Research Article

Hacettepe University Journal of the Faculty of Pharmacy
Volume 40 / Number 2 / July 2020 / pp. 59-73

The Use of Some Food Supplements in the Thrace Region of Turkey

Türkiye'nin Trakya Bölgesinde Bazı Gıda Takviyelerinin Kullanımı

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Received date : 28.08.2020
Accepted date : 13.10.2020

ABSTRACT

This study was to determine the supplement intake with dietary habits in Turkey's Thrace, with a total of 1010 people attended the volunteers with different socio-cultural backgrounds was conducted in June-September 2018. Chi-square significance test is used for statistical analysis. 38.2% of the respondents stated that they used supplements before or they are using them now and 61.8% of the respondents stated that they did not use supplements. It was determined that the usage ratio of vitamin B12, C and D3 were 37.5%,33.2%,27.1%, respectively. Iron, calcium, magnesium, zinc follow them (24.%5, 25.3%, 18.5%, 11.7%, respectively). Glucosamine chondritin, biotin, St John's wort, panax ginseng and coenzyme Q-10 were never known by more than half of the respondents. It has been determined that the level of intake and information of women in use of folic acid and iron is much higher compared to men. It has been determined that 30.1% of those who take supplements use fish oil. Unconscious use of supplements can lead to various health problems. In order to raise awareness of the public on supplements, information activities should be carried out. This is important in terms of public health and the health of future generations.

Keywords: Food supplements, fish oil, vitamins, minerals, folic acid

ÖZET

Bu çalışma Türkiye'nin Trakya bölgesindeki gıda takviyesi kullanım alışkanlıklarını belirlemek amacıyla, farklı sosyo-kültürel altyapıya sahip gönüllülerin katıldığı toplam 1010 kişi ile Haziran-Eylül 2018'de gerçekleştirilmiştir. İstatistiksel analiz için ki-kare anlamlılık testi kullanılmıştır. Katılımcıların% 38,2'si daha önce gıda takviyesi kullandığını veya şu anda kullandıklarını ve katılımcıların% 61,8'i gıda takviyesi kullanmadığını belirtmiştir. B12, C ve D3 vitaminlerinin kullanım oranları sırasıyla,% 37,5; 33,2; % 27,1 idi. Demir, kalsiyum, magnezyum, çinko bunları takip etti (sırasıyla % 24,5; % 25,3; % 18,5; % 11,7). Glukozamin kondritin, biotin, St. John's wort, panax ginseng ve koenzim Q-10, hiçbir zaman katılımcıların yarısından fazlası tarafından bilinmemektedir. Folik asit ve demir kullanımında kadınların bilgi ve kullanım düzeylerinin erkeklere göre çok daha yüksek olduğu belirlenmiştir. Gıda takviyesi kullananların %30,1'inin balık yağı kullandığı tespit edilmiştir. Gıda takviyelerinin bilinçsizce kullanımı çeşitli

sağlık problemlerine yol açabilir. Gıda takviyeleri konusunda halkı bilinçlendirmek amacıyla bilgilendirme faaliyetleri yapılmalıdır. Bu, halk sağlığı ve gelecek nesillerin sağlığı açısından önemlidir.

Anahtar Kelimeler: gıda takviyeleri, balık yağı, vitaminler, mineraller, folik asit

1. INTRODUCTION

In today's world, nutritional habits are changing along with changes in living and working conditions. When people can not eat a balanced and healthy diet, they use supplements to require their body's needs. Thus, they think these make them feel more energetic and strengthen their immune system [1]. Supplements are single or mixtures of nutrients such as vitamins, minerals, proteins, carbohydrates, fiber, fatty acids, amino acids, plant, vegetable and animal origin substances, bioactives and similar substances with nutritional or physiological effects in order to provide nutritional needs. These have been prepared in liquid or powder forms such as capsules, tablets, lozenges, disposable powder packs, liquid ampoules, dropper bottles and other similar liquid or powder forms and their daily dose has been determined [2,3]. According to popular belief, supplements are safer and more healthy than synthetic drugs [4]. Frequency and prevalance of use of food supplements has been increased in recent years [5].

Herbal products are not included in the drug category unless they are marketed to prevent any disease. Herbal drugs are considered as 'food integrators' and they are readily available over the counter in the market. The main driving force behind the use of herbal medicines is the perception that 'they are safe because they are natural and have fewer side effects than prescription medicines'. A common problem with their use is that people do not take into account how they might interact with prescription drugs they are taking or with each other. The interaction between drugs and herbs, the use of commonly used herbs together with unexpected drug interactions become a major obstacle to the diagnosis of some diseases. People do not inform their physicians about their consumption. For example, caution should be exercised if ginseng is taken with products containing a stimulant, caffeine, or pseudoephedrine or other stimulants [6].

Supplements benefit the user when they are used consciously under expert advice and supervision. A study on the use of supplements in the Thrace Region to investigate the knowledge and status of the public has not performed before. In this study, supplement usage and the knowledge level about supplements of 1010 respondents living in the Thrace region of Turkey is invastigated.

2. MATERIAL AND METHOD

2.1. MATERIAL

The material of this study consists of online surveys and face-to-face surveys conducted with individuals from different socio-cultural backgrounds in the Thrace region in Turkey. The study was conducted in June-September 2018 on a voluntary basis with a total of 1010 people in order to obtain healthy food use habits and knowledge. This study was carried out after obtaining the permission of the ethics committee.

2.2 METHOD

2.2.1 POPULATION SIZE

In order to obtain relevant data, the size of the sample was calculated using formula (1) [7].

$$n = \frac{p.q.z^2_{\alpha/2}}{D^2} \qquad (1)$$

n = Number of samples

p = the percentage occurrence of a state or condition [A]

q = 1-p

D = Margin of error[B]

$Z_{\alpha/2}$ = %99

[A] 0.5 (will be considered since there is no prior knowledge of p)

[B]0.04

According to the general rule applied in this type of sampling, (p) = (q) = 0,5 was accepted. In this case, the largest possible sample volume is obtained with a constant sampling error and a degree of reliability. The

sampling error was also taken as 4%, which is conventionally used. If the sampling error (D) is assumed to be 4% and the degree of reliability is 99% ($Z\alpha/1 = 2.53$), the number of surveys (sample volume) to be performed was calculated using formula (2).

$$n = \frac{0.5X0.5X2.53^2}{0.04^2} = \approx 1000 \quad (2)$$

2.2.2. SURVEY QUESTIONS

Some of the components required for the body, which may be deficient due to nutritional habits, living conditions, special periods or aging, were the subject of this study. These ingredients were included in the survey as they are among the supplements that are likely to be used by the majority of the community.

