

Students' Perceptions And Attitudes Towards Functional Foods

Nurhan GÜMRÜKÇÜOĞLU^{1*}, Didem SARIMEHMET¹, Sevilay HİNTİSTAN², Bahar CANDAŞ²

- 1 Vocational School of Health Sciences, Karadeniz Technical University; e-mail: ngumrukcuoglu@ktu.edu.tr
- 1 Vocational School of Health Sciences, Karadeniz Technical University; e-mail: didemsarimehmet@ktu.edu.tr
- 2 Nursing Department, Faculty of Health Sciences, Karadeniz Technical University; e-mail: sevilayhindistan@gmail.com
- 2 Nursing Department, Faculty of Health Sciences, Karadeniz Technical University; e-mail: cnds88@hotmail.com

*Correspondence: ngumrukcuoglu@ktu.edu.tr; Tel.: +904623775841

Abstract

Foods that are consumed in the form of food with a daily diet, without a synthetic component, are defined as functional foods, with nutrients that reduce the risk of disease formation with different factors, health and good condition enhancing properties. The aim of this study is to determine the factors that affect the consumption level, knowledge level and consumption of functional foods related to the perceptions of students studying at KTU Health Services Vocational School. A questionnaire consisting of 7 questions was applied to students. The statistical evaluation of the study was done with SPSS 22.0 program. In the analysis, number-percent distribution, t-test and Kruskal-Wallis test were used. P value below 0.05 was evaluated as statistically significant. As a result of the analysis, it was found that students used functional food (56.8%) because they liked the most taste. In the second place, it is seen that it is used in order to be healthy (40.5%) and third (33.2%) to help digestion. The contributions of the findings to the literature and practice were discussed, the limitations of the study were given and suggestions for future research were presented.

Keywords: Student, Functional food, Perception, Healthy food.

Öğrencilerin Fonksiyonel Gıdalara Yönelik Algı Ve Tutumları

Özet

Günlük diyet ile gıda formunda tüketilen, sentetik bileşen içermeyen, besleyici etkisinin yanında, değişik etkenlerle hastalık oluşma riskini azaltıcı, sağlığı ve iyi hali geliştirici özelliklere sahip gıdalar, fonksiyonel gıdalar olarak tanımlanmaktadır. Bu çalışma tanımlayıcı tipte planlanarak, KTÜ Sağlık Hizmetleri Meslek Yüksekokulu' nda öğrenim gören öğrencilerin fonksiyonel gıdalara yönelik algıları ile ilgili tutumlarının, bilgi düzeylerinin ve fonksiyonel gıdaları tüketimlerini etkileyen faktörlerin belirlenmesi amaçlanmıştır. Buna yönelik 7 bölüm başlığı altında çeşitli sorulardan oluşan anket formu öğrencilere uygulanmıştır. Araştırma kapsamında öğrencilerin fonksiyonel besin terimine aşina olup olmadıkları, bu besinleri tüketip, tüketmedikleri ve nedenleri, sağlık iddiaları hakkında bilgi düzeyleri, hangi durumlarda bu besinleri tüketmek istedikleri ve hangi yol ile bilgilendirilmek istedikleri değerlendirilmiştir. Araştırmanın istatistiksel değerlendirmesi, SPSS 22.0 programı ile yapılmıştır. Analizlerde sayı yüzde-dağılımı, testi ve kruskal Wallis yöntemi kullanılmıştır. P değerinin 0,05'in altında olması istatistiksel anlamlılık olarak değerlendirilmiştir. Yapılan analiz sonucunda öğrencilerin en çok tadını beğendikleri için (%56,8) fonksiyonel gıda kullandıkları saptandı. Diğer nedenlere bakıldığında ikinci sırada sağlıklı olmak için (%40,5), üçüncü sırada ise sindirime yardımcı olması için (%33,2) kullanıldıkları görülmektedir. Elde edilen bulguların literatüre ve uygulamaya katkıları tartışılmış, çalışmanın sınırlılıklarına yer verilmiş ve gelecekte yapılacak araştırmalar için öneriler sunulmuştur.

Anahtar kelimeler: Öğrenci, Fonksiyonel gıda, Algı, Sağlıklı gıda.

1 Introduction

The rapid development of the technological age, the growth in the educational level of consumers and the possibility of accessing to information in many ways, the importance of commercialization and the increase in living standards have changed the expectations of consumers from food in recent science and high technology to the food industry (Niva, 2007).

