Milk and Dairy Products Consumption Behavior of Azerbaijan State Agricultural University Students

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ABSTRACT: Since Azerbaijan's independence in 1991, milk production has increased significantly. This study investigated the milk and dairy product consumption behavior of students at Azerbaijan State Agricultural University (ADAU) in Ganja. It fills a gap in research on milk consumption patterns among university students in Azerbaijan. Data were collected via a survey conducted with 418 students from various departments in March-April 2024, using a 22-item survey focusing on demographics, consumption habits, and purchasing behaviors. The majority of participants (64.1% male, over 90% single) were aged 17-22. Although students consumed milk, the frequency was relatively low. Both male and female students predominantly preferred plain milk, with street milk being the most common choice. Students primarily associated milk consumption with health benefits, which positively influenced their preferences. However, no single dominant factor limiting milk consumption was identified. Key factors affecting purchasing decisions included price, expiry date, place of purchase, and calorie content. The study suggests that government incentives to support milk and dairy product consumption in retail outlets, both on campus and in urban areas, could be beneficial. Additionally, organizing awareness-raising scientific activities and incorporating relevant undergraduate courses into the curriculum may promote healthier consumption behaviors among students.

Keywords: Milk, dairy products, consumer habits, Azerbaijan, Ganja.

Azerbaycan Devlet Tarım Üniversitesi Öğrencilerinin Süt ve Süt Ürünleri Tüketim Davranışları

ÖZ: Azerbaycan'ın 1991'de bağımsızlığını kazanmasından bu yana süt üretimi dinamik bir şekilde artış göstermiştir. Bu çalışma, Gence'de bulunan Azerbaycan Devlet Tarım Üniversitesi (ADAU) öğrencilerinin süt ve süt ürünleri tüketim davranışlarını incelemektedir. Araştırma, Azerbaycan'daki üniversite öğrencilerinin süt tüketim kalıplarına dair literatürdeki boşluğu doldurmayı amaçlamaktadır. Araştırmanın verileri Mart-Nisan 2024 döneminde üniversitenin farklı bölümlerinde öğrenim gören toplam 418 öğrenci ile gerçekleştirilen anket çalışması ile elde edilmiştir. Anket, demografik bilgiler, tüketim alışkanlıkları ve satın alma davranışlarına odaklanan 22 sorudan oluşmaktadır. Katılımcıların çoğunluğu (%64,1 erkek, %90'dan fazlası bekar) 17-22 yaş aralığındadır. Öğrenciler arasında süt tüketimi mevcut olsa da tüketim sıklığı nispeten düşüktür. Hem erkek hem de kadın öğrenciler ağırlıklı olarak sade sütü tercih etmiş, en yaygın tercih edilen süt türü sokak sütü olmuştur. Öğrenciler süt tüketimini genellikle sağlıkla ilişkilendirmiş ve bu durum tercihlerini olumlu yönde etkilemiştir. Ancak süt tüketimini sınırlayan belirgin tek bir etken saptanmamıştır. Satın alma kararlarını etkileyen başlıca faktörler fiyat, son kullanma tarihi, satın alma yeri ve kalori içeriği olmuştur. Çalışma, kampüs içi ve kentsel alanlardaki perakende satış noktalarında süt ve süt ürünleri tüketimini desteklemeye yönelik devlet teşviklerinin faydalı olabileceğini önermektedir. Ayrıca, farkındalık artırıcı bilimsel etkinliklerin düzenlenmesi ve lisans programlarına ilgili derslerin dahil edilmesi, öğrenciler arasında daha sağlıklı tüketim davranışlarını teşvik edebilir.

Anahtar kelimeler: Süt, süt ürünleri, tüketici alışkanlıkları, üniversite, Azerbaycan, Gence.

INTRODUCTION

Milk is a valuable food source that has an important place in human nutrition. Since the beginning of human history, dairy farming, and production have been a basic source of nutrition in various cultures. Milk is a food of critical importance in growth and development with its high nutritional value (Kart and Demircan, 2014). Milk and dairy products contain

animal-derived protein, calcium, B vitamins, phosphorus, minerals, and vitamins (Tekinşen and Tekinşen, 2005). In addition to providing the necessary energy for the body, these foods positively affect bone health, muscle development, digestive system functions, and general health. Especially milk and dairy products rich in calcium play an effective role in strengthening bones and preventing bone diseases such as osteoporosis. On the other hand, milk and dairy product consumption varies worldwide. Many factors such as geographical factors, economic status, and level of health awareness affect the consumption habits of milk and dairy products. For example, in some regions milk and yogurt are traditionally consumed frequently, while in other regions cheese or butter may be more popular. In addition, products obtained from milk such as cheese, yogurt, and cream may be consumed by a wide range of consumers in some regions (Can, 2020).

Another important factor affecting milk and dairy consumption behaviors is cultural habits. Especially in some regions, milk, and dairy products are considered an important component of traditional meals, while in the other areas they are consumed less. These cultural differences can effectively determine the consumption pattern of milk and dairy products (Ayar and Nizamoğlu, 2002). Studies conducted to determine the consumption behaviors of milk and dairy products generally consider individuals' demographic characteristics such as age, gender, education level, and income level, as well as health habits and awareness levels (Kızıloğlu and Kızılaslan, 2015). These factors play an important role in explaining variations in the consumption of milk and dairy products.

Nowadays, many people consider milk and dairy products as part of their daily dietary habits, while others avoid consuming them. For example, some people may have allergic reactions to dairy products, while others think that dairy products have negative effects on the digestive system. However, increasing health awareness has led to an increased demand for milk and dairy products for important nutrient needs such as calcium and protein (Yerlikaya and Karagözlü, 2008).

Understanding the factors affecting milk and dairy consumption behaviors is important for promoting healthy eating habits and meeting the nutritional needs of society. Therefore, research focused on determining milk and dairy consumption behaviors can help to design nutrition policies and health campaigns more effectively.

