

Dilek YÜCEL ENGİNDENİZ^{1*} , **Esin CANDAN DEMİRKOL²** 

¹Department of Plant and Animal Production, Izmir Vocational School, Dokuz Eylül University, 35600, Izmir, Türkiye

Analysis of Milk Consumption and Purchasing Preferences of University Students

ABSTRACT

Objective: This study aims to examine the milk consumption habits of young people and the factors affecting their purchasing preferences.

Material and Methods: The main material of the study consists of the data obtained from the students of Dokuz Eylül University, Izmir Vocational High School, through a questionnaire. As of 2023, the total number of registered students at Izmir Vocational School is 9,017, which was considered the target population. A proportional sampling method was applied, and 263 students were included in the study.

Results: The findings indicate that 60.64% of the participants consume milk regularly, while 39.36% do not. The average weekly milk consumption among young people was found to be 0.68 litres (approximately 35 litres per year). Students prefer to purchase milk mostly from the market (66.54%) and the supermarket (42.97%). Carton packaging (76.31%) was identified as the most preferred type of packaging. Additionally, around 90% of the participants perceive milk prices as high or very high.

Conclusion: Strategies such as school nutrition programs, media campaigns and cultural awareness raising should be developed to increase milk consumption among young people. Given the survey's findings that young people's purchasing decisions are significantly influenced by the cost of dairy products, more reasonably priced and healthful milk options have to be available.

Keywords: Youth, milk consumption, purchasing preferences, health awareness.

Üniversite Öğrenimi Gören Gençlerin Süt Tüketimi ve Satın Alma Tercihlerinin Analizi

ÖZ

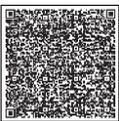
Amaç: Bu araştırmanın amacı, gençlerin süt tüketim alışkanlıklarını ve satın alma tercihlerine etki eden faktörleri incelemektir.

Materyal ve Metot: Araştırmanın ana materyalini Dokuz Eylül Üniversitesi İzmir Meslek Yüksek Okulu öğrencilerinden anket yoluyla elde edilen veriler oluşturmaktadır. 2023 yılı itibarıyla İzmir Meslek Yüksek Okulunda 9017 öğrenci kayıtlıdır. Bu sayı anakitle olarak kabul edilmiş ve oransal örnekleme metodu kullanılarak 263 öğrenci kapsama alınmıştır.

Bulgular: Araştırmaya katılan gençlerin %60.64'ü düzenli olarak süt tüketirken, %39.36'sı düzenli olarak süt tüketmemektedir. Gençler arasında ortalama haftalık süt tüketimi 0,68 litre (yaklaşık olarak yılda 35 litre) olarak bulunmuştur. Öğrenciler, sütü daha çok market (%66,54) ve süpermarketten (%42,97) satın almayı tercih etmektedir. Karton kutu (%76.31) en çok tercih edilen ambalaj olarak öne çıkmıştır. Gençlerin yaklaşık %90'ı süt fiyatlarını yüksek ve çok yüksek olarak değerlendirmiştir.

Sonuç: Gençlerin süt tüketimini artırmak amacıyla, okul beslenme programları, medya kampanyaları ve kültürel farkındalık yaratma gibi stratejiler geliştirilmelidir. Anket bulgularına göre, gençlerin süt ürünleri satın alma kararlarının fiyat tarafından önemli ölçüde etkilendiği göz önüne alındığında, daha uygun fiyatlı ve sağlıklı süt seçeneklerinin sunulması gerekmektedir.

