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DETERMINING THE RELATIONSHIP BETWEEN ADULTS' NUTRITIONAL HABITS AND CONSTIPATION

Yetişkinlerin Beslenme Alışkanlıklarının Konstipasyon ile İlişkisinin Belirlenmesi

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ABSTRACT

This study was planned and conducted to determine the relationship between dietary habits and constipation status of adults. The data of the study were obtained via an online questionnaire. The presence of less than three defecations per week was considered as constipation (+). The questionnaire form used to collect the study data included socio-demographic characteristics, eating habits, consumption status of food groups according to the International Physical Activity Form (Short Version) and national dietary guide recommendations. The study was conducted with 330 participants. The prevalence of constipation was determined as 28.8% among the participants in the study. Among those with constipation (+), 55.8% reported consuming two main meals per day and 50.5% reported skipping meals. The weekly walking activity of participants with constipation (+) was statistically lower than those with constipation (-) ($p<0.05$). According to the multivariate regression result, significant positive effects of dairy products and bread, cereal and legume groups were found on constipation status. As a result, constipation is closely associated with dietary habits and food groups. In particular, the consumption of dairy products and bread, cereals and legume groups in recommended amounts can reduce the risk of constipation and/or utilized in its treatment.

Anahtar kelimeler: Constipation, Food groups, Physical activity, Turkey dietary guideline.

ÖZ

Bu araştırma, yetişkinlerin beslenme alışkanlıkları ile konstipasyon durumlarının ilişkisini belirlemek amacıyla planlanmış ve yürütülmüştür. Araştırmanın verileri, çevrim içi anket aracılığıyla elde edilmiştir. Katılımcıların haftada üçten az defekasyon durumu varlığı konstipasyon (+) olarak değerlendirilmiştir. Araştırma verilerin elde edilmesi için kullanılan anket formu, sosyo-demografik özellikler, beslenme alışkanlıkları, Uluslararası Fiziksel Aktivite Formu (Kısa Versiyon) ve ulusal beslenme rehberi önerilerine göre besin gruplarının tüketim durumları yer almaktadır. Araştırma 330 katılımcı ile yürütülmüştür. Araştırmada yer alan katılımcılar arasında konstipasyon görülme sıklığı %28.8 olarak belirlenmiştir. Konstipasyon (+) olanların %55.8'i günde iki ana öğün tükettiğini ve %50.5'i öğün atladığını beyan etmiştir. Konstipasyon (+) olan katılımcıların konstipasyon (-) olan bireylere kıyasla haftalık yürüme aktivitesi istatistiksel olarak daha düşüktür ($p<0.05$). Süt ve ürünleri ve ekmek, tahıl ve kurubaklagil gruplarının çok değişkenli regresyon sonucuna göre anlamlı pozitif etkileri tespit edilmiştir. Sonuç olarak, konstipasyon durumu besin ve besin grupları ile yakından ilişkilidir. Özellikle süt ve ürünleri ve ekmek, tahıl ve kuru baklagil gruplarının önerilen miktarlarda tüketimi kontipasyon riskini azaltabilir ve/veya tedavisinde kullanılabilir.

Keywords: Besin grupları, Fiziksel aktivite, Konstipasyon, Türkiye beslenme rehberi.

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INTRODUCTION

In the past, health was defined as the absence of disease or disability. The World Health Organization (WHO) defines health today as "not only the absence of disease or disability, but also a state of complete physical, social, and spiritual well-being" (WHO, 2006). The right end of the graduated double-sided arrow represent total well-being, the left end as unhealthy or disease, and the center point as neutral health can be used to analyze the idea of health-illness. In this context, simple injuries, infections, and bone-joint disorders can be seen as situations where neutral health is affected. Multiple organ failure, some cancers, such as stomach and pancreatic cancer, severe traumas, sepsis or serious infections, and neurodegenerative diseases for which the exact treatment has not yet been determined, can all be said to be serious disease states. Non-metabolic obesity, malnutrition, and digestive system diseases including diarrhea and constipation are moderate disease states that shift the health-disease plane to the left when perceived in terms of nutrition. These digestive system issues could be persistent health issues with no known cause or they could be symptoms of any disease (Uzun, Coşar & Erkut, 2019).