Until today, while there has been no accepted common definition for functional foods (Alzamora, Salvatori, Tapia, Lopez-Malo, Welti Chames, & Fito, 2005; Menrad, 2003; Siro, Kapolna, Kapolna, & Lugasi, 2008), functional foods are generally defined as foods or food component that provide additional benefits on their functions years. In recent years, rising health problems caused by convenienced foods, natural products, health costs, increase in health, food and food has revealed the importance of the connection between food. While foods are used for survival and as a source of healing, consumers are more concerned with food issues due to health problems caused by certain foods tuffs. Food-borne health problems have led the consumer to be more reliable and to consume food products that create value as well as nutrition. Instead of looking for solutions for health problems for a healthy life, some consumers try to take measures with the natural products, protecting health, more than some medical products such as medicinal medicines. It has led consumers to change their attitudes and demands towards food to reshape food supply trends and to introduce a new product group called functional foods, which are some of the promising health benefits that bring more than just the basic nutritional needs of the body, human physiology and thus protecting them from diseases and achieving a healthier life (Krystallis, Maglaras, & Mamalis, 2008; Messina, Saba, Turrini, Raats, & Lumbers, 2008; Niva, 2007). Moreover, functional food consumption has a decreasing effect on treatment expenditures and labor losses due to healthy nutrition (Erbaş, 2006).

The term of functional food was first used in Japan in the early 1980s. The interest in functional foods in Japan has raised awareness in the United States and Europe about the need for these products. Dating from the 1990s, the use of the term functional food has become widespread all over the world and the functional food market has rapidly developed (Bech-Larsen, &

Gruner, 2003; Menrad, 2003). In Turkey, the functional food market, especially in the last 10 years have shown major improvements, parallel to the increasing health awareness and consumer demand for functional food products, many companies began to offer the market functional foods. There are many research about consumer acceptance and perception of functional food products in the literature (Bech-Larsen, & Gruner, 2003; Bech-Larsen, & Scholderer, 2007; Urala, & Lahteenmaki, 2003, 2004, 2006, 2007; Cox, Koster, & Russell, 2004; Childs, & Poryzees, 1997; Devcich, Pedersen, & Petrie, 2007; Gilbert, 2000; Hilliam, 1996; Korzen-Bohr, & O'doherty Jensen, 2006; Wennström, 2000; Van Kleef, Van Trijp, Luning, & Jongen, 2002; Van Kleef, Van Trijp, Luning, 2005; Verbeke, 2005, 2006). There are some studies investigating functional food consumption trends in terms of demographic characteristics of consumers in Turkey. This research, as opposed to consumers living in the European Union reveals that young and educated consumers are more willing to consume functional foods (Sevilmiş, 2008; İşleten, Yüceer, Yılmaz, & Mendeş, 2007). In addition, there are studies also investigating the health effects of functional foods in areas such as medicine, agriculture and food technologies (Erbaş, 2006; Coşkun, 2005; İşleroğlu, Yıldırım, & Yıldırım, 2005; Başer, 2002).

In addition, functional foods are consumed as a part of normal diet, it contains also components that have the effect of improving human health or reducing disease risk beyond the basic nutritional functions (Stein, & Rodriguez-Cerezo, 2008). Functional nutrients must remain nutrients and provide their effects in accordance with the amounts consumed by the diet. Pills or capsules should not be part of normal food (Di-plock, Aggett, & Ashwell, 1999). Functional foods are used as basic nutrients and also effective for reducing hunger and nutrients, disease risks, increasing mental and physical performance, providing growth and development quality of life. People prefer to take preventive measures instead of treatment in order to lead a healthier and better quality, depending on their knowledge and behavior levels. Nutrition and preferred foods are among the most important of these preventive measures. Functional foods that protect and develop physical and mental health and reduce the risk of disease are also preferred while taking nourishment. According to the European Commission, functional food is a food that affects one or more target functions in the body to improve health status or reduce disease risk beyond nutritional competence. It is part of the normal food pattern. It is not a pill, capsule or any dietary supplement (ftp://ftp.cordis.europa.eu). Functional food, according to the Institute of Food Technologies; is food and food ingredients that provide health benefits beyond basic nutrition (http://www.ift.org).