Although there are many studies examining consumer behaviors towards milk and dairy products at the household level, there are fewer studies examining the issue within the scope of university students (Selçuk et al., 2003; Tarakçı et al., 2003; Cevger et al., 2008, Çetinkaya, 2010; Şimşek and Açıkgöz, 2011; Önay Derin and Emdirme; 2012; Yahia et al, 2016; Şahinöz and Özdemir, 2017; Karakayacı et al., 2018; Yabancı Ayhan et al., 2018; Özyürek et al., 2019; Terzioğlu and Bakırcı, 2019; Sancak and Başat Dereli, 2019, Ngo et al., 2019; Özbey, 2020; Güldal et al., 2020; Para et al., 2020; Kumbasaroğlu and Erem Kaya, 2020; Ürkek and Taş, 2021; Güler et al., 2021). In this study, it was aimed to determine the behaviors of students studying at Azerbaijan State Agricultural University toward the consumption of milk and dairy products. The fact that the subject has not been previously examined within the scope of university students in Azerbaijan increases the importance of this study. Milk production has been growing dynamically since Azerbaijan gained its independence in 1991. Milk production increased more than 2.3 times in 2020 compared to 1991. The increase was 2.3-fold in cow milk production and 2.4-fold in sheep and goat milk production. In 2020, 98.4% of 2192.5 thousand tons of milk produced in Azerbaijan was cow's milk. In 2020, the total value of livestock products was 4,400.5 million manats, of which 29.3% was milk. Milk production per capita in Azerbaijan increased by 69% from 130 kg in 2000 to 220 kg in 2020. However, Azerbaijan's milk production capacity is below the world average. Although there has been an improvement in milk production in Azerbaijan since its independence in 1991, the per capita consumption of milk and dairy products is below the physiological norms and the world average (Huseyn, 2022).

MATERIAL AND METHODS

Data Collection

The main material of this study was the data collected through questionnaires from the students at Azerbaijan State Agricultural University in the academic year 2023-2024. Taherdoost (2021) emphasized that researchers use different approaches to gather and collect primary data for specific purposes, and that the

validity, reliability, objectivity, and authenticity of primary data are greater compared to secondary data types. The sample size was determined by the method of clustered one-stage simple random probability sampling based on the main population proportions proposed by Collins (1986) according to the following formula:

$$n = t^2 * [1+(0,02)(b–1)] * (p*q)/e^2 \qquad (1)$$

The terms in the formula are; n: Sample size, t: Table value t corresponding to a 5% significance level, b: Sampling stage (taken as 1 since it is a one-stage sampling), p: Probability of occurrence of the investigated event in the population (assumed to be 0.5%), q: probability (1-p) that the event under study does not occur, e: indicates a 5% margin of error.

Sample size according to the equation for simple random sampling:

$$n = t^2*(p*q)/e^2$$

(2), $n = 1,96^2*(0,5*0,5)/0,05^2$

(3), n = 384.

Statistical Analysis

Due to the high participation rate of the students at the Azerbaijan State Agricultural University, more than 384 people were reached during the implementation of the research questionnaires. In this regard, an additional survey was conducted with 34 people, and by adding these valid questionnaires, data were obtained from a total of 418 students. This research was approved by the ethics committee with the decision of the Scientific Research and Publication Ethics Review Board of Azerbaijan State Agricultural University dated 16/09/2024 and protocol number 3-22-23/3-1-1516/2024. In this study, in which the online Google survey form was used, a questionnaire was applied to the students voluntarily. The questionnaire form consisted of 22 questions covering general descriptive characteristics, milk and dairy product consumption, and purchasing behavior sections. The data obtained from the questionnaire were transferred to the computer environment and frequency distributions and descriptive statistics were analyzed. The chi-square test was applied to examine the gender-related changes in the factors affecting purchasing behavior. The Chi-square test is a reliable statistical method employed to assess whether two categorical variables are independent (Bai *et al.*, 2025). The results obtained were tabulated and interpreted. IBM SPSS v25 was used in all statistical analyses of the study.

RESULTS AND DISCUSSION

Demographic Characteristics of Participants

In this section, the demographic characteristics of the respondents among the students studying at Azerbaijan State Agricultural University are given. As shown in Table 1, when the gender distribution of the students participating in the survey was analyzed; 64.1% of the students were male and 35.9% were female.

Information on the age groups, education, marital and employment status, and place of residence of the students who participated in the survey are shown in Table 1. A significant portion of the students participating in the survey were between the ages of 17-22. The rate of those between the ages of 17-22 was 93.7% for males and 86% for females. The proportion of students between the ages of 23-30 was higher among female students. The educational status of the students who participated in the survey was analyzed in terms of their most recent level of graduation, and as expected, the proportion of high school graduates was found to be high for both males (78.4%) and females (64.7%). Both males and females had associate's, bachelor's, and graduate degrees, and the proportion of associate's degree holders was higher among female students.

When the marital status of the participants was analyzed, it was seen that, as expected, the rate of single students was high among both males and females. Among the participants, including married and widowed students, the proportion of single students was higher among males (95.1%) than females (90.7%). While 76.5% of male students resided in the center of Ganja, the place of residence of female students was approximately equally distributed between the center and outside of Ganja. Most of the students lived in households of 3 to 4 people.

The average monthly household income of male students (888 AZN) was higher than that of female students (621 AZN) (Table 2). It is estimated that this is because male students have a higher employment rate than female students. In other words, male students have a higher employment rate and have higher monthly household incomes than female students because they provide additional income to their households by working.

Table 1. Some demographic characteristics of the participants.

