Revista Española de
Nutrición Humana y Dietética
Spanish Journal of Human Nutrition and Dietetics

www.**renhyd**.org

> ## RESEARCH ARTICLE

Factors affecting the intake of fermented milk products among university students: a cross-sectional study from Poland and Turkey

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ABSTRACT

Introduction: The aim of the study is to present fermented milk products intake and related factors by Turkish and Polish students of dietetics.

Material and Methods: Dietetics students of both Medical University of Silesia in Katowice (SUM), Poland, and Izmir Katip Celebi University in Izmir (IKCU), Turkey, were kindly requested to fill up an on-line questionnaire. The questionnaire consisted of 23 questions about personal data, consumer preferences, substantive knowledge and assessment of factors conditioning the purchase of fermented milk products. Statistical significance between the groups were checked with the Mann-Whitney U test, T test and Chi-squared χ^2 test. A statistically significant difference met the $p<0.05$ condition.

Results: There were 162 Polish and 181 Turkish respondents taking part in the research. The most common fermented milk product among both the SUM and IKCU students was plain yoghurt. Its intake was declared by over 95% of the respondents in both groups. In the group of the Polish students, fermented milk products are consumed mainly for breakfast (61.11%) and as a snack between meals (58.02%). Turkish students significantly more frequently prefer to eat them for dinner (50.28%) and lunch (48%). Only 21.06% of the Polish students and 29.3% of the Turkish students consume fermented milk products every day. Products with no colour additives and preservatives are selected by 67.9% of the SUM students, while IKCU students more often choose products with probiotics and prebiotics (43.10%) as well as products with reduced fat content (40.3%). Quality, composition of products, manufacturer, packaging, advertisement were determined the significant factors that preconditioning the selection of fermented milk products.

Conclusions: Cultural differences concerning fermented milk products are reflected in eating habits and consumer preferences. Plain yoghurt is a frequently chosen product by both the SUM and IKCU students. There were differences between the respondents in terms of times of the day, amount and types of consumed fermented milk products. Moreover, factors preconditioning their selection vary between the two groups.

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> **Factores que afectan la ingesta de productos lácteos fermentados entre estudiantes universitarios: un estudio transversal de Polonia y Turquía**

RESUMEN

Introducción: El objetivo del estudio es presentar la ingesta de productos lácteos fermentados y factores relacionados por estudiantes de dietética turcos y polacos.

Material y Métodos: Se solicitó a los estudiantes de dietética de la Universidad de Medicina de Silesia en Katowice (SUM), Polonia, y de la Universidad de Esmirna Katip Celebi en Izmir (IKCU), Turquía, que llenaran un cuestionario en línea. El cuestionario constaba de 23 preguntas sobre datos personales, preferencias del consumidor, conocimiento sustantivo y evaluación de factores que condicionan la compra de productos lácteos fermentados. La significación estadística entre los grupos se verificó con la prueba U de Mann-Whitney, la prueba T y la prueba de Chi-cuadrado χ^2. La diferencia estadísticamente significativa cumplió la condición $p<0,05$.

Resultados: Hubo 162 encuestados polacos y 181 turcos que participaron en la investigación. El producto lácteo fermentado más común entre los estudiantes de SUM e IKCU fue el yogur natural. Su consumo fue declarado por más del 95% de los encuestados en ambos grupos. En el grupo de estudiantes polacos, los productos lácteos fermentados se consumen principalmente para el desayuno (61,11%) y como refrigerio entre comidas (58,02%). Los estudiantes turcos prefieren comerlos con mucha más frecuencia para la cena (50,28%) y el almuerzo (48%). Solo el 21,06% de los estudiantes polacos y el 29,3% de los estudiantes turcos consumen productos lácteos fermentados todos los días. Los productos sin aditivos colorantes ni conservantes son seleccionados por el 67,9% de los estudiantes de SUM, mientras que los estudiantes de IKCU a menudo eligen productos con probióticos y prebióticos (43,10%), así como productos con contenido reducido de grasa (40,3%). La calidad, la composición de los productos, el fabricante, el embalaje, la publicidad determinaron los factores importantes que condicionan previamente la selección de productos lácteos fermentados.

