Nutrition Literacy and Related Factors: A Descriptive-Sectional Study on High School Students

Lise Öğrencilerinde Beslenme Okuryazarlığı ve İlişkili Faktörlerin Belirlenmesi: Tanımlayıcı-Kesitsel Çalışma

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ABSTRACT Objective: This study was conducted to evaluate nutritional literacy and related factors among high school students studying in the center of a province in Türkiye. **Material and Methods:** The population of this descriptive-cross-sectional study consisted of high school students studying in a city center. The data were collected on a voluntary basis between the 1st and 31st of May 2022. The research was completed with 1,793 high school students. The "Personal Information Form" and "Adolescent Nutrition Literacy Scale" were used as data collection tools. **Results:** It was concluded that 73% of the students skipped meals, 25.1% did not receive any nutrition-related training, and 49.1% consumed fast food 2-3 times a week or every day. While the body mass index of 65.5% of the students was within the normal range, it was determined that 16.5% were underweight, 14.3% were overweight and 3.7% were obese. It was concluded that being female, being in the 11th and 12th grade, not smoking, following nutrition-related blogs and pages on social media, and receiving nutrition-related education were the determinants of the Adolescent Nutrition Literacy Scale, which variables predicted 35% of the scale score. **Conclusion:** It was concluded that there are various negative problems and deficiencies in the nutrition of students. In line with these findings, information should be given about nutrition, taking into account the importance of balanced and regular nutrition in protecting and improving health and preventing diseases, and awareness on the importance of balanced and regular nutrition should be increased.

Keywords: Adolescent; nutrition; literacy; descriptive-sectional study

ÖZET Amaç: Bu çalışma, Türkiye'de bir il merkezinde eğitim öğretim gören lise öğrencilerinde beslenme okuryazarlığı ve ilişkili faktörleri değerlendirmek amacıyla gerçekleştirilmiştir. **Gereç ve Yöntemler:** Tanımlayıcı-kesitsel olarak tasarlanan araştırmanın evrenini, bir il merkezinde eğitim öğrenim gören lise öğrencileri oluşturmuştur. Veriler, 1-31 Mayıs 2022 tarihleri arasında gönüllülük esasına dayalı olarak toplanmıştır. Araştırma 1.793 lise öğrencisi ile tamamlanmıştır. Veri toplama aracı olarak "Kişisel Bilgi Formu" ile "Adölesan Beslenme Okuryazarlığı Ölçeği" kullanılmıştır. **Bulgular:** Öğrencilerin %73'ünün öğün atladığı, %25,1'inin beslenme ile ilgili herhangi bir eğitim almadığı ve %49,1'inin haftada 2-3 kez veya her gün fastfood tükettiği belirlenmiştir. Öğrencilerin %65,5'inin beden kitle indeksi normal aralıkta iken; %16,5'inin zayıf, %14,3'ünün kilolu ve %3,7'sinin obez olduğu belirlenmiştir. Kadın olma, 11 ve 12. sınıfta olma, sigara kullanmama, sosyal medya beslenme ile ilgili blog, sayfa vb. takip etme ve beslenme ile ilgili eğitim almanın Adölesan Beslenme Okuryazarlığı Ölçeği'nin belirleyicileri olduğu ve bu değişkenlerin ölçek puanının %35'ini yordadığı saptanmıştır. **Sonuç:** Öğrencilerin beslenmesinde çeşitli sorunların ve eksikliklerin olduğu sonucuna varılmıştır. Bu sonuçlar doğrultusunda dengeli ve düzenli beslenmenin sağlığı koruma, geliştirme ve hastalıkları önlemedeki önemi göz önüne alınarak beslenme konusunda bilgilendirme yapılmalı, dengeli ve düzenli beslenmenin önemine yönelik farkındalık artırılmalıdır.

