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Original Article / Araştırma Makalesi

Prevalence of Obesity and Nutritional Characteristics Among High School Students in a Provincial Center: A Descriptive Cross-Sectional Study*

Bir İl Merkezinde Lise Öğrencilerinde Obezite Sıklığı ve Beslenme Özelliklerinin Belirlenmesi: Tanımlayıcı Kesitsel Çalışma*

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ABSTRACT

Objective: This study aimed to assess the nutritional habits and prevalence of obesity among high school students in a province located in the Eastern Black Sea Region of Turkey.
Methods:This descriptive cross-sectional study was conducted between March and May 2023 and included 929 high school students. Data were collected through face-to-face interviews and anthropometric measurements. Nutritional habits were evaluated using a structured questionnaire. Statistical analyses were performed using SPSS 23.0, with descriptive statistics and chi-square tests applied. The significance level was set at $p < .05$.
Results:The mean age of the students was 15.84 ± 1.21 years. According to BMI classification, 12.7% were overweight and 5.6% were obese. Female students reported a higher frequency of meal skipping (70.7%) than males (64.2%) ($p = .035$), particularly breakfast, often due to lack of appetite or late waking. Male students had higher consumption of dairy and meat products, but also reported greater intake of fast food and sugary drinks. Notably, only 54.4% of students reported having received structured nutrition education as part of school-based health or biology courses
Conclusion: The findings highlight the need for school-based interventions targeting gender-specific nutritional behaviors. Interventions should focus on encouraging regular meal consumption, reducing fast food and sugary beverage intake, and promoting breakfast habits. The study's limitations include its cross-sectional design and reliance on self-reported data, which may introduce bias.

MAKALE BİLGİLERİ

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ÖZET

Amaç: Bu çalışma, Doğu Karadeniz Bölgesi'nde yer alan bir ilde lise öğrencilerinin beslenme alışkanlıklarını ve obezite prevalansını değerlendirmeyi amaçlamaktadır.
Yöntem: Tanımlayıcı kesitsel tipteki bu çalışma, Mart-Mayıs 2023 tarihleri arasında yürütülmüş ve 929 lise öğrencisi araştırmaya dahil edilmiştir. Veriler yüz yüze görüşmeler ve antropometrik ölçümler yoluyla toplanmıştır. Beslenme alışkanlıkları yapılandırılmış bir anket formu ile değerlendirilmiştir. Verilerin analizinde SPSS 23 programı kullanılmış, tanımlayıcı istatistikler ve ki-kare testleri uygulanmıştır. Anlamlılık düzeyi $p<0,05$ olarak kabul edilmiştir.
Bulgular: Öğrencilerin ortalama yaşı 15,84±1,21'dir. BKI sınıflamasına göre öğrencilerin %12,7'si fazla kilolu, %5,6'sı obez olarak değerlendirilmiştir. Kız öğrencilerin öğün atlama oranı (%70,7), erkeklere (%64,2) göre daha yüksek bulunmuştur ($p=0,035$); özellikle iştahsızlık ve geç uyanma gibi nedenlerle kahvaltı atlanmaktadır. Erkek öğrencilerin süt ve et ürünleri tüketimi daha yüksek olmakla birlikte, fast-food ve şekerli içecek tüketimleri de fazladır. Dikkat çekici olarak, öğrencilerin yalnızca %54,4'ü okullarda sağlık bilgisi veya biyoloji dersleri kapsamında yapılandırılmış bir beslenme eğitimi aldığını bildirmiştir.
Sonuç: Bulgular, cinsiyete özgü beslenme davranışlarını hedef alan okul temelli müdahalelere olan ihtiyacı ortaya koymaktadır. Bu müdahaleler, düzenli öğün tüketiminin artırılması, fast-food ve şekerli içecek tüketiminin azaltılması ve kahvaltı alışkanlıklarının teşvik edilmesini içermelidir. Çalışmanın sınırlılıkları arasında kesitsel tasarımı ve öz bildirim verilerine dayalı olması yer almaktadır.