Conclusiones: Las diferencias culturales con respecto a los productos lácteos fermentados se reflejan en los hábitos alimenticios y las preferencias de los consumidores. El yogur natural es un producto frecuentemente elegido por los estudiantes de SUM e IKCU. Hubo diferencias entre los encuestados en términos de horas del día, cantidad y tipos de productos lácteos fermentados consumidos. Además, los factores que condicionan previamente su selección varían entre los dos grupos.

INTRODUCTION

Faster living, stress, poor eating habits, irregular meals, overusing antibiotics and other environmental as well as genetic factors contribute to disturbances in the composition and function of the gut microbiota[1,2]. Appropriate and balanced nutrition as well as diversity of products in the daily diet at every stage of life unquestionably precondition the growth and development of the organism and improve the quality of life[1,3].

The interest in fermented milk products has increased lately[4,5]. These products are produced globally using a wide range of resources and microorganisms as well as various techniques[4]. Fermented milk products are products that have been treated with bacteria. They belong to particularly valuable dietary components due to their diversified composition, the source of essential building blocks and regulatory elements, low content of energy and sodium as well as relatively low fat content. Fermented milk products are rich in phosphorus and potassium. Also, they are sources of magnesium, manganese, cobalt, zinc and vitamins B. Moreover, a significant content of easily assimilated calcium is worth emphasising[2,3].

Their mechanisms of action include strengthening of the natural intestinal barrier, immune system modulation, production of beneficial metabolites and enhancing enzymatic

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activity[6]. Furthermore, they interact with the host cells to provide anti-inflammatory, antioxidative and antibacterial action[7]. They exert pleiotropic effects on global health, for instance by preventing various metabolic disorders and chronic diseases (e.g. diabetes *mellitus* type 2) as well as stroke or hyperlipidaemia. In addition, they reduce blood cholesterol levels and decrease blood pressure[8]. Moreover, probiotics as dietary supplements enhance the absorbability of nutrients, participate in vitamin synthesis (group B vitamins: thiamine, riboflavin, niacin, folate), improve immunity and exert anticancer effects[9].

Growing consumer awareness and high nutritional value of fermented milk products result from the developing dairy market. There is greater requirement for functional food that not only has an appropriate nutritional value, but also offers additional health-related benefits[10]. Yoghurt is included in the group of these foods[8,11].

At present, the value of the fermented milk product market, including yoghurt, is estimated at 46 billion Euro. The milk kefir market is worth 78.7 million Euro[12]. Fermented milk products are both a consumer trend and a challenge for the development of functional foods[7,12]. Fermented milk products include: such as yoghurt, ymer, kefir, ayran, cultured buttermilk, *filmjölk* (Scandinavian sour milk), cultured cream, *koumiss* (a product based on mares' milk), labneh and kurut[13]. The markets of different countries offer various products of this type.

Some of the determinants that influence food choice include biological factors (hunger, appetite, taste), economic factors (cost, income, availability), physical factors (access, education), social factors (culture, tradition, family, peers, meal patterns), psychological factors (mood, stress, quilt), attitudes, beliefs and knowledge about food[14]. Considering these facts, it was aimed to present fermented milk products intake by Turkish and Polish students, as well as estimation of the products consumption, assessment of factors, which have an influence on the purchase and verification if there is any difference in fermented milk products intake, knowledge about them and consumer preferences between Polish and Turkish students of dietetics.