Anahtar Kelimeler: Adölesan; beslenme; okuryazarlık; tanımlayıcı-kesitsel çalışmalar

Nutrition is the process by which the body absorbs and metabolizes nutrients necessary for healthy mental and physical development. Inadequate or excessive nutrition is associated with obesity, Type-2 diabetes, thyroid diseases, gout, vitamin deficiencies, infectious diseases, etc.[1] Nutrition is essential for pro-

tecting and sustaining public health as it plays a critical role in keeping global public health problems (obesity, Type-2 diabetes) under control. A balanced, regular, and healthy diet is essential to prevent chronic diseases (obesity, Type-2 diabetes, etc.), reduce economic losses, improve quality of life, and protect and maintain public health.[2]

Nutrition is essential for all age groups but becomes even more important for adolescents. Adolescence is a period between the ages of 10 and 19 years. Adolescents comprise about 1/5 of the world's population.[3] Adolescence is a period of rapid growth and development that encompasses transitioning from childhood to adulthood.[2] Adolescents make individual decisions and demand autonomy and independence. Their food intake is an indicator of independence. Adolescents move away from home, interact more with peer groups, and consume more fast-food and processed foods.[4] The knowledge and skills people acquire during adolescence affect their behaviors in adulthood, including their eating habits.[2] In order to, better understand the issue of nutrition and discuss it in detail, it will be important to first understand literacy and health literacy (HL). Literacy is the ability to understand, analyze and describe information in printed and written materials and communicate with professionals about the subject matter.[5] Defined in the 1970s, HL has become increasingly important in public health. HL refers to one's knowledge, motivation, and ability to access, understand, evaluate, and apply health-related information for disease prevention and health protection and promotion.[6] HL significantly impacts health-related behaviors, healthcare utilization, and outcomes. People with low HL have more difficulty managing disease, know less about health-promoting behaviors, report poorer health outcomes, and use fewer preventive health services. Inadequate HL is associated with high hospitalization rates, high emergency department service utilization, and high healthcare costs.[7] HL also plays an essential role in preventing health disparities and ensuring social justice.[8] Nutbeam's HL model is widely cited in the professional literature.[9] According to Nutbeam, we need social and cognitive skills and reading and writing skills to achieve HL. According to Nutbeam, HL has three

main domains: functional literacy, interactive literacy, and critical.[10]

Functional literacy is the basic skills needed for reading and writing. Interactive literacy is more advanced cognitive literacy that can be used with social skills to participate in everyday activities actively, receive information from multiple forms of communication, derive meaning, and apply new knowledge in changing circumstances.

Critical literacy refers to more advanced cognitive skills that can be applied to analyze information critically and use it to gain more control over life events and situations.[9] HL is a comprehensive concept that includes mental HL, e-literacy, food literacy (FL), nutrition literacy, etc.[9]

Nutritional literacy (NL) describes the skills required to acquire and comprehend nutrition-related information.[11,12] NL helps one acquire, process, and understand the nutrition knowledge and skills one needs to make good nutritional decisions.[13] NL allows one to understand and evaluate food choice and consumption information and use that information to make good nutritional decisions.[14] People should develop NL at an early age to improve their lifelong eating patterns, maintain their quality of life, and contribute to improving public health.[15] We need to focus on FL to better understand NL. FL is one's capacity to acquire, understand, and process basic information about food and nutrition and use that information to make appropriate health decisions.[4] FL is not only about knowing about nutrition but also about knowing where food comes from, making healthy food choices, preparing and consuming healthy and sufficient food, and following healthy eating guidelines, also it is vital in learning how to eat and make healthy food choices.[9,16] FL is a broad theoretical and practical knowledge that includes the concept of nutrition literacy and it is a powerful resource for protecting and promoting public health.[12]

Although it is stated that various factors such as individual characteristics (education level, economic situation, parental education level, etc.), FL, nutrition literacy have an impact on nutritional decisions and behaviors, online platforms and social media also have effects on nutrition.[4,9,16,18] Social media has be-

come integral to our lives, helping us access and share information. The number of Internet users has been on the rise since the Internet was adopted worldwide. More and more people use the Internet to access health and nutrition information.[9] However, online platforms are crowded with disinformation. Therefore, people must have high levels of NL to access, analyze, and use online information to make the right health decisions.[1] Research shows that social media affects adolescents' nutritional behaviors.[18] In other words, the more FL and NL they have, the better they are at analyzing and using online information. For example, adolescents with high levels of FL and NL consume more vegetables and fruits than those with low levels of FL and NL.[17]