With the increasing demand from consumers through the numerous research by the scientists and nutrition experts on the health benefits and the prevention of diseases. Researchers state that the fastest growing sub-sector in the fast-growing food sector is the functional food sector and the second is natural products. Functional food consumption showed great development with giving importance people's health and functional foods and with more due diligence on the demand of consumers in the last decade, especially in Turkey. And in parallel, many companies have begun to offer functional food to the market. Causes of the rising functional food consumption include increased health expenditures, obesity caused by fast food consumption, elderly population and increasing life style. Individuals seek to cure themselves through natural means to minimize health expenditure. Functional foods increase the health and good mood, minimize health costs, and provide consumers with more control over their health by delivering components that improve their health status and gain more value in the eyes of the consumer. The main purpose of this research is to provide a perspective on the perception and attitudes of the students towards functional foods.

2 Material and Methods

The sample of study consisted of 190 students who were continuing their education in 2018-2019 academic year at Karadeniz Technical Univercity Vocational School of Health Services. A questionnaire consisting of 7 chapters developed through literature review was used. The data were analyzed by SPSS software. P value below 0.05 was evaluated as statistically significant. In order to develop the test used in the research, The following steps were followed in the development of measurement tools (Bozdogan, & Öztürk, 2008).

1. Substance Creation Stage

During the development stage of the test, a pool of items consisting of questions was created in 7 sections.

2. Expert Opinion

Two food engineers who are experts in the pool created by two science educators and one different people were examined by taking opinions. Corrections were made to the questions deemed necessary according to the opinions received.

3. Preliminary Trial Stage

For the reliability and validity studies of the test, a total of 190 students were tested in 2018. The collected data were evaluated and the data were entered into SPSS package program for analysis.

4. Reliability Calculation Stage

In this study, the reliability (internal consistency) of the scale, which was created to measure the knowledge level of the students, was examined by item analysis and item analysis (t-test) based on the difference between the upper and lower group averages was performed. In order to determine the discriminative power of the items in the scale, the t-value of the difference between the mean scores of the top and bottom groups for each item was calculated. As a result of the analyzes, Cronbach Alpha Reliability Coefficient (α) of the final scale was found to be 0.72.

With in the scope of the research, the students are familiar with the term of functional nutrients, whether they consume these nutrients, do not consume or not, the level of knowledge about health claims, in which cases they want to consume these nutrients, and in what way they want to be informed.

3 Results and Discussion

The sociodemographic characteristics of the students are shown in Table 1. 73.2% of the students were male and 35.8% were female in the first and emergency department. 52.6% of the students (n = 100) stated that they didn't have information about functional foods. The proportion of students with knowledge about functional foods was 16.8% (n = 32); 30.5% of the students (n = 58) stated that they knew the food but did not know that the names were functional food.

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| 100 | | | |
|---------|-------------------------------|-----|------|
| | | n | % |
| Gender | Female | 138 | 72,6 |
| | Male | 52 | 27,4 |
| | Medical Imaging Technician | 66 | 34.7 |
| Drogram | Medical Laboratory Technician | 8 | 4,2 |
| Program | Medical Documentation | 48 | 25,3 |
| | First and Emergency Aid | 68 | 35,8 |

| Table 1. Sociodemographic characteristics of stude | nte |
|---|------|
| Table 1. Socioueniographic characteristics of stude | ints |

| Table 2. Sources of information on functional foods (n = 190, | , Analyzed according to students' programs) |
|---|---|
|---|---|