* This study was presented as an oral presentation at the 7th International Health Sciences Congress of the Thrace Universities Union, held on January 21-22, 2025

1. Introduction

Nutrition plays a fundamental role in maintaining and improving individuals' health. Adolescence, in particular, is a critical period characterized by rapid growth and development, leading to an increased demand for energy and essential nutrients. However, unhealthy eating habits tend to become more prevalent during this phase, with a rise in the consumption of fast food, processed foods, and high-sugar products. The fast-paced lifestyle of modern society, which promotes the consumption of processed foods and a decline in physical activity, negatively affects adolescents' growth and development. These factors contribute to an increased risk of obesity, diabetes, cardiovascular diseases, certain types of cancer, and musculoskeletal disorders later in life (Faienza et al., 2016; WHO, 2020).

According to the World Health Organization (WHO), adolescence, defined as the period between the ages of 10 and 19, is a crucial phase for the development of independence and behavioral patterns. During this time, adolescents become more autonomous in their dietary choices, yet they also adopt unhealthy eating habits due to rapid lifestyle changes and social influences. Poor nutrition in adolescence increases the risk of obesity, which not only affects physical health but also has negative psychological and social consequences (Çağiran Yilmaz et al., 2019; WHO,2025).

Obesity has been recognized by the WHO as a global public health issue and is increasingly prevalent among adolescents. In recent years, there has been a significant rise in obesity prevalence among children and adolescents. WHO data indicate that the prevalence of overweight and obesity among individuals aged 5–19 has quadrupled since 1975 (WHO, 2024). This alarming increase highlights the urgent need to reassess adolescents' dietary habits and lifestyle choices. Obesity poses a long-term threat not only to individual health but also to public health at large (Öztürk & Türker, 2025).

Various studies conducted in Turkey indicate that adolescents generally exhibit unhealthy dietary behaviors, which significantly contribute to obesity risk (B. Ö. Yılmaz et al., 2018). Recent studies in different regions of Turkey report varying rates of adolescent obesity, ranging from 7% to over 18% (Agadayı et al., 2019; Özer & Kaya, 2024; Gülü et al., 2022). These regional disparities highlight the importance of conducting localized assessments using a critical and comparative perspective.

One study on adolescents found that the prevalence of overweight status was 18.2% (Gülü et al., 2022). Similarly, Agadayı et al. (2019) reported an obesity rate of 7.34% among adolescents in a rural district, while Özer and Kaya (2024) found the rate to be 10.4% using bioelectrical impedance analysis. These findings suggest notable regional variation in adolescent obesity across Turkey. Furthermore, obese children and adolescents are five times more likely to remain obese in adulthood compared to their non-obese counterparts Approximately 55% of obese children remain obese during adolescence, and 80% of obese adolescents continue to be obese in adulthood (Simmonds et al., 2016). Since overweight, obesity, and related diseases are largely preventable, research aimed at preventing obesity in adolescents is of great importance. Childhood and adolescence should be among the primary targets of public health policies aimed at obesity prevention. Given that adolescents often lack full autonomy over their dietary choices and lifestyle decisions, their growth and development are influenced by various environmental and social factors (Gülü et al., 2022; Pavlović et al., 2024).

This study was conducted in a province located in the Eastern Black Sea Region of Turkey, where the population is predominantly elderly and the proportion of adolescents is relatively low. Despite the demographic dominance of older adults, it is essential to examine the nutritional habits and obesity risk among the limited but significant adolescent population in the region. The lack of region-specific data on youth health behaviors limits the development of tailored interventions. Therefore, generating local evidence is vital for informing context-appropriate public health strategies.

Although many national studies focus on adolescents in metropolitan areas, limited evidence exists on the nutritional behaviors of youth in rural or geographically constrained regions. This research helps address this gap by examining a province in the Eastern Black Sea Region with distinct socio-demographic and cultural characteristics. Based on prior evidence, it was hypothesized that obesity prevalence would be associated with unhealthy dietary behaviors such as frequent fast-food consumption, meal skipping, and low fruit and vegetable intake.