Anahtar Kelime: Gençler, süt tüketimi, satın alma tercihleri, sağlık bilinci



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INTRODUCTION

Milk is an essential nutrient for human health due to its high content of protein, calcium, and vitamins, and is particularly crucial for individuals during periods of growth and development. For good bone growth and to lower the long-term risk of osteoporosis, children and adolescents should consume enough milk (Weaver, 2009). Milk consumption habits of young people are influenced by many different factors such as socio-economic environment, nutritional awareness, health perceptions and marketing strategies (Karagözlü et al., 2005; Şimşek and Açıkgöz, 2011; Şahinöz and Özdemir, 2017; Yalçın and Argun, 2017; Yılmaz and Ayyıldız, 2018; Öncül et al., 2019, Kumbasaroğlu and Kaya, 2020; Güler et al., 2021; Sancak and Dereli, 2021; Aydemir et al., 2023; Aral and Cufadar, 2024; Velizade et al., 2025). In particular, milk consumption is decreasing due to increasing urbanization, the spread of fast-food culture, and nutritional trends spread through social media, with young people preferring plant-based milk alternatives, carbonated drinks, and coffee-based beverages instead of milk (Şimşek et al., 2005; Onurlubaş and Çakırlar, 2016; Özyürek et al., 2019).

Studies have shown that young people's milk consumption habits are irregular and mostly limited to breakfast meals (Bengü, 2022; Demirel et al., 2023). Yalçın (2017) found that 30% of young people in Türkiye reduced their milk consumption or switched to plant-based milk alternatives for health reasons. It is believed that these trends may have long-term negative effects on the health of young people. A decline in milk consumption can lead to poor bone health and an increased risk of osteoporosis due to vitamin D and calcium deficiency (Aras, 2023). Furthermore, beverages like as fruit juices, fizzy drinks, and vegetable milks that are used in place of milk have little nutritional content and can erode the habit of eating healthily (Akar and Büyükcın, 2017). One of the most obvious signs of the significant changes in young people's eating habits in recent years is the decline in milk intake (Engindeniz et al, 2021).

Numerous factors influence young people's milk drinking patterns, according to research on the subject. According to certain research, for example, young people prefer flavored and sweetened milks to plain milks (Yalçın and Argun, 2017; Stearns and Rabinowitz, 2021; Hutton et al, 2024).

In other studies, the impact of health and dietary trends on milk consumption has been observed to be more significant (Bengü, 2022; Aydemir et al., 2023; Ersin, 2023). Additionally, research has determined that socio-economic factors, including income, economic fluctuations, and social media, have a greater influence on milk consumption (Terin et al., 2015; Hussein et al. 2020).

The objective of this study is threefold: first, to examine the milk consumption habits and purchasing preferences of young people studying at Dokuz Eylül University Izmir Vocational High School; second, to reveal the main reasons behind these changes; and third, to provide a comprehensive overview of this issue in contemporary society. The following questions were sought to be answered within the scope of the research:

- What are the milk consumption rates and tendencies of young people?
- What are the main factors affecting milk consumption?
- Which factors are decisive in young people's milk purchasing decisions?
- What kind of strategies can be developed to increase young people's milk consumption in Türkiye?

MATERIAL and METHODS

The main source of data for this study is information gathered from students enrolled in different programs at Dokuz Eylül University, Izmir Vocational High School, using a face-to-face survey approach. Furthermore, the results of earlier studies on the topic were also applied.

As of 2023, Dokuz Eylül University Izmir Vocational School had 9,017 enrolled students. The research sample included a subset of the student body that participated in the study. In the current investigation, the proportional sampling technique outlined by Newbold (1995) was used.

$$n = \frac{Np(1-p)}{(N-1)\sigma^2_{px} + p(1-p)}$$



In the formula, n denotes the sample size, N represents the total number of students (9,017), p indicates the proportion of students consuming milk (0.5 was taken the sample size), and σ^2_{px} signifies the variance of the ratio. In the study, the number of students to be included was determined as 263 based on a 90% confidence interval and a 5% margin of error. The students to be interviewed were selected using a random sampling method. The study collected data on the demographic and socioeconomic characteristics of the students, their income and expenditures, the amounts allocated for milk from their expenditures, milk consumption preference criteria, purchasing locations, season and frequency of consumption. This data was collected through the administration of questionnaires. The analysis of the data was conducted using the SPSS statistical program. The data were evaluated and interpreted through the application of fundamental statistical methodologies, including arithmetic mean and percentage (Özdamar, 2004). A five-point Likert scale was employed to ascertain students' opinions and attitudes. The results obtained in the study were interpreted by preparing tables and graphs.