Clinically, the term "constipation" is used to describe a wide range of signs and symptoms, such as hard stools, excessive straining, irregular bowel movements, bloating, and discomfort in the stomach. According to consensus criteria (Folden, 2002), it is typically categorized as acute if it lasts less than a week and chronic if it lasts longer than four weeks or more than three months. Acute constipation is cured quickly with laxative drugs or short-term dietary fiber supplements and results from dietary changes, travel, or regular physical activity (Rao, Rattanakovit & Patcharatrakul, 2016). Chronic constipation typically results from a basic decline in bowel function (primary constipation), which can be brought on by dietary variables (such as a diet insufficient in fiber), lifestyle factors (such as a sedentary lifestyle), or diseases of colonic propulsion or rectal emptying. Secondary constipation is also defined as constipation brought on by the use of opioids or antihypertensive medications, organic diseases such as systemic diseases (such as hypothyroidism or Parkinson's disease), or a local pathology in the colon (such as colon cancer or diverticular stenosis) (Camilleri et al., 2017). Because there are various ways to identify the disease, it is impossible to determine the prevalence of constipation (Konradsen, Lundberg, Florin & Boström, 2022). According to a recently published report, 3-31% of individuals suffer constipation, and every year, about one million people seek treatment at outpatient clinics for the disease. (Lembo, 2023). 7% of 990 participants in research by Cifci, Çiftçi, Gokdemir, Aygun & Guldal (2023) had constipation as their most common gastrointestinal disorder. Among the risk factors for constipation include advanced age, female

gender, low socioeconomic status, sedentary lifestyle, depression, some drugs, and nutrition (Bharucha & Sharma; 2018; Forootan, Bagheri & Darvishi, 2018).

Nutrition means feeding the body with the macro and micronutrients it requires in an adequate and balanced level. Dietary fiber is defined as components present in foods in both soluble and insoluble forms, including all of its solubility, viscosity, volume-increasing properties, water binding properties, and resistance to digestive enzymes (Stephen et al., 2017). A daily intake of 25 g of dietary fiber for adults is recommended by the Türkiye Dietary Guideline (TÜBER) 2022 (T.C. Sağlık Bakanlığı, Halk Sağlığı Genel Müdürlüğü, 2022). According to healthy nutrition reports, consuming the appropriate daily intake of dietary fiber can help prevent constipation. Similarly, the British, American, and European guidelines (Bharucha, Dorn, Lembo & Pressman, 2013; Ford et al., 2014; Serra et al., 2020) suggest that dietary fiber should be used as the first line of treatment for persistent constipation. According to the recommendations of national and international nutrition guidelines, consumption of food groups also provides adequate dietary fiber intake.

This study aimed to determine the relationship between eating habits and constipation status of adult individuals.

MATERIAL AND METHOD

Objective and Type

This study, planned and conducted to determine the relationship between the constipation status of adults and their eating habits and consumption of food groups according to the Turkish Dietary Guidelines, has a descriptive and cross-sectional design.

Population and Sample

The sample of this study, which was planned and conducted in a cross-sectional-descriptive design, consisted of participants aged between 18-49 years and living in Türkiye. Considering the incidence of the phenomenon (20.6%) with the universe known sample size calculation method (I. C. Karakaya, Kilic, Yilmaz & M. G. Karakaya, 2015), the requirement of at least 252 participants with a 5% margin of error and 95% confidence interval was determined by Raosoft Sample Size Calculator software. In order to increase the strength and effect size of the study, at least 300 participants were aimed and the study was completed with 330 participants.

Data Collection and Statistical Analysis

Before participating in the study, general information about the study was given to the participants through the questionnaire and it was guaranteed that the study data would be used only for the purpose of scientific analysis. The data of the study were obtained via an online questionnaire form (Google Forms). The questionnaire form was created by the researchers after reviewing the literature on the topic and delivered to the participants digitally through various social media tools. The participation to the research was completely voluntary, participants who volunteered were asked to confirm the option of participation in the study at the beginning of the online questionnaire form. The questionnaire form consisted of socio-demographic information of the participants (age, body weight, height, smoking and alcohol use, etc.), eating habits (number of main meals and snacks consumed, skipping meals, eating habits outside the home, etc.), physical activity and consumption of recommended amounts of food groups. The body weight and height of the participants were based on self-reports. Body mass index (BMI) was obtained by dividing body weight (kg) by the square of height (m^2). Participants were evaluated according to WHO (BMI classification: BMI value <18.5 kg/m^2 underweight, 18.5-24.9 kg/m^2 normal, 25.0-29.9 kg/m^2 overweight, ≥30 kg/m^2 obese, respectively) (WHO, 2000).

