado has been Central or South America where people has been growing it for 25 hundred years (12).

Mexico is the leading country in avocado production with a quarter of the world followed by Chile less that 10% (13).

Roughly a three quarter of avocado includes fiber and a quarter is only solvent. The avocado has lipids that comprise of majority of monounsaturated fats (MUFA), and polyunsaturated (PUFA) and soaked unsaturated fats (SFA) (14).

Duarte at al. revealed that, avocado has rich content with proteins and vitamins. It includes high vitamin A, B and D. The oil ingrridient is used in commercial activities. (13). Besides the fruit, peels and seeds are rich in bioactive phytochemicals such as phenolic acids, condensed tannins and flavonoids, including procyanidins, flavonols, hydroxybenzoic acids and hydroxycinnamic acids (15).

A recent clinical experiment reflects that eating avocado for five weeks daily decreases LDL cholesterol and small dense LDL particles. Also, avocado plays a significant role in European diet in terms of health issues like diabetics (16). Avocados are a distinctive fruit since they are effective on cardiovascular problems, (HBP) and type 2 diabetes (T2DM) (14). It positive impact on cancer is another component that makes it a valuable food (12).

In order to promote commercial cultivation of avocado in our country; in the early 1970s, through FAO, 4 major commercial varieties were introduced, including 'Fuerte', 'Hass', 'Bacon' and 'Zutano' from California. These avocados were tested in ecological conditions of Antalya, Dalaman-Muğla, Alata-Mersin, Adana and İskenderun-Hatay (17).

Although commercial avocado cultivation has started very recently in our country, compared to the countries that took the first place in avocado production and trade in the world; Turkey's proximity to consumption markets and the appropriate ecological conditions are the most important advantages (18).

2.1.2 Chia Seed

For over 5,500 years, Chia has been known. Chia seeds were one of Maya and Aztec 's most important components of the diet (19). In pre-Columbian times, Salvia hispanica L., commonly known as chia seed, was used as an important dietary component in Central America and Mexico (20).

Chia (Salvia hispanica L.) came from Mexico and Guatemala; it has been part of human food for approximately 5500 years. Aztecs and Mayas traditionally used the seeds to prepare folk medicines, food and canvases. It was the second main crop after beans in prehistoric times in Colombian societies (21).

Traditionally, chia seeds are consumed in Mexico and south-western America. The marketing of chia (Salvia hispanica) seeds as new food ingredients is permitted in the countries of the European Union. The lipid content in chia seeds varies from 25% to 40%, with 60% of the total lipids made up of ALA (n-3) and 20% composed of linoleic acid (n-6). When the oil is extracted from the chia seed, what remains is a significant concentration of dietary fiber (33.9g/100g) and protein (17g/100g). Of total dietary fiber, the greatest fraction (53.45g/100g) comprises insoluble fiber, which plays a role in satiety and proper bowel function. Rich in magnesium and phenolic compounds (mainly quercetin and kaempferol), chia seed offers significant antioxidant capacity, while its calcium and potassium content suggests it may be helpful in controlling high blood pressure (HBP) (19).

In many countries, ancient grain is becoming extremely popular in modern food regimes; the higher proportion of α-linolenic acid makes chia a superb source of omega-3 fat (approximately 65 percent of the oil content). A large number of physiological functions in the human body have been associated with omega-3 fatty acid. Chia seed is a potential source of antioxidants with chlorogenic acid, caffeic acid, myricetin, quercetin and kaempferol, which are thought to have cardiac, hepatic, anti-agingandanti-carcinogenic effects. It is also a major source of dietary fiber that benefits the digestive system and controls diabetes mellitus with higher levels of beneficial unsaturated fatty

acids, gluten-free protein, vitamins, minerals and phenolic compounds. Chia has scientifically established therapeutic effects in the control of diabetes, dyslipidaemia, hypertension, as an anti-inflammatory, antioxidant, anti-blood coagulation, laxative, anti-depressant anti-anxiety, analgesic, vision and immune improver. The protein, fat, carbohydrate, dietary fibre, ash and dry matter contents of chia seeds ranged from 15 to 25 %, 30–33 %, 41 %, 18–30 %, 4–5 % and 90–93 % with a wide range of polyphenols. The seeds ' heavy metal content was safe without potentially toxic mycotoxins and gluten. For the development of functional foods, chia seed is currently widely used for the extraction of bio-active compounds. The European Parliament 's declaration of chia as a functional food has had a significant impact on its popularity, and chia seed is now widely used as part of foods in Mexico, Argentina, Chile, New Zealand, Japan, the United States, Canada and Australia. Chia is regarded as a safe food with no harmful effects and is widely used in baked goods, nutritional supplements, cereal bars, cookies, bread, snacks, etc. (21).

Chia is considered to help health issues in wide spectrum. Due to the numerous studies chia is a well studied product and it is consumed around the globe. Many people consume chia seeds in a variety of product all over the world. Chia seeds include 30% oil and it means a lot of α-linolenic fatty acid besides it includes quite a lot protein (19–27%), which seems to be exceeding other foods that are considered to be rich in protein. Chia has 5% ash, half of it is carbohydrates fiber. Chia is rich in phenolic mix and antioxidants. Consuming chia could help the digestion and decrease cholesterol and sugar in blood (22).

Chia is believed to be rich in minerals, fibres, supportive acids. Especially chia is very beneficial for the diabetics and Alzehimer related problems. It takes an important role in repairing cells and affects the obesity significantly (23).

Chia seeds are increasingly consumed as they are thought to prevent the development of cardiovascular risk factors and are increasingly being added to foods such as breakfast cereals, energy bars, yogurt and bread (24).

The seed contains from 25% to 40% oil with 60% of it comprising (omega) ω-3 alpha linolenic acid and 20% of (omega) ω-6 linoleic acid. Both essential fatty acids are required by the human body for good health, and they cannot be artificially synthesized.Chia seed is composed of protein (15–25%), fats (30– 33%),carbohydrates (26–41%), high dietary fiber (18–30%), ash (4-5%), minerals, vitamins, and dry matter

(90–93%). It also contains a large number of antioxidants. Another important feature of chia seed is that it does not contain gluten (25).

The beneficial and protective effects of chia seed consumption on cardiovascular diseases and diabetes, hypertension and other disorders have been reported in several studies to date. The content of chia seed omega-3 fatty acids seems to have a positive effect on the mechanisms of these chronic diseases. However, evidence shows that these results are linked to reductions in post-prandial glycaemia due to the high fiber content of chia seed (20).

The European Parliament 's approval of chia seed as a novel food has led to a high level of use of chia seed in a wide variety of foods. The fact that chia has no anti-allergic,anti-nutritional and toxic effects on human health is already well established. Chia seed is usually supplemented with biscuits, pasta, cereal bars, snacks and yogurt and cake (21).

Although there is no scientific literature concerning the growing of chia seeds in Turkey, a news website in 2015 reported that it has been started to be grown in Malatya province (26).

2.1.3 Gojiberry

Gojiberry or wolf berry as it is known in the world is not very popular in our country but it is considered as a "super fruit" in our age. Goji berry, mostly grown in the Himalayas, the highest mountains of Tibet and Mongolia, is one of the fruits coming from a fruit which has the highest nutritional value in the world, the Solanaceae plant Lycium barbarum. This plant is grown in many countries such as China, Canada, America the Middle East and began to be cultivated in Turkey thanks to its antioxidant properties. Especially because it is sold as dried it is consumed as a lot (27).

Since the start of the twenty-first century, goji berries turned out to be progressively prevalent in Europe and North America given its wholesome lavishness in different nutrients, minerals, cancer prevention agents, and amino acids. This may clarify the fast increment in utilization as of late (28).

Lycium barbarum has been utilized in China for over 2,000 years as a customary restorative herb and sustenance supplement. Lycium barbarum contains rich Lycium barbarum polysaccharides (LBPs), betaine, phenolics, carotenoids (zeaxanthin and β-carotene), cerebroside, 2-O-β-d-glucopyranosyl-l-ascorbic corrosive (AA-2βG), β-

sitosterol, flavonoids and nutrients (specifically, riboflavin, thiamine, and ascorbic corrosive). Since the start of the century, the plant is generally called as Goji in China. Alternate names incorporate boxthorn, wolfberry, and Chinese wolfberry. The name of this plant is gugija in Korea and kuko in Japan. Lycium barbarum is basically found in East Asia and developed especially in South China, Korea, and Japan (29).

Goji berries are broadly utilized in cooking because of their sweet flavor and general medical advantages. Besides, goji berries are regularly handled into tinctures because of their enemy of maturing and cancer prevention agent impacts. What's more, goji berries have been accounted for to have different pharmaceutical properties, including resistant improvement, lessening the dangers of hypoglycemia, hypolipidemia and metabolic disorders; just as antioxidative, antitumor, anti-inflammatory, hepatoprotective and renal defensive exercises. Moreover, goji berries have been exhibited to enhance the unfavorable symptoms of chemotherapy and radiotherapy, and to improve the general prosperity of patients with different phases of malignant growth (30).

Chinese conventional restorative sustenance goji berry is utilized for its enemy of maturing properties, sedating and revitalizing impacts, just as its capacity to expand stamina. The advantages incorporate avoiding conditions, for example, diabetes, hyperlipidemia, disease, hepatitis, resistant scatters, thrombosis, and male barrenness. There are a few clinical and test reports appearing hostile to diabetic impact of Lycium barbarum as it is wellknown in customary Chinese home grown drug for diabetes. L. barbarum decreased oxidation in patients with retinopathy. The nearness of different utilitarian parts like polysaccharides, flavonoids and carotenoids in L. barbarum organic products is accepted to be in charge of these impacts (31).

Next to its restorative use, dried wolfberry is likewise a famous fixing in Chinese residential food, they are devoured in tonic soups in blend with vegetables, rice congee (porridge) and chicken or pork. The berries are additionally tanked as a tea, wine, they are normally bubbled as a natural tea (alone or with chrysanthemum blossoms (Chrysanthemum morifolium or Chrysanthemum indicum), red jujubes (Zizisiphus jujube)) or with tea (Camellia sinensis) and absorbed alcohol to make wolfberry wine. An implantation of the dried berries as a home grown tea is the most usually devoured type of wolfberry in China (32).