RESULTS

Table 1 provides the students' socioeconomic and demographic details. With 51% of the sample identifying as male, the student body was predominately male. In contrast, 49% of the students identified as female. The demographic composition of the student body is as follows: 89.35% of students are between the ages of 18 and 24, 6.84% are between the ages of 25 and 30, and 3.80% are over 30. The mother's education level is 61.98%, while the father's is 60.84%, both of which are at or below the elementary school level. The mean number of individuals in a family is 4.15. The average monthly income of their families is 20372.86 TL, of which 4.31% is allocated for the consumption of milk and dairy products.

Table 1. Demographic and Socio-Economic Characteristics of Students

Tablo 1. Öğrencilerin demografik ve sosyo-ekonomik özellikleri

Characteristics	Number of students	Ratio (%)
Gender	Male	134
	Female	129
Age	18-24	235
	25-30	18
	30+	10
	No education	8
Mother's education level	Elementary school	98
	Secondary school	57
	High school	76
	Higher education	24
Father's education level	No education	3
	Elementary school	81
	Secondary school	76
	High school	79
Place of residence	Higher education	24
	Dormitory	35
	House for rent	50
	Family side	164
	Other	14
Number of family members	4.15	
Average monthly income of the family (TL)	20372.86	
Average monthly food expenditure of the family (TL)	9219.49	
Average monthly family expenditure on milk and dairy products (TL)	878.79	

A total of 60.08% of the students stated that they consumed milk regularly, while 39.92% of them stated they did not milk regularly (Table 2).

Table 2. Students' Regular Milk Consumption Status

Tablo 2. Öğrencilerin düzenli süt tüketim durumu

Milk consumption status	Number of students	Ratio (%)
Consuming regularly	158	60.08
Not consuming regularly	105	39.92
Total	263	100.00



Of those who regularly drink milk, 65.56% said they do so for three reasons: it is a source of calcium (35.76%), it is nutritious (54.30%), and it is healthful (65.56%) (Table 3).

Table 3. Reasons for Regular Milk Consumption

Tablo 3. Sütü düzenli tüketme nedenleri

Reasons	Number of students*	Ratio (%)
Nutritious	82	51.90
Healthy	99	62.66
Source of protein	51	32.28
Source of calcium	54	34.18
Doctor's recommendation	10	6.33
Young children at home	37	23.42
Other	19	12.03

(*) Multiple responses received.

The reasons for not consuming milk regularly were as follows: lack of habit (62.86%), digestive problems (9.53%), unpleasant odor (7.62%) and taste (7.62%) (Table 4).

Table 4. Reasons for Not Consuming Milk Regularly

Tablo 4. Sütü düzenli tüketmeme nedenleri

Reasons	Number of students*	Ratio (%)
Lack of habit	66	62.86
Digestive problems	10	9.53
Unpleasant odor	8	7.62
Unpleasant taste	8	7.62
Discomfort	2	1.90
Allergic effects	2	1.90
Other	9	8.57
Total	105	100.00

(*) Multiple responses received.

In a study conducted by Öztürk et al. (2016), the reasons why students do not consume milk were determined as taste, odor, digestive problems, allergies, and cost. A study conducted by Çelik Güney and Göncü (2024) at Çukurova University found that approximately half of the students (45.83%) reported abstaining from milk consumption due to their aversion to its taste. A study conducted among students at Kafkas University revealed that 67% of the participants did not consume milk (Çetinkaya, 2010). In a comparable study, Uzunöz and Gülşen (2007) discovered that whereas 28.67% of the students routinely drank milk, 71.33% did not. In another survey, 46% of college students said they didn't drink milk because they didn't have a practice of doing so, and 4% said that drinking milk made them uncomfortable (Özbey, 2020).