Firstly, respondents were asked about age, gender, education level, and average monthly income in order to obtain demographic information.

After demographic information, the respondents were asked whether they use supplements or not. Then they were asked if they have information about some supplements and if they use them. They were asked to choose one of the options "I don't know, I know but I did not use it, I used it before, I use it occasionally, I use it regularly".

Afterwards, they were asked whether they use fish oil as a food supplement, and whether they paid attention to EPA or DHA contents while buying fish oil. Then, information about the functional properties of supplements containing omega group fatty acids was tested.

Finally, the question asked to the respondents was: Is it important to you whether the supplement you will use is natural or synthetic?"

2.2.3. STATISTIC ANALYSIS

The research data were obtained from the completed survey forms. Demographic characteristics of the respondents were determined in the first part of the survey form. Research data were analyzed using SPSS 20.0 software. Significance level was accepted as 0.05 in the evaluation of statistical analyzes. Chi-square significance test was used for statistical analysis.

3. RESULTS

3.1. DEMOGRAPHIC PROFILE OF RESPONDENTS

According to the information received; 621 of the 1010 respondents were women and 389 were men. The number of people between the ages of 18-49 was more among those surveyed. As the age of the respondents increased, the number of participation in the survey also decreased. The number of respondents under the age of 18 was also quite low. The number of high school and university graduates was higher among those surveyed. The number of people whose income level is 2000-3000 ₺ was the highest among the respondents. As the level of income of the respondents increased, the number of participation in the survey also decreased. Demographic distribution of the respondents was shown in Table 1.

3.2. THE USE OF THE FOOD SUPPLEMENTS

Respondents were asked if they use food supplements; 38.2% of the respondents (386) stated that they used food supplements before or they are using them now and 61.8% of the respondents (624) stated that they do not use food supplements. According to the answers received; 75.6% of women and 24.4% of men stated that they use food supplements.

3.3. KNOWING AND USING SOME FOOD SUPPLEMENTS

The distribution of "information and use habits of respondents about specific food supplements" was shown in Table 2.

Recognition and consumption rates of vitamin and mineral groups other than biotin (vitamin B7) were significantly higher than others. Vitamin B12 (379 respondents) and vitamin C (335 respondents) consumption rates (respondents who say I have used it before, I use occasionally and I use it regularly) were higher than other vitamins. Glucosamine chondritin (820 respondents), biotin (609 respondents), St John's wort (669 respondents), panax ginseng (717 respondents), coenzyme Q-10 (699 respondents) were never recognized by more than half of the respondents. Glucosamine chondritin, which has the lowest recognition rate, was a food supplement with the lowest consumption rate (33 respondents) (Table 2).

ISSN: 2458 - 8806

Table 1. Percentage distribution and the supplement use of respondents by demographic profile

	Total		User		Non user	
	Distribution	**Percentage**	**Distribution**	**Percentage**	**Distribution**	**Percentage**
	n	**%**	**n**	**%**	**n**	**%**
Gender				χ2:52.918, P<0.01		
Women	621	61.5	292	47.0	329	53.0
Men	389	38.5	94	24.2	295	75.8
Age Groups				χ2:55.131, P<0.01		
<18	28	2.8	3	10.7	25	89.3
18-29	262	25.9	69	26.3	193	73.7
30-39	284	28.1	101	35.6	183	64.4
40-49	231	22.9	98	42.4	133	57.6
50-59	160	15.8	89	55.6	71	44.4
60-69	37	3.7	21	56.8	16	43.2
>69	8	0.8	5	62.5	3	37.5
Level of Education				χ2:14.911, P<0.05		
Illiterate	1	0.1	0	0	1	100.0
Primary School	20	2	10	50.0	10	50.0
Secondary School	90	8.9	41	45.6	49	54.4
Hıgh School	384	38	166	43.2	218	56.8
University	401	39.7	128	31.9	273	68.1
Postgraduate/ Doctorate	114	11.3	41	36.0	73	64.0
Average Monthly Revenue				χ2:16.533, P<0.05		
≤1000 ₺	107	10.6	36	33.6	71	66.4
1000- 2000 ₺	212	21	103	48.6	109	51.4
2000- 3000 ₺	339	33.6	121	35.7	218	64.3
3000- 5000 ₺	261	25.8	86	33.0	175	67.0
5000- 10000 ₺	83	8.2	37	44.6	46	55.4
10000- 25000 ₺	4	0.4	2	50.0	2	50.0
≥25000 ₺	4	0.4	1	25.0	3	75.0

Table 2. The distribution of "information and use habits of respondents about specific food supplements"