Goji is a protected sustenance supplement, free from poisons; in any case, it can cause hypersensitivities; subsequently, the dangers ought to be thought about in people with nourishment sensitivities, because of the high level of cross-reactivity among wolfberry and peach and tomato. On the grounds of hurtful herb-medicate associations that upgrade sedate execution, an anticoagulation treatment (warfarin) is a contra-sign to utilize Goji berry and any item containing wolfberry (33).

2.1.4 Coconut

The coconut [Cocos nucifera (C. nucifera) L.] is an important fruit tree in the world, which provides food for millions of people, especially in tropical and subtropical areas, and is often referred to as the "tree of life "with its many uses. India, after Indonesia and the Philippines, is the third largest producer of coconut (34).

The coconut palm (Cocos nucifera) is a tropical tree species which once was the first major estate crop, extending over large uniform areas, but is now mainly grown and harvested by small farmers (35).

However, due to its high lipid and saturated fat content it is discouraged in the diet of patients suffering from cardiovascular ailments and hypertension (36).

As a functional food, coconut has fatty acids that provide antimicrobial fatty acids and monoglycerides (functional components) with both energy (nutrients) and raw material when eaten. Desiccated coconut, like creamed coconut, is about 69% coconut fat. Full coconut milk is about 24% fat. Approximately 50% of coconut fatty acids are lauric acid. Lauric acid is a medium-chain fatty acid that has the additional beneficial function of forming in the human or animal body into monolaurine.Monolaurin is the human (and animal) antiviral, antibacterial and antiprotozoal monoglyceride used to destroy lipid - coated viruses such as HIV, herpes, cytomegalovirus, influenza, various pathogenic bacteria such as Listeria monocytogenes and Helicobacter pylori, and protozoa such as Giardia lamblia. Some studies also showed some free lauric acid antimicrobial effects. Approximately 6-7% of coconut fatty acids are also capric acids. Capric acid is another medium-chain fatty acid that plays a similar beneficial role when formed in the human or animal body into monocaprin. (37).

Coconut oil contributes to high blood pressure, hypercholesterolemia and obesity, all known myocardial infarction risk factors. It has been shown that saturated fatty acids

from coconut oil inhibit the release of prostanoids in rats and increase total plasma cholesterol, high density lipoprotein (HDL) cholesterol in humans (38).

The protein of the coconut kernel has a powerful anti-diabetic activity by reversing glycogen levels, activity of enzymes metabolizing carbohydrates and pancreatic damage to normal levels due to its effect on the regeneration of pancreatic beta cells by arginine. It is believed that young coconut juice contains phytoestrogen and other substances similar to sex hormones that can be used in hormone replacement therapy, in reducing the risk of dementia and in postmenopausal wound healing, as Radenahmad studied in ovariectomized rats (34).

Coconut trees do not grow in Turkey due to the climate conditions.

2.1.5 Buckwheat

The main producers of buckwheat are China, Russian Federation, Ukraine, and Kazakhstan. It is also produced in Slovenia, Poland, Hungary, and Brazil (39).

Polygonaceae familyasından Fagopyrum esculentum Moench türüne ait olan karabuğday, Orta Asya kökenli bir bitkidir. Çin ve Japonya'da ilk defa yetiştirilmeye başlanmıştır. Daha sonra Rusya ve Avrupa'ya kadar yaygınlaşmıştır (40).

Buckwheat is one of the traditional crops with a high food value that can be grown in harsh weather conditions. It comes from temperate Central Asia. The range of buckwheat distribution extends from Pakistan's mountain regions to India, Nepal, Bhutan and Myanmar. It is also cultivated in China, Japan, Korea, Iran and Afghanistan (41).

Buckwheat grains and other tissues contain numerous nutraceutical compounds and are rich in vitamins, particularly in the B group. The composition of buckwheat proteins with amino acids is well balanced and of high biological value, although the digestibility of the protein is relatively low. Buckwheat grains are an important microelement source, such as: Zn, Cu, Mn, Se and macroelements: K, Na, Ca, Mg. With % 80 unsaturated fatty acids, polyunsaturated fatty acids (PUFA) make up more than %40. For the dietary value, the significant content of rutin, catechins and other polyphenols and their potential antioxidant activity are also important. In addition, buckwheat grains are a rich source of total dietary fiber (TDF), soluble dietary fiber (SDF) and are used in obesity and diabetes prevention.

Buckwheat is known to contain high levels of rutin as a traditional Chinese food compared to other common plant foods. Furthermore, the absence of gluten makes

possible alternatives to buckwheat-containing products for patients with celiac disease. The intake of buckwheat or buckwheat-enriched products has been demonstrated to be associated with a wide range of health benefits, including anticancer, anti-inflammatory, hypoglycemic and hypocholesterolemic, although the specific bioactive components responsible for the beneficial effects of buckwheat remain uncertain (42).

Buckwheat grains are mineral, protein and amino acids highly nutritious. Buckwheat flour is rich in potassium, magnesium, calcium, phosphate, zinc and iron. In terms of amino acid composition, buckwheat has excellent protein quality. Buckwheat contained a high lysine value (300 mg g-1 N), followed by other grains of cereals.The biological value of buckwheat grain protein is also higher than many other foodstuffs / grains and is nearly comparable to milk protein and egg protein.. Such grains can be used as a rich source of good quality protein to supplement diets that are deficient in pulses / lysine. It contains significant amounts of B1 and B2 vitamins. It is virtually fat-free and total seed lipids ranged from 1.5% to 3.7% (41).

Buckwheat is also a good source of dietary fiber (5-11%), especially its soluble fraction and plant sterols (198 mg / 100 g), which reduce the concentration of cholesterol in the body. There are a number of important antioxidants in the buckwheat grain, such as rutin, quercetin, orientin and others. The present study showed that the dietary addition of buckwheat or rye-buckwheat bread in the blood serum of rats had a statistically significant beneficial effect on the reduction of total cholesterol, LDL cholesterol and triglycerides (TGC) (43).

There is not any information regarding the buckwheat production in Turkey according to FAO and Turkish official statistics agency. Based on the researchers working on buckwheat it is clear that there is buckwheat cultivation in Turkey and there is a growing tendency towards growing it. In Turkey, it shows a marked increase in recent years in buckwheat. Bread, pasta, cakes, noodles, biscuits, breakfast cereals, ice cream cones, tarhana and gluten-free foods are made from buckwheat flour or bran (40).

2.1.6 Mango

Tropical fruit consumption has increased in the last decade because consumers need a healthier lifestyle (44).

Mangifera indica trees are tropical fruit plants wildly found in Asia, but cultivated varieties have also been found in warmer regions of the world. It is found in Sindh and Punjab in Pakistan (45).

One of the most commercialized fruits in tropical countries is mango (Mangifera indica L. Anacardiaceae). More than 1000 different mango varieties are produced around the world. Mangoes are considered a nutraceutical fruit and have several biological activities. (46).

69% of total mango production is from Asia and the Pacific (India, China, Pakistan, Philippines and Thailand), 14% from Latin America (Brazil and Mexico) and the Caribbean Islands, and 9% from the African continent (47).

Mango (Mangifera indica L.), an economically important fruit that belongs to the Anacardiaceae family, is distributed worldwide. Completely mature mango is known for its aroma, skin colour, good taste and nutritional value. It is also highly perishable; the fruit begins to decline soon after ripening and is quickly unfit for consumption. Cold storage is probably the best post-harvest technology to keep fruit of high quality (48).

Mangos are preferred for the dietary richness and the ways they support health in many ways. They are popular in hot climates. People in the tropical climates accept it as the most important fruit. In many places it is the national fruit and for thousands of years it has been consumed in those areas. Some American, African and European countries started to grow it recently. Spain and Israel are the main producing countries in the Mediterranean (49). Mango fruits from bothripeorunripe are used as pickles, juices, oils, nectar, powder, sauce, cereal flakes and jam (50).

Mango includes a lot of polyphenols which is considered to be a natural micronutrients creating supportive elements for the health. The polyphenols which exist in mango are as follows: mangiferin, gallicacid, gallotannin, quercetin, isoquercetin, ellagicacid and β-glucogallin. Moreover, 25 types of carotenoids, including provitamin A, lutein, α-carotene and β-carotene, that comprise the color of the fruit are found in the mesocarp part. Also the studies show that mango works as an anti-inflammatory. Mango’s

bio-active mango mix show antidiabetic influence on patients. Besides, mango extract work well on cancer tumors (49).

In Turkey's fruit and vegetable warehouse Antalya, mango seedlings specific to tropical regions planted by Manavgat District Directorate of Food, Agriculture and Livestock for trial yielded its first fruit in 2012.

It was stated that some of the 175 saplings planted in 6 different gardens in the district gave fruit under the 'Mango Breeding Project prepared by Manavgat Governorship and District Directorate of Food, Agriculture and Livestock supported by West Mediterranean Development Agency (51).

2.1.7 Black Rice

Black rice is a typical gram rice crop with a long cultivation period. In China and other Asian countries, more than 60 % of the world 's black rice is grown (52).

Rice (Oryza sativa L.) is an important staple cereal that one third of the world's population consumes. When it is evaluated in relation to white rice, it color has better nutritional value in terms of protein, vitamins, mineralsIt pigments various glucosides Also its value depends on antioxidants, anti-cancer, and anti-inflammatory features (53).

Black rice (Oryza sativa L. indica) which is eaten in many countries in Asia contains valuable anthocyanins (27). It is claimed that it works well as an antiıxidant and other illnesses (54).

50% of the people in the world eat rice and the studies illustrated that it has important impact on cancer and cardiovascular problems. Specifically black rice decreases the risks of stress, atherosclerosis, inflammation and Alzheimer's disease but its influence on brain is not investigated thoroughly (55).