With a rate of 90.11%, cow's milk is the most popular milk type among young people, per the survey's findings (Table 5). This result is consistent with data on milk production in Turkey, where 90.77% of milk produced is from cows (USK, 2021). A study conducted in Erzincan province revealed that 92.5% of families consumed cow's milk (Özyürek et al., 2019). The study's findings indicated a preference rate of 6.84% for goat milk. This phenomenon may be attributed to the fact that young people tend to prioritize other factors over healthy eating trends, or that they lack access to goat milk.

The low rates of daily milk consumption (12.17%) and consumption every other day (13.69%) suggest that daily milk consumption is not regular or continuous. According to the results of the survey, it is seen that young people prefer modern retail channels (markets and supermarkets) more for milk shopping (Table 5). In fact, the preference rate for grocery stores and supermarkets was 66.54% and 42.97%, respectively. This result implies that milk sales are significantly impacted by contemporary retail outlets. Similarly, 50% of consumers bought milk from grocery shops, according to a survey done in the province of Erzincan (Özyürek et al., 2019). The relatively low preference rate for grocery stores (23.57%) indicates a preference among young people for traditional retail channels that is less pronounced.

A recent study revealed that among the younger population, cardboard boxes (72.24%) emerged as the preferred option for packaging. Ağır et al. (2024) found that consumers in the middle and high income groups tend to consume packaged milk more than those in the low income group. The results presented in Tetra Pak's packaging consumption report from 2022 are in line with this one. According to the report, cardboard boxes are favored because of its many benefits, such as their extended shelf life, ease of use, and environmental



sustainability. Glass's inherent weight and fragility make it less appropriate for some uses, which is why glass bottle packaging is used so sparingly (15.59%).

In recent years, there has been an observed increase in the consumption of low-fat milk, which is consistent with the growing trend of adopting a healthy diet. As indicated in Table 5, this study reveals a parallel tendency, with a significant proportion of young individuals, amounting to 61.98%, demonstrating a predilection for half-fat milk. The persistent high proportion of whole milk (34.98%) signifies the ongoing consumption of whole milk, particularly among families with children or individuals with traditional preferences.

According data from the Association for Nutrition and Dietetics (2021) indicates that milk is typically drunk before bed or before breakfast. According to the results of the research, it is seen that evening consumption (41.06%) is at the forefront in milk consumption (Table 5). The consumption of milk before bedtime has been identified as a prevalent practice. The data indicates that the consumption of tea and other beverages surpassed that of milk during the morning meal, suggesting a shift in beverage preferences among the study's participants.

As indicated in Table 5, 46.77% of young people consume milk at room temperature. This finding suggests that the consumption of cold milk is a pervasive practice. A similar finding was reported in a study conducted among Gaziosmanpaşa University students, which indicated that 50% of the students consumed milk cold (Uzunöz & Gülşen, 2007). The European Food Information Council (2021) also reported that the consumption of cold milk is widespread among young people. Dal et al. (2018) found in their study that young people mostly consume half-fat, cold, unsweetened, before bedtime and the same amount of milk regularly in all seasons.

The average weekly milk consumption among young people was 0.68 liters (approximately 35 liters per person per year). The extent of variation in consumption levels was not found to be statistically significant when evaluated across gender and age demographics ($p > 0.05$). This figure stands in contrast to Türkiye's average milk consumption, which is approximately 40 liters per capita per year (NMC, 2022).

These results align with those obtained in other studies. For instance, Örük (2021) ascertained that the weekly milk consumption of young people is 0.60 liters. According to data on per capita consumption of drinking milk calculated by the International Dairy Federation (IDF), Australia and New Zealand have the highest rates, with a consumption of over 100 kilograms per person per year. While the annual consumption of milk per capita is approximately 60-70 liters in Europe, the comparatively lower consumption in Türkiye may be attributed to a preference for dairy products such as yoghurt and cheese over milk. In particular, yoghurt and cheese play an important role in Türkiye's traditional dietary habits, and these products are more widely consumed than milk.