With the evolving landscape of health challenges and the prevalence of unhealthy lifestyle behaviors, the role of nurses as educators has become increasingly prominent. An increasing number of people express concern about their health and show a willingness to modify their unhealthy habits. As society has grown more health-conscious, there has been a shift in expectations from health services. This change has created opportunities for nurses to take on multidimensional roles in health promotion. Nursing is a holistic profession that substantially contributes to elevating the health standards of the family unit and society at large. It encompasses comprehensive care that addresses all facets of an individual's life. Nurses possess the capacity to serve as role models within society, exerting a significant influence on individuals. Their impact extends toward safeguarding and enhancing health while also striving to improve the quality of life by advocating for adequate and balanced nutrition within the community. Nurses who help individuals develop positive health behaviors identify risk factors within a certain program, diagnose the current problem, make a plan for solving the problem, make appropriate interventions, and make evaluations. Furthermore, nurses help people to realize their responsibilities to improve and maintain their health. Nurses can do these practices in schools, community health centers, and primary health care institutions or home health services. Nurses provide the necessary education to all segments of the society about raising the level of health.[18]

RESEARCH OBJECTIVE AND CONTRIBUTION TO LITERATURE

Adolescents are a significant segment of society.[3] Online platforms affect what foods they consume[4]. People should develop NL at an early age to protect and improve individual health at the micro level and public health at the macro level. Although there is a growing body of research on NL among adults and university students in Türkiye few researches have addressed NL among high school students.[3,19,20] Therefore, based on the limited examination of NL in high school students and the limited literature, this study aimed to investigate NL and related factors among high school students in Türkiye. It is thought that the results of this research will contribute to the literature in the evaluation of nutrition literacy and related factors in high school students and will be a source for future research. In addition, the study evaluated nutritional characteristics associated with many chronic diseases; it is thought that the results will also be a source of interventional studies such as preventing chronic diseases and teaching correct eating habits.

The following are the research questions:

1. What are the nutritional characteristics of high school students?

2. How prevalent is obesity among high school students?

3. What level of NL do high school students have?

4. What are the factors associated with NL of the high school students?

MATERIAL AND METHODS

STUDY DESIGN

This descriptive and cross-sectional study had two objectives: (1) determining the literacy level of the high school students on nutrition and (2) determining what factors associated with their NL levels.

POPULATION AND SAMPLE

The research was conducted in high schools in Artvin, city center of Türkiye. The study population comprised 1995 high school students in the 2021-

2022 academic year. The aim of the research was to reach the entire population without selecting a sample. The sample consisted of 1,793 students (89.9% participation rate). It was thought that it would be important to reach the entire population without sampling in order to evaluate the nutritional problems in adolescents to their full extent and to increase the generalizability of the results. For multiple regression analysis, the number of observations should be 5-20 times for each independent variable and 40 times for generalization to the population.[21] The number of samples for generalizing the research to the population is 320 [8 (number of independent variables in the multiple regression model) x40]. Therefore, the sample was large enough to detect significant differences.

DATA COLLECTION TOOLS

The data were collected using a personal information form and the Adolescent Nutrition Literacy Scale (ANLS).

Personal Information Form

The personal information form was based on a literature review conducted by the researcher. The form consisted of 20 items on age, gender, parental education, income, receiving information about nutrition from social media, etc.[2,9,12,187] Body mass index (BMI) was calculated using the criteria set by World Health Organization (WHO) [BMI=weight (kg)/height (m²)].[22] Body height was measured using a tape measure fixed to a wall. Body weight was measured using a digital scale with a precision of 100 gr. Each participant stood on a flat surface without shoes for body height and weight measurements.

ANLS

The ANLS was developed by Bari and adapted to Turkish by Sonay Türkmen et al.[2,23] The instrument is based on Nutbeam's HL model. The total scale has a Cronbach's alpha (α) of 0.80. The instrument consists of 22 items rated on a five-point Likert-type scale. The instrument has three subscales: functional NL (α=0.66), interactive NL (α=0.71), and critical NL (α=0.84). No items are reverse-scored. The total score ranges from 22 to 110, with higher scores indicating higher levels of NL. There is no cut-off point. In the present study, the total scale had a Cronbach's alpha of 0.80, while the "functional NL," "interactive NL," and "critical NL" subscales had Cronbach's alpha values of 0.78, 0.73, and 0.83, respectively.