Demographic Characteristics		Male		Female	
Gender		Frequency	%	Frequency	%
		268	64.1	150	35.9
Age Groups					
17-22		251	93.7	129	86.0
23-30		14	5.2	18	12.0
31-37		3	1.1	3	2.0
Education	High School	210	78.4	97	64.7
	Undergraduate	30	11.2	17	11.3
	Associate degree	26	9.7	34	22.7
	Graduate	2	0.7	2	1.3
Marital status	Single	255	95.1	136	90.7
	Widow	1	0.4	5	3.3
	Married	12	4.5	9	6.0
Employment	Working	49	18.3	11	7.3
	Not working	219	81.7	139	92.7
Place of Residence	Ganja Center	205	76.5	86	57.3
	Outside Ganja	63	23.5	64	42.7
Number of Households	1 person	8	3.0	2	1.3
	2 persons	12	4.5	10	6.7
	3-4 persons	147	54.9	68	45.3
	5 +	101	37.7	70	46.7

Table 2. Descriptive statistics of participants' household income level.

Monthly Household Income		N	Minimum	Maximum	Mean	Standard Deviation
Gender	Male	268	100	7000	888.36	921.41
	Female	150	100	4000	621.03	538.12

Milk and Dairy Products Consumption Behaviors of Participants

Drinking milk consumption status

Among the students who participated in the survey, 64.6% of the males and 69.3% of the females consumed drinking milk (Table 3). It was seen that milk consumption rates were relatively high among both genders. Some previous studies conducted on a similar target group also revealed that the drinking milk consumption rate of male and female students was high. According to a survey conducted with 311 undergraduate students from various faculties at Konya Selçuk University, 84.1% and 86.9% of male and female students, respectively, consumed milk in this way (Önay Derin and Emdirme, 2012). According to a survey of 588 university students living in dormitories in Ankara, 71.3% and 78.1% of male and female students consumed milk (Yabancı Ayhan *et al.*, 2018).

Table 3. Drinking milk consumption status of the participants.

Drinking milk consumption status	Male		Female	
	Frequency	%	Frequency	%
Yes	173	64.6	104	69.3
No	95	35.4	46	30.7

Neither this study nor the findings of the previous studies mentioned above should lead to a perception that milk consumption is widespread among students. The result obtained in this study reflects the response to the question "Do you consume drinking milk?" that was asked of the participant students during the surveys. It was seen that the answers obtained in similar studies were obtained with the same question. However, it is possible to say that the amount of milk consumed by those who consume milk is low due to various reasons. The opinions of the students participating in the survey on the adequacy of the amount of milk consumed confirm this. While 22.8% of the males selected the option "No Idea" about the amount of milk consumption, this rate was 19.3% for females. While the rate of males who stated that their milk consumption was "Very Insufficient" was 18.3%, this rate was 16.0% for females. A small portion of the students found milk consumption insufficient and the rate of males who thought it was "insufficient" was 4.9%, while this rate was 8.0% for females. The rate of males who thought it was "adequate" was 54.1%, while this rate was 56.7% for females (Table 4).

Table 4. Participants' opinions on the adequacy of the amount of milk consumption

		Male		Female	
		Frequency	%	Frequency	%
Consumption Amount of Drinking Milk	No Idea	61	22.8	29	19.3
	Very Inadequate	49	18.3	24	16.0
	Adequate	145	54.1	85	56.7
	Insufficient	13	4.9	12	8.0

Although the proportion of students who think that drinking milk consumption is adequate is slightly more than 50%, the fact that the proportion of those who do not express an opinion on the adequacy of drinking milk consumption and the proportion of those who think that it is "very inadequate" or "inadequate" is 46% for males and 43.3% for females in total shows that whether the amount of milk consumption is adequate among the students of Azerbaijan State Agricultural University is questionable. If it is assumed that the amount of milk consumption of the students who did not express an opinion about the adequacy of their milk consumption is insufficient; it can be stated that the amount of milk consumption of approximately 50% of males and females is insufficient.

In the results of previous studies related to the adequacy of milk consumption by students, the inadequacy of the amount of milk consumption was generally emphasized. In a survey study conducted with 361 undergraduate students at Samsun Ondokuz Mayıs University, the rate of students who stated that they drink milk in general was 86.43% (86.79% for males and 86.14% for females), while the rate of students who stated that they drink milk regularly every day was 18.28% (16.35% for males and 19.80% for females) (Güler *et al.*, 2021). According to a survey conducted with 380 students at Erzincan Binali Yıldırım University, the rate of regular drinking milk consumption was 17.89% for males and 25.30% for females (Kumbasaroğlu and Erem Kaya, 2020). In a survey study conducted with the participation of 273 students studying at Bitlis Eren University Tatvan Vocational School, it was determined that although approximately 76% of the participants liked to drink milk, 89% of them did not have the habit of consuming milk regularly. Approximately 9% of female students and 13% of male students consumed milk every day (Sancak and Başat Dereli, 2019). According to a survey study conducted with 151 students studying at different faculties and colleges of Selçuk University, 71.52% of the participants were found to consume milk and dairy products irregularly (Karakayacı *et al.*, 2018). According to a study conducted on 400 students studying in different faculties of Erzincan University, although 67% of the students liked to drink milk, it was pointed out that the amount of milk consumed per person was insufficient (Terzioğlu and Bakırcı, 2019). According to a survey conducted with 60 students studying in different faculties of Yuzuncu Yil University, 76% of the students consumed milk, while 83.86% of the students consumed milk irregularly (Tarakçı *et al.*, 2003). According to another survey conducted with 40 students from different faculties of Yuzuncu Yil University, 60.77% of the students consumed milk irregularly (Selçuk *et al.*, 2003). According to the findings of a survey conducted with 730 students

studying in different departments of Kafkas University, the rate of drinking milk consumption of the students participating in the survey was 33% and it was revealed that 76% of these students preferred other dairy products to milk (Çetinkaya, 2010).

On the other hand, the results of some previous studies on the adequacy of students' milk consumption emphasize regular milk consumption. According to a cross-sectional survey conducted on a sample of undergraduate students at Central Michigan University in Michigan, USA, 71% of males and 66% of females drank milk every day (Yahia *et al.*, 2016). According to a study conducted on 120 students studying at Gümüşhane University, 70% of the students regularly drank milk and 82.5% of them consumed milk and dairy products daily (Şahinöz and Özdemir, 2017).