| | Program | Ave. | S.D. | X ² | Р | Post Hoc. |
|------------------|--|------|-------|----------------|-------|-----------|
| | Medical Imaging Technician ¹ | 3,29 | 1,187 | | | |
| Internet | MedicalLaboratory Technician ² | 3,08 | 1,165 | 7,040 | 0,013 | 3-4 |
| internet | First and Emergency Aid ³ | 3,38 | 1,216 | 7,040 | 0,015 | P=0,028 |
| | Medical Documentation Secretariat ⁴ | 3,24 | 1,491 | | | |
| | Medical Imaging Technician ¹ | 3,90 | 1,210 | | | |
| Television | MedicalLaboratory Technician ² | 2,58 | 0,978 | 8,624 | 0,035 | 3-4 |
| relevision | First and Emergency Aid ³ | 3,26 | 1,092 | 8,624 | 0,035 | P=0,004 |
| | Medical Documentation Secretariat ⁴ | 3,79 | 1,815 | | | |
| | Medical Imaging Technician ¹ | 3,85 | 1,007 | | | |
| Friends, family, | MedicalLaboratory Technician ² | 4,08 | 1,382 | 2 225 | 0.007 | 1-2 |
| neighbors | First and Emergency Aid ³ | 3,16 | 1,468 | 3,325 | 0,097 | P=0,046 |
| | Medical Documentation Secretariat ⁴ | 3,47 | 1,640 | | | |
| | Medical Imaging Technician ¹ | 4,21 | 1,749 | | | |
| Examples in | MedicalLaboratory Technician ² | 3,42 | 1,118 | 2,964 | 0,039 | 1-2 |
| supermarkets | First and Emergency Aid ³ | 3,86 | 1,593 | 2,964 | | P=0,044 |
| | Medical Documentation Secretariat ⁴ | 3,60 | 1,255 | | | |
| | Medical Imaging Technician ¹ | 2,34 | 1,018 | | | |
| Evporto | MedicalLaboratory Technician ² | 2,49 | 1,601 | 11 044 | 0,008 | 1-3 |
| Experts | First and Emergency Aid ³ | 2,76 | 1,488 | 11,944 | | P=0,032 |
| | Medical Documentation Secretariat ⁴ | 1,85 | 0.812 | | | |
| | Medical Imaging Technician ¹ | 2,99 | 0,753 | | | |
| | MedicalLaboratory Technician ² | 3,70 | 1,608 | 2 710 | 0.047 | 1-2 |
| Shopping malls | First and Emergency Aid ³ | 3,29 | 1,469 | 2,719 | 0,047 | P=0,064 |
| | Medical Documentation Secretariat ⁴ | 3.02 | 1,216 | | | |
| | Medical Imaging Technician ¹ | 3,54 | 1,190 | | | |
| Newspaper | MedicalLaboratory Technician ² | 3,18 | 1,632 | 2 2 5 4 | 0.024 | 1-3 |
| magazines | First and Emergency Aid ³ | 3,66 | 1,557 | 3,354 | 0,034 | P=0,020 |
| | Medical Documentation Secretariat ⁴ | 3,90 | 1,306 |] | | |
| | Medical Imaging Technician ¹ | 3,47 | 1,110 | | | |
| Cosmotio starss | MedicalLaboratory Technician ² | 3,01 | 0,932 | 2 1 6 7 | 0,033 | 3-4 |
| Cosmetic stores | First and Emergency Aid ³ | 3,39 | 1,981 | 2,167 | | P=0,009 |
| | Medical Documentation Secretariat ⁴ | 3,94 | 1,144 | 1 | | |

Significance level was taken as p < 0.05

As a result of Kruskal Wallis analysis of sources of information on functional foods, statistically significant differences were found according to the programs. There was a statistically significant difference between the first and emergency aid and Medical Documentation Secretariat program in terms of participation in "Internet, Television and Cosmetic stores" (X^2 =7,040, 8,624, 2,167, p<0,05). Also, there was a statistically significant difference between Medical Imaging Technician and Medical Laboratory Technician in terms of participation in "Friends, family, neighbors, Examples in supermarkets and Shopping malls" (X^2 =3,325, 2,964, 2,719, p<0,05). Finally, the difference in terms of participation in "Experts, Newspaper magazines" between Medical Imaging Technician and First and Emergency Aid was found to be statistically significant (X^2 = 11,944, 3,354, p<0,05) (Table 2).

| | n | % | Gender | Ave. | S.D. | t | Р | |
|-------------------------------|----|------|--------|------|-------|---------|-------|--|
| Internet | 54 | 60,0 | Female | 2,76 | 1,725 | - 1,386 | 0,023 | |
| | 54 | 60,0 | Male | 3,41 | 1,450 | - 1,560 | 0,025 | |
| Talavisian | 47 | 52,2 | Female | 3,82 | 1,113 | 2 007 | 0,030 | |
| Television | 47 | | Male | 3,04 | 1,609 | 2,007 | 0,030 | |
| Friends, family, neighbors | 27 | 30,0 | Female | 3,95 | 1,336 | 2 6 7 7 | 0,004 | |
| Filends, failing, fielgribors | 27 | | Male | 2,83 | 1,780 | 3,677 | | |
| Everyples in supermarkets | 10 | 21.1 | Female | 3,37 | 1,010 | 1 107 | 0.015 | |
| Examples in supermarkets | 19 | 21,1 | Male | 3,10 | 1,698 | 1,197 | 0,015 | |
| Experts | 13 | 14,4 | Female | 3,70 | 0,642 | 2,870 | 0,035 | |

| | | | Male | 3,22 | 1,318 | | |
|---------------------|----|------|--------|------|-------|-------|-------|
| Shopping malls | 11 | 12.2 | Female | 3,45 | 1,584 | 2 672 | 0,041 |
| | 11 | 12,2 | Male | 3,18 | 1,832 | 3,673 | |
| Nowspaper magazines | 6 | 6,7 | Female | 3,30 | 1,326 | 4.000 | 0,003 |
| Newspaper magazines | | | Male | 2,97 | 1,360 | 4,006 | |
| Cosmetic stores | 3 | 3,3 | Female | 2,38 | 0,842 | 2 002 | 0.010 |
| | | | Male | 2,15 | 1,448 | 3,002 | 0,019 |