DATA COLLECTION

Research data was collected on a voluntary basis between 1-31 May 2022. Before the research, during the research, the height and the weight of the students were measured first, and then the data collection tools were given to the students. Before answering the data collection forms, students were informed about how to answer the questions. The response time for the Personal Information Form and ANLS is 5-6 minutes. The data were collected after obtaining ethics committee approval and institutional permission.

INCLUSION AND EXCLUSION CRITERIA

The inclusion criteria were **(1)** being a high school student in the 2021-2022 academic year in Artvin, Türkiye and **(2)** volunteering. All other students were excluded from the study.

DATA ANALYSIS

The data were analyzed using the SPSS (SPSS, v.24.0) at a significance level of 0.05. Numbers and percentages were used for descriptive analysis. Normality was tested using the Kolmogorov-Smirnov test. The results showed that the data were normally distributed. Therefore, the data were analyzed using parametric tests. Multiple regression analysis was used to identify the effect of the independent variables on the dependent variable. The categorical variables were transformed into dummy variables. The variables were coded as zero (0). There were no missing or incomplete data in the study, and no imputation method was used for missing data.

ETHICAL CONSIDERATIONS

The study was approved by the ethics committee of Artvin Çoruh University (date: April 05, 2022, no: E-18457941-050.99-45388). Permission was obtained from the Artvin Provincial Directorate of National Education (no: E-17744380-774.01.01-45132359). All students and their parents were briefed on the research purpose and procedure. Informed consent was obtained from those who agreed to participate. The research was conducted according to the ethical prin-

ciples of the World Medical Association's Declaration of Helsinki.

RESULTS

Half of the participants were women (50.9%). Most participants had nuclear families (79.9%). Over a quarter of the participants had mothers with primary school degrees or lower (31.7%). One hundred and ninety-seven participants were smokers (11%). One hundred and fifty-eight participants had chronic diseases (8.8%) (Table 1).

The socio-demographic characteristics of the participants are shown in Table 1.

Some nutritional habits and nutritional characteristics of the students are shown in Table 2. A quarter of the participants had never received training in nutrition (25.1%). Less than a quarter of the participants received nutritional information from healthcare professionals (22.9%). More than a quarter of the participants consumed fast food 2-3 times a week (36.4%). Most participants did not follow blogs or websites on nutrition (74.8%) (Table 2).

The ANLS determinants of the study group were evaluated with multiple regression analysis and shown in Table 3. Participants had a mean ANLS score of 68.9±11.5 (Functional NL: 25.1±4.9, Interactive NL: 16.8±4.8, Critical NL: 26.9±7.1). The multiple regression analysis showed that gender (being a woman) (β=-0.145), grade level (11 and 12) (β=-0.110), tobacco use (non-smokers) (β=-0.069), having received training in nutrition (β=-0.155), and following blogs or websites on nutrition (β=-0.193) affected their ANLS scores. ANLS scores were higher for students who receive nutrition education, follow nutrition-related pages and blogs on social media, do not smoke, study in 11th and 12th grades, and are female. These variables explained 35% of the total variance of NL. Having received training in nutrition and following blogs or websites on nutrition increased their total ANLS score by 5.1 and 4.1 scores, respectively (Table 3).

Skipping meals, the most frequently skipped meals, and the reasons for skipping meals are shown in Figure 1. Most participants skipped meals (73%), mostly the breakfast (62%). Approximately 40% of

the participants skipped meals because they had no appetite (38.1%) (Figure 1).