Rice is a fundamental product which is consumed in South East Asia and it is exported to many countries. The color of the black rice is a source of rich vitamins and mineral and it creates numerous benefits for the consumer (56). Based on the consumption regularly black rice decreased plaques in the blood vessels of rabbits (57). Moreover black rice is a significant health supporter in terms of heart, diabetics and cancer (58).

Turkish Food, Agriculture and Livestock Minister Faruk Celik said in a statement in 2017, "We have completed our preparation for black rise which is advised for its higher nutritional value and the production will begin starting from the next year. Black rice is a

crop which is rich in protein value, zinc, iron, calcium, phosphorus and vitamin B. In addition, since it has low carbohydrates and energy rates it is an important nutrient for diabetics. We will offer black rice to both production and market. We are continuing our efforts to present a new black rice registration until the end of 2017. This is also very important for our producers. Burnt rice was a big problem for our farmers. This rice is also more resistant to such diseases." (59).

2.1.8 Teff

Teff (Eragrostis tef) is an ancient, indigenous cereal crop and is believed to have been domesticated before 1000-4000 BCE as the main staple food in Ethiopia. It is also grown in India, Europe, Australia and America and is popular because it is gluten-free. Teff is one of the smallest grains in the world and can hardly be refined, making its flour rich in bran and germ fiber. Due to its small size, its name derives from the Amharic term "tefa, "meaning "lost." It is estimated that 20%–40% of the carbohydrates in teff are resistant starches (60).

Teff (Eragrostis tef) is an ancient tropical cereal with its center of origin and diversity in the highlands of northern Ethiopia from where it is thought to have been domesticated. The color of the teff may vary depending on the variety from white (ivory) to dark brown (black). In Ethiopia, there are three main categories: White (nech), red (quey) and mixed (sergegna) (61).

Teff, which is a plant of tropical and subtropical climates, is grown in both hemispheres. It has been reported that it is well-adapted to the high altitude Ethiopian soils, which are generally well-drained and heavily clayey. Due to the fact that it can be grown in very different climatic and soil conditions, it is possible to cultivate it in very different soil and climatic conditions form the wet, high ground water soils of Northern Ireland to the dry and high altitude mountains of Idoha province of America. In the local language, this plant is called teffa (lost) because it is almost impossible to find its grains easily if the plant grains are dropped to the ground (62).

An article by Journal Food Science Technology (2014), teff processing for various foods is usually done traditionally and is largely limited to the household level. Grain processing for various commercial foods is necessary to promote the use of teff worldwide. The nutrient composition of teff grain indicates that it is highly likely to be used worldwide in food and beverages. Teff has its own unique qualities and advantages,

and many nations could benefit from its introduction to other parts of the world. It can add variety to our diet and can help promote health, especially antioxidant activity. The very high concentration of calcium in teff makes it an excellent cereal for the prevention of health problems associated with lower calcium consumption, such as weight gain, fat accumulation, colon cancer, osteoporosis, skeleton and teeth weakening, etc. Teff grain nutrients are promising and for people with celiac disease and other gluten allergies it is also an excellent gluten-free alternative (63). Teff has been raised Asia, Africa, Americas but it has been known beter in recent years and it seems to gain more interest all over the world. Teff consists of mostly complex carbohydrates and starch (61).

The glycemic index of teff is significantly lower than the wheat (white) with 74 and is similar to sorghum and rye (62).

The protein makes more than 10% of teff and and the amount of amino acid is comparatively high. Similarly, higher isoleucine, leucine, valine, tyrosine, threonine, methionine, phenylalanine, arginine, alanine and histidine are found in teff compared to other cereals. Teff grains are rich in unsaturated fatty acids, predominantly oleic acid (32.4%) and linoleic acids (23.8%). Although a clear consensus has not been reached on the optimal ratio between LA and ALA fatty acids, the Codex standards for infants formula recommends a LA:ALA ratio in the range of 5 to 15. In this regard, the LA: ALA ratio of 7:1 for teff can be considered favorable and is comparable to legumes that are good sources of fatty acids, such as soybean. The reason why teff is valued higher depends on it gluten-free quality since it is used mostly for celiac patients. Dietary fibers of teff is ore than any other grains and that is the reason why its consumption is expected to increase in the coming years (61).

Teff contains comparable calories and total carbohydrates compared to wheat, but is lower in starch and higher in fiber, fat, protein and ash than wheat (64).

The difference in the content of minerals between varieties of teff and within them is wide. Red teff is higher than mixed or white teff in iron and calcium. White teff, on the other hand, is higher in copper than red and mixed teff. 12 genotypes of teff grown have been analyzed in various agro-ecological environments and 5 varieties grown in a greenhouse in Great Britain and reported that genetic and environmental factors affect teff iron content (61).

The other most important health-promoting aspect of teff as food is that it is generally thought to contain significant amounts of phenolics like other millets. Research has shown that ferulic acid (285.9 μg / g) is the most important phenolic compound in teff. There are also significant amounts of other phenolic compounds such as protocatechuic (25.5 μg / g), gentisic (15 μg / g), vanilla (54.8 μg / g), syringic (14.9 μg / g), coumaric (36.9 μg / g), and cinnamic (46 μg / g). Manganese, copper, phosphorus, iron, manganese, calcium and zinc are rich in teff grains. Their daily intake was calculated using RDAs or AIs. It should be pointed out that teff from the United States contained significant quantities of zinc. The concentration of arsenic in cereals consumed in the EU was higher than the average concentration of arsenic in brown teff from Bolivia harvested in 2017. Teff 's contribution to metal PTWIs or PTMIs was within the limits laid down by the FAO / WHO. Average teff consumption is therefore not a health risk. The interest in producing and supplying teff to food markets outside Ethiopia will continue to grow. As this study has shown, nutrient-dense teff grains can be regarded as a valuable source of minerals and other substances with desirable health benefits. Teff should be included in a common diet, as it can improve the general population 's health (64).

Although consumption of oats is generally considered safe for patients with celiac disease. Recent studies indicate that the grain does contain T-cell–stimulatory epitopes and that symptoms of celiac disease develop in some patients after the consumption of oats.4 A cereal lacking T-cell–stimulatory peptides would thus be of great value to patients with celiac disease. Teff (Eragrostis tef) is a traditional Ethiopian cereal used to make injera or flat bread. In almost all applications, teff flour can replace wheat flour, and the nutritional value of tef is similar to wheat. Since tef is phylogenetically only distantly related to wheat, barley and rye, we have examined the potential safety of tef in patients with celiac disease for consumption (65).

Teff nutrient for the production in Turkey has not yet come across a scientific resources. According to some news sites, a letter was produced by a farmer in 2017 for the first time in Eskisehir in Turkey (66).

3. MATERIAL AND METHOD

3.1 Study Population and Data Collection

Approval by Yeditepe University Clinical Research and Ethics Committee was obtained with the number KAEK 946 and date 30.01.2019 (Appendix 1).

For this study some non-local foods grown in different countries and heard through social and visual media and that attracts the attention of clients were selected. In July 2018, Google Trends search results were used (67). According to this, Google's most sought-after non-local foods were identified. These are avocado, chia seed, goji berry, coconut, buckwheat, mango, black rice and teff seed.

Inspired by the sources searched in the literature, a data form was created to measure the information and behavior of the individuals and a questionnaire study was carried out in this group via google docs (Appendix 2).

In February 2019, a questionnaire form was sent to all clients registered in Kübra Bal Nutrition and Diet Office and 161 participants who answered were included in the study.

This study was conducted on 143 females (88.8%) and 18 males (11.2%) who 18-65 years old. Pregnant females weren't included to the research.

3.2. Statistical Analyses

Descriptive statistics were initially carried out to determine population's demographic characteristics. Demographic parameters were summarized as means and ranges for continuous variables, or frequency and percentages for categorical variables. Comparisons between categorical variables were carried out using the chi-squared test as appropriate. The rates of adherence were described with point estimates and 90% confidence intervals (CI). A probability value ≤ 0.10 was considered as the criterion of statistical significance.

Statistical analysis was conducted with SPSS 22 for Windows (IBM Corp. 2013).

4. RESULTS

The research findings consist of seven parts. In the first part, general characteristics and information about the people surveyed are given. In the second part, the place where the people have heard about non-local foods first, in the third part, information about the frequency of consumption of these nutrients is given. In the fourth and fifth parts, the reasons for consuming and not consuming the aforementioned foods are given. In these parts, with the reasons of consuming and not consuming non-local foods; whether there was a significant relationship between age, education, occupation and body mass index was investigated. In the sixth part, information about the places to buy non-local foods and in the seventh part, the criteria they used while purchasing these food were searched.

4.1. General Information About People Surveyed

In this study, data about 161 participants who 18-65 years old has been evaluated. In the first part of the study, general characteristics of the surveyed individuals are given. 11.2% of the surveyed participants were male and 88.8% were female (table 4.1.1).

Of the participants, 108 were married (67.1%) and 53 (32.9%) were single (table 4.1.2). 147 participants live with their families (91.3%), 13 people are alone (8.1%) and 1 person (0.6%) lives with her friends (4.1.3).

Table 4.1. 1 Gender status of participants.

Gender	n	%
Male	18	11.2
Female	143	88.8
Total	161	100,0

Table 4.1. 2 Marrital status of participants.

	n	%
Married	108	67.1
Single	53	32.9
Total	161	100.0

Table 4.1. 3 Whom they live with.

	n	%
With family	147	91.3
Alone	13	8.1
With friends	1	0.6
Total	161	100.0

Table 4.1. 4 The number of people in household.

Household	n	%
1	9	5.6
2	43	26.7
3	56	34.8
4	36	22.3
5	12	7.5
6 and over	5	3.1
Total	161	100

Avarage household size for 34.8% of the participants was 3, for 26.7% was 2 and for 22.3 was 4 (Table 4.1.4.).

Table 4.1. 5 Body mass index (BMI) of the participants.

BMI		n	%
< 18,5	Underweight	2	0.01
18 - 24.9	Normal weight	64	39.7
25 - 29.9	Overweight	54	33.5
30 - 34.9	Obese (class I)	32	19.8
35 – 40	Obese (class II)	7	0.04
40 >	Obese (class III)	2	0.01

According to body mass indexes, 39.7% of the participants were normal, 33.5% were pre-obese and 19.8% were obese (table 4.1.5).