MATERIAL AND METHODS

Study design

A cross-sectional design with 343 students (162 Polish and 181 Turkish students) aged at 18-26 years was carried out

from February to April 2018. The pilot study was carried out in November 2017, and 20 respondents were enrolled: 10 students of nutrition from SUM and 10 students of nutrition from IKCU. The purpose of the pilot study was to evaluate the intelligibility of the questions. The respondents filled in the same questionnaire twice with a 3-day interval. As there were discrepancies between the responses provided in the first and second survey and since there were certain suggestions from the students, three questions were modified, thus making them more comprehensible to respondents.

Participants and sample

At the time of the study, there were 250 registered students attending the department of nutrition and dietetics in IKCU, 401 students in SUM. The inclusion criterion required was nutrition and dietetics students currently enrolled in IKCU and SUM during 2nd semester 2017-2018. In addition, declaration of fermented milk products consumption was the criteria for an inclusion to the study. Those students included in the sample list that were willing and eligible to participate became the respondents in this study.

Variables and instruments

The data were gathered with the use of a self-constructed multiple choice survey questionnaire, prepared in Polish and English languages. The electronic version of the questionnaire was distributed to students of nutrition from the Medical University of Silesia (SUM) in Katowice, Poland, and from the İzmir Kâtip Çelebi University (IKCU) in Turkey.

In this study, the questionnaire was not validated. The questions in the questionnaire were prepared by examining previous similar studies. In order to obtain the aims, the final questionnaire was elaborated with the following structure of 23 questions regarding: personal data (gender, age, year of study), consumer preferences, substantive knowledge and assessment of specific factors conditioning the purchase of fermented milk products.

To get to know the consumer preferences, the respondents were asked about consumption of given products, reasons of avoiding some of them, notice any positive influence on organism during consumption, time (between meals, to breakfast/lunch/dinner), daily amount of fermented dairy products (assuming as the one portion 140g), frequency of consumption during 1 week, type of product chosen usually (low- fat, containing probiotics, prebiotics, without additional pigments and preservatives). Additional questions was about presence of canteen/dining hall/food bar/restaurant at university and possibility to consume the products there, reading labels, the most important information for

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consumer on labels (caloric value, amount of carbohydrates, amount of fats, presence of additional ingredients, presence of probiotics, prebiotics) and the most frequent reason of avoiding reading the labels.

The part about substantive knowledge contained questions about advantages of fermented dairy products consumption, checking knowledge about probiotic's definition and opinion, if fermented dairy products should be added to daily diet.

The questions about: place, frequency and range of factors, which decide about buying fermented dairy products, opinion about price, availability and quality of fermented milk products, as well as opinion about occurrence of fermented milk products advertisement, helped to assess the factors conditioning the purchase of fermented milk products.

Potential bias

Bias may arise because of the design of the study and type of sampling. The sample of students who would volunteer for such a study would not be representative of the students at the university.
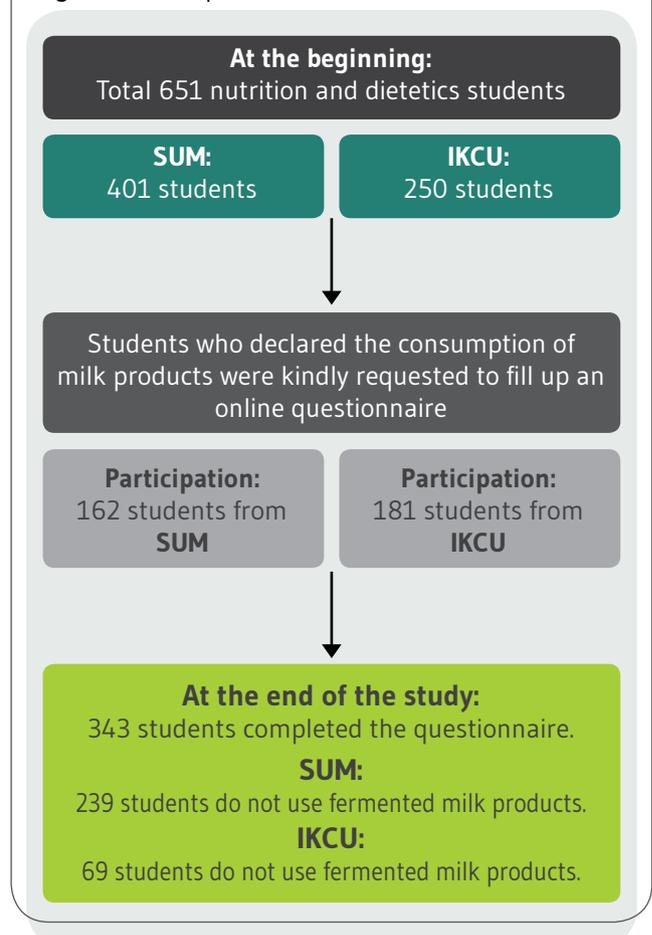
Statistical analysis