Milk consumption preferences of participants

Milk consumption preferences of the participants are shown in Table 5 according to type. According to milk type, more than 70% of both male and female students preferred plain milk. In the preference according to milk type, it was seen that both male and female

students prefered street milk. After street milk, the most preferred milk type was pasteurized milk. It is predicted that the preference rates of students for street milk may be related to the socio-economic development level of the cities where the universities are located. It should be considered that these results obtained for the city of Ganja in Azerbaijan may be different for the capital Baku. For example, according to the results of a survey conducted with 588 university students living in dormitories in Ankara, the capital of Türkiye , 2.4% and 1.3% of male and female students, respectively, consumed street milk (Yabancı Ayhan *et al.*, 2018). According to another survey conducted with 150 students at Ankara University Faculty of Agriculture, only 2% of the students stated that they prefer street milk (Güldal *et al.*, 2020). According to a survey study conducted with 273 students studying at Bitlis Eren University Tatvan Vocational School in Bitlis, which has a lower socio-economic development ranking compared to Ankara, street milk was found to be the most preferred milk type by 61.53% of the students (Sancak and Başat Dereli, 2019).

Table 5. Distribution of participants' milk consumption preferences by gender

Milk consumption preference		Male		Female	
		Frequency	%	Frequency	%
Milk Type Flavored	Flavored	59	22.0	40	26.7
	Plain milk	209	78.0	110	73.3
Type	Pasteurized milk	65	24.3	45	30.0
	Street milk	190	70.9	93	62.0
	UHT	13	4.9	12	8.0

As mentioned above, it was seen that both male and female students studying at Azerbaijan State Agricultural University mostly preferred street milk. Being natural was the most common reason for males (85.8%) and females (85.3%) to consume street milk. The preference for street milk for its taste or flavor was seen in 7.5% of males and 7.3% of females. Preference for street milk because it is easy to obtain was 6.7% among males and 7.3% among females (Table 6).

Street or open milk seriously threatens public health and should be carefully monitored and controlled. Mert *et al.* (2020) pointed out that raw milk provides a very favorable environment for microbiological activity and rapid growth of microorganisms and shared the findings of many studies on the harms of

street milk. Mert *et al.* (2020) emphasized that there are pathogens and other microorganisms in street milk that threaten public health at a very serious level, so street milk consumption should be strictly prohibited.

In Azerbaijan, where this research was conducted, it is also noted that there are important problems related to raw milk quality. Huseyn (2022) states that 80% of dairy cattle farms in Azerbaijan have 2 to 4 cows, have low milk yield per head, and produce poor-quality raw materials. Huseyn (2022) emphasizes that there are often problems with the quality of raw milk produced by small farms and states that these problems are caused by milk from sick animals, milk diluted with water, non-compliance with hygienic rules, etc.

Table 6. Distribution of participants' reasons for consuming street milk (open milk) by gender

| | | Male | | Female | |
		Frequency	%	Frequency	%
Reasons for consuming street milk	Taste	20	7.5	11	7.3
	Natural	230	85.8	128	85.3
	Easy to procure	18	6.7	11	7.3

Causal factors directing and limiting participants' drinking milk consumption

To determine the factors influencing male and female students at Azerbaijan State Agricultural University to consume milk, various propositions were presented to each participant during the questionnaires of this study (Table 7). Overall, 71.3% of male and 72.7% of female students agreed with the statement "I consume milk because I find it healthy". The proportion of students who agreed with the statement "I consume milk because I like drinking milk" was 61.2% for males and 59.7% for females. The rate of those who agreed with the statement "I consume milk because I like the smell/taste of milk" was 57.3% for males and 48.7% for females. It cannot be said that the effect of habits on students' milk consumption is high. The rate of those who agreed with the statement "I consume milk out of habit" was 48.5% for males and 42.7% for females. The fact that students are influenced by their own families in milk consumption is one of the important findings of the study. The proportion of students who agreed with the statement "I consume milk according to the family's dietary rules" was 58.5% for males and 59.4% for females.

According to these results, it can be said that more than 70% of the students at Azerbaijan State Agricultural University associate milk consumption mostly with health and therefore prefer it. In addition, about 60% of the students consume milk because they like to drink milk. Family tradition was also found to be an important causal factor leading students to consume milk. As mentioned above, approximately 60% of the students agreed that family traditions affected their milk consumption.

Some previous studies have also found that the main reasons for milk consumption among university students were related to health and nutrition. According to the results of a survey conducted with 588 university students living in dormitories in Ankara, the capital of Türkiye , 51.7% and 58.2% of male and female students, respectively, reported that the main reason for drinking milk was healthy nutrition (Yabancı Ayhan *et al.*, 2018). According to a survey study conducted with 273 students studying at Bitlis Eren University Tatvan Vocational School, the most common reason for students to drink milk was the nutritional properties of milk (Sancak and Başat Dereli, 2019). According to a study conducted with 311 undergraduate students studying in various faculties at Konya Selçuk University, the nutritional feature of milk was the main reason why male and female students consumed milk (Önay Derin and Emdirme, 2012). According to the findings of another survey conducted with 730 students studying in different departments of Kafkas University, 46% of the students who participated in the survey consumed milk because it was nutritious (Çetinkaya, 2010). According to a study conducted with 60 students studying in different faculties of Yuzuncu Yil University, 60.16% of the students consumed milk because it is nutritious (Tarakçı *et al.*, 2003). According to a survey study conducted by Özbey (2020) on 1200 students studying in different units of Hitit University, it was stated that 69.7% of the students consumed milk because they liked drinking milk.