Table 4.1. 6 Education levels of the participants.

Education	n	%
High school	20	12.4
Associate degree	16	9.9
Bachelor's degree	85	52.8
Master’s degree	28	17.4
Doctoral degree	12	7.5
Total	161	100

52.8% of the participants were university graduates, 17.4% were masters graduates and 12.4% were high school graduates, 9.9% were associate degree graduates, 7.5% had doctor’s degree (Table 4.1.6).

Table 4.1. 7 Regularity of exersize.

	n	%
Regular daily exersize	57	35.4
Irregular daily exersize	104	64.6
Total	161	100

35.4% of the participants do regular exercise and 64.6% do not (table 4.1.7.).

Table 4.1. 8 Water consumption of the participants.

	n	%
< 1 Liter	20	12.4
1-2 Liter	74	46
2-3 Liter	54	33.5
> 3 Liter	13	8.1
Total	161	100

46% of the participants consume 1-2 liters, 33.5 percent of them consume 2-3 liters of water. The percentage of those consuming less than 1 liter of water and consuming more than 3 liters of water is 12.4% and 8.1%, respectively (table 4.1.8.).

4.2. Participants' Encounter With Non-local Foods for the First Time

Table 4.2. 1 Participants' encounter with non-local foods for the first time

	Avocado		Chia seeds		Gojiberry		Coconut		Buckhwheat		Mango		Black rice		Teff	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Never meet	2	1,2	11	6,8	45	28,0	1	0,6	21	13,0	7	4,3	55	**34,2**	112	**69,6**
Supermarket	94	**58,5**	66	**41,1**	46	**28,6**	114	**70,9**	83	**51,7**	109	**67,7**	52	32,3	15	9,3
Local market/organic market	23	14,3	7	4,3	12	7,5	14	8,7	10	6,2	12	7,5	6	3,7	1	0,6
Internet/social media	18	11,2	52	32,4	40	24,8	9	5,6	23	14,3	13	8,1	33	20,5	28	17,4
Tv/radio	1	0,6	2	1,2	7	4,3	7	4,3	2	1,2	6	3,7	1	0,6	1	0,6
Magazine and newspaper	2	1,2	2	1,2	1	0,6	1	0,6	2	1,2	1	0,6	1	0,6	1	0,6
Friends and family	21	13,0	21	13,0	10	6,2	15	9,3	20	12,4	13	8,1	13	8,1	3	1,9
Total	161	100,0	161	100,0	161	100,0	161	100,0	161	100,0	161	100,0	161	100,0	161	100,0

Participants were asked about their first encounter with non-local foods and the results were given in the table (table 4.2.1).

Research participants met most non-local foods in the supermarket for the first time.

58.5% of the participants met the avocado for the first time in the market and 14.3% in the street market or organic market.

Of the participants, 41.1% first encountered chia seeds in the supermarket and 32.4% on the internet or social media. While 13% of the participants learnt about chia from friends / acquaintances, 6.8% of the people had never encountered chia seeds before.

While 28% of the participants had never heard of the gojiberry, 28.6% of them met it in the supermarket for the first time, and 24.8% learnt about it on the internet or social media for the first time.

70.9% of the participants met with coconut at the supermarket for the first time. 9.3% of them heard about coconut from friends / acquaintances and the number of people who had never heard of it was 0.6%.

51.7% of the participants met buckwheat in the market for the first time, 14.3% on the internet / social media, and 13% had not heard the buckwheat before.

67.7% of the participants met for the first time with mango in the market, 8.1% in the internet and social media, and 7.5% in the street market or organic market. The rate of those who have not heard of mango is 4.3%.

34.2% of the participants had never heard of black rice before, 32.3% first encountered black rice in the market, and 20.5% first encountered it on the internet or social media.

69.6% of the participants had never heard of teff seed before and 17.4% of them first encountered it on the internet and social media.

4.3. Non-local Food Consumption Frequency of the Participants

Table 4.3. 1 Non-local food consumption frequency of the participants

Consumption frequency	Avocado		Chia seed		Gojiberry		Coconut		Buckwheat		Mango		Black rice		Teff	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Never consumed	20	12,5	48	**29,9**	78	**48,5**	17	10,5	62	**38,4**	38	23,5	121	**75,2**	149	**92,6**
Only once	53	**32,9**	29	18,0	44	27,3	36	22,4	31	19,3	55	**34,2**	23	14,3	6	3,7
3-4 times in a year	48	29,8	43	26,7	28	17,4	77	**47,8**	37	23,0	50	31,1	11	6,8	5	3,1
Once in a month	20	12,4	20	12,4	7	4,3	17	10,6	12	7,5	9	5,6	4	2,5	0	0
More than once a mounth	20	12,4	21	13,0	4	2,5	14	8,7	19	11,8	9	5,6	2	1,2	1	0,6
Total	161	100,0	161	100,0	161	100,0	161	100,0	161	100,0	161	100,0	161	100,0	161	100,0

The frequency of consumption of non-local foods was asked to the participants, and the results are shown in the table (table 4.3.1.).

While 32.9% of the participants consume avocado only once a year, 29.8% consume it 3-4 times a year. The proportion of people who never consume avocado is same with those consuming more than 1 per month with 12.4% per month.

29.9% of the participants had never consumed chia seeds before and 18% had only once. The proportion of those consuming 3-4 times a year is 26.7.

48.5% of the participants have never consumed gojiberry before and 27.3% have consumed only once. The proportion of those consuming 3-4 times a year was 17.4%.

While 47.8% of the participants consumed coconut 3-4 times a year, 22.4% consumed only once. The rate of those who never consume is 10.5%.

38.4% of the participants stated that they had never consumed buckwheat before. 19.3% consumed only once and 23% consumed 3-4 times a year.

While 23.5% of the participants stated that they had never consumed mango before, 34.2% consumed once and 31.1% consumed 3-4 times a year.

75.2% of the participants stated that they had not consumed black rice before, while 14.3% consumed once and 6.8% consumed 3-4 times a year.

While 92.6% of the participants stated that they had never consumed teff seeds, 3.7% consumed only once.

4.4. Reasons Why They Do not Consume Non-local foods

Table 4.4. 1 Reasons why they do not consume non-local foods.

	Have not met it		Not among the eating habits		Did not like the taste		It is expensive		Others*		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Avocado	6	5,1	67	**57,3**	25	21,4	14	12,0	5	4,2	117	100,0
Chia seed	30	26,4	68	**59,6**	12	10,5	0	0,0	4	3,5	114	100,0
Gojiberry	46	34,1	57	**42,2**	11	8,1	0	0,0	21	15,6	135	100,0
Coconut	10	9,3	59	**55,1**	16	15,0	8	7,5	14	13,1	107	100,0
Buckwheat	31	26,4	56	**47,9**	14	12,0	0	0,0	16	13,7	117	100,0
Mango	16	13,6	65	**55,6**	14	12,0	13	11,1	9	7,7	117	100,0
Black rice	74	**50,0**	50	33,8	8	5,4	0	0,0	16	10,8	148	100,0
Teff	104	**66,7**	34	21,8	6	3,8	0	0,0	12	7,7	156	100,0

The participants were asked reasons why they did not consume non-local foods and their responses are shown in Table 4.4.1.

When the chart was examined, 66.7% of the clients stated that they had never encountered the teff seed. In the same way, this ratio is 50.0% in black rice and 34.1% in gojibery. The non-local food which was marked as "I have not encountered it" has the lowest rate with 5.1% is avocado. This is followed by coconut with 9.3% and mango with 13.7%.

Among the reasons for not consuming avocado, 57.3% stated that it was not among feeding habits. 21.4% of the participants stated that they did not consume avocado because they did not like the taste, 12.0% found it expensive and 4.2% did not consume for other reasons.

59.6% of those who did not consume chia seeds stated that it was not among feeding habits, 26.4% had not encountered it before, 10.5% did not consume because they did not like it and 3.5% did not consume for other reasons.

The percentage of those who had never met gojiberry before was 34.1%, 42.2% stated that they did not consume due to their eating habits, 8.1% did not like it and 15.6% did not consume due to other reasons.

Coconut is one of the most encountered foods along with avocado. Only 9.3% of the participants stated that they had not encountered this food before. The rate of those who stated that they were not among the feeding habits was 55.1%, 15.0% stated that they did not like the taste, 7.5% found it expensive and 13.1% did not consume for other reasons.

The percentage of those who have never met buckwheat is 26.4%. 47.9% of the clients stated that buckwheat was not among the feeding habits, 12.0% did not like the taste and 13.7% did not consume for other reasons.

55.6% of people who did not consume mango indicated it was not in their feeding habits, 13.6% did not encounter it, 12.0% did not like the taste, 11.1% found it expensive and 7.7% stated that they did not consume for other reasons.

50.8% of the people who did not consume black rice did not encounter it, 33.8% of them stated that they did not consume because it was not among their feeding habits, 5.4% of them did not like the taste and 10.8% for other reasons.

66.7% of the people who did not consume teff seed did not come across it, 21.8% stated that it was not among their feeding habits, 3.8% did not like the taste, 7.7% for other reasons.

In the following parts; the chi-square test was used to determine whether there was any statistically significant relationship between the gender, age, education level, profession and body mass index of the clients and their reasons for not consuming non-local food. According to the results, only ones significant with 1%, 5% and 10% have been evaluated.

Considering the relationship between the causes and the demographic characteristics of participants who did not consume non-local nutrients, a significant relationship was not found between age, BMI, education and the sector, and p values were 0.186, 0.712, 0.237 and 0.660, respectively.

The reasons for not consuming chia and the BMI, education and the working sector were not found to have significant relationship, and p values are 0.990, 0.652 and 0.596 respectively.

The reasons for not consuming gojiberry and the BMI, education and the working sector were found not to be significant and p values were 0.858, 0.224 and 0.486, respectively.

The reasons for not consuming coconut and age, BMI, education did not have significant relationship and the p values are 0.313, 0.992, 0.173 respectively.