Assessment of Constipation Status

Constipation status was determined by asking about frequency of weekly defecation to the participants. Accordingly, less than three defecations per week were considered as constipation (+) and three or more defecations per week was considered as constipation (-) (Markland et al., 2013).

Assessment of Consumption of Food Groups in Recommended Amounts

The consumption recommended portion amounts of food groups were determined according to TÜBER-2022 (T.C. Sağlık Bakanlığı, Halk Sağlığı Genel Müdürlüğü, 2022). According to the guideline, which includes adequate, balanced and healthy nutrition suggestions and nutrient requirements for the Turkish population, the recommended daily consumption of food groups for individuals aged 18-49 years are as follows 3 servings for dairy products (for both genders), 1.5 servings for meat and products (for both genders), 5 servings for men and 3.5-4 servings for women for bread, cereals and legumes, 3.5 servings for men and 2.5 servings for women for vegetables, 2.5 servings for men and 2.5 servings for women for fruits and 1.5 servings for oilseeds (for both genders). Participants were asked to answer "yes" if completely consuming the food groups, and "no" if not consuming the food groups according

to TÜBER. In addition, detailed amounts of 1 portion of the food groups were explained during the questioning of the portion amounts of the participants' consumption of food groups. For example; 1 portion of dairy products was described as 1 cup of milk / 1 small bowl of yogurt / 1 cup of kefir / 1.5 cups of ayran / 3 fingers of white cheese / 2 fingers of cheddar cheese.

Assessment of Physical Activity Level

The physical activity levels of the participants were assessed by using the International Physical Activity Questionnaire Short Form (IPAQ) (Craig et al., 2017). The IPAQ calculates the metabolic equivalent (MET) by measuring the frequency, duration and intensity level of physical activity in the last seven days and evaluates the weekly amount of physical activity. Weekly activity duration is calculated as (MET-min/week). Physical activity levels of individuals according to the calculated MET value: <600 MET-min/week "inactive" (sedentary, inactive), 600-3000 MET-min/week "minimally active" and >3000 MET-min/week "very active" (physical activity that increases health). Although there are two versions of the IPAQ questionnaire, the short Turkish version of the questionnaire, the validity and reliability study of which was performed by Öztürk (2005), was used in this study.

The data were analysed with SPSS 25.0 software. Descriptive values were presented as number (n), percentage (%), arithmetic mean ($\bar{x}$) and standard error (SE). The compatibility of the variables with normal distribution was analysed by using visual (histogram and probability graphs) and analytical methods (Kolmogorov-Smirnov). Chi-Square tests were used for comparison of categorical data between groups and Independent T tests were used for comparison of quantitative data between groups. Univariate and multivariate regression analysis using the enter method was used to determine the effect of consumption recommended amounts of food groups on the constipation conditions of the participants. In regression models, consumption of food groups in recommended portion amounts was considered as independent variable and constipation status was considered as dependent variable. The significance level was accepted as $p<0.05$ in all statistical analyses.

Limitations

The limitations of the study are that it has a cross-sectional design and that it cannot be generalized to the whole population since it was conducted with a relatively small sample. However, despite all these limitations, the findings of this study are believed to provide valuable insights for the national and international literature.

Ethics

Ethics committee permission was obtained from Burdur Mehmet Akif Ersoy University Non-Interventional Clinical Research Ethics Committee with the decision dated 04.10.2023 and numbered GO 2023/463.

RESULTS

Participants' socio-demographic characteristics according to constipation status are shown in Table 1. The overall prevalence of constipation was found as 29.5% in women, 35.1% in ages over 30 years, 38.7% in obese and 48.8% in those with chronic diseases.

Table 1. Characteristics of Participants According to Constipation Status

	Constipation (+) (n: 95)		**Constipation (-) (n:235)**		**Constipation (%)**	**p**
	n	**%**	**n**	**%**		
Gender						
Women	72	75.8	172	73.2	29.5	0.367
Men	23	24.2	63	26.8	26.7	
Age (years)						
18-22	59	62.1	142	60.4	29.4	
23-30	16	16.8	56	23.8	22.2	0.266
>30	20	21.1	37	15.8	35.1	
BMI classification						
Underweight	9	9.5	22	9.4	29.0	
Normal	54	56.8	142	60.4	27.6	0.643
Overweight	20	21.1	52	22.1	27.8	
Obese	12	12.6	19	8.1	38.7	
Working						
Yes	73	76.8	175	74.5	29.4	0.676
No	22	23.2	60	25.4	26.8	
Smoking						
Yes	22	23.2	57	24.3	27.8	0.887
No	73	76.8	178	75.7	29.1	
Alcohol						
Yes	10	10.5	31	13.2	24.4	0.583
No	85	89.5	204	86.8	29.4	
Chronic disease						
Yes	9	9.5	12	5.1	48.8	**0.037**
No	86	90.4	223	94.9	27.8	

Table 2 shows some dietary habits of the participants according to their constipation status. Among the individuals with constipation (+), 55.8% consumed two main meals a day, 21.1% had no snacks, 50.5% skipped meals and 69.5% declared that usually ate out of home.