The opinions of young people on milk prices are given in Graph 1. Consequently, approximately 90% of the youth evaluated milk prices as high or very high. When deciding whether to buy milk, price has been found to be a crucial consideration. Higher income consumers are more likely to buy organic or specialized milk, whereas consumers with lower incomes typically prefer less expensive milk.

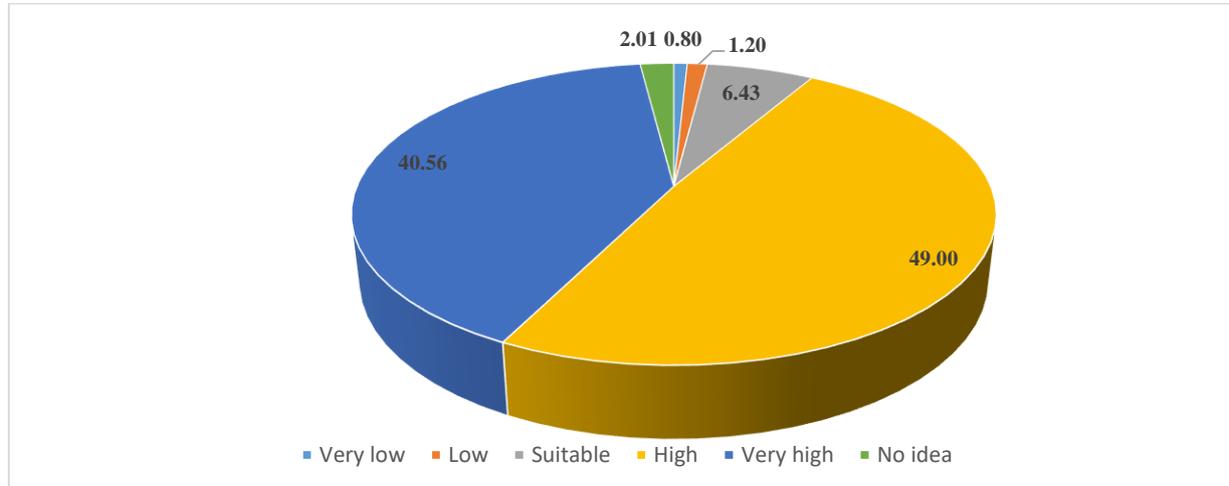


Figure 1. Opinions of Young People on Milk Prices

Şekil 1. Gençlerin süt fiyatlarına ilişkin görüşleri



Table 5. Milk Consumption Preferences and Purchasing Habits

Table 5. Süt tüketim tercihleri ve satın alma alışkanlıkları

Preferred milk type	Number of students	Ratio (%)
Cow milk	237	90.11
Buffalo milk	12	4.56
Sheep milk	23	8.75
Goat milk	18	6.84
Type of milk purchased		
Only raw milk	18	6.84
Only packaged milk	96	36.50
Both	138	52.47
Frequency of purchase		
Every day	32	12.17
Every other day	36	13.69
Once a week	131	49.81
Every fifteen days	72	27.38
Other	34	12.93
Place of purchase		
Grocery store	62	23.57
Market	175	66.54
Supermarket	113	42.97
Other	27	10.27
Preferred milk product type		
Pasteurized milk	134	50.95
Sterilized UHT milk	108	41.06
Flavored milk	74	28.14
Chocolate milk	71	27.00
Other	14	5.32
Preferred packaging		
Glass bottle	41	15.59
Plastic bottle	10	3.80
Carton box	190	72.24
Carton box with straw	95	36.12
Other	16	6.08
Preferred fat content		
Whole fat	92	34.98
Semi-skimmed	163	61.98
Light	42	15.97
Extra light	8	3.04
Other	4	1.52
Preferred time for consumption		
Morning	82	31.18
Noon	32	12.17
Evening	108	41.06
Any time during the day	68	25.86
Other	26	9.89
Preferred way to consume milk		
Hot	61	23.19
Cold	123	46.77
Both	128	48.67
Weekly milk consumption (L)		0.68