A significant relationship between the reasons for not consuming buckwheat and age, BMI, education and the working sector were not found, and p values are respectively 0.569, 0.961, 0.331 and 0.385.

The reasons for not consuming mango and the age, BMI, and the working sector were found not to be significant and p values were 0.558, 0.845 and 0.309, respectively.

A significant relationship between the reasons for not consuming black rice and age, BMI, education and the working sector were not found, and p values are 0.243, 0.397, 0.371 and 0.519 respectively.

A significant relationship between the reasons for not consuming teff and age, BMI, education and the working sector were not found, and p values are 0.536, 0.699, 0.184 and 0.583 respectively.

The significant relationships between the reasons for not consuming chia seed and age, reasons for not consuming chia seed and gender, reasons for not consuming gojiberry and age, the reasons for not consuming coconut and the working sector the reasons for not consuming mango and the education are shown in the tables below.

114 of the participants stated that they did not consume chia seeds. 59.6% of these people stated that it was not among their feeding habits, 26.4% had not encountered it before, 10.5% did not like the taste and 3.5% did not consume for other reasons (table 4.4.2.).

7.1% of age between 19-29 and 30-39, and 20% of 40-64 age groups who did not consume chia stated that they did not like the taste. The proportion of those who do not consume chia for its taste increases in the older ages (p value 0,091).

Table 4.4. 2 Relationship between age and reasons why they do not consume chia seed.

reasons why they do not consume chia seed		age			total
		19-29	30-39	40-64	
I have not met it	n	11	15	4	30
	%	26,2%	35,8%	13,4%	26,4%
not among eating habits	n	28	21	19	68
	%	66,7%	50,0%	63,3%	59,6%
I did not like the taste	n	3	3	6	12
	%	7,1%	7,1%	20,0%	10,5%
others*	n	0	3	1	4
	%	0,0%	7,1%	3,3%	3,5%
total	n	42	42	30	114
	%	100,0%	100,0%	100,0%	100,0%

* Other reasons (3.5%): It is expensive, I do not want to consume since it is popular, It is against my belif and culture, It does not have any benefit to my health, other

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,931[a]	6	**,091***
Likelihood Ratio	11,924	6	,064
Linear-by-Linear Association	3,352	1	,067
N of Valid Cases	114		

*p<0.10

The majority of males who did not consume chia seed (58.4%) stated that they did not consume since they did not know it and a significant majority of females (62.7%) did not consume it because chia was not in their feeding habit (p value 0,063), (table 4.4.3.).

Table 4.4. 3 Relationship between gender and reasons why they do not consume chia seed.

Reasons why they do not consume chia seed		Gender		Total
		Male	Female	
I have not met it	n	7	23	30
	%	58,4%	22,6%	26,4%
Not among my eating habits	n	4	64	68
	%	33,3%	62,7%	59,6%
I did not like the taste	n	1	11	12
	%	8,3%	10,8%	10,5%
Others*	n	0	4	4
	%	0,0%	3,9%	3,5%
Total	n	12	102	114
	%	100,0%	100,0%	100,0%

* Other reasons (3.5%): It is expensive, I do not want to consume since it is popular, It is against my belif and culture, It does not have any benefit to my health, other

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7,313[a]	3	**,063***
Likelihood Ratio	6,815	3	,078
Linear-by-Linear Association	4,510	1	,034
N of Valid Cases	114		

*p<0.10

While 135 of 161 participants in the study stated that they did not consume gojiberry; 34.1% of these people did not encounter it, 42.2% stated that they did not like the taste and 8.1% did not consume due to other reasons (table 4.4.4).

The number of those who do not consume gojiberry due to feeding habits increases as the age increases. According to this, 34.7% of 19-29 age groups who did not consume gojiberry stated that gojiberry was not among the feeding habits, while this rate was 62.5% for those aged 40 and over. In addition, in 19-29 age group those who do not consume due to its taste is the highest (p value 0,024).

Table 4.4. 4 Relationship between age and reasons why they do not consume gojiberry.

Reasons why they do not consume gojiberry		Age			Total
		19-29	30-39	40-64	
I have not met it	n	21	15	10	46
	%	42,9%	27,8%	31,3%	34,1%
Not among my eating habits	n	17	20	20	57
	%	34,7%	37,0%	62,5%	42,2%
I did not like the taste	n	5	5	1	11
	%	10,2%	9,3%	3,1%	8,1%
Others*	n	6	14	1	21
	%	12,2%	25,9%	3,1%	15,6%
Total	n	49	54	32	135
	%	100,0%	100,0%	100,0%	100,0%

*Other reasons (15.6%): It is expensive, I do not want to consume since it is popular, It is against my belif and culture, It does not have any benefit to my health, other

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,515[a]	6	**,024***
Likelihood Ratio	15,376	6	,018
Linear-by-Linear Association	,054	1	,816
N of Valid Cases	135		

*p<0.10

While 107 of 161 people who participated in the study stated that they did not consume coconuts, 9.3% of them did not encounter it, 55.1% did not have it in feeding habits, 15.0% did not like the taste, 7.5% found it expensive and 13.1% did not consume for other reasons (table 4.4.5.).

In all occupational groups, the most important reason for not consuming coconut is that they did not have it among their feeding habits (p value 0.092).

Table 4.4. 5 Relationship between job and reasons why they do not consume coconut.

Why they do not consume coconut		Sector					Total
		Education	Private	Public	Health	Do not work	
I have not met it	n	3	3	3	1	0	10
	%	27,3%	6,7%	17,6%	6,3%	0,0%	9,3%
Not among my eating habits	n	6	27	6	9	11	59
	%	54,5%	60,0%	35,3%	56,3%	61,1%	55,1%
I did not like the taste	n	1	5	1	4	5	16
	%	9,1%	11,1%	5,9%	25,0%	27,8%	15,0%
It is expensive	n	1	3	4	0	0	8
	%	9,1%	6,7%	23,5%	0,0%	0,0%	7,5%
Others*	n	0	7	3	2	2	14
	%	0,0%	15,6%	17,6%	12,5%	11,1%	13,1%
Total	n	11	45	17	16	18	107
	%	10,3%	42,0%	15,9 %	15,0%	16,8%	100,0 %

*Other reasons (13.1%): It is expensive, I do not want to consume since it is popular, It is against my belif and culture, It does not have any benefit to my health, other

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23,905[a]	16	**,092***
Likelihood Ratio	25,835	16	,056
Linear-by-Linear Association	,501	1	,479
N of Valid Cases	107		

*p<0.10

Of the 161 participants, 117 indicated that they did not consume mangos. While 55.6% of people who did not consume mango stated it was not included in their dietary habits, the figures of those who did not encounter it before, who find it expensive and who do not like the taste are close to each other. As the level of education increases, the rate of knowing mango also increases, and the fact that mango is not consumed due to not being in dietary habits also increases. Besides, as the level of education increases, the mango is not consumed because it is more expensive and the rate of disliking the taste decreases (table 4.4.6.), (p value 0,031).

Table 4.4. 6 Relationship between education and reasons why they do not consume mango.

Reasons for not consuming mango		Education			Total
		High school or associate degree	Under graduate	Graduate	
I have not met it	n	7	8	1	16
	%	25,9%	12,7%	3,7%	13,6%
Not among my eating habits	n	11	35	19	65
	%	40,8%	55,6%	70,4%	55,6%
I did not like the taste	n	5	8	1	14
	%	18,5%	12,7%	3,7%	12,0%
It is expensive	n	1	6	6	13
	%	3,7%	9,5%	22,2%	11,1%
Others*	n	3	6	0	9
	%	11,1%	9,5%	0,0%	7,7%
Total	n	27	63	27	117
	%	100,0%	100,0%	100,0%	100,0%

*Other reasons (7.7%): It is expensive, I do not want to consume since it is popular, It is against my belif and culture, It does not have any benefit to my health, other

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16,879[a]	8	**,031***
Likelihood Ratio	19,329	8	,013
Linear-by-Linear Association	,137	1	,711
N of Valid Cases	117		

*p<0.10

4.5. Reasons Why They Consume Non-local Food

Table 4.5. 1 Reasons why they consume non-local food.

Reasons		Avocado	Chia seed	Gojiberry	Coconut	Buckwheat	Mango	Black rice	Teff
I wanted to try	n	55	35	45	42	22	39	32	26
	%	**47,4**	**35,7**	**60,0**	**42,0**	28,2	**45,9**	**71,1**	**76,5**
An alternative for my daily diet	n	26	26	5	10	23	8	3	1
	%	22,4	26,5	6,7	10,0	**29,5**	9,4	6,7	2,9
I like the taste	n	20	7	8	41	8	31	4	2
	%	17,2	7,1	10,6	41,0	10,3	36,4	8,9	5,9
It is good for digestive system	n	3	14	6	4	13	5	3	3
	%	2,6	14,3	8,0	4,0	16,7	5,9	6,7	8,8
It regulates the blood sugar	n	1	3	2	1	6	1	1	0
	%	0,9	3,1	2,7	1,0	7,6	1,2	2,2	0,0
It regulates the blood fats	n	5	3	0	0	1	1	0	0
	%	4,3	3,1	0,0	0,0	1,3	1,2	0,0	0,0
It is said to cause losing weight	n	5	9	8	0	5	0	2	2
	%	4,3	9,2	10,7	0,0	6,4	0,0	4,4	5,9
Popular people consume it	n	1	1	1	2	0	0	0	0
	%	0,9	1,0	1,3	2,0	0,0	0,0	0,0	0,0
Total	n	116	98	75	100	78	85	45	34
	%	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

The participants were asked about the causes of consumption of non-local foods and the responses are given in the table (table 4.5.1.).

The majority of the avocado consumers (47.4%) stated that they were consuming in order to try, 22.4% wanted an alternative in their daily diet, 17.2% felt that they liked the taste and 4.3% thought that it regulated blood fats, 4.3% ate it for slimming purposes and 2,6% consumed for the digestive system.

The majority of those consuming chia seeds (35.7%) stated that they consumed in order to try, 26.5% stated that they consumed it as an alternative in their daily diet and 14.3% for the digestive system. 9.2% consume for slimming purposes and 7.1% liked the taste.