The collected data were analysed statistically using Microsoft Excel 2016 and Statistica 13.1. The normality of distribution was verified with the Shapiro-Wilk test. If the distribution met the normality assumption, the proper average value for the quantitative data was an arithmetic mean and standard deviation, and statistical significance was checked with the T test for independent samples. If the distribution did not meet the normality assumption, the average value for quantitative data was presented as a median and interquartile range, and statistical significance between the groups was checked with the Mann-Whitney U test. For qualitative variables, the Chi-squared χ^2 test was used. A statistically significant difference met the $p < 0.05$ condition.

RESULTS

Participants

Out of the 651 sampled students from two universities, 343 students (162 Polish and 181 Turkish students) responded voluntarily. 90.70% of Polish students and 87.80% of Turkish students were female (Figure 1).

Figure 1. Participant selection scheme.

At the beginning:
Total 651 nutrition and dietetics students

SUM: 401 students

IKCU: 250 students

Students who declared the consumption of milk products were kindly requested to fill up an online questionnaire

Participation: 162 students from **SUM**

Participation: 181 students from **IKCU**

At the end of the study:
343 students completed the questionnaire.
SUM:
239 students do not use fermented milk products.
IKCU:
69 students do not use fermented milk products.

Descriptive data

Table 1 presents the participants' intake of fermented dairy products, frequency consumption and consumption time of fermented dairy products. The most common fermented milk product among both the SUM and IKCU students was plain yoghurt. Its intake was declared by over 95% ($n_{SUM}=155$, $n_{IKCU}=173$) of the respondents in both groups. The greatest intergroup differences in the intake of fermented milk products were observed for ayran and kurut. Ayran intake was declared by 96.69% ($n_{IKCU}=175$) of the Turkish and only 7.41% ($n_{SUM}=12$) of the Polish students. Kurut, in turn, was not consumed by the SUM students at all and consumed by 13.81% ($n_{IKCU}=25$) of the IKCU students. There were statistically significant ($p < 0.01$) differences between the Polish and Turkish students in the intake of the following products: kefir, ayran, kurut, yoghurt drink and fruit yoghurt, e.g. strawberry. In the group of the Polish students, fermented milk products are consumed mainly for

Table 1. Type, Frequency and Time of Fermented Milk Products Consumption.