Table 2. Eating Habits of the Participants According to Constipation Status

	Constipation (+)		Constipation (-)		Constipation (%)	p
	n	%	n	%		
Main meals/day						
1	6	6.3	7	3.0	46.2	
2	53	55.8	129	54.9	29.1	0.330
3	36	37.9	99	42.1	26.7	
Snacks/day						
None	20	21.1	57	24.3	26.0	
1	35	36.8	74	31.5	32.1	0.742
2	27	28.4	75	31.9	26.5	
≥ 3	13	13.7	29	12.3	31.0	
Skipping meal						
Yes	48	50.5	107	45.5	31.0	
No	13	13.7	35	14.9	27.1	0.712
Sometimes	34	35.8	93	39.6	26.8	
Eating out of home						
Yes	66	69.5	159	67.7	29.3	
No	4	4.2	10	4.3	28.6	0.947
Sometimes	25	26.3	66	28.1	27.5	

The findings of the participants' physical activity levels according to constipation status are presented in Table 3. In terms of physical activity level, 30.5% of individuals with constipation (+) were sedentary/inactive, whereas 49.8% of those with constipation (-) were in the minimally active category. In addition, individuals with constipation (+) had a statistically lower weekly walking MET score compared to individuals with constipation (-) ($p<0.05$). However, no significant difference was found between the two groups in terms of severe, mean moderate and sitting MET scores ($p<0.05$).

Table 3. Physical Activity Levels of Participants According to Constipation Status

	Constipation (+)		Constipation (-)		Constipation (%)	p
	n	%	n	%		
Physical Activity Level						
Sedentary/Inactive	29	30.5	62	26.4	31.9	
Minimal active	46	48.4	117	49.8	28.2	0.714
Very active	20	21.1	56	23.8	26.3	
Physical Activity (MET-min/week) ($\bar{x}$ ± SE)						
Intense physical activity	543.6±134.4		751.8±179.7			0.482
Moderate physical activity	436.0±170.9		334.7±51.4			0.455
Walking	934.7±100.6		1324.9±110.2			**0.036**
Sitting (min/day)	342.9±169.5		354.8±173.0			0.569

Table 4 shows the univariate and multivariate effects of consumption status of food groups in recommended amounts on constipation status. As a result of the analysis, univariate effects of consuming dairy products group (OR: 0.545; 95% CI: 0.322-0.923; $p<0.05$), bread-cereals-legumes group (OR: 0.543; 95% CI: 0.335-0. 879; $p<0.05$) and fruit group (OR: 0.586; 95% CI: 0.348-0.987; $p<0.05$) had a lower risk of constipation compared to those who did not. As a result of multivariate analysis, it was found that consumption of dairy products and bread-

cereal-legume groups in recommended amounts decreased the risk of constipation statistically significantly ($p<0.05$).

Table 4. The Effect of Consuming Food Groups with Recommended Servings on Constipation Status

	Constipation (%)	Univariate				Multivariate			
Food group		**OR**	**p**	**95% CI**		**OR**	**p**	**95% CI**	
Dairy products									
No	33.0					**Reference**			
Yes	21.2	0.545	**0.024**	0.322	0.923	0.574	**0.046**	0.332	0.991
Meat and products									
No	28.4					**Reference**			
Yes	29.5	1.051	0.846	0.636	1.736	1.278	0.375	0.743	2.197
Bread, cereals and legumes									
No	35.5					**Reference**			
Yes	23.0	0.543	**0.013**	0.335	0.879	0.572	**0.039**	0.336	0.972
Vegetables									
No	33.1					**Reference**			
Yes	23.7	0.608	0.059	0.385	1.019	0.834	0.520	0.481	1.449
Fruits									
No	32.5					**Reference**			
Yes	22.0	0.586	**0.044**	0.348	0.987	0.621	0.111	0.345	1.115
Oilseeds									
No	28.8					**Reference**			
Yes	28.7	1.121	0.998	0.572	1.740	1.439	0.073	0.761	2.723