Table 7. Participants' level of agreement with various propositions that may be effective in encouraging drinking milk consumption

		Male		Female	
		Frequency	%	Frequency	%
I consume milk because I find it healthy	Undecided	39	14.6	25	16.7
	Agree	87	32.5	66	44.0
	Strongly Agree	104	38.8	43	28.7
	Strongly Disagree	38	14.2	16	10.7
I consume milk because I like drinking milk	Undecided	62	23.1	23	15.3
	Agree	97	36.2	70	46.7
	Strongly Agree	67	25.0	21	14.0
	Strongly Disagree	42	15.7	36	24.0
I consume milk because I like the smell/taste of milk	Undecided	74	27.6	36	24.0
	Agree	103	38.4	60	40.0
	Strongly Agree	49	18.3	13	8.7
	Strongly Disagree	42	15.7	41	27.3
I consume milk out of habit	Undecided	73	27.2	48	32.0
	Agree	104	38.8	56	37.3
	Strongly Agree	26	9.7	8	5.3
	Strongly Disagree	65	24.3	38	25.3
I consume milk according to family dietary rules	Undecided	66	24.6	40	26.7
	Agree	96	35.8	73	48.7
	Strongly Agree	61	22.8	16	10.7
	Strongly Disagree	45	16.8	21	14.0

To determine the factors limiting the consumption of milk by male and female students of Azerbaijan State Agricultural University, various propositions were presented to each participant (Table 8). It was found that 45.9% of male and 45.3% of female students agreed with the statement "I do not consume milk because I do not find it healthy". The rate of those who disagreed with this statement was also high, approximately 40% for both male and female students. The rate of students who agreed with the statement "I do not consume milk because I do not like drinking milk" was 50% for males and 46.7% for females. The rate of students who agreed with the statement "I do not consume milk because I do not like the smell/taste of milk" was 48.5% for males and 45.3% for females. The rate of those who disagree with the statement "I do not consume milk because I do not consider it necessary to drink milk" was higher. The rate of those who disagreed with this statement was 42.2% for males and 42% for females. It can be said that the rate of those who disagreed with the statement "I do not consume milk because I find the milk price expensive" was also high. 42.2% of the males and 38.7% of the females disagreed with this statement.

When the attitudes of Azerbaijan State Agricultural University students towards possible factors that may limit drinking milk consumption are examined in general, it may not be a correct approach to emphasize any limiting factor. Indeed, less than half of the students generally agreed with all possible limiting factors. In previous studies, taste/smell and lack of consumption habits were found to be the main limiting factors for students' milk consumption. According to a survey conducted with 150 students at Ankara University Faculty of Agriculture, 57.14% of the students did not consume milk because they did not like the taste and/or smell of milk (Güldal et al., 2020). In the studies conducted by Önay Derin and Emdirme (2012) at Konya Selçuk University and Tarakçı et al. (2003) at Yüzüncü Yıl University, it was determined that most of the students did not consume milk due to its taste and odor. According to a survey study conducted with 273 students studying at Bitlis Eren University Tatvan Vocational School, it was stated that the most common reason why students (50.92%) did not drink milk is the lack of milk consumption habits (Sancak and Başat Dereli, 2019). In the studies conducted by Özbey (2020) at Hitit University and Özyürek et al. (2019) at Erzincan University, lack of consumption habits was the main reason why students did not consume milk. According to the results of a survey conducted with 588 university students living in dormitories in Ankara, 54.1% of the students did not drink milk because they did not like drinking milk (Yabancı Ayhan et al., 2018).

Table 8. Participants' agreement with various propositions that may limit drinking milk consumption.

Propositions		Male		Female	
		Frequency	%	Frequency	%
I do not consume milk because I do not find it healthy	Undecided	36	13.4	23	15.3
	Agree	99	36.9	48	32.0
	Strongly Agree	24	9.0	20	13.3
	Strongly Disagree	109	40.7	59	39.3
I do not consume milk because I do not like drinking milk	Undecided	45	16.8	29	19.3
	Agree	106	39.6	49	32.7
	Strongly Agree	28	10.4	21	14.0
	Strongly Disagree	89	33.2	51	34.0
I do not consume milk because I do not like the smell/taste of milk	Undecided	56	20.9	36	24.0
	Agree	102	38.1	50	33.3
	Strongly Agree	28	10.4	18	12.0
	Strongly Disagree	82	30.6	46	30.7
I do not consume milk because I do not consider it necessary to drink milk	Undecided	54	20.1	30	20.0
	Agree	86	32.1	45	30.0
	Strongly Agree	15	5.6	12	8.0
	Strongly Disagree	113	42.2	63	42.0
I do not consume milk because I find the milk price expensive	Undecided	44	16.4	27	18.0
	Agree	94	35.1	58	38.7
	Strongly Agree	17	6.3	7	4.7
	Strongly Disagree	113	42,2	58	38.7

Analysis of the change in participants' milk and dairy product purchasing behavior according to gender

The frequency of consumption of milk and dairy products by students at Azerbaijan State Agricultural University was examined within the scope of drinking milk including UHT and pasteurized milk, raw milk, khama, yogurt, shor, labne, kesmik, kaymak, cream, butter, cheese, and kefir (Table 9). It was seen that the frequency of consumption of milk and dairy products was generally low or close to medium frequency. In a sense, it can be said that students' consumption of milk and dairy products is insufficient. When the statistical analysis results related to the significance of the change in the frequency of consumption of milk and dairy products according to gender are examined, it is revealed that there is no statistically significant difference between genders (p>0.05).