	SUM students N_{SUM} (%)	IKCU students N_{IKCU} (%)	p
Intake of fermented milk products by the respondents			
Plain yoghurt	155 (95.68%)	173 (95.58%)	0.96*
Plain bioyoghurt	63 (38.89%)	64 (35.36%)	0.49*
Kefir	109 (67.28%)	81 (44.75%)	<0.01*
Ayran	12 (7.41%)	175 (96.69%)	<0.01*
Greek yogurt/ labneh	111 (68.52%)	111 (61.33%)	0.16*
Kurut	0 (0.0%)	25 (13.81%)	<0.01*
Yoghurt drink	67 (41.36%)	115 (63.45%)	<0.01*
Fruit yoghurt e.g. strawberry	77 (47.53%)	125 (69.06%)	<0.01*
Fruit bioyoghurt e.g. strawberry	38 (23.46%)	55 (30.39%)	0.14*
Yoghurt with e.g. strawberry	84 (51.85%)	111 (61.33%)	0.07*
Bioyoghurt with e.g. strawberry	37 (22.84%)	47 (25.97%)	0.50*
Flavoured yoghurt, e.g. strawberry	59 (36.42%)	67 (37.02%)	0.90*
Flavoured bioyoghurt, e.g. strawberry	22 (13.58%)	35 (19.34%)	0.15*
Yoghurt e.g. coffee / vanilla	41 (25.31%)	34 (18.78%)	0.14*
Bioyoghurt e.g. coffee / vanilla	13 (8.02%)	24 (13.26%)	0.11*
Time of the day when fermented milk products are consumed			
Between meals	94 (58.02%)	87 (48.07%)	0.06*
For breakfast	99 (61.11%)	37 (20.44%)	<0.01*
For lunch	33 (20.37%)	87 (48.07%)	<0.01*
For dinner	42 (25.92%)	91 (50.28%)	<0.01*
Weekly intake of fermented milk products			
Every day	35 (21.60%)	53 (29.28%)	0.05**
4-5 times a week	47 (29.01%)	57 (31.49%)	0.05**
2-3 times a week	55 (33.95%)	51 (28.18%)	0.05**
Once a week	15 (9.26%)	6 (3.31%)	0.05**
Occasionally	10 (6.17%)	14 (7.73%)	0.05**

*P-value for χ^2 test;
** P-value for the Mann-Whitney U test.

breakfast (61.11%) and as a snack between meals (58.02%). Turkish students significantly more frequently prefer to eat them for dinner (50.28%) and lunch (48%). They also select them as snacks, but more rarely than the SUM students. Only 21.06% (n_{SUM}=35) of the Polish students and 29.3% (n_{IKCU}=53) of the Turkish students consume fermented milk products every day. Most IKCU students choose fermented milk products 4-5 times a week, but this group accounts for only 31.5% of the whole (n_{IKCU}=57). The SUM students tend to consume fermented milk products 2-3 times a week (34.6%) (Table 1).

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Causes of not choosing fermented milk products are not significantly different between the Polish and Turkish students. The respondents do not choose fermented milk products because of their flavour and price. A similar percentage of the respondents in both groups (14.5% and 13%) do not feel well after consumption. Nearly 40% (n_{SUM}=64) of the SUM students and 17.68% (n_{IKCU}=32) of the IKCU students perceive no beneficial effects of fermented milk products on the organism. Most of the respondents (47.53% and 64.64%) noted positive changes in the function of the digestive system. The Polish students observed the lowest influence of fermented milk products on skin appearance, and the Turkish noted the lowest influence on faster body weight reduction. Products with no colour additives and preservatives are selected by 67.9% (n_{SUM}=110) of the SUM students, while IKCU students more often choose products with probiotics and prebiotics (43.10%) as well as products with reduced fat content (40.3%). Almost three times more Turkish students compared to the Polish students pay no attention to the selected type of the product. 91.36% of the SUM students and 70.72% of the IKCU students read labels of fermented milk products. Quality, composition of products, manufacturer, packaging, advertisement were determined the significant factors that preconditioning the selection of fermented milk products (Table 2).