Therefore, the study aimed to investigate the prevalence of obesity and the nutritional habits of high school students in this regional context. It also sought to address the following research questions:

1. What is the prevalence of obesity among high school students?
2. What factors influence students' dietary habits?

2. Materials and Methods

2.1. Study Design:

This study is a descriptive cross-sectional research designed to determine the nutritional characteristics and obesity prevalence among adolescents. A cross-sectional design was selected due to the

study's objective of evaluating obesity prevalence and dietary behaviors at a single time point. Additionally, geographical and logistical constraints associated with data collection across multiple school settings made a longitudinal or mixed-methods approach impractical within the available timeframe.

2.2. Study Location, Population, and Sample:

The research was conducted in high schools affiliated with the Directorate of National Education in a provincial center located in the Eastern Black Sea Region. The study population consisted of students enrolled in high schools in the city center during the 2022–2023 academic year. Instead of sampling, the study aimed to include the entire population. In total, there were 1,216 high school students in the city center during the 2022–2023 academic year. Among these, 929 students who agreed to participate were included in the study, resulting in a participation rate of 81.5%. All high schools in the city were included to capture the full spectrum of the adolescent population in this region, which enhanced the internal representativeness of the findings. The selected setting reflects typical features of small urban centers in the Eastern Black Sea Region, allowing for cautious generalization to similar socio-demographic contexts.

Some students, particularly in the final year, could not participate due to absences related to exams or extracurricular classes on the day of data collection. Participation appeared to be influenced more by academic scheduling than by students' demographic characteristics. Although no demographic data were collected from non-participants, school personnel and researcher observations indicated no apparent differences in socioeconomic status, school type, or parental characteristics between participants and non-participants. Therefore, participation bias is not expected to have significantly influenced the results.

2.3. Study Period and Data Collection Process:

The data collection process was carried out between March and May 2023 using face-to-face interviews. Initially, height and weight measurements were obtained using a newly acquired, combined digital stadiometer and scale device with a precision of 100 grams. Students were asked to remove excess clothing and shoes during the measurements to ensure accuracy. All measurements were conducted by trained public health professionals using standardized procedures. The device was factory-calibrated and verified for accuracy before data collection. Data collectors were informed of the measurement protocol but not of the specific study hypotheses, minimizing potential measurement bias.

Following the measurements, data collection forms were distributed. Participants were provided with clear instructions on how to answer the questions. Completing the forms took approximately 7–8 minutes. Data collection was initiated after obtaining ethical approval and institutional permissions. To minimize the risk of biased responses, such as when students report behaviors they think are healthier than they actually are, participants were assured that their responses would remain anonymous and confidential. Additionally, the questionnaire focused on general dietary patterns rather than specific quantities or exact days to reduce memory-related errors. Clear instructions were provided before data collection to support accurate and honest reporting.

2.4. Data Collection Form:

The study utilized a two-part data collection form. The first section included sociodemographic characteristics of participants, such as age, grade, and parental education levels. The second section comprised 15 questions aimed at assessing nutritional habits, such as the number of meals consumed, daily water intake, fruit and vegetable consumption, dairy consumption, meal skipping, and fast-food consumption.

The data collection form was developed by the researcher based on an extensive review of current literature on adolescent nutrition and eating behaviors. The aim was to capture context-specific indicators such as skipped meals and the frequency of daily consumption of milk, water, fruits, and vegetables. The form was designed for large-scale implementation and focused on establishing foundational descriptive data for the population. Although it was not piloted, the content was developed through evidence-based practice and reviewed for clarity and relevance before administration. Inter-rater or test-retest reliability assessments were not performed due to the cross-sectional nature and one-time data collection structure of the study. However, all anthropometric measurements were conducted using a standardized protocol by trained personnel, which helped minimize variability and ensured procedural consistency.

2.5. Data Analysis:

Data were entered and analyzed using IBM SPSS Statistics version 23. Descriptive statistics were used to summarize the participants' characteristics. Frequencies and percentages were reported for categorical variables such as gender and parental education, while means and standard deviations were calculated for continuous variables such as number of meals per day and daily water intake.