Significance level was taken as p < 0.05

Table 3 shows the sources of information on functional foods (n = 190) and those who do not know that they have a knowledge of functional foods or know their food but do not know that their names are functional food. Internet (60.0%) is ranked first among students' sources of information. With 52.2%, the Internet is second with 30.2%, followed by friends, family and neighbor with 30.2%. As a result of the statistical analysis, there was no significant difference between the genders in terms of information acquisition sources (p> 0.05). There was a statistically significant difference between the groups in terms of obtaining information from the television (p= 0.035) and from the experts (p < 0.008). Medical imaging technician students learn more about television than the students in the other department, and the first and emergency helpers learn more from experts.

It was examined whether there is a difference according to gender regarding information sources about functional foods; The answer television, friends, family, neighbors, examples in supermarkets, experts, shopping malls, newspaper magazines, cosmetic stores were found to be higher in women (p < 0.05). The statement that the information was learned from the internet was found to be higher in men.

| | n | % | Gender | Ave. | S.D. | t | Р | | |
|---------------------|-----|------------|--------|------|--------|---------|-------|--------|-------|
| Mineral water | 146 | 76,8 | Female | 3,48 | 1,022 | 3,076 | 0,002 | | |
| Mineral water | 140 | 70,8 | Male | 3,37 | 1.167 | 3,070 | 0,002 | | |
| Herbal teas | 126 | 66,3 | Female | 3,70 | 1,726 | 4,217 | 0,025 | | |
| Herbal teas | 120 | 00,5 | Male | 3.29 | 1,814 | 7,217 | 0,025 | | |
| Milk and dairy | 94 | 49,5 | Female | 3,05 | 1,389 | 2,051 | 0,049 | | |
| products that help | 54 | 49,5 | Male | 2,98 | 1,640 | 2,031 | 0,049 | | |
| Biscuits with | 70 | 36,8 | Female | 3,86 | 1, 017 | 2,548 | 0,030 | | |
| vitamins and | 70 | 50,0 | Male | 3,31 | 1,598 | 2,540 | 0,050 | | |
| Fiber diet products | 53 | 53 | 53 | 27,9 | Female | 3,10 | 1,008 | 2,627 | 0,005 |
| Fiber diet products | | 27,5 | Male | 2,55 | 1,760 | 2,027 | 0,005 | | |
| Energy drinks | 47 | 24,7 | Female | 3,40 | 1,918 | - 2,740 | 0,012 | | |
| Lifergy utility | 77 | 24,7 | Male | 3,79 | 1,501 | 2,740 | 0,012 | | |
| Vitamin D- | 20 | 10,5 | Female | 2,17 | 1,314 | 2,703 | 0,070 | | |
| supplemented | 20 | 10,5 | Male | 1,82 | 1,603 | 2,705 | 0,070 | | |
| Sports drinks | 18 | 9,5 | Female | 2,16 | 1,589 | -2,394 | 0,087 | | |
| | 10 | 5,5 | Male | 3,00 | 1,212 | 2,394 | 0,087 | | |
| Coarts foods | 16 | <u>о</u> л | Female | 2,44 | 1,653 | -2,613 | 0,040 | | |
| Sports foods | 16 | 10 | 10 | 8,4 | Male | 2,67 | 1,116 | -2,015 | 0,040 |

Table 4. Functional foods used by students (n = 190)

Significance level was taken as p < 0.05

Functional foods that students use frequently are given in Table 4. When we examine the table, we see that mineral water (76.8%), herbal teas (66.3%) and milk and dairy products (49.5%) which help digestion are among the most used functional foods. whether functional food use differed according to gender; Women more than men the answers; mineral water, herbal teas,

milk and dairy products that help digestion, vitamins and minerals, fiber diet products, vitamin D-supplemented milk, was seen to respond. Men were only more likely to respond to energy drinks, sports drinks and sports foods.