DISCUSSION

In this study, plain yoghurt is the most frequently selected out of all fermented milk products. In the study of Kardas *et al.* (2016) addressing milk and dairy product intake in the region of Upper Silesia in Poland, the most frequently selected product was fruit yoghurt (over 65% of respondents)[3]. Similar results were obtained in the studies Najgebauer-Lejko and Sady (50%) (2015)[15]. These products are more frequently selected by the Turkish students. It should be remembered, however, that fruit products are poorer sources of calcium, phosphorus and protein than their plain equivalents, while they deliver more carbohydrates and energy[16]. O'Brien *et al.* (2017) concludes that fermented milk products are usually characterised by a high sensory value, but most consumers prefer less acidic products[17]. The SUM students are as eager to consume plain yoghurt as sour kefir. The IKCU students, however, choose plain products as well, but select flavoured ones or those that are less sour. According to Nergiz-Unal *et al.* (2017), this selection reflects changes in the nutrition of the younger population of Turkey, which in the future may lead to chronic metabolic diseases[18].

In a study addressing the consumption of beverages in Turkey, products most frequently selected by young respondents were carbonated non-alcoholic beverages followed by ayran[19]. Middle-aged and older people selected ayran followed by black tea. By contrast with the younger generation, older participants prefer healthy traditional products[19]. Nearly 97% of the IKCU students in our study declare ayran consumption. Despite the availability of this product in Poland, it is still not popular, and its consumption is declared only by 7% of the SUM students.

Dried form of yoghurt or ayran is called ''Drying yoghurt (Kurut)''. Kurut, is made with plenty of milk generally in summer seasons and consumed in winter in eastern and southeastern region at villages and small towns, which is one of the dense consistencies of dairy products. Kurut is known to be used particularly in Turkish cuisine, regional cuisine in Eastern Anatolia[20]. Kurut, in turn, is not consumed at all by the SUM students and only by few IKCU students. In Poland, this product is very rarely available, while in Turkey it is characteristic of the Anatolia region. The IKCU is in İzmir, in the Aegean region, where kurut may be less available.

The SUM students have fermented milk products for breakfast (61.11%), while the IKCU students for dinner (50.28%). Similarly, Selçuk *et al.* (2003) and Tarakçı et al (2015), concluded that Turkish students generally prefer to consume fermented milk products with meals[21,22]. In the research of Kardas *et al.* milk or dairy products were most often consumed between meals (39.5%), and the lowest percentage of people (6.0%) consumed them to lunch[3]. From the other hand, Nergiz-Unal respondents consumed them to lunch, and rarely as a snack[18].

Milk and fermented milk product intake is lower than recommended in both the Polish and Turkish students. Similarly, in the study of Şahinöz *et al.* (2017), it was determined that 30.0% of university students did not consume milk[23]. According to the Turkish Guideline (2016), milk and dairy products should be consumed every day by people at all ages[1]. Adults should have 3 servings of milk and dairy products a day, while children, adolescents and pregnant, breast-feeding and postmenopausal women should have 2-4 servings a day[1]. Turkish guidelines as a one portion of products treats: 200mL of yoghurt, 240mL of home-made yogurt, 350mL of ayran, and 240mL of kefir. In contrast, Polish standards are: yogurt in a small package 50-125g, medium package 150-175g, large package 400-500g, and kefir small packaging 200g, large 400g[24]. In the study, 140g of product was taken as a portion. Both Polish and Turkish students responded by consuming 1 portion of the product (140g) per day. Their consumption is too low and will not provide the body with all the necessary

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Table 2. Preferences and Behaviours of Consumers Related with Fermented Milk Products.

