Assessment of the Effect of Media on Nutritional Status, Anthropometric Measurements and Physical Activity in Adolescents Aged 12-18

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ABSTRACT

This study was conducted to assess the effect of the media on nutritional status, anthropometric measurements, and physical activities of adolescents. The study sample was conducted on a total of 60 voluntary adolescents who were randomly selected between 12 and 18 years of age in Istanbul between January 2020 and February 2020. The analysis of the findings obtained from the research used SPSS models 17 and SPSS Statistics 22.0. The level of meaning of the analysis was determined as 95%. While the frequency of watching TV was high in boys, the frequency of following internet tools was found to be higher in girls. The analysis determined the habit of following the internet proportionally more frequently in the group above the 50th percentile (p = 0.014). A positive correlation was seen between TV, magazine, and newspaper and daily calorie intake. The daily energy average was significantly higher than those above percentile 50 in percentile 50 and below (p=0.021). When the frequency of food consumption was examined according to BMI, It was determined that the 50th percentile and below groups consumed more fast food type foods. Their intake of energy, macro, and micronutrients was also high. İn all of the participants, it was seen that media tools such as the internet and TV were used frequently as a result of the study. At the same time, more research needs to be done on this topic, in light of information supported by scientific studies, studies on nutrition in the media and management of time spent in the media and increased physical activity and improved adolescents' eating habits are thought to be improved.

1. Introduction

The development of healthy nutrition, a healthy diet, and disease prevention are significant in the community (Coşkun, 2021). The Adolescent period is a transition period that includes the age range of 12 to 18 years. It includes the physical, mental, biochemical, and social growth, development, and maturity processes, which we can call the transition period from childhood to adulthood (T.C. Sağlık Bakanlığı., 2016; Green et al.,2021). Bone growth and maturity are seen to be an increase in height and body weight, changes in muscle and fat tissue, changes in circulation and respiratory systems, physical changes such as organ growth, and changes in hormonal changes, such as physical growth and sexual maturity (pubertal) (Otman, 2017). This period is both important and risky in terms of teaching and acquiring healthy eating and lifestyle habits, in which most of the habits are formed. Learning processes are best found, consumer behavior patterns are formed, and the prevention of disorders that may occur in adulthood (TC Ministry of Health., 2016; Hsu et al., 2018). İn this period, nutrition habits should be assessed because the intake of high-fat fast food-style foods is rising, the intake of lean meat, whole grains, fruits, vegetables,

and fish decreases. Therefore, these differences in dietary habits can result in increased consumption of added sugars, total saturated fatty acids, total fat, and trans-fatty acids (Thana'Y et al., 2019). Adolescents should meet 50-60% of daily energy from carbohydrates, 15-20% from proteins and 20-35% from fats due to the acceleration of growth and development in this period (Köseoğlu and Çelebi Tayfur, 2017; Aydın, 2019). In addition, there is an increase in the requirement for micronutrients (vitamins and minerals) in this process (Altay, 2018; Yıldırım, 2018). Due to the rapid increase in their development, higher iron, calcium, magnesium, and zinc intake has been detected compared to other age groups. Their water requirement is also important (Baysal, 2017., Republic of Turkey Ministry of Health., 2016). Social and psychological factors, intimate environment, school, friends, media, and family affect nutrition control and nutritional factors in adolescence (Alkan, 2019). In addition, excessive urbanization; is among the values that significantly impact physical activity and nutritional status (Thana'Y et al., 2019). In this period, more time spent at school, factors that affect out-of-home nutrition such as places selling fast food, and less nutrition at the dinner table affect eating behaviors (Chau et al., 2018). Studies in our country also show that the