| Table 5. The purpose of functional food use (n = 190) | | | | | | | | | | | |
|---|-----|--------|--------|------|-------|--------|-------|--|--|--|--|
| | n | % | Gender | Ave. | S.D. | t | Р | | | | |
| Llike te teste | 109 | FC 9 | Female | 3,57 | 0,925 | 2,516 | 0,237 | | | | |
| I like to taste | 108 | 56,8 | Male | 2,56 | 1,316 | 2,510 | 0,237 | | | | |
| To be healthy | 77 | 40,5 | Female | 2,87 | 1,003 | 2,025 | 0,347 | | | | |
| TO De fiealtry | // | 40,5 | Male | 2,39 | 1,492 | 2,025 | 0,347 | | | | |
| To hole direction | 62 | 22.2 | Female | 3,50 | 1,018 | 2,480 | 0,040 | | | | |
| To help digestion | 63 | 33,2 | Male | 2,66 | 1,090 | 2,400 | 0,040 | | | | |
| To prevent disease | 31 | L 17,4 | Female | 2,74 | 1,012 | 3,429 | 0,512 | | | | |
| To prevent disease | 31 | | Male | 2,73 | 1,014 | 3,423 | 0,512 | | | | |
| To lose weight | 28 | 147 | Female | 2,98 | 1,093 | 3,014 | 0,675 | | | | |
| TO IOSE Weight | 28 | 14,7 | Male | 2,42 | 1,200 | 3,014 | 0,075 | | | | |
| I am interested in | 30 | 15,8 | Female | 2,07 | 1,856 | 4,348 | 0,000 | | | | |
| i am interested in | 30 | 15,8 | Male | 2,06 | 1,859 | 4,548 | 0,000 | | | | |
| For providing | 20 | 1 - 0 | Female | 2,34 | 1,576 | 2 862 | 0,650 | | | | |
| energy | 30 | 15,8 | Male | 2,95 | 1,212 | -2,863 | 0,050 | | | | |
| To improve my | 23 | 12.1 | Female | 2.45 | 1.048 | 2.640 | 0.008 | | | | |

| mental state | | | Male | 2,18 | 1,275 | | |
|--------------------|------|--------|--------|------|-------|--------|-------|
| To prevent drug | 15 | 7.0 | Female | 2,60 | 1,050 | 3,541 | 0,937 |
| treatment | 15 | 7,9 | Male | 2,39 | 1,387 | 5,541 | 0,337 |
| To reduce the risk | 6 | 2.2 | Female | 2,55 | 0,795 | 2,070 | 0,035 |
| of cancer | 0 | 3,2 | Male | 2,00 | 1,230 | | 0,035 |
| To reduce heart | 33 | 17 / | Female | 2,43 | 1.046 | 3,005 | 0,539 |
| disease | 55 | 17,4 | Male | 2,39 | 1,360 | 3,005 | 0,339 |
| To reduce the risk | 35 | 10 / | Female | 2,61 | 1,044 | -2,044 | 0,022 |
| of high blood | - 55 | 5 18,4 | Male | 3,27 | 0,684 | | 0,022 |

As a result of the analysis, it was found that students used functional food (56.8%) because they liked the taste. When the other reasons are examined, it is seen that they are used to be healthy in second place (40.5%) and to help digestion in third place (33.2%). Other uses of functional foods are shown in Table 5.

When the variability of functional food use purpose according to gender was examined; It was observed that males were more likely to participate in the expression of To reduce the risk of high blood pressure. In women; more contributions to the statements of help, digestion, to improve mental state, to reduce the risk of cancer were achieved.