The distribution of students according to BMI is shown in Figure 2. Participants had a mean body height and weight of 168.5±9.3 cm (minimum: 137 maximum: 194) and 62.2±12.3 kg (minimum: 40,

TABLE 1: Sociodemographic characteristics (n=1,793).		
Sociodemographic characteristics	n	%
Grade		
9	484	27.0
10	540	30.1
11	518	28.9
12	251	14.0
Gender		
Women	912	50.9
Man	881	49.1
Family type		
Nuclear	1,429	79.7
Extended	265	14.8
Single parent	99	5.5
Education level		
Mother		
Primary school or lower	569	31.7
Secondary school	348	19.4
High school	548	30.6
Bachelor's or higher	328	18.3
Father		
Primary school or lower	320	17.8
Secondary school	344	19.2
High school	729	40.7
Bachelor's or higher	400	22.3
Employment status		
Mother		
Housewife/unemployed	1,147	64.0
Employed	646	36.0
Father		
Retired/unemployed	258	14.4
Employed	1,535	85.6
Tobacco use		
Yes	197	11.0
No	1,596	89.0
Income		
High	518	28.9
Middle	1,207	67.3
Low	68	3.8
Chronic disease		
Yes	158	8.8
No	1,635	91.2

TABLE 2: Eating habits and dietary characteristics.		
Eating habits and dietary characteristics	**n**	**%**
Number of meals: 3.1+1.1 meal/day (minimum: 1 maximum: 15)		
Water of consumption: 7.2+4.6 water/day (minimum: 1 maximum: 36)		
Have you ever received training in nutrition? (n=1,793)		
Yes	1,343	74.9
No	450	25.1
Where do you get your information about nutrition? (n=1,453)		
Radio, television	111	6.2
Teachers	306	17.1
Healthcare professionals	410	22.9
Conferences, seminars, etc.	207	11.5
Magazine, book, article etc.	45	2.5
Social media	297	16.6
Other	77	4.3
How often do you consume fast food? (n=1,793)		
Never	56	3.1
Once a month	321	17.9
Once a week	532	29.7
2-3 times a week	653	36.4
Every day	231	12.9
I consume fast food (n=1,786)		
I'm at school.	374	20.9
I love it.	1,130	63.0
There is no food at home.	59	3.3
I do not like the food at home.	53	3.0
It is cheaper.	13	0.7
I am with friends.	108	6.0
Other	49	2.7
Do you follow blog or websites on nutrition? (n=1,793)		
Yes	451	25.2
No	1,342	74.8

maximum: 97), respectively. More than half of the participants were normal weight (n=1,174; 65.5%). Less than a quarter of the participants were under-weight (n=296; 16.5%) or overweight (n=256; 14.3%). Sixty-seven participants were obese (3.7%) (Figure 2).

DISCUSSION

Nutrition problems have been a major public health concern as they have been on the rise in recent years. This study investigated NL of Turkish high school students and related factors. The results were discussed in the light of the literature.

Gender affected participants' ANLS scores, suggesting that being a woman is a protective factor for NL. This result is consistent with the literature.[24-27] The cause of this finding may be the doing more research about nutrition and paying more attention of the women than the men to their diets because they are more concerned about their weight.[25,27] Therefore, interventions to increase students' NL should be planned. School health nurses and community health nurses, especially school health nurses, should provide information about healthy eating behaviors to students in schools. It is recommended to organize trainings and seminars on the importance of balanced and regular nutrition, the harms of skipping meals, and healthy food selection by ensuring student, school and parent cooperation.[28]

Grade level affected participants' ANLS scores, indicating that being an eleventh and twelfth-grader is a protective factor for NL. Yılmazel and Bozdogan found that students aged 17-19 had higher NL levels than their younger counterparts.[29] Zeng et al. also reported that high school students were nutri-

TABLE 3: Multiple regression analysis.					
Determinants	**B**	**SE**	**Beta**	**t-test**	**p-value**
Grade level (0: 11 and 12)	-2.570	0.521	-0.110	-4.931	0.000
Gender (0: Woman)	-3.343	0.518	-0.145	-6.448	0.000
Mother's education level (0: Bachelor's or higher)	-1.359	0.783	-0.046	-1.735	0.083
Father's education level (0: Bachelor's or higher)	-0.510	0.681	-0.018	-0.749	0.454
Mother's employment status (0: Yes)	-0.452	0.583	-0.019	-0.775	0.438
Tobacco use (0: No)	-2.535	0.839	-0.069	-3.023	0.003
Having received training in nutrition (0: Yes)	-4.138	0.600	-0.155	-6.895	0.000
Following blogs or websites on nutrition (0: Yes)	-5.137	0.597	-0.193	-8.607	0.000
	R=0.349	R2=0.112	F=30.990	p<0.001	