group most affected by the media in terms of food consumption in young people (Mutlu, 2018). Written and visual tools in the media have an important place in sharing information with people in the community (Vardarlıer and Zafer, 2019). Today, the use of mass media is much more than in the past (Wiedeman et al., 2015). The media can easily affect people's buying habits, brand preferences, and consumer behaviors by using them in marketing, and the use of the media and the effect of advertisements on foods affect the amount of food intake, frequency, and physical activity level of the individual (Wartella, 2013; Şimşek & İlhan, 2021). As in all sectors, the food industry has also used the media to increase food advertising in digital environments. Facebook and YouTube featured about 1 billion ads of sugary beverage brands in 2013 (Fleming-Milici and Harris, 2020). Studies with TV, which is one of the most important communication tools of the media, show that watching TV creates the main negative effects on violence, sexuality, a decline in school success, nutrition, and substance use in adolescents (Kartal, 2017). On average, adolescents watch fourteen TV commercials that market every day. The foods in the most-watched food promotion advertisements; are high in fat, sugar, and sodium (Mahan and Raymond, 2016). As the time spent on social media increases, the course of advertisements related to nutrition may increase, causing communication with online brands (Fleming-Milici and Harris, 2020). The media is also one of the most important factors of sedentary life and causes chronic disorders that can be seen in adolescence and adulthood, starting from childhood. A sedentary life in adolescence may result in sleep problems, depression, aggression, and substance use (T.R.Sağlık Bakanlığı, 2017). A sedentary life is one of the ten risk factors that can cause death globally (van de Kop et al., 2019). Physical activity in adolescence has physical, social, and psychological effects. Physical activity causes growth and development, development of reflexes, balance and motor skills, reductions in stress levels, improvements in self-confidence, and development in helping, sharing, and producing solutions socially (Ay, 2019). It has been stated that the increase in the amount of food consumption cannot be controlled due to the suppression of satiety signals during the use of the media (Kartal, 2017). To avoid obesity during this period, children should not remain sedentary for a long time, and use tools such as TV and computer should be reduced (Yeşilfidan, 2016). Sixty minutes of moderate-heavy physical activity a day and bone and muscle strengthening exercise twice a week are recommended (Temiz, 2018). In 2010, it was shown that 81% of adolescents aged 11-17 in the world lead a sedentary life (van de Kop et al., 2019). Based on all the studies in the literature, this study aimed to take precautions for the health status of adolescents according to the results of this study by assessing the effects on nutritional status, anthropometric measurements, and physical activity status.

2. Material and Method

This research was conducted on 60 volunteer adolescents, 25 girls and 35 boys, randomly selected, in Istanbul between January 2020 and February 2020. The survey form consisting of 31 questions prepared by the researcher was applied to the adolescents who voluntarily agreed to participate in the study by face-to-face interview method. The researcher recorded some anthropometric measurements (height, body weight, body mass index) of the adolescents following his process. In the first part of the questionnaire applied to the participants, general characteristics of the individuals such as age, gender, height, body weight, BMI information, and demographic factors such as the monthly income of the family and the status of any diagnosed disease were questioned. In the second section, there were questions such as general nutritional characteristics, food consumption during media use, being affected by advertisements and the products they bought by being involved, and food order status from the internet, while in the third part, there were questions such as the frequency and duration of media follow-up. In the fourth part, questions such as physical activity levels, regular physical activity, and dealing with a sport or hobby, in general, were applied. The fifth part included the frequency of food consumption and the 2-day food consumption record. In evaluating body mass index, they were compared according to the percentile values developed by Olcay Neyzi. Since there was no person in the 50th percentile group in the study, they were evaluated in two groups as 50th percentile and below and above 50th percentile (Neyzi et al., 2008). The limitations of research: One of the limitations of the study is the small number of age group sample in the early adolescence period, and another is that students from only one school are involved in the research, therefore socioeconomic and sociocultural differences cannot be measured, and generalizations are made in that way.

2.1. Statistical Evaluation of Data

For each participant, it was tested with the Kolmogorov-Smirnov method, which is one of the parametric analyzes, in cases where the number of samples was more prominent than 30 and whether the data were normally distributed or not, and the Shapiro-Wilk method in cases where the sample number was 30 or less. In cases where the variables in our dataset did not show normality, two category variables were analyzed with the Mann-Whitney U test. In cases where the variables in our data set were normally distributed, the Student-t-test was used. The homogeneity of variance in independent samples was evaluated with the Levene Test for two-category variables. A the-square test was used in the analysis of categorical data, and the Pearson Chi-square test was used when the number of elements in any group was not less than 5. The Pearson Chi-Square Test-Exact p-value was evaluated when the values were less than 5. The significance level of the analysis was determined as 95%. SPSS Modeler 17 and SPSS Statistics 22.0 were used in the study.

3. Result and Discussion

3.1 Demographic Characteristics

The impact of media on nutritional status, anthropometric measurements, and physical activities in 12-18-year-old adolescents were evaluated. The findings of the participants are given below.

In the study, the BMI group consisted of 93% of the participants in the 14-18 age range, 58% male and 42% female participants, 63.3% of them in the 50th percentile and below, 36.7% of them in the 50th percentile group.

3.2 Distribution of Variables by Gender

Considering the distribution of the frequency of following the media tools by the adolescents participating in the research by gender; While there was a statistically significant difference between the groups according to gender in the frequency of watching television and internet tools (p=0.018, p=0.042), no

significant difference was observed in the frequency of use of other media tools according to gender. In the evaluation of media usage times according to gender, It was observed that there was a statistically significant relationship between gender and computer use (p=0.000).