Organic milk is typically sold at a premium price compared to conventional milk, which directly impacts consumer preferences. One important element in consumers' decision-making processes when it comes to buying goods and services is the availability of discounts and promotional offers in supermarkets.



As demonstrated in Graph 2, there is a clear trend indicating an increase in the consumption of organic milk among young people. Consequently, it was found that 42% of young people do not drink organic milk, compared to roughly 58% who do. The participants went into additional detail about the reasons they supported and opposed drinking organic milk, pointing to its natural composition, flavor, perceived health benefits, and lack of additives as important considerations. Conversely, they identified price, availability, aversion to its aroma, and dissatisfaction with its taste as primary reasons for their non-consumption.

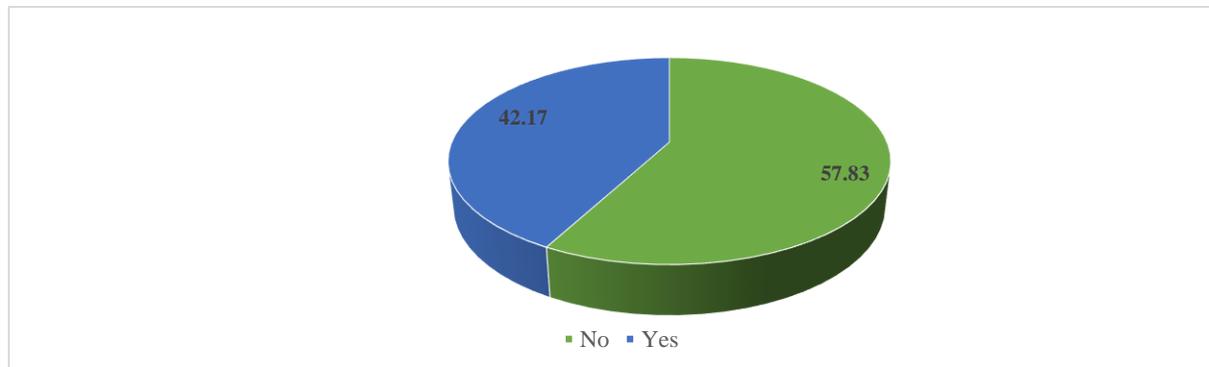


Figure 2. Young People's Consumption of Organic Milk

Şekil 2. Gençlerin organik süt tüketimi

In the survey, young people were asked to indicate their level of agreement with statements regarding milk. "A significant proportion of the youth population expressed strong agreement with the assertion that "Milk is an essential component of human nutrition" (Table 6). This high score suggests that young people have a basic understanding of the nutritional value of milk. Similar to this, a study found that students still follow their family's dairy and milk consumption patterns (Para et al., 2020, Örük 2021). Media, ads, and social media are some of the key elements affecting consumers' decisions to buy milk, according to research.

Table 6. Young People's Views on Milk

Tablo 6. Gençlerin süt hakkındaki görüşleri

Opinions	Mean *
Milk is an important foodstuff in human nutrition.	4.36
Milk makes you fat.	2.26
Milk is the most nutritious animal product.	3.27
Closed milk contains no additives.	2.05
Milk increases cholesterol.	2.94
Open milk is harmful to health.	2.17
People of all ages should drink milk	4.14
Milk advertisements have a positive impact on consumption.	3.56
The school milk program is beneficial.	3.98
Milk consumption should be increased in Türkiye.	4.18

* 1: Strongly disagree, 2: Disagree, 3: Undecided, 4: Agree, 5: Completely agree

DISCUSSION and CONCLUSION

The objective of this study is to examine the milk consumption habits of young people and the factors affecting their purchasing preferences. The study's conclusions show that some factors affect milk intake among students at Izmir Vocational School, and that recent dietary changes have a negative impact on milk consumption.