The Kolmogorov–Smirnov test was applied to assess the normality of continuous variables. Independent samples t-test was used to compare mean values between groups for normally distributed data. The chi-square test was employed to examine associations between categorical variables, particularly the relationship between BMI categories and dietary behaviors. These bivariate analyses were used

to identify basic patterns and associations, as the study primarily aimed to describe current nutritional behaviors and obesity status.

A pre-study power analysis was not conducted; however, the study aimed to include the entire population of high school students in the selected provincial center. With a participation rate of 81.5% (n = 929 out of 1,216), the sample size was considered adequate for statistical comparisons and prevalence estimation.

The Body Mass Index (BMI) of participants was calculated using the formula: BMI = weight (kg) / height² (m²). The classification of BMI categories was based on both the WHO 2007 reference standards and the Turkish percentile values developed by Neyzi et al. (2008) (Neyzi et al., 2008). According to these standards, individuals at or above the 95th percentile were considered obese, those between the 85th and 94th percentiles as overweight, and those between the 5th and 84th percentiles as normal weight.

A significance level of $p < .05$ was used. The rate of missing responses was minimal. Cases with incomplete anthropometric or questionnaire data were excluded from the relevant analyses. No statistical methods were used to estimate or replace missing data.

2.6. Ethics Considerations:

Ethical approval for this study was obtained from the Artvin Çoruh University Ethics Committee (E-18457941-050.99-73008, 05.12.2022), and institutional permission was granted by the Artvin Provincial Directorate of National Education. Prior to the study, face-to-face meetings were held with the school management to discuss the study's purpose and content, and information was provided to parents along with announcements. Parental consent was obtained. During the study, students were also informed about the study's purpose and content, and their consent was obtained. This study was conducted in accordance with the principles of the Helsinki Declaration. Written informed consent was obtained from parents, and verbal assent was obtained from all student participants after they were informed about the purpose and procedures of the study. This study did not receive any external funding.

3. Results

The average age of the participants was 15.84±1.21 (ranging from 13 to 19), and the average BMI was 21.97±4.02 (ranging from 15.01 to 36.89). The average height was 167.3±8.9 cm (minimum: 144 cm, maximum: 190 cm).

Table 1. Table 1. Sociodemographic Characteristics of the Students (n=929)

Variable	n	%
Gender		
Female	488	52.5
Male	441	47.5
Family Type		
Nuclear family	773	83.2
Extended family	99	10.7
Single-parent family	57	6.1
Mother's Education Level		
Primary school	235	25.3
Secondary school	250	26.9
High school	295	31.8
University or higher	149	16.0
Father's Education Level		
Primary school	127	13.7
Secondary school	198	21.3
High school	384	41.3
University or higher	220	23.7
Mother's Employment Status		
Working	315	33.9
Not working	614	66.1
Father's Employment Status		
Working	785	84.5
Not working	144	15.5
Chronic Disease		
None	837	90.1
Present	92	9.9

Percentages may not total 100 due to rounding.

Among the high school students who made up the participant group of this study, 52.5% were female and 47.5% were male. Regarding family type, the majority of the students (83.2%) live in nuclear families. When examining the educational level of the parents, it was found that 31.8% of mothers and 41.3% of fathers were high school graduates. Additionally, 66.1% of the mothers were not employed, while the vast majority of fathers (84.5%) were employed. It was also reported that 90.1% of the participants did not have any chronic diseases (Table 1).

Table 2. Comparison of Selected Daily and Weekly Dietary Habits by Gender (n=929)

	Female (n=488)	Male (n=441)		
	Mean.±SD	Mean.±SD	t	p-value
Daily meal frequency	2.96±0.66	3.12±0.79	-3.514	**0.001**
Daily water intake (glasses/day)	5.40±2.60	6.09±2.77	-3.914	**0.000**
Daily fruit intake (servings/day)	1.20±0.76	1.26±0.87	-1.118	0.264
Daily vegetable intake (servings/day)	1.20±0.94	1.26±0.99	-1.012	0.312
Daily milk intake (cups/day)	1.18±0.98	1.58±1.52	-4.276	**0.000**
Weekly white meat intake (servings/week)	1.42±1.05	1.78±1.33	-4.949	**0.000**
Weekly red meat intake (servings/week)	1.42±1.05	1.78±1.33	-4.613	**0.000**

Independent samples t-test was used to compare means. $p < .05$ indicates statistical significance. SD = Standard deviation.