Majority of gojiberry consumers (60.0%) consumed it to try, 10.7% consumed to lose weight, 10.6% liked the taste and 8.2% consumed it because it is good for the digestive system.

42.0% of those who consumed coconut consumed it to try, 41% liked the taste, and 10.0% tried it as an alternative to their daily diet. The percentage of those consuming for digestive system is 4.0%.

The majority of those consuming buckwheat (29.5%), tried it as an alternative to their daily diet, 28.2% of consumers wanted to try, 16.7% consumed for the digestive system, 10.3% liked the taste, 7.6% believed it regulates blood sugar, and 6.4% for weight loss.

45.9% of people consuming it wanted to try it, and 36.4% consumed it since they liked the taste.9.4% of the people consumed mango as an alternative to their daily diet and 5.9% think that it is good for the digestive system.

71.1% of participants consumed black rice in order to try it, and 8.9% preferred it for its taste. The proportion of participants consuming black rice as an alternative to daily nutrition and that it is good for the digestive system has the same figures (6.7%).

Tef seed is consumed to try 76.5% of the participants consumed teff to try it, and 8.8% of the participants consume because it is good for digestive system. Participants saying that they liked the taste and that they consumed for they heard it helps lose weight have the same the proportion (5.9%).

When the relation between demographic information and reasons of consumption of non-local foods was examined, there was no significant relationship between avocado consumption and age, BMI and working sector and p values were 0.400, 0.975 and 0.626, respectively.

The relationship between the reasons for consumption of chia seeds and age, education, BMI and the working sector were not significant, and p values are 0.466, 0.763, 0.786 and 0.491 respectively.

There has not been a significant relationship between the reasons for consuming gojiberry and age, education, BMI and the working sector, and p values were 0.737, 0.163, 0.639 and 0.431, respectively.

The relationship between the causes of coconut consumption and age, education, BMI and sector were not found, and p values are 0.188, 0.811, 0.482 and 0.489 respectively.

The relationship between the causes of buckwheat consumption and age, education, and the working sector were not significant, and p values are 0.469, 0.706 and 0.442 respectively.

The relationship between the reasons of mango consumption and education, BMI and the working sector did not have any significant relationship, and p values are respectively 0.596, 0.854 and 0.802'dir.

Relationship between the reasons for consumption of black rice and age, education, BMI and working sector were not significant and p values are 0.212, 0.562, 0.550 and 0.900, respectively.

Relationship between the reasons for consumption of teff seed and age, education, BMI and the working sector were not significant and p values were 0.196, 0.870, 0.452 and 0.820, respectively.

Significant results of the causes of avocado consumption and gender and education, reasons for consumption of gojiberry and gender, buckwheat consumption and BMI are as follows.

Of the 161 participants, 116 reported that they consumed avocados. The percentage of those who consumed for trying is 47.4%, the percentage of those consuming as an alternative to their daily nutrition is 22.4%, the percentage of those who consumed due to the taste is 17.2% and the percentage of those consuming for other reasons is 12.9%. 80% of males and 42.5% of females reported consuming avocado to try. Although the consumption rate of males is higher, they do not have regular consumption (table 4.5.2.), (p value 0,046).

Table 4.5. 2 Relationship between gender and reasons why they consume avocado.

Why they consume avocado		Gender		Total
		Male	Female	
I wanted to try it	n	12	43	55
	%	80,0%	42,5%	47,4%
An alternative to my daily diet	n	2	24	26
	%	13,3%	23,8%	22,4%
I like its taste	n	0	20	20
	%	0,0%	19,8%	17,2%
Others*	n	1	14	15
	%	6,7%	13,9%	12,9%
Total	n	15	101	116
	%	100,0%	100,0%	100,0%

*Other reasons (12.9%): people around me and famous people consume it, it is good for digestive system, it regulates blood sugar and fats, it is good for my skin, others

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7,985[a]	3	**,046***
Likelihood Ratio	10,182	3	,017
Linear-by-Linear Association	5,715	1	,017
N of Valid Cases	116		

*p<0.10

Among avocado consumers, 3.8% of high school and associate degree graduates, 26.2% of undergraduates and 31% of graduates stated that they consumed avocados as an alternative to their daily nutrition. Accordingly, as education level increased, avocado consumption increased as an alternative to daily nutrition (table 4.5.3), (p value 0,078).

Table 4.5. 3 Relationship between education and reasons why they consume avocado.

Why they consume avocado		Education			
		High school and associate degree	Undergraduate	Graduate	Total
I wanted to try	n	19	24	12	55
	%	73,2%	39,4%	41,4%	47,4%
An alternative to my daily diet	n	1	16	9	26
	%	3,8%	26,2%	31,0%	22,4%
I like its taste	n	3	13	4	20
	%	11,5%	21,3%	13,8%	17,2%
Others*	n	3	8	4	15
	%	11,5%	13,1%	13,8%	12,9%
Total	n	26	61	29	116
	%	100,0%	100,0%	100,0%	100,0%

*Other reasons (12.9%): people around me and famous people consume it, it is good for digestive system, it regulates blood sugar and fats, it is good for my skin, others

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,363[a]	6	**,078***
Likelihood Ratio	12,953	6	,044
Linear-by-Linear Association	1,594	1	,207
N of Valid Cases	116		

*p<0.10

75% of the participants stated that they consumed gojiberry and 60.0% of them tried it, and 21.3% of them consumed for its taste and losing weight, and 18.7% consumed it for other reasons. Females consumed gojiberry to try, lose weight and for its taste more than males (table 4.5.4.), (p value 0,017).

Table 4.5. 4 Relationship between gender and reasons why they consume gojiberry.

Reasons why they consume gojiberry		Gender		Total
		Male	Female	
I wanted to try	n	3	42	45
	%	42,9%	61,8%	60,0%
I like its taste and to lose weight	n	0	16	16
	%	0%	23,5%	21,3%
Others*	n	4	10	14
	%	57,1%	14,7%	18,7%
Total	n	7	68	75
	%	100,0%	100,0%	100,0%

*Other reasons (18.7%): people around me and famous people consume it, it is good for digestive system, it regulates blood sugar and fats, it is good for my skin, others

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8,148[a]	2	**,017***
Likelihood Ratio	7,732	2	,021
Linear-by-Linear Association	,020	1	,887
N of Valid Cases	75		

*p<0.10

While 78% of the participants stated that they consumed buckwheat, 29.5% of them had it as an alternative to their daily diet, 28.2% wanted to try it, 10.3% liked it and 32.1% consumed for other reasons (table 4.5.5).

The percentage of obese people who consume buckwheat for a trial is much higher than average and overweight individuals (p value 0,10).

Table 4.5. 5 Relationship between BMI and reasons why they consume buckwheat.

Why they consume buckwheat		BMI			Total
		Normal	Overweight	Obese	
I wanted to try	n	11	3	8	22
	%	33,3%	11,2%	44,4%	28,2%
An alternative to my daily diet	n	7	12	4	23
	%	21,2%	44,4%	22,2%	29,5%
I like its taste	n	3	2	3	8
	%	9,1%	7,4%	16,7%	10,3%
Others*	n	12	10	3	25
	%	36,4%	37,0%	16,7%	32,1%
Total	n	33	27	18	78
	%	100,0%	100,0%	100,0%	100,0%

*Other reasons (32.1%): people around me and famous people consume it, it is good for digestive system, it regulates blood sugar and fats, it is good for my skin, others

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,634[a]	6	**,100**
Likelihood Ratio	11,219	6	,082
Linear-by-Linear Association	,921	1	,337
N of Valid Cases	78		

*p≤0.10

Of the 161 participants, 85 reported that they consumed mangos. 45.9% of these individuals wanted to try it, 36.4% of them liked the taste and 17.6% of them consumed mangos for other reasons (table 4.5.6.).

Among the participants who consumed mango, the consumption of mango for trying increases as age increases. On the other hand, as the age increases, the proportion of those who consume mango for its taste decreases (p value 0,031).

Table 4.5. 6 Relationship between age and reasons why they consume mango.

Why they consume mango		Age			Total
		19-29	30-39	40-64	
I wanted to try	n	9	17	13	39
	%	32,1%	43,6%	72,2%	45,9%
I like its taste	n	14	12	5	31
	%	50,0%	30,8%	27,8%	36,4%
Others*	n	5	10	0	15
	%	17,9%	25,6%	0%	17,6%
Total	n	28	39	18	85
	%	100,0%	100,0%	100,0%	100,0%

* Other reasons (17.6%): an alternative to my daily diet, people around me and famous people consume it, it is good for digestive system, it regulates blood sugar and fats, it is good for my skin, others

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10,634[a]	4	**,031***
Likelihood Ratio	13,269	4	,010
Linear-by-Linear Association	5,260	1	,022
N of Valid Cases	85		

*p<0.10

4.6. Places They Buy Non-local Food

Table 4.6. 1 Places they buy non-local food.

	Never bought		Supermarket		Local market/ organic market		Others*		Total (who replied)	
	n	%	n	%	n	%	n	%	n	%
Avocado	22	13,7	110	**68,3**	23	14,3	6	3,7	161	100,0
Chia seed	45	28,0	87	**54,0**	13	8,1	16	9,9	161	100,0
Gojiberry	80	**49,7**	55	34,2	9	5,6	17	10,5	161	100,0
Coconut	18	11,2	121	**75,2**	15	9,3	7	4,3	161	100,0
Buckwheat	58	36,2	80	**50,0**	11	6,9	11	6,9	160	100,0
Mango	41	25,6	97	**60,6**	18	11,3	4	2,5	160	100,0
Black rice	107	**67,3**	38	23,9	10	6,3	4	2,5	159	100,0
Teff	124	**78,0**	19	11,9	9	5,7	7	4,4	159	100,0

*****Other: herbalists, the internet, other

Participants were asked where they purchased non-local foods and the following results were obtained (table 4.6.1).

While 68.3% of participants purchased avocado from the supermarket, 14.3% of them bought from local market and 13.7% of the respondents had never bought it before.