	SUM students N_{SUM} (%)	IKCU students N_{IKCU} (%)	p
Causes of not choosing given fermented milk products by the respondents			
Flavour	92 (74.2%)	75 (69.4%)	0.42*
Price	45 (36.3%)	28 (25.9%)	0.08*
Not feeling well after consumption	18 (14.5%)	14 (13%)	0.73*
Food allergy	4 (3.2%)	3 (2.8%)	0.84*
Fermented milk products are not healthy	3 (2.4%)	3 (2.8%)	0.86*
	n=124	n=108	
Perceived benefits of fermented milk products on the organism			
NONE	64 (39.51%)	32 (17.68%)	<0.01*
YES for the digestive system	77 (47.53%)	117 (64.64%)	<0.01*
YES for skin appearance	14 (8.64%)	36 (19.89%)	<0.01*
YES for general mood	39 (24.07%)	51 (28.17%)	0.38*
YES for faster body weight reduction	21 (12,96%)	26 (14.36%)	0.70*
YES for easier body weight control	31 (19.14%)	33 (18.23%)	0.83*
YES for faster recovery after illness	24 (14.81%)	42 (23.20%)	0.04*
The most popular types of products			
With reduced fat content	38 (23.46%)	73 (40.33%)	<0.01*
With probiotics, prebiotics	75 (46.30%)	78 (43.09%)	0.55*
With no colour additives and preservatives	110 (67.90%)	38 (20.99%)	<0.01*
Pay no attention	15 (9.26%)	49 (27.07%)	<0.01*
Reading labels of fermented milk products by the respondents			
Yes	148 (91.36%)	128 (70.72%)	<0.01*
No	14 (8.64%)	53 (29.28%)	<0.01*
Factors preconditioning the selection of fermented milk products			
Composition	1	5	<0.01**
Quality	2	2	<0.01**
Flavour	3	7	0.01**
Recommendation by health associations	4	6	0.57**
Price	5	1	0.14**
Manufacturer	6	4	<0.01**
Packaging	7	3	<0.01**
Advertisement	8	8	<0.01**

*P-value for χ^2 test;
** P-value for the Mann-Whitney U test.

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nutrients in the right amounts. The Turkish Guideline (2016) has stated the mean intake of fermented milk products. The respondents who consumed a lower amount than that covering calcium requirement according to the EAR had 57g of yoghurt, which constitutes 0.3 of a serving. Individuals who consumed the amount of the product covering the calcium level according to the EAR had 191g of yoghurt, i.e. 0.8 of a serving[1]. Both the data from the present study and from other Polish and Turkish investigations indicate that the intake of fermented milk products is too low.

Furthermore, weekly intake is also insufficient. In spite of the fact that the IKCU students more frequently than the Polish students consume fermented milk products weekly, the guidelines mention daily intake, which is not observed in the studied population. Most of the SUM students consume fermented milk products 2-3 times a week, while the IKCU declare their intake 4-5 times a week. The Turkish Guideline, on the other hand, refers to statistical data according to which 62.5% of respondents consume fermented milk products every day or 5-6 times a week, 16.6% every other day, 14.5% once a week and 6.4% once or twice a month or never[1]. Occasional intake is declared by 6.17% of the SUM students and 7.70% of the IKCU students. A Croatian study using a frequency questionnaire showed that the consumption of dairy products was also rare. 12% of women declared consumption of these products less than once a month[25]. The knowledge and awareness of the important role of the products, is expected from dietetics students. Unfortunately, less than 30% of IKCU students and less than 22% of SUM students consume fermented milk products every day. Considering the frequency and amount of fermented dairy products consumed, it can be concluded that too low intake may not cover the calcium requirement.

The students who avoid consumption of some fermented milk products said that the reason is their taste (74.2% for SUM and 69.4% for IKCU), sometimes also price (36.3% for SUM, 25.9% for IKCU) or feeling unwell after consumption (less than 15% in both groups). Similarly, in the study of Yabancı Ayhan *et al.* (2018), dislike to drink milk is the most common cause with a rate of 54.1%[26]. This is not a proper nutritional habit. A decision not to consume fermented milk products may result in deficiencies of important nutrients, such as high-quality protein, calcium, phosphorus, zinc and vitamins B, A, D, E and K[4].

Almost 40% students of SUM (n_{SUM}=64), and less than 20% students of IKCU (n_{IKCU}=32) do not feel the beneficial effect of consuming fermented milk products. Most of respondents (47.53% for SUM and 64.64% IKCU) noticed favorable changes in the functioning of the digestive system. Indeed, regular consumption of fermented milk products

helps shorten intestinal transit and maintain the beneficial composition of the intestinal microflora, as well as lower the pH in the large intestine, which inhibits the development of putrefactive and invasive pathogenic bacteria, preventing intestinal infections[8,10]. Polish students observe the lowest impact on the appearance of the skin, and Turkish students on the faster weight loss process.