The survey results indicate that 60.08% of the participants consume milk regularly, while 39.92% do not consume it regularly. The main reasons for regular milk consumption are health, nutrition and being a source of calcium, while the reasons for not consuming milk include lack of habit, digestive problems and disliking the taste of milk. The findings indicate a direct correlation between young people's milk consumption habits and their health as well as their individual preferences. It is also in line with previous studies that milk consumption decreases as health awareness increases (Karagözlü et al., 2005; Özbey, 2020).

In the context of milk consumption, cow's milk emerged as the predominant choice, garnering a substantial proportion of 90.11%. Furthermore, a preference for plant-based milk substitutes was noted.



Nevertheless, despite plant-based milks' lack of appeal, demand for them might rise, particularly as people's understanding of nutrition and health issues grows. In addition, young people generally prefer milk in closed packages due to the hygienic and easy transportation characteristics of the products. These preferences should be considered as an important factor in the marketing of milk and dairy products.

The cost of milk has a significant influence on young people's decisions to buy it. About 90% of respondents, a sizable share, thought milk costs were high or extremely expensive. The fact that individuals with lower income levels prefer more affordable milk shows that income level is a determining factor in milk consumption. This finding is in line with the literature supporting the effect of socioeconomic factors on milk consumption (Karakayacı et al., 2018; Hussein et.al. 2020). A parallel trend was observed in organic milk consumption. A survey indicates that approximately 58% of young people consume organic milk; however, price barriers and product availability limit this proportion. According to this research, young consumers' desire for organic milk is limited by its comparatively higher price.

A survey of young people's perceptions regarding milk and dairy products reveals a notable level of awareness concerning their nutritive and health benefits. The predominant consensus among researchers is that "Milk is an important food in human nutrition." However, there are also negative perceptions about milk; for example, common misconceptions such as "Milk makes you fat" and health concerns such as "Light milk is harmful to health" are among the factors that prevent young people from consuming milk. According to this research, young people's eating habits are significantly impacted by health misinformation, especially when it comes to dietary trends that are shared on social media.

The study's findings indicated a substantial influence of media and advertising on the milk consumption patterns of young individuals. A survey of young people revealed that advertisements for dairy products and health trends on social media have a significant impact on their consumption habits. Consistent with the findings of preceding studies, this result indicates that media and social media constitute influential instruments in the dietary preferences and habits of young individuals.

A decline in milk consumption can be indicative of a shift in dietary habits, which has the potential to exert long-term adverse effects on the health of young individuals. It has been demonstrated that a marked predilection for vegetable milk alternatives and carbonated beverages over milk has the potential to result in nutritional deficiencies and significant health complications, including bone health issues. Consequently, the development of strategies to raise health awareness and support dietary habits that increase milk consumption is imperative.

The following suggestions can be made to increase milk consumption among university students:

- Initiatives should be launched to promote milk consumption at colleges and residence halls. For instance, on specific days, students can receive free milk.
- For students with lactose intolerance, more affordable lactose-free milk and plant-based milk alternatives should be offered.
- Students should be made aware of the health effects of milk and dairy products. Information posters explaining the benefits of milk and dairy products can be placed in university canteens and dining halls.
- State-supported subsidy programs can be evaluated to make milk prices more accessible to students.
- Students can be encouraged to include milk more in their daily consumption habits, as coffee and tea. For example, the prices of milk drinks in university cafes can be made more affordable.

In conclusion, a multifaceted approach is necessary to encourage young people to consume milk. Achieving this objective necessitates the promotion of healthy eating habits and the development of strategies that consider economic, cultural, and media influences.



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