54% of the participants bought chia seed supermarkets, 9.9% purchased from other places (herbalists, internet, etc.) and 28.0% of people never bought it.

49.7% of the participants had never bought gojiberry before, 34.2% bought it from the supermarket, 10.5% from other places (herbalists, internet, etc.) and 5.6% from the local market.

Coconuts are mostly purchased from the supermarket (75.2%) and 11.2% of participants have never purchased it before. The rate of people who bought coconuts from the supermarket is 9.3% and those who bought it from other places (transfer, internet, etc.) is 4.3%.

50.0% of participants bought buckwheat from the supermarket and 36.2% of them have never purchased it. The percentage of those who bought buckwheat from the market and elsewhere (herbalist, internet, etc.) is the same (6.9%).

60.6% participants purchased mango from supermarkets and 11.3% from the market and 2.5% from other places (herbalists, internet, etc.) and the rate of those who never bought mangoes is 25.6%.

67.3% of participants have never bought black rice.23.9% participants bought black rice mostly from the supermarket, 6.3% from the local market and 2.5% from other places (herbalists, internet).

Tef seed is not purchased at a rate of 78% of participants have never purchased it, 11.9% from the supermarket, 5.7% from the local market, and 4.4% from other places (transfer, internet, etc.).

When the relationship between the participants' buying location of non-local foods and the demographic characteristics are examined, no significant relationship was found between avocado purchasing location and age, BMI and sector. P values are respectively (0.533, 0.294, 0.349).

No significant relationship was found between the place of purchase of chia seeds and age, education, BMI and the working sector, and the p-values were respectively; 0.180, 0.261, 0.518 and 0.723.

No significant relationship was found between the place of buying gojiberry and age, education, BMI and the job sector, and p values are respectively; 0.242, 0.263, 0.955, and 0.266.

No significant relationship was found between coconut purchasing location and age, education, BMI and the job sector, and p values are as follows; 0.161, 0.117, 0.331 and 0.324.

There was no significant relation between the place of buying of buckwheat and age, education, BMI and the job sector and p values are 0.148, 0.790, 0.827 and 0.336, respectively.

No significant relationship was found between the place of purchase of mango and age, education, BMI and the job sector, and the p values are respectively; 0.733, 0.356, 0.895 and 0.497.

No significant relationship was found between the place of purchase of black rice and age, education, BMI and job sector, and p values are 0.137, 0.837, 0.424 and 0.944, respectively.

No significant relationship was found between teff seed purchase place and age, education, BMI and the job sector, and the p values are respectively; 0.437, 0.608, 0.827 and 0.570.

Only a significant relationship was found between the place of purchase of avocados and education, and the result is as shown in the table below.

While 13.7% of the respondents stated that they did not buy any avocados before, 68.3% stated that they bought the avocado from the supermarket, 14.3% from the street market or organic markets and 3.7% from other places. (table 4.6.2.).

As the level of education increased, avocado purchasing rates increased (p value 0,042).

Table 4.6. 2 Relationship between education and place they buy avocado.

Place they buy avocado		Education			Total
		Highscool and associate degree	Undergra-duate	Graduate	
Never bought	n	8	13	1	22
	%	22,2%	15,3%	2,5%	13,7%
Supermarket	n	23	56	31	110
	%	63,9%	65,9%	77,5%	68,3%
Local market/organic market	n	5	10	8	23
	%	13,9%	11,8%	20,0%	14,3%
Others*	n	0	6	0	6
	%	0,0%	7,0%	0,0%	3,7%
Total	n	36	85	40	161
	%	100,0%	100,0%	100,0%	100,0%

*others (%3,7) : herbalists, the internet, other

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13,075[a]	6	**,042***
Likelihood Ratio	16,850	6	,010
Linear-by-Linear Association	2,905	1	,088
N of Valid Cases	161		

*p<0.10

4.7. Criteria They Apply While Buying Non-local

Table 4.7. 1 Criteria they apply while buying non-local.

	Food label		Place of production		The production and expiry dates		Price		No buy		No reply	
	n	%	n	%	n	%	n	%	n	%	n	%
Avocado	47	**29,2**	41	25,5	25	15,5	52	**32,3**	59	36,6	21	13,0
Chia seed	54	**33,5**	45	30,0	24	14,9	58	**36,0**	35	21,7	28	17,4
Gojiberry	41	**25,5**	34	21,1	19	11,8	42	**26,1**	29	18,0	52	32,3
Coconut	46	**28,6**	38	23,6	22	13,7	47	**29,2**	41	25,5	36	13,7
Buckwheat	54	**33,5**	40	24,8	23	14,3	51	**31,7**	30	18,6	42	26,1
Mango	44	**27,3**	36	13,7	22	13,7	39	**24,2**	48	29,8	40	24,8
Black rice	44	**27,3**	25	15,5	15	9,3	38	**23,6**	28	17,4	65	40,4
Teff	37	**23,0**	18	11,2	12	7,5	31	**19,3**	27	16,8	77	47,8

*****Since they could chose more than one option the total is more than 100%.

The criteria of the participants when purchasing non-local nutrients were asked and the results in the table were obtained (Table 4.7.1).

When purchasing avocado, most of the participants (32.3%) paid attention to the price, 29.2% prioritized the food label, 25.5% checked the place of production, and finally 15.5% of the participants paid attention to the production and expiry dates.

Most people who bought chia seeds paid attention to the price (36.0%), then the food label (33.5%), then the production place (30.0%) and finally the production and expiration date (14.9%).

When purchasing gojiberry, most of the participants (26.1%) paid attention to the price, then the food label (25.5%), then the production place (21.1%) and finally the production and expiration date (11.8%).

When purchasing gojiberry, most of the participants paid attention to the price (29.2%), then the food label (28.6%), then the production place (23.6%) and finally the production and expiration date (13.7%).

The people who bought buckwheat mostly paid attention to the food label (33.5%), then the price (31.7%), then the production place (24.8%) and finally the production and expiration date (14.3%).

Mango buyers paid attention mostly to the food label (27.3%), the price (24.2%), then the production place (13.7%), and the production and expiration date (13.7%).

People who bought black rice paid attention to the nutrient label mostly (27.3%), and then price (23.6%), production place (15.5%) and finally production and expiration date (9.3%).

Teff purchasers paid attention to the nutrient label mostly (23.0%), than the price (19.3%), then the production place (11.2%) and finally the production and expiration date (7.5%).

5. DISCUSSION AND CONCLUSION

After analyzing Google Trends, avocado, chia seed, gojiberry, coconut, buckwheat and mango were determined as non-local foods and consumers who applied to a diet center were measured in terms of their knowledge and behaviors about these foods. According to the results of the research, these foods are often found in supermarkets for the first time. Among them, the number of people who encounter teff seed is low. The reason for this low figure is believed that teff is a newly recognized nutrient in Turkey (66).

According to the results, teff seed and black rice were never consumed by the vast majority of the participants. In the order of least consumption, teff seed and black rice are followed by gojiberry, buckwheat, chia seeds, mango, avocado and coconut. The reason why the most well known and consumed non-local food is avocado is the fact that it is grown has been cultivated in Turkey since the beginning of the 1970s and can easily be accessed in supermarkets.

Among the foods consumed more than once in a month chia seeds come first, followed by avocado and buckwheat which are in fact consumed by 12% of participants. As a result of the evaluations, it is understood that consumers meet with non-local foods in supermarkets, social media, and television but do not include them in their daily diet. When we look at the answers of the consumers regarding the reasons for this, for avocado, chia seed, gojiberry, coconut, buckwheat and mango participants say they are not among their eating habits, while for the black rice and teff seeds they have not encounter them.

According to Merdol, nutritional habits are shaped by the changes that have been going on throughout the ages and the change of habit can be achieved by the application of long-term behavior modification methods (68). In this study, avocado, coconut, buckwheat, mango and chia seeds are not consumed due to heir tastes. The number of participants who did not consume mango and chia seeds due to their tastes in 40-64 age group is higher which makes it a significant result (p value 0.091).Eating habits established during lifetime are thought to be well proportional but this situation is the

opposite in those who do not consume the gojiberry due to the taste among the group aged 19-29 (p value 0.024).

It is known that people with a high level of education make more conscious choices when buying food products (69). As the level of education increases, in the research results, it was seen that people included avocado more in their daily diet (p value 0.078). As the level of education increases, consumers consume less mango on the grounds that it is not among the dietary habits, although they are more likely to encounter mangoes (p value 0,031). As the level of education increases, wrong and incorrect practices decrease and some useful practices and habits related to health and nutrition are observed to increase (70).

When asked what they pay attention to when buying non-local foods, options such as food label, origin, production and consumption dates and price are asked. When we look at the answers given to this question, two points stand out: food label and price information. The country of origin is in 3rd place. The results obtained by similar studies show differences. In the study conducted by Güneş et al., it is stated that the participants mostly pay attention to the product dates, health and nutrition information in the labels, especially the expiry dates, the date of production with the brand and the manufacturer and the food groups such as functional food and snacks (71). In the study by Besler, it was reported that the consumers showed more interest to expiry dates, brand and information about the producer in the labels (72). Another study by Yılmaz et al. reported that individuals looked at the date of production and expiration (78.2%) from the information on the label of the product they bought. Research conducted in recent years shows that consumers consider the label information in their purchasing decisions. For example, in a study conducted on New Zealand and Australian consumers, it has been found that the use of labels has increased in consumers' conscious and healthy choices (74).

Due to global warming, the rapid increase in the world population, the decrease in resources and the increase in diseases people gives importance to healthy nutrition and the news/articles about these subjects are abundant in press, visual and social media resources. Since the media is both a source of information and the most effective advertising tool, it has a significant impact on the direction of buying behaviors of the society. It has been reported that nutrition and health information in the media creates

positive behavioral changes and is effective in developing conscious purchasing behavior (73). On the other hand, these developments, which seem positive compared to the conventional media, creates the problem of how individuals will stand on this ground in the boundless and unregulated information flow. The individual who wavers among the flow of information and infollution is confused about reliability and accuracy of the information. Consequently, the content produced and shared by the individual who sees him as the reliable source of information and news continues to increase the information pollution (75).