*The significance level was accepted as p<0.05; SE: Standard error; β: Standardized regression coefficient; Durbin-Watson=1.823 R=0.349; R^2=0.112; Adjusted R^2=11.8%.
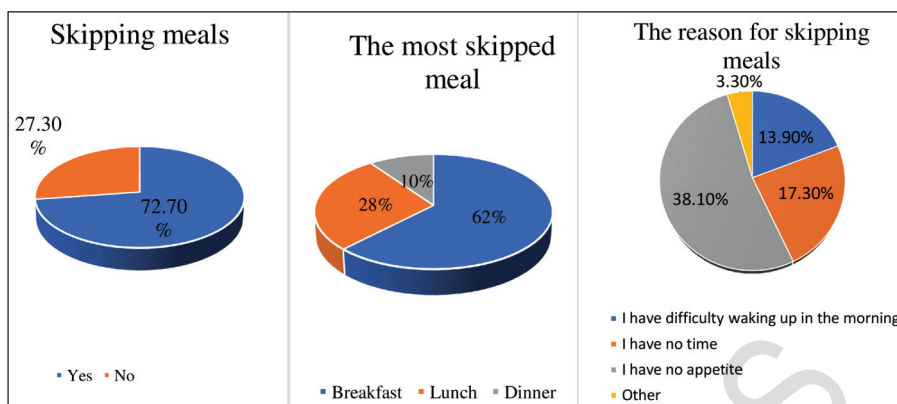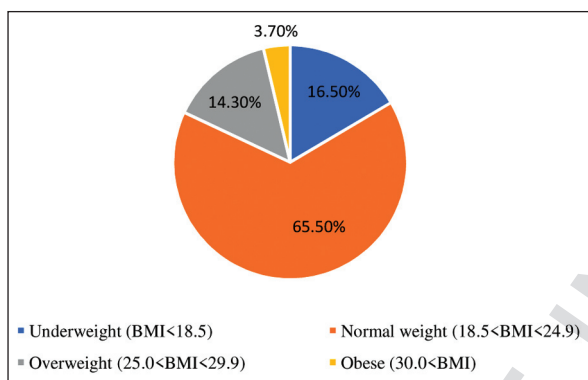
FIGURE 1: Skipping meals.

FIGURE 2: BMI (n=1,793).
BMI: Body mass index.

tionally more literate than their middle school counterparts. These results suggest a positive correlation between age and NL levels. In other words, older students know more about nutrition because they learn more from their parents and friends.[30] We must plan interventions to help people develop NL at an early age because the more they learn about and develop skills regarding positive health behaviors, the more likely they are to adopt those behaviors in adulthood. Nutrition is critical to preventing many public health problems (diabetes, obesity, etc.).[31] In this sense, positive health behaviors are instrumental in protecting and promoting health. Therefore, public health and nutrition experts should inform young people about healthy eating, the right food choices, and the dangers of fast food. Healthcare professionals should inform all students in school about positive health behaviors to help them

develop NL. Moreover, educators should collaborate to develop training programs to teach student about NL.[26,32]

Having received training in nutrition and following blogs or websites about nutrition affected participants' ANLS scores. In other words, participants who had received training in nutrition before and followed blogs or websites about nutrition were nutritionally more literate than those who had not. Gibbs et al. argue that NL is the most important determinant of diet quality.[13] Krause et al. found that higher NL levels were associated with lower consumption of sugary foods and higher consumption of milk and dairy products.[12] Brown et al. documented that mobile health app use is associated with higher nutritional knowledge Qutteina et al. found that people who were more exposed to unhealthy food on social media consumed more unhealthy foods and that people with higher FL levels consumed more fruits and vegetables.[17,33] This will increase the knowledge and awareness of people who receive information about nutrition from different sources (internet, healthcare professionals, books, etc.).[12,13] Information affects people's health decisions and behaviors. Therefore, we need to educate students in school about nutrition at regular intervals. Social media platforms affect people's health perceptions and food choices. Thus, the Turkish Ministry of National Education and the Turkish Ministry of Health should collaborate to provide nutrition education through online platforms and share information on balanced and regular nutrition and healthy food choices.[17] In addition, all nurses, es-

pecially school health nurses, should inform students about reliable sources (websites, WHO, Ministry of Health Public Health Institution, etc.) of information on nutrition.[32]