	I do not know	I know, but I didn' use it	I have used it before	I use occasionally	I use it regularly
Food Supplement	**n %**	**n %**	**n %**	**n %**	**n %**
Glucosamine Chondritin	820 (81.2%)	157 (15.5%)	15 (1.5%)	13 (1.3%)	5 (0.5%)
Biotin (vitamin B7)	609 (60.3%)	298 (29.5%)	71 (7.0%)	23 (2.3%)	9 (0.9%)
Coenzyme Q-10	699 (69.2%)	259 (25.6%)	31 (3.1%)	11 (1.1%)	10 (1.0%)
Panax Ginseng	717 (71.0%)	241 (23.9%)	39 (3.9%)	10 (1.0%)	3 (0.3%)
St. John's Wort	669 (66.2%)	289 (28.6%)	37 (3.7%)	12 (1.2%)	3 (0.3%)
Vitamin B12	176 (17.4%)	455 (45.0%)	266 (26.3%)	90 (8.9%)	23 (2.3%)
Vitamin C	100 (9.9%)	575 (56.9%)	241 (23.9%)	75 (7.4%)	19 (1.9%)
Vitamin D3	266 (26.3%)	470 (46.5%)	194 (19.2%)	59 (5.8%)	21 (2.1%)
Multivitamins	395 (39.1%)	392 (38.8%)	137 (13.5%)	45 (4.5%)	41 (4.1%)
Iron	358 (35.4%)	405 (40.1%)	183 (18.1%)	36 (3.6%)	28 (2.8%)
Calcium	316 (31.3%)	439 (43.5%)	198 (19.6%)	32 (3.2%)	25 (2.5%)
Magnesium	375 (37.1%)	449 (44.5%)	135 (13.4%)	27 (2.7%)	24 (2.4%)
Zinc	454 (45.0%)	438 (44.4%)	59 (5.8%)	31 (3.1%)	28 (2.8%)
Folic Acid (vitamin B9)	377 (37.3%)	356 (35.2%)	215 (21.3%)	22 (2.2%)	40 (4.0%)
Fish Oil (Omega 3,6,9 Fatty acids)	226 (22.4%)	555 (54.9%)	146 (14.5%)	38 (3.8%)	21 (2.1%)

3.3.1. FOLIC ACID

When the awareness and usage of folic acid as a food supplement were examined, it was found that the levels of knowledge and usage of women were higher than that of men (Figure 1). Since folic acid is used mostly for the health of the baby before and during pregnancy, it was preferred to be presented by the gender graph. When the relationship between the gender, age groups, education level, average monthly revenue of the respondents and the use of folic acid was examined statistically, a significant relationship was found between them, respectively (χ2:204.596, χ2:109.265, χ2:159.826 and χ2:144.971, $P<0.05$).

3.3.2. VITAMIN B12

Proportional distribution of Vit B12 use according to age factor was shown in Fig. 4.

Since the aging factor can be effective in vitamin B12 deficiency, the presentation of the age graph was preferred.

In this study, the awareness and use of vitamin B12 increased in respondents aged 50 and over. When the relationship between the gender, age groups, education level, average monthly revenue of the respondents and the use of vitamin B12 was examined statistically, a significant relationship was found between them, respectively (χ2: 64.320, χ2:181.427, χ2:75.635 and χ2:70.798, $P<0.05$).

3.3.3. IRON

When the proportional distribution of the answers about the recognition and use of iron was examined in relation to gender, it was found that the level of knowledge and usage of women were higher than that of men (Figure 2). So, it was preferred to be presented by the gender graph. When the relationship between the gender, age groups, education level,

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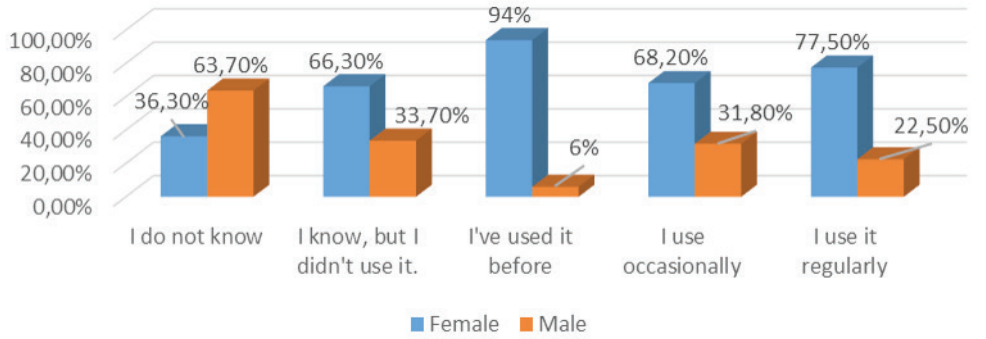
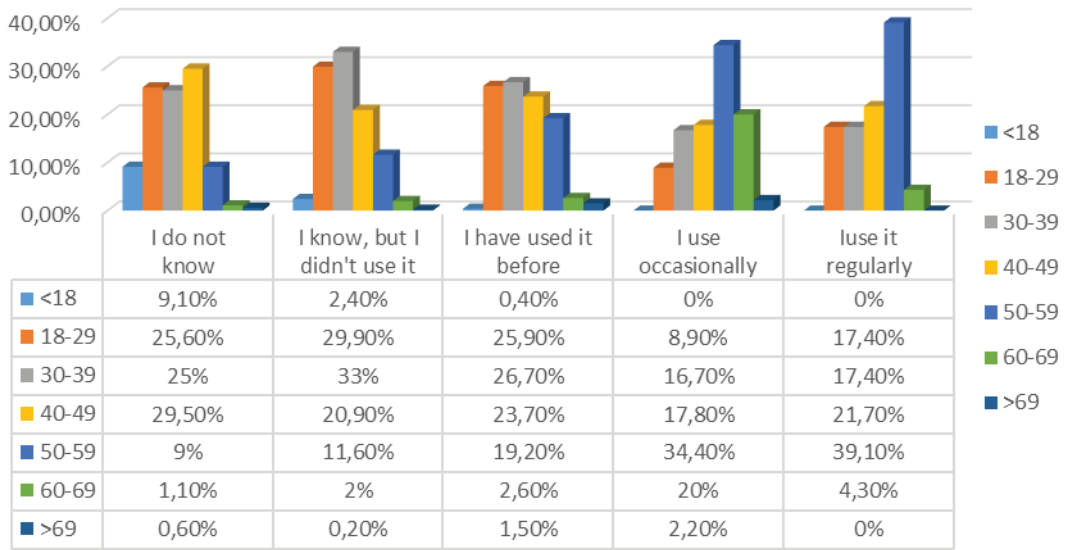


Figure 1. Proportional distribution of folic acid use and gender factor (%)



	I do not know	I know, but I didn't use it	I have used it before	I use occasionally	Iuse it regularly
<18	9,10%	2,40%	0,40%	0%	0%
18-29	25,60%	29,90%	25,90%	8,90%	17,40%
30-39	25%	33%	26,70%	16,70%	17,40%
40-49	29,50%	20,90%	23,70%	17,80%	21,70%
50-59	9%	11,60%	19,20%	34,40%	39,10%
60-69	1,10%	2%	2,60%	20%	4,30%
>69	0,60%	0,20%	1,50%	2,20%	0%

Figure 4. Proportional distribution of Vit B12 use according to age factor (%)

average monthly revenue of the respondents and the use of iron was examined statistically, a significant relationship was found between them, respectively (χ2:132.240, χ2:65.744, χ2:180.235 and χ2:121.067, P<0.05).