Table 9. Change in the frequency of milk and dairy product consumption of the participants according to gender

Products	Gender	N	Rank Mean	Mean*	Std. Deviation	p
Drinking milk**	Male	268	203.96	2.29	1.21	0.19
	Female	150	219.40	2.44	1.20	
Raw Milk	Male	268	208.43	2.23	1.23	0.80
	Female	150	211.42	2.25	1.23	
Hama	Male	268	212.05	2.29	1.25	0.55
	Female	150	204.95	2.83	1.32	
Yogurt	Male	268	214.43	2.23	1.23	0.25
	Female	150	200.70	3.33	1.35	
Shor	Male	268	212.81	3.06	1.32	0.44
	Female	150	203.58	2.97	1.29	
Labne	Male	268	205.15	2.13	1.21	0.30
	Female	150	217.27	2.24	1.20	
Kesmik	Male	268	210.60	2.69	1.35	0.80
	Female	150	207.53	2.65	1.32	
Kaymak	Male	268	211.88	2.96	1.33	0.58
	Female	150	205.24	2.89	1.38	
Cream	Male	268	207.07	2.47	1.21	0.57
	Female	150	213.83	2.55	1.27	
Butter	Male	268	215.21	3.50	1.30	0.18
	Female	150	199.29	3.33	1.30	
Cheese	Male	268	205.22	2.07	1.23	0.31
	Female	150	217.15	2.21	1.29	
Kefir	Male	268	202.76	2.44	1.36	0.12
	Female	150	221.54	2.63	1.29	

*Likert scale mean; 1: I never consume; 5: I consume constantly **UHT, pasteurized milk

The frequency of purchase of milk and dairy products by the students at Azerbaijan State Agricultural University according to the place of purchase was analyzed within the framework of supermarkets, dairies, grocery stores, local markets, local milk vendors/milkman, and other sales places (Table 10). According to the purchase frequencies of the students, supermarkets are the sales places where milk and dairy products are purchased the most. However, it is noteworthy that supermarkets are not the places where milk and dairy products are purchased continuously according to the average purchase frequency. In the studies conducted by Selçuk *et al.* (2003), Tarakçı *et al.* (2003), Cevger *et al.* (2008), Karakayacı *et al.* (2018), Terzioğlu and Bakırcı (2019), Sancak and Başat Dereli (2019) and Kumbasaroğlu and Erem Kaya (2020) in different universities, it was found that most of the students purchased milk or dairy products from supermarkets. The use of dairy farms, grocery stores, local markets, local milk vendors, and other outlets for milk and dairy products by students at Azerbaijan State Agricultural University was close to low or medium frequency.

When the change in the sales places where milk and dairy products are purchased according to gender was analyzed, a significant difference was found between male and female students in the preference for milk and dairy products purchased from supermarkets (p=0.04). Accordingly, males use supermarkets more frequently than females when shopping for milk and dairy products. Purchasing milk and dairy products from local milk vendors also showed a significant difference depending on gender (p=0.04). According to this result, the frequency of use of local milk vendors was higher among male students than female students. In other sales points (dairy, grocery, local market, and others), no significant difference was found according to gender (p>0.05).

Table 10. Change in the frequency of purchase of milk and dairy products by place of purchase according to gender

Places Purchased	Gender	N	Rank Mean	Mean*	Std. Deviation	p
Supermarket	Male	268	218.58	3.50	1.22	0.04**
	Female	150	193.28	3.20	1.32	
Dairy	Male	268	210.85	2.61	1.27	0.75
	Female	150	207.08	2.57	1.22	
Grocery Store	Male	268	213.78	2.76	1.16	0.32
	Female	150	201.85	2.65	1.15	
Local Market	Male	268	212.36	2.66	1.28	0.51
	Female	150	204.39	2.57	1.22	
Milkman/local milk vendor	Male	268	218.17	2.12	1.26	0.04**
	Female	150	194.01	1.86	1.14	
Other	Male	268	213.54	2.32	1.29	0.34
	Female	150	202.28	2.19	1.26	

*Likert scale mean: 1: I never buy; 5: I always buy **statistically significant for p≤0.05

The factors that may affect the purchase decision of the participants in milk and dairy products shopping were examined within the scope of price, brand, quality, flavor, packaging, labeled product, additive, calorie amount, expiration date, and place of supply (Table 11). According to the Likert scale average, it was seen that price, expiration date, place of supply, and calorie amount were more effective than other factors in the decision of the participants to purchase milk and dairy products. The effect of these four factors on the purchase decision of the participants was found to be moderate. The effect of other factors on the purchase decision of the participants was determined as less effective.

It was seen that price and expiration date, which are among the factors that are effective in the purchase decision of milk and dairy products by students at Azerbaijan State Agricultural University, are among the important factors found in previous studies. In studies conducted for students in different universities in Türkiye , the main factors affecting students' decision to purchase milk or dairy products were determined as expiration date, brand, hygiene and price by Tarakçı *et al.* (2003); brand, price, production and expiration date by Terzioğlu and Bakırcı (2019); quality and expiration date by Sancak and Başat Dereli (2019); brand, expiration date, hygiene and price by Kumbasaroğlu and Erem Kaya (2020); and freshness, brand, hygiene and price by Ürkek and Taş (2021). In the study conducted by Ngo *et al.* (2019) with 520 students in Vietnam, it was determined that the five main determinants affecting the brand of dairy products and students' decision to purchase fresh milk

were: product quality, reasonable price, product promotion, and customer service, product suitability and the attitude of the reference group towards the brand.

There was a significant difference between male and female students in terms of price, packaging, and expiration date factors in the purchase decision of participants in milk and dairy products shopping (p=0.04, p=0.04, and p=0.05, respectively). Accordingly, the effect of price, packaging, and

expiration date on students' decision to purchase milk and dairy products was higher in males than in females. In terms of brand, quality, flavor, labeled product, additive, calorie amount, and place of supply, there was no significant difference in the purchase of milk and dairy products according to gender (p>0.05). A study conducted in Türkiye showed that women who consume drinking milk tended to prefer more brands compared to men. However, it was found that there was no significant relationship between gender and brand preference (Kahraman and Uysal, 2020).

Table 11. Variation of the factors that may affect the purchasing decision of the participants in milk and dairy products shopping according to gender.