When examining certain dietary habits by gender, it was found that males consumed more daily meals compared to females (Female: 2.96±0.66, Male: 3.12±0.79; p=0.001). Similarly, the daily water consumption of males was significantly higher than that of females (Female: 5.40±2.60 cups, Male: 6.09±2.77 cups; p < .001). The daily milk consumption was also higher in males (Female: 1.18±0.98 cups, Male: 1.58±1.52 cups; p < .001). Weekly consumption of both white and red meat was significantly higher in males compared to females (For both types of consumption, p < .001) (Table 2).

As shown in Figure 1, the majority of the students (65.2%, n = 606) were within the normal BMI range. Additionally, 16.5% (n = 153) were classified as underweight (BMI < 5th percentile), 12.7% (n = 118) as overweight (85th–94th percentile), and 5.6% (n = 52) as obese (≥ 95th percentile). These findings highlight that while most students fall within the normal weight range, both undernutrition and overweight remain relevant public health concerns in this population (Figure 1).

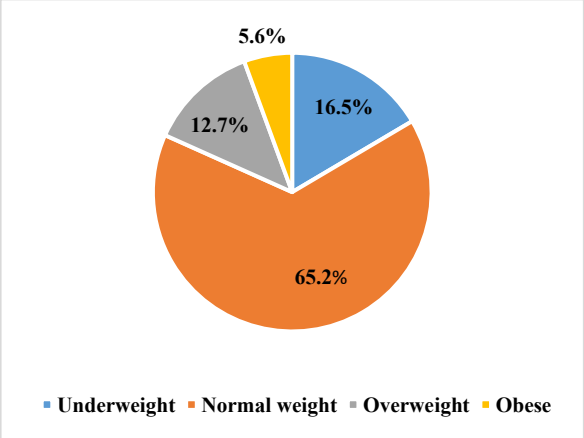

Figure 1. Distribution of Students According to Body Mass Index (BMI) Categories (n = 929)

Table 3. Comparison of Nutritional Behaviors by Gender (n=929)

	Female (n = 488)		Male (n=441)		χ^2	p-value
Variable	**n**	**%**	**n**	**%**		
Eating After 7 PM						
Yes	386	79.1	359	81.4		
No	102	20.9	82	18.6	0.378	0.212
Nutrition Education (previously received)						
Yes	266	54.5	239	54.2		
No	222	45.5	202	45.8	0.009	0.924
Sugary Beverage Consumption						
Do not consume	9	1.8	16	3.6		
Once a month	79	16.2	53	12.0		
Once a week	153	31.4	118	26.8		
2-3 times a week	184	37.7	196	44.4		
Every day	63	12.9	58	13.2	9.834	**0.043***
Fast food Consumption Frequency						
Do not consume	9	1.8	14	3.2		
Once a month	83	17.0	83	18.8		
Once a week	189	38.7	151	34.2		
2-3 times a week	168	34.4	151	34.2		
Every day	39	8.0	42	9.5	3.983	0.408
Reason For Fast Food Consumption						
During meal time at school	113	23.2	87	19.7		
Because they like it	213	43.6	167	37.9		
No ready food at home	17	3.5	36	8.2		
They don't like the food at home	41	8.4	33	7.5		
Because it is cheaper	1	0.2	4	0.9		
To hang out with friends	55	11.3	65	14.7		
Other	48	9.8	49	11.1	16.934	**0.010***
Daily Milk/ Ayran/ Yogurt Consumption						
Yes	313	64.1	288	65.3		
No	175	35.9	153	34.7	0.138	0.710

χ^2 = Chi-square test. p < .05 indicates statistical significance.