Proportional distribution of iron use according to age factor was shown in Figure 3. Iron use of respondents aged 18-49 was much higher than that of other age groups. Respondents under 18 were not use iron regularly.

3.3.4 CALCIUM

Proportional distribution of calcium use according to age factor was shown in Figure 5. Since calcium is mostly associated with bone health and osteoporosis, it was preferred to be presented by the age factor graph.

When the relationship between the gender, age groups, education level, average monthly revenue of the respondents and the use of calcium was examined statistically, a significant relationship was found between them, respectively (χ2:90.382, χ2:71.055, χ2:152.211 and χ2:141.061, P<0.05).

In this study, it was determined that respondents between the ages of 40-49 use calcium occasionally or regularly.

3.3.5. MAGNESIUM

Proportional distribution of magnesium use according to age factor was shown in Figure 6. When the re-

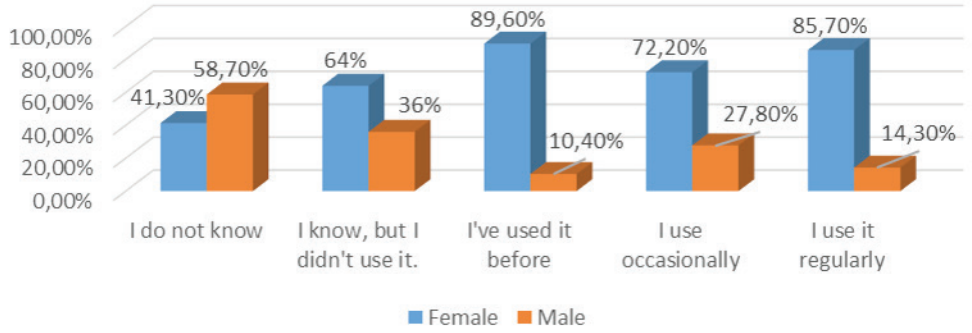
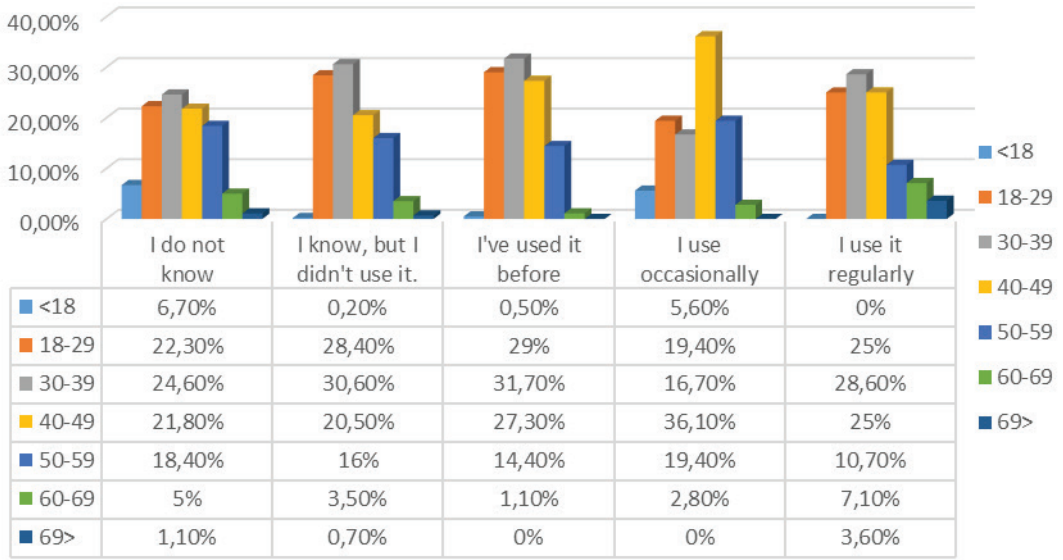
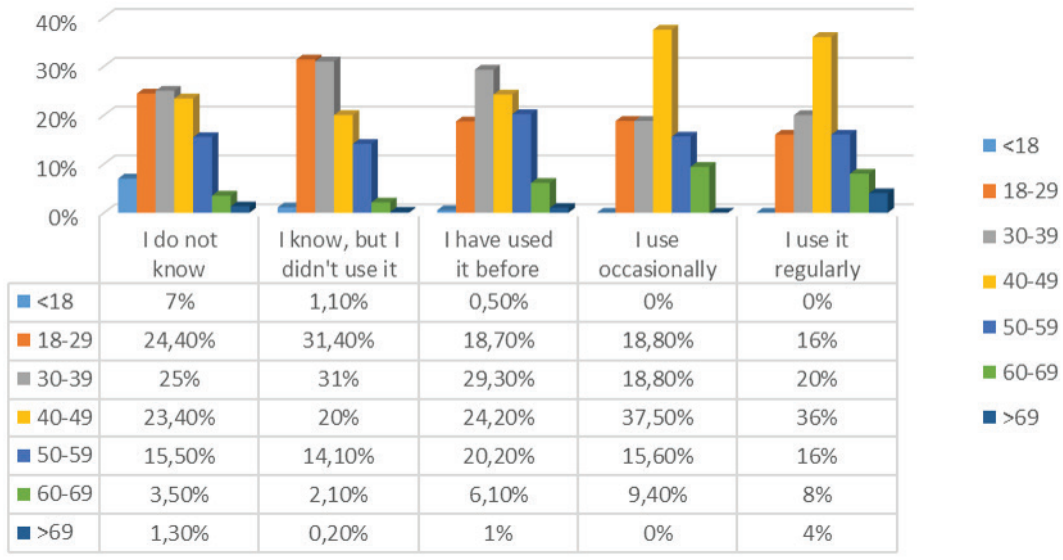