The most common products selected by the SUM students were those without colour additives and preservatives. Owing to the development of the food industry, the use of preservatives for improving shelf life has increased. The Turkish food code does not allow any preservatives in yoghurt even though this fermented milk product is characterised by short shelf life. Turkish students should follow their Polish colleagues' example and check for the presence of added preservatives since, despite the prohibition, some manufacturers do use e.g. natamycin (colourless, tasteless, flavourless and almost insoluble in water) as a preservative to prevent the development of yeast and moulds in yoghurt. Yeasts are commonly used in yoghurt production, but an increase in lactic acid bacteria induces pH reduction, thereby contributing to an increase in the count and development of yeasts that cause the product spoilage[27]. Bilgic Alkaya and Karalomlu (2016) have demonstrated that 28 yoghurts found in Turkish supermarkets contained natamycin, which is unacceptable as per the Turkish food code[27].

Despite of decision to be a student of faculty related with health and its protection, 30% of Turkish students do not read product labels and give the lack of interest as the reason. Students leading a healthy lifestyle and, above all, paying attention to it, set a good example for their patients and are more credible to them. Respondents who declared the habit of reading labels constituted a group of 148 among SUM students and 128 respondents among IKCU students. The factor that Polish respondents pay the most attention to is the presence of added substances, while Turkish respondents pay the most attention to the energy value of the product. The least important factor in both groups is the amount of carbohydrates. In the European profile of nutrients, the WHO (1995) has specified the upper limit of sugar content in yoghurt at 10g per 100g of the product[28]. In light of this information, the fact that students of nutrition choose natural products with low carbohydrate content seems positive. However, they should be paying more attention to their composition while reading the labels.

In order to get to know the factors deciding about purchasing of fermented milk products, the respondents were requested to rank the following factors like: composition, quality, flavour, recommendation by health associations, price, manufacturer, packaging and advertisement. The rank was

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done by assiging specific point values from 1 to 8, where 1 was the most important factor and 8 the least. A given point value could be assigned once. For SUM students, the most important factor is the composition of the product, followed by: quality, taste, health organization recommendations, price, manufacturer, packaging and advertising. IKCU students put price first, followed by quality, packaging, manufacturer, product composition, health organization recommendations, taste and advertising. Polish and Turkish students awarded the same point value for product quality (2nd place) and advertising (8th place). As for the assessment of price and availability of fermented milk products, the opinions of the SUM and IKCU students vary. The students in the two groups agree in terms of the quality of fermented milk products, and consider it to be good. Also, both groups believe that advertisement is present to a moderate degree.

The Shapiro-Wilk test found that the distribution does not meet the assumption of a normal distribution ($p < 0.05$), and the differences between the answers of SUM and IKCU students are statistically significant. Only in the case of the responses "health organization recommendations" and "price" there are no statistically significant differences.

There are limitations associated with web based research. These include limitations in participation and methodological issues.

CONCLUSIONS

In conclusion, plain yoghurt is a frequently chosen product by both the SUM and IKCU students. Typical Turkish fermented milk products are more popular amongst the Turkish respondents. Flavoured yoghurts are more often chosen by the Turkish respondents than by the Polish ones. Their "bio" equivalents are less popular than their basic versions in both groups. There were differences between the respondents in terms of times of the day, amount and types of consumed fermented milk products. Moreover, factors preconditioning their selection vary between the two groups. Cultural differences concerning fermented milk products are reflected in eating habits and consumer preferences.

FUNDING

COMPETING INTERESTS

Authors state that there are no conflicts of interest in preparing the manuscript.

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