| Table 6. The reasons for not wanting to use functional food (n = 190) | | | | | | | | | | |
|---|----|------|--------|------|-------|---------|-------|--|--|--|
| | n | % | Gender | Ave. | S.D. | t | Р | | | |
| I prefer organic | 52 | 27.4 | Woman | 3,16 | 1,450 | 2 412 | 0.027 | | | |
| food instead of | 52 | 27,4 | Man | 3,00 | 1,936 | 2,412 | 0,027 | | | |
| I think the benefits | 38 | 20.0 | Woman | 3,42 | 1,327 | 2 1 4 9 | 0.042 | | | |
| of functional foods | 38 | 20,0 | Man | 2,98 | 1,680 | 2,148 | 0,042 | | | |
| Not organic | 36 | 18,9 | Woman | 3,75 | 1,075 | 2,050 | 0,005 | | | |
| Not organic | 30 | 18,9 | Man | 3,52 | 1,418 | 2,050 | 0,005 | | | |
| I don't believe | 31 | 16.2 | Woman | 2,80 | 1,042 | 3,104 | 0.026 | | | |
| functional foods | 51 | 16,3 | Man | 2,07 | 1,832 | 3,104 | 0,026 | | | |
| I'm afraid of side | 25 | 12.2 | Woman | 3,30 | 1,167 | 2,560 | 0,030 | | | |
| effects | 25 | 13,2 | Man | 2,65 | 1,456 | 2,500 | 0,050 | | | |
| I don't believe in | 23 | 12.1 | Woman | 2,94 | 1,007 | 4 125 | 0.000 | | | |
| the benefit of | 25 | 12,1 | Man | 1,87 | 1,395 | 4,135 | 0,000 | | | |
| Healthy people do | 22 | 11,6 | Woman | 3,22 | 1,069 | 3,002 | 0,008 | | | |
| not need to use | 22 | 11,0 | Man | 2,90 | 1,530 | 3,002 | 0,008 | | | |
| Concern about | 22 | 11,6 | Woman | 2,66 | 1,420 | -2,710 | 0,007 | | | |
| synthetic additives | 22 | 11,0 | Man | 3,01 | 0,638 | -2,710 | 0,007 | | | |
| For not loving your | 21 | 11,1 | Woman | 2,95 | 1,613 | -2,266 | 0,041 | | | |
| taste | 21 | 11,1 | Man | 3,04 | 1,070 | -2,200 | 0,041 | | | |
| | 20 | 10 E | Woman | 2,86 | 1,005 | 2 476 | 0.000 | | | |
| They are expensive | 20 | 10,5 | Man | 2,39 | 1,128 | 3,476 | 0,000 | | | |
| Can't find | 14 | 74 | Woman | 3,12 | 1,082 | 2 020 | 0.020 | | | |
| anywhere, not easy | 14 | 7,4 | Man | 2.56 | 1,850 | - 2,030 | 0,039 | | | |

Table 6. The reasons for not wanting to use functional food (n = 190)

The reasons why students do not want to use functional foods are shown in Table 6. The students stated that they did not use such foods because they preferred organic food instead of functional food (27.4%). Again, the benefits of functional foods were exaggerated (20,0%) and they thought that they were not organic (18,9%).

In the scope of the research, 72.6% (n = 138) of the students stated that they would be harmful for health if their functional foods were consumed more and 26.8% (n = 51) stated that such foods should be kept away from children in particular. However, 82.6% of students (n = 157) do not believe enough tested the reliability of functional foods and 96.8% (n = 184) of functional foods in Turkey believe that high quality. Nearly half of the students (44.7%) found that they found functional food expensive, but 27.4% (n = 52) stated that they were not bothered to pay more food than other foods.

When the reasons why students do not want to use functional food are examined according to their gender; women, I prefer organic food instead of functional food, I think the benefits of functional foods are exaggerated, not organic, I do not believe that functional foods are reliable, I'm afraid of side effects were seen to agree more. Men participated more (concern about synthetic additives, for not loving my taste, can't find anywhere, not easy to access) these answers. In addition, women more participated these answers: I don't believe in functional foods, healthy people do not need to use and they are expensive.

| | n | % | Gender | Ave. | S.D. | t | Р | | |
|------------------|----|------|--------|------|-------|-------|-------|--|--|
| When advice | 65 | 34,2 | Female | 3,02 | 0,795 | 3,010 | 0,042 | | |
| from friends or | 05 | 54,2 | Male | 2,37 | 1,049 | 3,010 | 0,042 | | |
| When I have any | 47 | 24.7 | Female | 2,72 | 1,447 | 2,670 | 0,035 | | |
| health problem | 47 | 24,7 | Male | 2,01 | 1,530 | | | | |
| When the doctor | 33 | 17,4 | Female | 2,35 | 1,316 | 2,176 | 0,006 | | |
| recommends | 55 | 17,4 | Male | 2,09 | 1,870 | 2,170 | 0,000 | | |
| | 10 | 10.0 | Female | 3,46 | 1,048 | 2,204 | 0.020 | | |
| When prices fall | 19 | 10,0 | Male | 2,55 | 1,596 | | 0,020 | | |

Table 7. When students consume functional foods

Table 7 shows the functional food consumption of the participants. It is observed that students mostly consume functional food when they recommend friends or relatives (34,2%). In the answers given to the question, When do you consume functional foods, female students have more participation than male students.