Figure 2. Proportional distribution of iron use according to gender (%)



	I do not know	I know, but I didn't use it.	I've used it before	I use occasionally	I use it regularly
<18	6,70%	0,20%	0,50%	5,60%	0%
18-29	22,30%	28,40%	29%	19,40%	25%
30-39	24,60%	30,60%	31,70%	16,70%	28,60%
40-49	21,80%	20,50%	27,30%	36,10%	25%
50-59	18,40%	16%	14,40%	19,40%	10,70%
60-69	5%	3,50%	1,10%	2,80%	7,10%
69>	1,10%	0,70%	0%	0%	3,60%

Figure 3. Proportional distribution (%) of iron use according to age factor



	I do not know	I know, but I didn't use it	I have used it before	I use occasionally	I use it regularly
<18	7%	1,10%	0,50%	0%	0%
18-29	24,40%	31,40%	18,70%	18,80%	16%
30-39	25%	31%	29,30%	18,80%	20%
40-49	23,40%	20%	24,20%	37,50%	36%
50-59	15,50%	14,10%	20,20%	15,60%	16%
60-69	3,50%	2,10%	6,10%	9,40%	8%
>69	1,30%	0,20%	1%	0%	4%

Figure 5. Proportional distribution of calcium use according to age factor (%)

ISSN: 2458 - 8806

lationship between the gender, age groups, education level, average monthly revenue of the respondents and the use of magnesium was examined statistically, a significant relationship was found between them, respectively (χ2: 79.474, χ2:56.875, χ2:181.873 and χ2:153.797, P<0.05). According to the results of this research, the proportion of people between the ages of 40-49 was the highest among those who use it occasionally, but the rate of those who use it regularly was considerably high.

3.3.6 FISH OIL

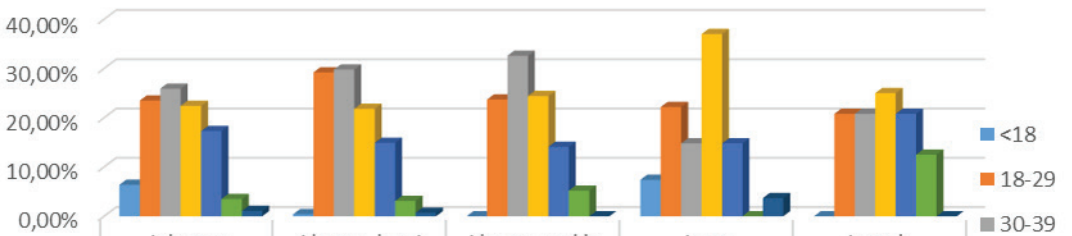
When asked about the use of fish oil as a food supplement, 30.1% of 386 respondents using food supplements stated that they use fish oil as food supplement and 69.9% of 386 respondents stated that they do not use fish oil. As the education level of the respondents increases, it was seen that there is an increase in the use of fish oil (Figure 7). This is the reason why the education graph was presented. Since the number of respondents without education was 1, it was not specified in this figure. When the relationship between the education level of the respondents and the use of fish oil was examined statistically, a significant relationship was found between them (χ2: 14.289, P<0.05).

3.3.6.1. PAYING ATTENTION TO EPA, DHA CONTENTS WHILE BUYING FISH OIL

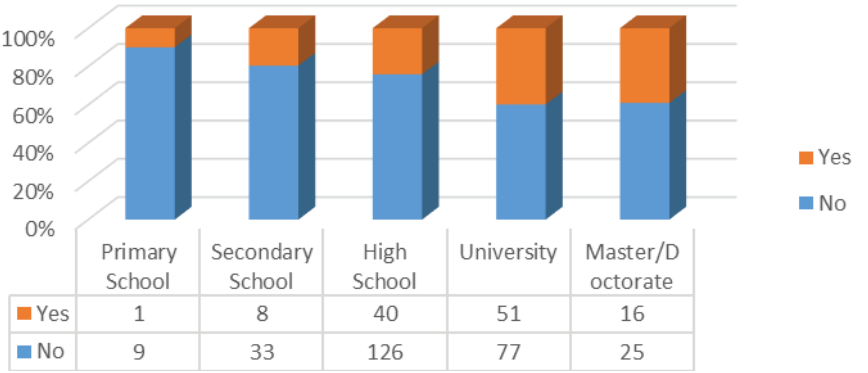
Only 48 (41.4%) of the 116 respondents using fish oil said they were looking at the EPA and DHA values stated in the label information when buying fish oil. The number of people who stated that they do not have any knowledge about DHA and EPA was 68 (58.6%). It was found that paying attention to the EPA and DHA contents written on the product label while buying fish oil showed a significant increase with the level of education. This relationship was statistically significant (χ2:27.488, P<0.05). While none of the primary and secondary school graduates have knowledge of EPA and DHA, most master and doctorate graduates pay attention to EPA and DHA when purchasing fish oil. There was an increase in direct proportion with the level of education in paying attention to EPA and DHA values (Table 3).

3.3.6.2. TO KNOW SOME PROVEN FUNCTIONAL PROPERTIES OF SUPPLEMENTS CONTAINING OMEGA GROUP FATTY ACIDS

In this section of the survey, 267 comments were received from 116 people who stated that they used fish oil in relation to “Information about the proven functional properties of omega group fatty acids” (Figure 8).



	I do not know	I know, but I didn't use it	I have used it before	I use occasionally	I use it regularly
<18	6,40%	0,40%	0%	7,40%	0%
18-29	23,50%	29,20%	23,70%	22,20%	20,80%
30-39	25,90%	29,80%	32,60%	14,80%	20,80%
40-49	22,40%	21,80%	24,40%	37%	25%
50-59	17,30%	14,90%	14,10%	14,80%	20,80%
60-69	3,50%	3,10%	5,20%	0%	12,50%
>69	1,10%	0,70%	0%	3,70%	0%



	Primary School	Secondary School	High School	University	Master/Doctorate
Yes	1	8	40	51	16
No	9	33	126	77	25

Figure 7. Distribution of fish oil use according to educational level groups

3.3.6.3. PARTICIPATION IN SOME DECISIONS ABOUT OMEGA GROUP FATTY ACIDS

Proportional distribution of the answers to the question asked to respondents using fish oil 'to measure the awareness level of the judgments about omega group fatty acids' was shown in Figure 9.