Factors	Gender	N	Rank Mean	Mean*	Std. Deviation	p
Price	Male	268	218.58	3.50	1.22	0.04**
	Female	150	193.28	3.20	1.32	
Brand	Male	268	210.85	2.61	1.27	0.75
	Female	150	207.08	2.57	1.22	
Quality	Male	268	213.78	2.76	1.16	0.32
	Female	150	201.85	2.65	1.15	
Flavor	Male	268	212.36	2.66	1.28	0.51
	Female	150	204.39	2.57	1.22	
Packaging	Male	268	218.17	2.12	1.26	0.04**
	Female	150	194.01	1.86	1.14	
Tagged product	Male	268	213.54	2.32	1.29	0.34
	Female	150	202.28	2.19	1.26	
Additives	Male	268	216.26	2.79	1.30	0.11
	Female	150	197.43	2.59	1.27	
Calorie count	Male	268	211.19	3.04	1.31	0.69
	Female	150	206.48	2.99	1.36	
Expiration date	Male	268	217.82	3.60	1.38	0.05**
	Female	150	194.63	3.28	1.52	
Place of supply	Male	268	217.34	3.44	1.33	0.07
	Female	150	195.49	3.17	1.44	

*1: Not at all effective; 5: Absolutely effective. **Statistically significant for p≤0.05

CONCLUSION

The results of this study have made an important contribution to the literature in terms of revealing the behaviors of university students in Azerbaijan towards the consumption of milk and dairy products for the first time with the example of Azerbaijan State Agricultural University. In general, it was seen that the behaviors of university students in Azerbaijan towards milk and dairy product consumption are similar to the findings of similar studies conducted in different countries. According to the main findings of this study, although Azerbaijan State Agricultural University students consume milk, the milk consumption frequency is low for various reasons. The preference made according to milk type revealed that street milk is predominant in both male and female students. It was determined that a significant

majority of the students of Azerbaijan State Agricultural University associate milk consumption with health and therefore prefer it. No possible dominant reason that could limit the consumption of drinking milk by the students participating in the study was encountered. It was determined that price, expiration date, place of supply, and calorie content were more effective than other factors in the purchasing decisions of the participants.

The findings of this study reveal that some important factors are limiting the development of milk and dairy consumption among university students in Azerbaijan. Inadequate consumption of milk and dairy products by students is one of these problems. Another problem encountered is that students do not consume consciously. An example of this is that most of the students prefer street milk, which is considered unhealthy, thinking that it is natural. Considering

these two limiting factors, some important strategies need to be implemented both to increase the consumption of milk and dairy products and to improve the conscious consumption habits of the students of Azerbaijan State Agricultural University. Implementation of government incentives to support students' consumption of milk and dairy products both at the university and at retail outlets in the cities, organizing scientific activities to increase student's awareness and consciousness of healthy consumption of milk and dairy products, offering undergraduate courses and preparing public service announcements are the main important strategies that can be implemented.

REFERENCES

Ayar, A., M. Nizamoğlu. 2002. Süt ve süt ürünlerinin tüketimi üzerine bazı sosyal faktörler ve tüketici özelliklerin etkisi. Gıda Yem Bilimi Teknoloji Dergisi 1(1):25-31.

Bai, L., T. Wang, J. Tu, B. Peng, Z. Wang. 2025. A study on the correlation between MBTI dimensions and driving behavior characteristics. Scientific Reports 15, 12021. https://doi.org/10.1038/s41598-025-91361-w

Can, E. 2020. Yerel markalı süt ve süt ürünlerine yönelik tüketici eğilimleri ve gıda güvenliği algısının analizi; Tekirdağ ili örneği. Master's thesis. Tekirdağ Namık Kemal Üniversitesi.

Çetinkaya, A. 2010. Kafkas Üniversitesi Öğrencilerinin İçme Sütü ve Süt Ürünlerini Tüketim Alışkanlıklarının Belirlenmesi. Atatürk Üniversitesi Veteriner Bilimleri Dergisi 5(2): 73-84.

Cevger, Y., Y. Aral, P. Demir, S. Sarıözkan. 2008. Ankara Üniversitesi Veteriner Fakültesi intern öğrencilerinde hayvansal ürünlerin tüketim durumu ve tüketici tercihleri. Ankara Üniversitesi Veteriner Fakültesi Dergisi 55(3): 189-194.

Collins, M. 1986. Sampling. Consumer Market Research Handbook, London: McGraw-Hill.

Exchange-Rates. 2024. AZN/USD Yıllara Göre Geçmiş Kurlar. https://www.exchange-rates.org/tr/gecmis-doviz-kurlari/azn-usd-2024-03-26

Güldal, H. T., H. C. Akal, N. Türkmen, G. Eminoğlu, C. Koçak. 2020. Determination of Milk Consumption Habits of Students of Agricultural Faculty: Compare of Department of Dairy Technology with Department of Agriculture Economy. Turkish Journal of Agriculture - Food Science and Technology 8(1): 125-129. https://doi.org/10.24925 /turjaf.v8i1.125-129.2850

Güler, H., P. Şeker, A. Köseman, İ. Şeker. 2021. Milk and Dairy Product Consumption Habits of University Students in Türkiye . Erciyes Üniversitesi Veteriner Fakültesi Dergisi 18(3): 173-181. https://doi.org/10.32707/ercivet.1015790

Huseyn, R. 2022. Livestock Sector Analysis in Azerbaijan. Support to Development of a Rural Business Information System. ENI/2019/412-386. DOI: 10.13140/RG.2.2.27735.85928. https://www.researchgate.net/publication/ 371227530_Livestock_Sector_Analysis_in_Azerb aijan?channel=doiandlinkId=6479ccd0b3dfd73b77 5da70candshowFulltext=true. Access: 24.07.2024

Kahraman, E., H. R. Uysal. 2020. İçme Sütü Tüketiminde Marka Seçiciliğinde Etkili Faktörlerin Analizi: İzmir İli Örneği. Çukurova Tarım ve Gıda Bilimleri Dergisi 35(1): 43-56.

Karakayacı, Z., Z.N. Öz, S. Baz, S. Koçyiğit. 2018. Determination of Consumption Habits of Milk and Dairy Products of Selcuk University Undergraduate Students. Selcuk Journal of Agriculture and Food Sciences 32(3): 289-296.