Table 1. Distribution and Averages of Daily Energy Intake by Gender

		N	Daily Calorie Average (kkal)			p
			Min	Average±ss	Max	
Gender	Male	35	787.5	1739.80±701.50	3793.00	0.187
	Female	25	768.00	1491.00±532.02	2669.50	

*p<0.05, Mann-Whitney U Test

The distribution and averages of daily energy intake by gender are given in Table 1. In the analysis, while the minimum energy intake for men was 787.5 kcal, the complete information was 3793 kcal; It was determined that while it was a minimum of 768 kcal in women, it was a maximum of 2669.5 kcal. It was observed that the mean daily calorie intake in women (1491.00±532.02) was lower than in men (1739.80±701.50). It was observed that the average daily energy intake did not differ according to gender (p>0.05).

Table.2 Distribution and Averages of Macro Nutrients by Gender

	Gender						
	Male (n=35)			Female (n=25)			
	Min	Average±ss	Max	Min	Average±ss	Max	p
CHO (g)	93.66	216.15±90.64	482.64	79.54	194.09±92.08	400.58	*a*0.190
Protein (g)	20.12	58.37±26.33	132.41	18.00	42.32±13.93	66.20	*a*0.017*
Fat (g)	23.62	67.95±31.08	141.22	24.12	56.71±18.71	105.52	*b*0.087

*p<0.05   ᵃMann-Whitney U Test   ᵇStudent T Test

The distribution and averages of macronutrients by gender are given in Table 2. It was observed that daily protein averages were significant according to gender (p=0.017). It was observed that carbohydrate and fat averages did not differ according to gender (p=0.190, p=0.087).

The distribution of micronutrients by gender is given in Table 3. It was observed that the mean of vitamin B12 and vitamin C differed statistically significantly according to gender groups (p <0.05).When vitamin B12 is examined in detail, while men consume an average of 1.86 ± 1.34 mcg this value decreases to 1.10 ± 0.79 mcg in women. Men consume statistically more vitamin B12 than women. When the consumption of vitamin C is examined in detail, men consume an average of 28.48± 48.83 mg, while this value increases to 57.84 ± 81.84 mg in women. Women consume more vitamin C than men statistically. The fact that the standard deviation values of the individuals in both groups are more significant than the mean shows us that the consumption of each individual is not close to each other.

Table 3. Distribution of Micronutrients by Gender

Micronutrients	Gender		
	Female Average±ss	Male Average±ss	p
Calcium (mg)	631.73±243.63	775.93±509.39	*a*0.514
Iron (mg)	6.45±3.03	6.91±3.11	*a*0.274
Zinc (mg)	5.77±2.26	13.12±18.86	*a*0.059
Phosphorus (mg)	653.94±202.85	810.79±378.65	*a*0.190
Vitamin A (RE)	209.01±137.14	249.76±210.55	*a*0.799
Vitamin D(IU)	63.94±49.18	67.54±59.58	*a*0.994
Vitamin B12(µg)	1.10±0.79	1.86±1.34	*a*0.012*
Vitamin B6 (mg)	0.78±1.13	0.95±1.42	*a*0.781
Vitamin C (mg)	57.84±81.84	28.48±48.83	*a*0.001*
Vitamin B1(mg)	0.71±0.30	0.85±0.38	*b*0.131
Vitamin B2 (mg)	0.51±0.16	0.71±0.38	*a*0.778