DISCUSSION

Three hundred thirty volunteers between the ages of 18 and 49 participated in this study to find out some dietary habits and food groups related to constipation. Age, gender, sedentary lifestyle, socioeconomic status, various diseases, and drugs taken for constipation have all been linked to the disease (Bharucha & Sharma, 2018; Forootan et al., 2018), but study on the relationship between specific food groups and constipation is scarce. Table 1 indicated that 28.8% of the study's participants had constipation. Although there is no statistically significant difference, the study shows that women, those over 30, and obese people had higher rates of constipation. Individuals diagnosed by a doctor differed statistically significantly in terms of their constipation status. Constipation is more common in women than males, which might be attributed to factors including genital organ prolapse and weak pelvic floor muscles in women (Menefee & Wall, 2004). In a study, Coremans, Margaritis & Gebruers (2005) demonstrated that there was a familial tendency to constipation and that the prevalence of it increased in mothers, sisters, and daughters of constipated women. In addition, Lim, Rosita, Chieng & Hazizi (2016) demonstrated that women were more likely than males to experience functional constipation (17.4% versus 12.5%) in their epidemiological analysis of individuals with the condition. Women experience constipation substantially more frequently than men, per a research by Verkuijl, Meinds, Trzpis & Broens (2020). A cohort study carried out in our nation

revealed that 13.6% of males and 18.5% of females had been given a constipation diagnosis (Yurtdaş et al., 2020). Age-related constipation is increasingly prevalent, particularly in people over 65 years. Constipation can develop for a variety of reasons, including aging-related declines in digestive system enzymes, muscle weakness, decreased nerve transmission, decreased physical activity, and inadequate calorie intake (Küçük & Karadeniz, 2021). Because of this, people over the age of 30 have been observed to have constipation more frequently. The reduced dietary fiber intake observed in obese people accounts for the association between obesity and constipation (Wagner, Equit, Niemczyk & von Gontard, 2015). Studies demonstrating a link between BMI and constipation are quite low. This might be as a result of the complex nature of both constipation and obesity. For instance, obesity and constipation are both associated with low levels of physical activity. Numerous drug classes that are used to treat diseases have been demonstrated to have the adverse effect of constipation (Ueki & Nakashima, 2019). Constipation can be brought on by sedentary lifestyles and poor eating habits. In this study, eating more main meals and not skipping meals resulted in a decrease in the frequency of constipation. Constipation and old age, poor mental health, and low levels of physical activity were significantly positively correlated, according to research by Harada et al. (2023) in both men and women. In addition, it was found that women's constipation and meal frequency had a strong unfavorable association. Females tend to take less calories and drink at meals, which helps to explain why this condition exclusively affects females. According to Nurbadriyah (2022) managing constipation requires consideration of the frequency, kind, and size of meals. Weekly walking grades of people without constipation are significantly higher than those of people with constipation, but there is no statistically significant difference between active and moderate physical activity and constipation when looking at the type of physical activity performed (Table 3). Constipation can happen during aerobic activities with high levels of physical activity even if there is a negative correlation between physical activity and the condition because of fluid-electrolyte imbalances and elevated intestinal permeability (Serbest, 2015).

It is well known that dairy products, particularly milk and cheese, can cause constipation. It has been demonstrated that casein derivatives and milk lipids contained in milk and its products cause constipation by slowing the transit passage in the gastrointestinal system, despite the fact that increased fluid consumption plays a significant role in the nutritional therapy of constipation (Aslam et al., 2022). Contrarily, prebiotics, probiotics, and other bioactive ingredients in fermented dairy products show protective benefits against constipation (Moreira, Leonhardt & Conde, 2017). In this study, those who consumed the recommended amounts of

dairy products had lower levels of constipation, and it was discovered that this could lessen the risk of constipation in both univariate and multivariate groups ($p<0.05$). In their study, Aslam et al. (2022) found that moderate milk consumption helped protect against constipation in women while having no effect on men. According to Zhao, Wang & Quan (2023) research, constipation and dietary phosphorus intake are mutually exclusive. The reason for this effect is that dietary phosphorus softens stools and increases frequency of feces. To more clearly expose their effects, milk and the products made from it must be evaluated independently.