3.4 PAYING ATTENTION TO THE NATURALNESS OF FOOD SUPPLEMENTS

When respondents were asked for their opinions on whether supplements they use or will use are natural or synthetic: 59.4% of them answered 'Important' while 6.7% of them said 'Not important'. While 24% of the respondents had no idea about this issue, 9.9% of the respondents answered 'it's all one to me'.

4. DISCUSSION

In this study, the majority of the respondents reported that they do not use food supplements. The majority of the respondents using food supplements were women.

In a study conducted by Timbo et al. [8], questioned adults in households who is older than 18, in 50 states and District of Columbia, it was determined that 73% of 2743 respondents used food supplements. This rate is considerably higher than the rate in this study (38.22%). This may be due to regional differences, diet, guidance on food supplements.

In the study conducted by Giammarioli et al. [9], food supplements use was investigated for people over 18 year old living in 10 towns (two towns from each of the five macro areas: Northwest, Northeast, Center, South, and Islands) of Italy. It was found that 842 (49%) of 1723 respondents used food supplements and 56% of user respondents was women, 41% was men. In that study, the rate of those using food supplements is higher than in this study. The rate of woman users is lower than this study's, and the rate of male users is higher than this study's. The reason for this may be the high level of income of the respondents in that study, or their differences in

Table 3. Proportional distribution of attention to EPA, DHA content when purchasing fish oil by respondents using fish oil, depending on the education factor (%)

	Yes	I am not about DHA and EPA
Primary School	0.00%	100%
Secondary School	0.00%	100%
High School	22.50%	77.50%
University	49.02%	50.98%
Master/Doctorate	87.50%	12.50%

ISSN: 2458 - 8806

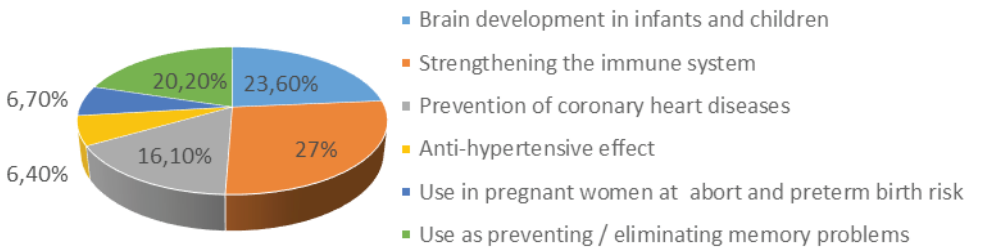


Figure 8. Proportional distribution of knowledge about the proven functional properties of omega group fatty acids (%)

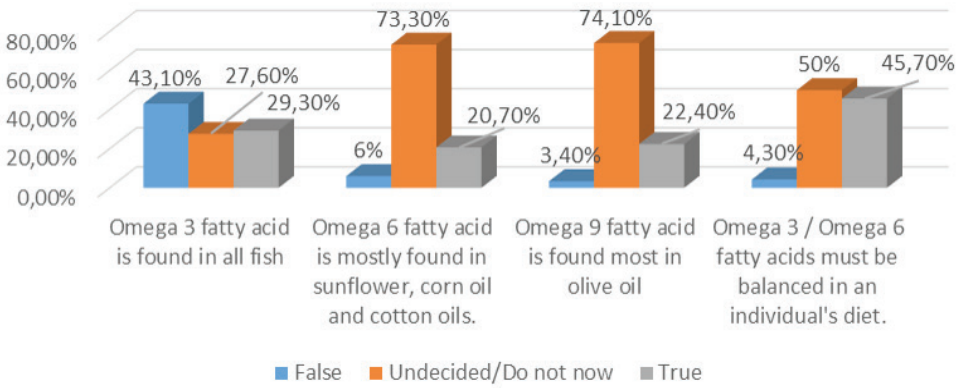


Figure 9. Proportional distribution of level of participation in judgments about omega group fatty acids

perception and knowledge about food supplements. In a study conducted by Kiely et al. [10], the food supplement use of randomly selected Irish respondents 1379 (662 men and 717 women) aged 18 to 64 years old was investigated using a 7-day food diary in North / South Ireland. Respondents who are between the ages of 36-50 mostly used food supplements. In this study, as the age of the participants increased, the rate of food supplement usage increased. The proportion of those who use food supplements is lower than in this study. The rate of woman users is lower than this study's, and the rate of male users is higher than this study's. Respondents in that study may not think they need to use food supplements. Or they may be hesitant about using food supplements.

A survey was performed within a research project directed by Nilsson et al. [11]. Amongst 5794 randomly selected respondents (25–74 years old) 30.5% reported that they had taken a CAM product in the previous 2 weeks. Use of CAM remedies was more frequent in women than in men and more frequent in people with high education level than with low level of education. It was significantly more common especially in women with poor judgement.

Studies have shown that the proportion of women among those using food supplements is higher than that of men. This may mean that women care more about their personal health than men. The most important reason for this may be the following: Women often need food supplements for themselves and their babies during pregnancy and lactation. For this purpose, they want to supplement their deficiencies by using food supplements before these periods. Even after these periods, they want to use food supplements to complement the deficiencies that occur in their bodies. Also after menopause is a period which food supplements (such as calcium) are needed.

In a study conducted by McNaughton et al. [12] in the 1946 British Cohort, respondents were 53 years old. In that study, 7 of 208 men using food supplements, 10 of 428 women were using zinc. In other words, approximately 2.67% of those using food supplements were using zinc. In this study, 1.81% of food supplement users aged 50-59 were using occasionally and regularly zinc. This rate is lower than the rate in their study.