Participants consume avocados mostly (47.4%) for testing, an alternative in their diet (32.4%), and for the taste (17.4%).Although avocado has a feature that balances blood fats by increasing HDL cholesterol and lowering LDL cholesterol (16), the proportion of those consuming to regulate blood fats is 4.3%. Similarly, the ratio of consumers eating avocado which has a positive contribution to the health of the intestine due to 4.6 grams of fiber in it (1), is only 2.6%.

People consume chia seed mostly (35.7%) for trying and as an alternative in their daily diet (26.5%). Chia which includes 33.9 grams of fiber in 100 grams, useful for the intestines, 14.3% of participants consume for regulation of digestive system. Despite the protective effects of chia seed's well-known cardiovascular health (19,20,21,22,23,25), the consumption rate is only 3,1% for regulating blood fats.

Gojiberry is consumed at a rate of 60% for trying and 10,6% for taste. It is considered helping lose weight by 10.7%, but no research has been found that gojiberry has that effect. Gojiberry (30), which is known to regulate blood sugar, has a consumption rate of only 2.7% for this purpose.

Buckwheat is consumed by 29.5% as an alternative to daily diet and by 28.2% for trying. The rate of consumption of buckwheat known to be good for digestive system with its fiber structure (42) is 16.7%.

Mango fruit is consumed at a rate of 45.9% for trying and at a rate of 36.4% for the good taste. The mango which has an antidiabetic effect (49) has a consumption rate of only 5.9% to regulate blood sugar.

Black rice is mostly an unknown grain and 71.1% of the participants stated that they consumed black rice for trying it. Due to the nthocyanin pigment contained in black rice (27,53,55,56,58), no consultant was found that consumed black rice which is antoioxidant due to this feature. The black rice which has started to be grown recently in Turkey is expected to take place in the Turkish kitchen for years to come.

Among the non-local foods examined teff seed is the least known, and 76.5% of the participants consumed it to try, while 5.9% consumed to lose weight. No effect of teff seed on weight loss has been found.

People who frequently consumed non-local foods often say that they wanted to try them and consumed because they wanted to add an alternative to their daily diet. This situation leads to the fact that participants meet non-local foods in the supermarket, their environment, in press, social and visual media, but do not integrate them in their daily diet as they do not consume again and they do not have enough knowledge about their contribution to health.

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7. APPENDICES

7.1. Ethical Approval

T.C. YEDİTEPE ÜNİVERSİTESİ

Sayı : 37068608-6100-15- 1594 **31/01/2019**
Konu: Klinik Araştırmalar
Etik kurul Başvurusu hk.

İlgili Makama (Hatice Kübra Bal)

Yeditepe Üniversitesi Güzel Sanatlar Fakültesi Gastronomi ve Mutfak Sanatları Bölümü Dr. Öğretim Üyesi Arzu Durukan'ın sorumlu olduğu **"Özel Bir Danışmanlık Merkezine Başvuran Kişilerin Seçilmiş Yerel Olmayan Besinlere Karşı Bilgi ve Davranışlarının İncelenmesi"** isimli araştırma projesine ait Klinik Araştırmalar Etik Kurulu (KAEK) Başvuru Dosyası (**1563** kayıt Numaralı KAEK Başvuru Dosyası), Yeditepe Üniversitesi Klinik Araştırmalar Etik Kurulu tarafından **30.01.2019** tarihli toplantıda incelenmiştir.

Kurul tarafından yapılan inceleme sonucu, yukarıdaki isimi belirtilen çalışmanın yapılmasının etik ve bilimsel açıdan uygun olduğuna karar verilmiştir (**KAEK Karar No: 946**).

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

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7.2. Voluntary Form and Survey

ÖZEL BİR DANIŞMANLIK MERKEZİNE
BAŞVURAN KİŞİLERİN

SEÇİLMİŞ YEREL OLMAYAN BESİNLERE

KARŞI BİLGİ VE DAVRANIŞLARININ İNCELENMESİ

İÇİN VERİ FORMU

Doğum Tarihiniz (GG/AA/YYYY) :

Medeni Durumunuz

a) evli
b) bekar

Evinizde;

a) ailemle yaşıyorum
b) yalnız yaşıyorum
c) diğer (Belirtiniz)

Evinizin nüfusunu yazınız .....

Çocuğunuz var ise yaşlarını belirtiniz.

1)
2)
3)
4)
5)

kilonuz : ..... kg

boyunuz : ..... cm

En son mezun olduğunuz okulu belirtiniz.

a) ilkokul b) ortaokul c) lise d) önlisans
e) üniversite f) yüksek lisans g) doktora

Mesleğiniz .....

Düzenli egzersiz (haftada en az 3 gün, ortalama 45 dakika) yapıyor musunuz? Belirtiniz.
.....

Günde kaç litre su içiyorsunuz? Belirtiniz
.....

Aşağıdaki besinleri ilk kez nereden duydunuz?

	daha önce duymadım	market	semt pazarı, organik pazar	internet, sosyal medya	televizyon, radyo	gazete ve dergi	arkadaş, tanıdık
avokado							
çiya tohumu							
gojiberry							
hindistan cevizi							
karabuğday							
mango							
siyah pirinç							
teff tohumu							

Aşağıda belirtilen besinlerle ilgili tabloyu doldurup, tüketim sıklığınızı belirtiniz.

	hiç tüketmedim	1 kez tükettim	nadiren tüketirim (yılda 3-4 kez)	bazen tüketirim (ayda 1 kez)	sıklıkla tüketirim (ayda 1 den fazla)
avokado					
çiya tohumu					
gojiberry					
hindistan cevizi					
karabuğday					
mango					
siyah pirinç					
feff tohumu					

Hiç tüketmediğiniz veya nadir tükettiğiniz besinleri tüketmeme/nadir tüketme nedeniniz.

	karşıma çıkmadı	beslenme alışkanlıklarım arasında değil	tadını sevmedim / sevmeyeceğimi düşünüyorum	pahalı buluyorum	inancıma / kültürüme aykırı buluyorum	popüler olduğu için tüketmek istemiyorum	sağlığıma faydasız olduğunu düşünüyorum	diğer (belirtiniz.)
avokado								
çiya tohumu								
gojiberry								
hindistan cevizi								
karabuğday								
mango								
siyah pirinç								
teff tohumu								

Tükettiğiniz besinleri tüketim nedenlerinizi belirtiniz.

	denemek için	günlük beslenmeme/ diyetime alternatif olduğu için	çevremdeki insanlar/ ünlüler tükettiği için	sindirim sistemime iyi geldiğini düşündüğüm için	kan şekerimi düzenlediğini düşündüğüm için	kan yağlarımı düzenlediğini düşündüğüm için	zayıflattığı söylendiği için	diğer (belirtiniz)
avokado								
çiya tohumu								
gojiberry								
hindistan cevizi								
karabuğday								
mango								
siyah pirinç								
teff tohumu								

Aşağıdaki besinleri çoğunlukla nereden satın aldığınızı belirtiniz.

	hiç satın almadım	marketten, manavdan	semt pazarı ve organik pazarlardan	aktardan	internet sitelerinden	diğer (belirtiniz)
avokado						
çiya tohumu						
gojiberry						
hindistan cevizi						
karabuğday						
mango						
siyah pirinç						
teff tohumu						

Aşağıdaki besinleri satın alırken, genellikle hangi özelliklerine dikkat edersiniz?

	ambalajına, marka kalitesine	besin etiketine (kalori, protein,...)	üretim yerine	üretim ve son kullanma tarihlerine	fiyatına
avokado					
çiya tohumu					
gojiberry					
hindistan cevizi					
karabuğday					
mango					
siyah pirinç					
teff tohumu					

8. CIRRICULUM VITAE

Kişisel Bilgiler

Adı	Hatice Kübra	**Soyadı**	BAL
Doğum Yeri	Tokat	**Doğum Tarihi**	26.06.1987
Uyruğu	TC	**TC Kimlik No**	11105814720
E-mail	iletisim@kubrabal.com	**Tel**	05057342724

Öğrenim Durumu

Derece	Alan	Mezun Olduğu Kurumun Adı	Mezuniyet Yılı
Doktora			
Yüksek Lisans			
Lisans	Beslenme ve Diyetetik	**Başkent Üniversitesi**	2009
Lise	-	**Tokat Anadolu Lisesi**	2005

Başarılmış birden fazla sınav varsa(KPDS, ÜDS, TOEFL; EELTS vs), tüm sonuçlar yazılmalıdır

Bildiği Yabancı Dilleri	**Yabancı Dil Sınav Notu#**
İngilizce	ÜDS: 63

İş Deneyimi (Sondan geçmişe doğru sıralayın)

Görevi	**Kurum**	**Süre (Yıl - Yıl)**
Kurucu ve Yönetici Diyetisyen	Kübra BAL Beslenme ve Diyet Ofisi	2013-2019
Klinik, Poliklinik ve Mutfak Diyetisyeni	Medivia Hospital	2009-2012

Bilgisayar Bilgisi

Program	**Kullanma becerisi**
MS Office	iyi
SPSS	iyi

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

Bilimsel Çalışmaları
SCI, SSCI, AHCI indekslerine giren dergilerde yayınlanan makaleler

Diğer dergilerde yayınlanan makaleler

Uluslararası bilimsel toplantılarda sunulan ve bildiri kitabında (*Proceedings*) basılan bildiriler

Hakemli konferans/sempozyumların bildiri kitaplarında yer alan yayınlar

Diğer (Görev Aldığı Projeler/Sertifikaları/Ödülleri)

Acıbadem Üniversitesi, 8. Ulusal Sağlıklı Yaşam Sempozyumu, İstanbul, 2018
Acıbadem Üniversitesi, 6. Ulusal Sağlıklı Yaşam Sempozyumu, İstanbul, 2016
Sağlık ve Beslenme Bienali, İstanbul, 2014
VI. Uluslararası Beslenme ve Diyetetik Kongresi, Antalya, 2008