A food group that has a high protein content but little dietary fiber is meat and its products. When consuming foods high in protein, the gastrointestinal tract releases hormones that slow down gastric motility, including cholecystokine and secretin hormone. As a result, foods like meat products may raise the chance of constipation. There weren't many research revealing this association, though, in the literature study. In this study, there is no statistically significant difference ($p>0.05$) despite the fact that the risk of constipation is higher in people who consume meat and products in the prescribed amounts. Okuda, Kunitsugu, Yoshitake & Sasaki (2019) failed to find a connection between meat and its byproducts. According to Omagari et al. (2020) persistent constipation is correlated with higher dietary protein (energy ratio), fat (energy ratio), cholesterol, animal protein (ratio), animal fat (ratio), meat, and egg intake, as well as lower carbohydrate energy ratio and vegetable fat ratio reported. Contrary to these research, some investigations have found that meals like meat and eggs are helpful for relieving constipation (Aslam et al., 2022; Fathallah, Bounchard & Parades, 2017).

Food groups with a high dietary fiber content include unrefined whole grain products and legumes. With their soluble and insoluble fiber contents, both food categories help to prevent constipation from developing (Stewart & Schroeder, 2013). In this study, it was discovered that individuals who ingested bread, cereals, and legumes in the required amounts had a lower incidence of constipation than those who did not ($p<0.05$). Constipation was reported to be cured by increasing the intake of whole grains, yogurt, and fresh vegetables in patients by Zhang et al. (2009) and Malcomson et al. (2021).

According to studies in the literature, eating dietary fiber-rich fruits and vegetables lowers the frequency of constipation regardless of age or gender. This study found that while eating of fruits and vegetables at recommended levels was associated with lower constipation, consumption of merely the recommended amount of fruit was associated with a lower risk of constipation ($p<0.05$). Due to its high water content and ability to increase stool volume, dietary fiber has been shown to have a favorable impact on constipation (Bellini et al., 2021; Yamada, Sekine, Tatsuse & Fujimura, 2021). This is because it speeds up colon transit by increasing the

formation of short-chain fatty acids. Consuming fruits and vegetables along with soluble dietary fiber, in particular, can result in softer and more frequent bowel movements. Nevertheless, due to their higher water content than other diets, fruits and vegetables may help with constipation. A study found that drinking water with little food was independently linked to a significant incidence of constipation (Murakami, Okubo & Sasaki, 2006). According to another study examining the link between eating fruit and constipation, eating pears, grapes, and apples, particularly peels, may be helpful in treating constipation because of their high dietary fiber content (Bae, 2015). In addition, it is stated that persimmon reduces intestinal secretion due to its high tannin content, and banana may have adverse effects on patients needing treatment for constipation due to their high tannin and resistant starch content (Shiga et al., 2011). Kiwi and prunes are evaluated to have positive effects in the treatment of constipation. A negative link between the frequency of fruit and vegetable eating and the incidence of constipation was discovered in an epidemiological study that examined the relationship between constipation status and fruit and vegetable consumption (Yang et al., 2016). It is advised to take into account the composition of the foods in these groups as well as the consumption status and to conduct more in-depth studies on these foods in order to observe the beneficial benefits of fruit and vegetable consumption on constipation.

The oilseed-nut category includes foods like walnuts, hazelnuts, almonds, peanuts, pumpkin seeds, and pistachios. Consuming oilseeds, one of the richest sources of dietary fiber, at the recommended levels had no discernible effect on constipation in this study ($p>0.05$). When the literature is evaluated, there aren't much research looking into the connection between eating nuts and seeds and constipation. It was discovered that daily eating of 40 g of almonds caused a considerable improvement in constipation in an experimental investigation carried out with hemodialysis patients (Lambert et al., 2020). Oilseeds' high dietary fiber content may help with constipation, however clinical studies are needed to prove this.

CONCLUSION

Foods rich in dietary fiber and adequate fluid consumption play an important role in the dietary treatment of constipation. However, each food group has different effects on constipation. Dairy products with high prebiotic and probiotic content have positive effects on constipation. Functional foods are also effective on constipation by adding these elements, which improve microflora and play an important role in improving and maintaining health, to dairy and meat products. Unrefined grain products and legumes are important sources of dietary fiber. However, today the consumption of bread made from refined flour is quite common. It

is advised to consume more whole grain bread in order to control the dietary elements that contribute to constipation. Even though it is well known that oilseeds have a high dietary fiber content, there are very few studies that demonstrate these benefits. Therefore, studies are required in which the total dietary fiber intake and fluid intake are assessed individually for each food in the food groups. Studies with more participants, clinical symptom assessment of constipation, and extensive medication usage assessment are also useful in assessing the prevalence of constipation. The factors mentioned above might be regarded as the study's limitations.

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