Folic acid is used mostly for the health of the baby before and during pregnancy on the advice of the at-

tending physician. In a study conducted by Köken et al. [13], it was investigated folic acid use in reproductive age patients (n= 472) and pregnant women (n= 345). In that study, 48.2% of the respondents stated that they know that folic acid prevents congenital anomalies. Knowledge and usage of folic acid were increasing with increasing economic and educational level. Only 14.2% of pregnant women used folic acid starting from preconceptional period. Folic acid usage rate in the first 3 months of pregnancy was 48.6%. In this study, the rates of usage and knowledge of folic acid were high and its usage increased as the level of education and income increased. It was found that the level of knowledge and use of women was higher than that of men.

In a other study, 2 of 208 men using food supplements and 4 of 428 women using food supplements were using folic acid [12]. These numbers are considerably lower than those in this study. This may be due to the high age (53) of the respondents in that study.

In this study, the levels of knowledge and usage of women about iron were higher than that of men. This may be on the advice of a physician during pregnancy planning and pregnancy, as in the case of folic acid use. Or it may be due to the use of iron on the advice of a doctor in order to compensate for the iron deficiency associated with the abundance of bleeding during the menstrual period. In this study, regular or occasional use of iron was determined between the ages of 18-49. The age group 18-49 corresponds approximately to the menstrual period.

In a study which the age of the participants was 53, 2 of 208 (0.96%) men and 8 of 428 (1.87%) women using food supplements were using iron. In that study, 2 of 208 (0.96%) men and 30 of 428 (7%) women using food supplements were using Ca. In other words, approximately 5% of those using food supplements were using Ca [12]. In this study, 31.6% of the respondents aged 50-59 was using occasionally or regularly calcium. 30.1% of the respondents aged 50-59 was using occasionally or regularly iron. This rates are considerably higher than the rate in their study. Calcium intake may be required due to frequent osteoporosis in the elderly [14].

A study by Tel Adıgüzel et al. [15] was conducted on 203 pregnant women, whose ages were between 20-43 years. In that study, found that the rate of iron usage during pregnancy was 75.4%. It was found that the usage rate of magnesium + calcium supplements during pregnancy was 11.3%.

In a study conducted by Marques-Vidal et al. [16] in Lausanne, Switzerland, 6186 respondents in total, 3249 women and 2937 men aged 35-75 were investigated for food supplement use. In that study, the use of calcium and iron was 6.6% and 1.8%, respectively. In this study, the rate of calcium and iron users occasionally and regularly aged 30-69 were average 20.2% and 18.3%, respectively. In that study, 10.9%, and 3.2% of woman users were use calcium and iron, respectively. These rates were 1.8% and 0.3% for male users, respectively.

Women experience significant loss of calcium during pregnancy and after menopause. They may also suffer from iron deficiency due to excessive menstrual bleeding. They want to take iron supplements for the healthy development of their babies during pregnancy. For all these reasons, they may use more calcium and iron than men.

A total of 2114 patients aged 18-40 years were included in the study conducted by Doğan et al. [17] for 2 years. In the study where it was aimed to investigate the postnatal results and complications of pregnancy of pregnant women who take vitamin D, calcium and magnesium supplements as micro nutritional supplements. The number of those who used magnesium, calcium, vitamin D, and multivitamin supplements were 413, 520, 563 and 618, respectively. It was expressed that it is important for pregnant woman to have regular nutrition as well as taking vitamin and mineral supplements for having a healthy pregnancy, protection from maternal complications, growth and development of fetus. In this study also, the ranking of those who use these supplements occasionally or regularly has not changed.

Turkey is a country rich in plant and animal foods. It is unlikely that nutritional deficiencies will occur when consumed correctly and adequately. Sometimes diet (such as vegetarianism), sometimes economic inadequacies and sometimes personal preferences affect food intake. Turkey is a country with plenty of sunshine on most days of the year. This is an advantage for vitamin D intake. This means that Turkey is an advantageous country in vitamins, minerals and other nutrients terms. For some reason, food supplements can be preferred in nutritional deficiencies.

ISSN: 2458 - 8806

In a study, the rate of multivitamin users was 15.9% of supplement users (n=2,101) [8]. In another study, 27 of 208 men and 47 of 428 women using food supplements were using multivitamins. In other words, approximately 11.64% of those using food supplements were using multivitamins [12]. In this study, the rate of multivitamin users occasionaly and regularly was 22.28 % of supplement users (n=386). This rate is higher than the rate in their study.

In a study conducted Giammarioli et al. [9], the majority of respondents using food supplements (54%) were using more than one category of food supplements. Vitamin and/or mineral supplements were the most commonly used by 61 % of users. In another study, vitamins/minerals, fish oil, ginseng and Q-10 were taken by 11.7%, 7.0%, 3.4% and 2.1%, respectively [11]. In this study also, vitamins and minerals were mostly used.

In that study performed by Kiely et al. [10], 184 of 1379 respondents used one kind of nutritional and non-nutritional supplements. The numbers of respondents using vitamin C, B / B complex, vitamin E, multivitamins and folic acid were 17(9.2%), 15(8.2%), 9(4.9), 5(2.7%) and 2(1.1%), respectively. The numbers of respondents using iron, calcium, zinc, and magnesium were 13(7.1%), 9(4.9%), 3(1.6%) and 1(0.5%), respectively. As in this study, the use of vitamins C and B and iron and calcium were high in their study.

Vitamin C is one of the most widely known and used vitamins among the people. Not consuming enough fruits and vegetables rich in C vitamins can cause their deficiency. In one study, smoking habit has been expressed and reduced vitamin C absorption [18]. After all, it is taken as a food supplement in order to fill the deficiency.

In a study of Ergen and Bozkurt Bekoğlu [19], respondents' reasons for using nutritional supplements were immune strengthening, preventing fatigue, and improving physical and mental performance. In that study, glucosamine was the least recognized food supplement by 673 people aged 18 and over in Istanbul. Glucosamine, which has the lowest consumption rate (7.2%). In that study, it was seen that the consumption amounts of vitamins C, B, D and calcium were high (vitamin C, 63.5%; vitamin B, 50.3%; calcium, 43.1%; vitamin D 42.6%). The results of their study were similar to the results obtained in this study. In that study, the usage rates of multivitamin, vitamin E and fish oils were 28.4%, 38% and 31.5%, respectively. The majority of respondents don't use multivitamin, glucosamine and calcium, vitamin D, Vitamin E, fish oil although they know them. The proportion of respondents who know and use vitamin B and vitamin C was high. According to the results of this research, respondents do not have information about products that do not have much advertising. Respondents learnt and used these products when they engage in solution-oriented research in the event of any illness.