Kart, M. Ç. Ö., V. Demircan. 2014. Dünyada ve Türkiye'de süt ve süt ürünleri üretimi, tüketimi ve ticaretindeki gelişmeler. Akademik Gıda 12(1): 78-96.

Kızıloğlu, R., H. Kızılaslan. 2015. TR 83 Bölgesinde Süt ve Süt Ürünleri Tüketiminde Tüketici Davranışlarını Etkileyen Faktörler ve Talebinin Belirlenmesi. Tarımsal Ekonomi ve Politika Geliştirme Enstitüsü TEPGE. Yayın No: 274. ISBN: 978-605-9175-52-4.

Kumbasaroğlu, H., T. Erem Kaya. 2020. Students' Milk Consumption Patterns at Erzincan Binali Yildirim University. Journal of the Institute of Science and Technology, 10(3): 2114-2125. ttps://doi.org/10.21597/jist.700511.

Mert, İ., N. Artık, G. Dellal, U. T. Şireli. 2020. Süt Kalitesi ve Süt - Sağlık İlişkisi. Ulusal Süt Konseyi. https://ulusalsutkonseyi.org.tr/wp-content/uploads/sut_kalitesi_A5_bask__.pdf Access: 29.08.2024.

Ngo, H.Q., T.Q. Nguyen, N.T. Long, T. V. Tran, T.M. Hoang. 2019. Factors Affecting Brand and Student Decision Buying Fresh Milk: A Case Study in Ho Chi Minh City, Vietnam. The Journal of Asian Finance, Economics and Business 6(3): 247-258. https://doi.org/10.13106/JAFEB.2019.

Önay Derin, D., N. Emdirme. 2012. Selçuk Üniversitesi Öğrencilerinin Süt ve Fermente Süt Ürünleri Tüketim Alışkanlıkları. Akademik Gıda 10(4): 37-44.

Özbey, F. 2020. Üniversitesi Öğrencilerinin Süt ve Süt Ürünleri Tüketim Alışkanlıklarının Belirlenmesi. Sağlık Profesyonelleri Araştırma Dergisi 2(1): 1-6.

Özyürek, S., F. Yangılar, and K. Çebi. 2019. Erzincan Üniversitesi Öğrencilerinin Süt ve Süt Ürünleri Tüketim Alışkanlıklarının İncelenmesi. Black Sea Journal of Agriculture 2(3): 119-125.

Para, G., İ. Ülger, M. Kaliber. 2020. Üniversite Öğrencilerinin Süt Ürünleri Tüketim Alışkanlıkları ve Beslenme Bilinçlerinin Değerlendirilmesi. Erciyes Tarım ve Hayvan Bilimleri Dergisi 3(1): 9-15.

Şahinöz, S., M. Özdemir. 2017. Üniversite Öğrencilerinin Süt ve Süt Ürünleri Tüketim Alışkanlıkları ve Etkileyen Faktörler. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi 6(4): 106-112.

Sancak, H., D. Başat Dereli. 2019. Tatvan Meslek Yüksekokulu Öğrencilerinin Süt ve Süt Tüketimi Hakkındaki Düşünce ve Davranışları. Harran Üniversitesi Veteriner Fakültesi Dergisi 8(1): 7-15.

Selçuk, Ş., Z. Tarakçı, K. Şahin, H. Coşkun. 2003. Yüzüncü Yıl Üniversitesi Lisans Öğrencilerinin Süt Ürünleri Tüketim Alışkanlıkları. Yuzuncu Yil University Journal of Agricultural Sciences 13(1): 23-31.

Şimşek, B., İ. Açıkgöz. 2011. Üniversite Öğrencilerinin Süt Ürünleri Tüketim Alışkanlıklarının Değerlendirilmesi. Journal of the Institute of Science and Technology 1(3): 57-62.

Taherdoost, H. 2021. Data Collection Methods and Tools for Research; A Step-by-Step Guide to Choose Data Collection Technique for Academic and Business Research Projects. International Journal of Academic Research in Management (IJARM) 10 (1): 10-38.

Tarakçı, Z., Ş. Selçuk, K. Şahin, H. Coşkun. 2003. Üniversite Öğrencilerinin İçme Sütü Tüketim Alışkanlıkları Üzerine Bir Araştırma. Yüzüncü Yıl University Journal of Agricultural Sciences 13(1): 15-21.

Tekinşen, O. C., K. K. Tekinşen. 2005. Süt ve Süt Ürünleri: Temel Bilgiler, Teknoloji, Kalite Kontrolü. Selçuk Üniversitesi Basımevi, Konya.

Terzioğlu, M. E., İ. Bakırcı. 2019. Lisans Öğrencilerinin Süt Tüketim Alışkanlıklarının ve Davranışlarının Belirlenmesi. Gıda 44(1): 163-172. https://doi.org/10.15237/gida.GD18080

Ürek, B., A. Taş. 2021. Üniversite Öğrencilerinin Fermente Süt Ürünleri Tüketim Alışkanlıklarının İstatistiksel Analizi. Aydın Gastronomy 5(2): 91-103.

Yabancı Ayhan, N., G. İplikçi, I. Şimşek. 2018. Üniversite öğrencilerinin süt ve süt ürünleri tüketimi üzerine bir araştırma. The Journal of Academic Social Science 6(67): 370-380.

Yahia, N., D. Wang, M. Rapley, R. Dey. 2016. Assessment of Weight Status, Dietary Habits and Beliefs, Physical Activity, and Nutritional Knowledge among University Students. Perspectives in Public Health 136(4): 231-244 doi:10.1177/1757913915609945.

Yerlikaya, O., C. Karagözlü. 2008. İnsan beslenmesinde inek sütü. Türkiye 10. Gıda Kongresi Bildiriler Kitabı. 21-23 Mayıs 2008. Erzurum pp. 805-808.