One in four participants indicated that they skipped meals (mainly breakfast) because they had no appetite. Studies have shown that adolescents have irregular dietary patterns and skip meals.[24] According to the Health Statistics Yearbook, most people over 15 skip breakfast and lunch because they do not feel like it or have no appetite.[34] Therefore, our results are consistent with national reports. Results showed that almost two in five participants were overweight or obese. With globalization, eating habits have changed dramatically. There has been a rapid increase in the consumption of fast and processed foods. Obesity is a global health problem. Türkiye ranks first in Europe's obesity rate (32%). Bahar and Yılmaz emphasize that governments should take action against the increasing cases of childhood and adolescent obesity.[1] Considering the impact of obesity on health, it is recommended to contact the families of overweight and obese students and inform them about the services that can provide professional support in nutrition. In addition, it is recommended that appropriate nutrition programs be prepared and implemented in cooperation with dieticians to help students reach their ideal weight. Implementing health education programs focused on preventing obesity, advocating for balanced and regular nutrition, educating parents, and monitoring the availability of fast food and packaged products in school canteens, kiosks, and nearby markets can be highly beneficial. Organizing these initiatives through Provincial Health Directorates in schools is a proactive approach to promote healthy eating habits among students. Encouraging the availability and consumption of nutritious foods like fruits, milk, and dairy products can significantly contribute to fostering healthier dietary choices among students.[27,35]

Parental education level and maternal employment status did not affect participants' ANLS scores. On the other hand, some researchers have reported that socioeconomic status and parental education affect children's NL levels.[30] The difference in results

may be due to the difference in socioeconomic backgrounds, measurement tools, and research time. However, more research is warranted to better understand the effect of socioeconomic characteristics on NL levels.

This study had three limitations. We recruited participants only from one city. Second, the results are based on self-reports. Third, the results are sample-specific and cannot be generalized to the whole population.

CONCLUSION

High school students do not have adequate NL. Being a man, being a ninth or tenth-grader, not having received training in education, and not following nutrition-related pages, blogs, etc., on social media are risk factors for low NL. Many high school students skip meals and consume too much fast food. One in five high school students is overweight or obese.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Results from this study point to a number of implications and recommendations for school health nurses and public health professionals:

Proper nutrition prevents diseases and protects and improves health. Therefore, we should provide students with information and counseling on nutrition. Healthcare professionals should take initiatives to increase the NL levels of students, parents, and school administration.

Most students eat at school during breaks. Therefore, authorities should inspect school canteens, buffets, etc., and ensure they sell healthy foods. Researchers should examine the impact of nutrition education programs on NL and food choices. Turkish Ministry of National Education and the Turkish Ministry of Health should collaborate to provide nutrition education through online platforms and share information on balanced and regular nutrition and healthy food choices.

Nurses should take action to increase nutrition literacy in high school students and prevent and intervene in unhealthy eating patterns.

Authorship Contributions

Idea/Concept: *Deniz Sümeyye Yorulmaz, Selma Durmuş Sarıkahya;* ***Design:*** *Deniz Sümeyye Yorulmaz, Selma Durmuş Sarıkahya;* ***Control/Supervision:*** *Selma Durmuş Sarıkahya;* ***Data Collection and/or Processing:*** *Selma Durmuş Sarıkahya, Deniz Sümeyye Yorulmaz;* ***Analysis and/or Interpretation:*** *Deniz Sümeyye Yorulmaz, Selma Durmuş Sarıkahya;* ***Literature Review:*** *elma Durmuş Sarıkahya, Deniz Sümeyye Yorulmaz;* ***Writing the Article:*** *Deniz Sümeyye Yorulmaz, Selma Durmuş Sarıkahya;* ***Critical Review:*** *Deniz Sümeyye Yorulmaz, Selma Durmuş Sarıkahya.*

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