In the study, the frequency of cola and sugary beverage consumption was found to be higher among male students compared to female students. Specifically, the consumption rate of "2-3 times per week" was recorded as 44.4% for males and 37.7% for females (p=0.043). There was no statistically significant difference between genders regarding fast food consumption (p>0.05). However, among male students, the reason for consuming fast food was more commonly "to be with friends" (14.7%), while for female students, the reason "being at school during meal time" was more frequently mentioned (Table 3).

Table 4. Comparison of Meal Skipping Frequency and Reasons by Gender (n=929)

	Female (n = 488)		Male (n=441)		χ^2	p-value
	n	%	n	%		
Meal Skipping (Overall)						
Yes	345	70.7	283	64.2		
No	143	29.3	158	35.8	4.502	**0.035***
Most Skipped Meal						
Breakfast	249	72.1	193	68.2		
Lunch	64	18.6	69	24.4		
Dinner	32	9.3	21	7.4	3.544	0.315
Reason for Skipping Meals						
Can't wake up in the morning	68	19.7	91	32.2		
No time	49	14.2	54	19.1		
No appetite	195	56.5	114	40.3		
Other	33	9.6	24	8.5	24.346	**0.000***

χ^2 = Chi-square test. $p < .05$ indicates statistical significance.

The rate of meal skipping is higher among females compared to males (70.7% vs. 64.2%; p=0.035). In both groups, the most commonly skipped meal is breakfast (Female: 72.1%, Male: 68.2%). Among the reasons for meal skipping, "lack of appetite" was the most common reason among females (56.5%), while "difficulty waking up in the morning" was the prominent reason for males (32.2%; p < .001) (Table 4).

4. Discussion

This study investigated the prevalence of obesity and associated dietary behaviors among high school students in a provincial center in the Eastern Black Sea Region of Türkiye. The findings revealed that 5.6% of the students were obese, and 12.7% were overweight, while 16.5% were underweight. The majority (65.2%) were within the normal BMI range. These results are largely consistent with similar national studies (Agadayı et al., 2019; Özer & Kaya, 2024), but the relatively high proportion of underweight students also highlights the dual burden of malnutrition that affects both ends of the weight spectrum. In particular, this finding underscores the importance of considering undernutrition alongside obesity in adolescent health evaluations—a point that is often underemphasized in public health literature.

A significant gender-related difference in dietary behaviors was observed. Male students reported higher consumption of protein-rich foods such as dairy and meat, and also consumed more fast food and sugary beverages compared to females. Although increased protein intake can be viewed as beneficial during adolescence, frequent consumption of fast food and sugar-sweetened beverages is well documented in the literature as contributing to increased obesity risk and poor metabolic health outcomes (Alper et al., 2017; Özkarabulut & Yürek, 2017). These findings suggest that male adolescents may be exposed to a nutritional paradox—simultaneously engaging in both healthy and unhealthy eating behaviors.

On the other hand, female students exhibited higher rates of meal skipping, particularly breakfast. This finding is consistent with previous studies suggesting that adolescent girls are more likely to engage in restrictive eating behaviors due to body image concerns or psychological factors such as loss of appetite (Salari-Moghaddam et al., 2019; A. Yılmaz & Kocataş, 2019). In our sample, "lack of appetite" was the most frequently cited reason for skipping meals among females, whereas "waking up late" was more

common among males. These gendered patterns reflect how sociocultural expectations and daily routines shape adolescents' nutritional behaviors. The literature also indicates that breakfast skipping is associated with reduced academic performance, mood instability, and increased cardiometabolic risk (Devran & Kızıltan, 2018).

The study also found that fast-food consumption and sugary beverage intake were significantly associated with higher BMI, supporting findings from prior national and international studies (Aktaş et al., 2015; Özkarabulut & Yürek, 2017). These behaviors may be linked to convenience, peer influence, or the pervasive marketing of high-calorie foods to adolescents. While this study identified statistical associations between these dietary behaviors and obesity indicators, it must be emphasized that causality cannot be inferred due to the cross-sectional design. Further, environmental and behavioral variables—such as physical activity, screen time, and family food environment—were not assessed in detail, but are known to interact with dietary patterns and influence adolescent weight outcomes (B. Ö. Yılmaz et al., 2018).