| Table 8. Institutions that students think are necessary for functional foods | | | | | | | |
|--|-----|------|--------|---------------|-------|-------|-------|
| | n | % | Gender | Ave. | S.D. | t | Р |
| Food industry | 121 | 63,7 | Female | 3 <i>,</i> 85 | 1,060 | 2,775 | 0,003 |
| | | | Male | 3 <i>,</i> 50 | 1,678 | | |
| Nutritionists | 80 | 42,1 | Female | 2,46 | 1,096 | 2,486 | 0,039 |
| | | | Male | 2,14 | 1,826 | | |
| Research | 71 | 37.4 | Female | 2,70 | 0,892 | 2,610 | 0.040 |
| institutes | | | Male | 2,51 | 1,583 | | |

Table 8. Institutions that students think are necessary for functional foods

Students stated that they would be more confident in functional foods if the control was in the food industry (63.7%). The other institutions where students trust are listed in Table 8. What institutions are needed for functional foods? female students had more participation in food industry, nutritionists, research institutes than male students.

Research results show that 52.6% of the students do not have information about functional foods. 16.8% of the students have knowledge about functional foods; 30.5% of the students stated that they knew the food but did not know that the names were functional food. Based on these results, functional food producers are advised to carry out marketing communication studies that will increase the awareness of what consumers are not and what functional foods are.

The Internet (60.0%) is ranked first among students' sources of information. With 52.2%, the Internet is second with 30.2%, followed by friends, family and neighbor with 30.2%.

The most important three characteristics of functional food use purposes are as follows; it is seen that they like most the taste (56.8%), to be healthy (40.5%) and to help digestion (33.2%). To reduce high blood pressure (18.4%). It was determined that The least using purpose was (3.2%) to reduce the risk of cancer. In a study conducted in Uruguay, the three most important features related to the health element that enables consumers to consume functional food products; reducing the risk of cardiovascular disease, lowering cholesterol and lowering blood pressure (Ares, Gimanez, & Gambaro, 2008). It's suggested to be raised the awairenes of the Functional food market investors to invest in Turkey in terms of taking account of these differences and the functional food and raising the awareness of consumers in terms of their inhibitory effect against these diseases.

Findings revealed that the most commonly used functional food products were mineral water (76.8%), herbal teas (66.3%) and milk and milk products (49.5%) which help digestion, respectively. These products consist of the first three functional food products that the students want to buy the most in the future. These findings are important for demonstrating the consumption trends of functional food consumers.

As a result of the statistical analysis, it was seen that there was no significant difference between the genders in terms of information acquisition sources. In this study, it was concluded that although students recognized functional foods, they do not know that they are called functional food.

The students stated that they did not use this type of food because they preferred organic food instead of functional food (27.4%). Again, the benefits of functional foods were exaggerated (20,0%) and they thought that they were not organic (18,9%). The majority of the students (72.6%) stated that they would be harmful to health if they consume more functional foods and (26.8%) stated that such foods should be kept away from children in particular. Almost half of the students (44.7%) stated that they found functional foods as expensive but (27.4%) stated that they were not disturbed to pay more food than other foods.

As a result of the analysis, it was observed that the functional food consumption of the students was mostly with friend or relative advice (34.2%). The students stated that they would be more confident in functional foods in the food industry (63.7%). Nutritionists and Research institutes are the other institutions that students trust.

4 Conclusion

This study attempts to develop understanding of consumers' perceptions and attitudes towards functional foods in general. It is thought to have importance of learning this point of view in terms of defining the current occupations and predicting future process. Although students want to lead a healthy life, they do not want to give up the food they find delicious.

The main reasons for the acceptance of functional nutrients are health benefits. Cognitive and physical healing effects on human health have a motivating effect on the consumption of functional foods rather than their mental benefits. Students who consume food containing functional nutrients, organic nutrients and natural ingredients have a more positive and positive effect on the new functional foods.

Functional food products, whose scientific contributions have been scientifically proven, are likely to contribute to achieving a society of healthy individuals. The main point to be considered here is to know that functional food products alone will not create miracles. In particular, functional food producers and law enforcers have a major role in the conscious consumption of functional food products.

This study has some limitations. First of all, the fact that the sample of the study consists of only a part of the students studying at the Vocational School of Health Services constitutes a limitation in terms of generalizability of the research results. It is recommended that future research involves a larger sample and a comparison between different socio-economic groups.

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