In a study conducted by Barnes et al. [20], the rates of who using glucosamine, ginseng in adult respondents (n=3,345) were 19.9%, 14.1%, respectively. In this study, the rates of who have used it before and using occasionally, regularly glucosamine chondritin and panax ginseng were 3.3% and 5.2%, respectively [21]. The results obtained in this study were considerably lower than theirs.

In a study conducted by Ock et el. [21], to investigate dietary supplement use of South Korean adults aged 30 to 69 in 2006, 23.1%, 14%, 9.6% and 9% of the total respondents (n=3000) were using ginseng, multivitamin, glucosamin and vitamin C, respectively. In this study, the rates of those who have used it before and using occasionally, regularly were 5.2%, 22.1%, 3.3% and 33.2% of the total respondents (n=1010), respectively. In this study multivitamin and Vit C usage rate were higher than the rates of theirs. Ginseng and glucosamine use rates were quite low compared to theirs.

In this study, fish oil consumption has increased with the increase in education level. However, the number of those who do not consume fish oil is higher than those who consume fish oil. Thrace is a piece of land surrounded by seas on 3 sides. In this regard, there is no problem in the supply of fish for consumption. Those who do not consume fish too often or do not like fish may be fish oil consumers.

Because the functional properties of fish oil products such as 'strengthening the immune system' and 'brain development in infants and children' are emphasized more in visual-written communication in advertisements, brochures etc., user respondents may have more information about these features than others.

In a study [12], 119 (57%) of 208 men using food supplements and 181 (42%) of 428 women using food supplement were using fish oil. In a other study,

3.2% of the respondents stated that they did not recognize fish oil, 65.3% knew it and 31.5% used it. In that study, it was determined that fish oil usage changes according to income [19]. In this study, 15.54% of food supplement users (n=386) were using fish oil. This rate is considerably lower than the rate in their study. This may be due to the fact that the respondents in that study knew more about the importance of fish oil.

In the study performed by Barnes et al. [20] within the scope of NHIS (National Health Statistics Reports) interviews in 2007, in U.S., the number of respondents using natural products in the past 30 days for health reasons in adults 18 and older has been determined. In that report based on data from 23,393 completed interviews with sample adults aged 18 years and over, the rate of those who using fish oil, omega 3 or DHA in adult respondents was 37.4%. The results obtained in this study were considerably lower than theirs.

In a study conducted by Verbeke et al. [22], it was seen that those who agree/strongly agree with omega 3 that is useful constitute 31.8% of the total respondents (n=429). Neutral respondents were 61.9% of all respondents. The respondents who say strongly disagree/disagree were 6.3% of all respondents. The proportion of consumers who are aware that fish contain omega-3 fatty acids and that these have a positive effect on human health was 31.8%. In general, consumer awareness of omega-3 fatty acids was weak. In this study, there is an increase in direct proportion with the level of education in paying attention to EPA and DHA values. Consumers may be more aware of health as education level increases. More educated groups are considered to have a better income [23]. This may affect product purchase.

In a study conducted by Kandıralı [24], it was determined the awareness, knowledge levels and consumption frequencies of 70 individuals (18 men, 52 women) aged 20-65 who applied to a special nutrition and diet counseling center in Üsküdar district of Istanbul province. In that study, the rate of knowing about foods with increased amount omega 3, omega 6 and omega 9 fatty acids was 61.4%. The rate of respondents who claim that omega 3, omega 6 and omega 9 fatty acids decrease serum cholesterol and have protective effect against cardiovascular diseases was 54.3%. In addition, the rate of those who advocate that these have protective effects against breast, colon and prostate cancers was 31.4%, and the rate of those who advocate that they have the effect of improving mental and visual functions was 37.1%. In this study, most of the respondents answered “I am undecided” to most of the judgements regarding omega fatty acids.

In this study, the rate of those who claim that omega-3 fatty acids are not found in all fish (43.10%) was higher than the rate of those who claim that they are present in all fish (29.30%). The rate of those who advocate that omega-6 fatty acids are mostly found in sunflower, corn oil and cotton oil was much lower than the rate of those who are not knowledgeable or undecided. The ratio of those who say ‘right’ to the idea that omega 3 / omega 6 fatty acids should be balanced in personal diet was higher than those who say ‘wrong’. All this shows that omega-3 fatty acids are better known than Omega-6 and 9.

Consumers’ information on omega fatty acids is often incorrect or incomplete. Even if the public is aware of the health benefits of omega-3 fatty acids, they do not know that different omega-3 fatty acids have different effectiveness. Omega-3 fatty acids vary in their physiological efficacy. This lack of information can cause consumers to purchase omega-3 fatty acids incorrectly. Consumers should be educated in this regard [25].

Although the price of natural ones is higher than synthetic ones, the respondents prefer mostly natural products in food supplements. This may be because they think natural products are more effective and safe for their health.

5. CONCLUSION

It was determined that most of the respondents did not know about food supplements other than vitamins and minerals. Although people consume fish oil, it has been determined that they do not have sufficient awareness about the EPA, DHA content and proven functional properties of the product. People stated that it is important that the food supplements they use are natural products. Thrace is a region that can easily access foods with high nutritional value in terms of social and economic aspects. Using food supplements when they are not needed, using them unconsciously, can lead to various health problems. They can be beneficial if medical doctor found them necessary for certain cases. Food sup-

ISSN: 2458 - 8806

plements that have controlled production and proven benefits for health should be consumed on doctor's watch. Various projects should be prepared to raise public awareness. In addition, healthcare professionals, doctors, pharmacists, dieticians and other related professional groups should be informed periodically about food supplements and scientific developments about these products. This is important in terms of public health and the health of future generations.

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ISSN: 2458 - 8806