The nutritional disparities observed across gender, combined with the prevalence of both underweight and overweight individuals, highlight the need for differentiated public health strategies. School-based interventions should not only target obesity prevention but also address disordered eating and undernutrition. Programs should aim to encourage regular meal patterns, promote healthy breakfast consumption, and reduce intake of ultra-processed foods and sugary beverages. Parent-focused education and gender-sensitive programming could enhance the reach and effectiveness of these interventions. Furthermore, while this study was conducted in a specific geographical region, the socio-cultural dynamics that influence adolescent eating behaviors—such as academic pressure, body image, and time constraints—are relevant in many settings across Türkiye and beyond.

5. Conclusion

This study shows that unhealthy eating behaviors, such as meal skipping, insufficient breakfast consumption, and high intake of fast food and sugary drinks, are common among high school students in a provincial region of Türkiye, and are meaningfully associated with body weight status. These findings suggest that adolescents' nutritional habits are shaped not only by access to food, but also by psychological and behavioral patterns that differ between genders. For instance, girls were more likely to skip meals due to loss of appetite or late waking, while boys consumed more fast food and sugary drinks despite being more physically active.

Based on the study results, school-based nutrition programs should be prioritized, particularly those that include structured content on healthy breakfast consumption, balanced snacking, and limiting sugary beverage intake. These programs could be integrated into existing health education curricula and supported through collaborations with school nurses, dietitians, and trained teachers. Moreover, gender-sensitive strategies should be developed, as dietary behaviors and motivations were found to differ between male and female students. For example, female-focused interventions may benefit from integrating psychological support for body image and appetite regulation, while male-targeted efforts might emphasize reducing fast food and sugary beverage consumption despite higher physical activity.

Additionally, family engagement is essential. Parental seminars or school-family partnerships can be implemented to raise awareness of home food environments and shared mealtime routines. Practical workshops for parents on preparing affordable, nutritious meals and strategies to reduce adolescent food insecurity may enhance the effectiveness of school-level interventions.

Finally, it is recommended that future research utilize longitudinal and mixed-methods designs to track behavior change over time and explore psychosocial and environmental factors in greater depth. Intervention studies evaluating the real-world effectiveness of school-based programs will also be crucial to inform evidence-based public health policies.

6. Article Information / Makale Bilgileri

Evaluation: Two External Reviewers / Double Blind

Değerlendirme: : İki Dış Hakem / Çift Taraflı Körleme

Ethical Consideration: Ethical approval for this study was obtained from the Artvin Çoruh University Ethics Committee (E-18457941-050.99-73008, 05.12.2022), and institutional permission was granted by the Artvin Provincial Directorate of National Education. Prior to the study, face-to-face meetings were held with the school administration to explain the purpose and procedures of the research, and parents were informed through announcements. Written informed parental consent and verbal assent from all student participants were obtained after all parties were fully informed.

This study was conducted in accordance with the principles of the Declaration of Helsinki. No external funding was received. It is declared that all scientific and ethical principles were followed throughout the preparation of this study, all sources were properly cited, and no artificial intelligence–based tools or applications were used in the production of this manuscript. All content was created

solely by the author(s) in adherence to academic and scientific research standards.

Etik Beyan: Bu çalışma için etik onay Artvin Çoruh Üniversitesi Etik Kurulu'ndan (E-18457941-050.99-73008, 05.12.2022) alınmış ve Artvin İl Milli Eğitim Müdürlüğü tarafından kurumsal izin verilmiştir. Çalışma öncesinde, araştırmanın amacı ve prosedürleri hakkında bilgi vermek üzere okul yönetimi ile yüz yüze görüşmeler yapılmış ve veliler duyurular yoluyla bilgilendirilmiştir. Tüm taraflar tam olarak bilgilendirildikten sonra, tüm öğrenci katılımcıların yazılı bilgilendirilmiş ebeveyn onayı ve sözlü onayı alınmıştır.

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