*p<0.05   ᵃMann-Whitney U Testi   ᵇStudent T Testi

Table 4. Distribution of Frequency of Food Consumption by Gender

Food	Gender	Every day	3-4 days a Week	1-2 days a week	Every 15 days	One day a month	None	p
Milk	Male	15	10	2	2	1	5	0.033*
	Female	5	4	7	3	1	5	
Freshly Squeezed Juice	Male	9	10	5	8	0	3	0.000*
	Female	1	5	2	3	0	14	
Margarine	Male	2	9	3	9	0	12	0.026*
	Female	1	1	4	3	0	16	
Sunflower oil	Male	7	9	5	8	5	1	0.046*
	Female	11	5	5	1	3	0	
Rice	Male	10	17	7	1	0	0	0.000*
	Female	2	4	16	3	0	0	
Pasta	Male	8	9	15	2	0	1	0.004*
	Female	1	3	14	6	1	0	
Lahmacun, pita, crispy, boyoz	Male	2	5	14	11	0	3	0.003*
	Female	0	1	4	14	5	1	
Homemade Pastries	Male	3	6	18	7	0	1	0.003*
	Female	0	2	8	13	2	0	
Homemade Pastries	Male	14	10	5	4	0	2	0.000*
	Female	0	5	6	7	1	6	
Instant juices	Male	12	13	5	3	0	2	0.000*
	Female	1	1	7	5	2	9	
Chips, Candy, Chocolate	Male	13	13	7	1	0	1	0.041*
	Female	4	9	9	3	0	0	
Biscuit	Male	9	16	7	2	0	1	0.003*
	Female	3	4	11	4	0	3	
Chips	Male	4	14	11	5	0	1	0.003*
	Female	1	2	12	9	0	1	
Hamburger	Male	4	5	10	11	0	5	0.000*
	Female	0	0	0	13	4	8	

Pizza	Male	2	5	10	12	0	6	*0.001**
	Female	0	1	1	10	2	11	
Hot Dog or Salami sandwich	Male	5	5	7	10	0	8	*0.000**
	Female	0	1	2	4	0	18	
Ready cake, pastry	Male	6	10	9	9	0	1	*0.028**
	Female	1	3	10	8	2	1	

*p<0.05   *Mann-Whitney U Testi*

The distribution of food consumption frequency by gender is shown in Table 4. When examining whether there is a significant difference in the distribution of food consumption frequency according to gender, it was seen that the frequency of consumption of sunflower oil was statistically higher in women than men. On the other hand, men are mainly in the sweet-sugar-ready foods food group, including milk, freshly squeezed fruit juice, margarine, rice, pasta, lahmacun, homemade pastries, and carbonated drinks, instant fruit juices, chips, candy, chocolate, biscuits, french fries. Statistically, in terms of hamburgers, pizza, hot dog or salami sandwiches, ready-made cakes, and pastries, they consumed these foods more frequently than women.

Table 5. The Relationship Between Gender and Regular Physical Activity

Do you regularly do physical activity? (At least 150 minutes of moderate intensity or 75 minutes of vigorous intensity per week)	Gender		Total	p
	Female (n=25)	Male (n=35)		
Yes	6	18	24	*0.033**
No	19	17	36	

*p<0.05   *Ki-Kare Testi*

The relationship between gender and regular physical activity is given in Table 5. When the relationship between regular physical activity and gender was examined, it was found that most women did not do physical exercise regularly. In contrast, the status of doing physical activity was higher in men (p=0.033).

3.3 Distribution of Variables by Media Usage Status

The distribution of frequency of following internet tools according to BMI values is given in Table 6. A difference was found between BMI groups regarding internet use (p=0.014). When the distribution of the products purchased under the influence of food advertisements is examined according to BMI and gender, it was determined that the most purchased product influenced by food advertisements was bread, pastry chocolate, chips, cake and candy for men, white bread, pastry chocolate, chips, cake and candy and fast food for women. Cola drinks and vegetables, and vegetable dishes are not taken by women. The lowest amount of vegetables and vegetable dishes (5.7%) is affected in men. According to the BMI values, the products affected by the 50th percentile and below are bread, pastries, chocolate, chips, cake, and candy. In contrast, the least purchased product is vegetables and vegetable dishes. Above the 50th percentile, with 40.9%, the

most affected product is bread, pastry, chocolate, chips, cake, and candy. Vegetables and vegetable dishes are products that are not influenced and bought. It was seen that the most preferred products were bread, pastry, chocolate, chips, cake, and candy. Influenced by food advertisements, it was observed that product purchases did not differ according to gender and BMI. (p>0.05)

Table 6. Distribution of Frequency of Following Media Tools by BMI Values

Media Tools	Percentil	Media Tool Follow Frequency								p
		Everyday		1-2 times a week		One day a month		None		
		n	%	n	%	n	%	n	%	
TV	>50	10	45.5	7	31.8	3	13.6	2	9.1	0.058
	≤50	27	71.1	7	18.4	1	2.6	3	7.9	
Internet	>50	22	100.0	0	0.0	0	0.0	0	0.0	*0.014**
	≤50	29	76.3	6	15.8	1	2.6	2	5.3	
Magazine	>50	1	4.5	2	9.1	2	9.1	17	77.3	*0.529*
	≤50	1	2.6	5	13.2	6	15.8	26	68.4	
Newspaper	>50	0	0.0	1	4.5	1	4.5	20	90.0	*0.155*
	≤50	0	0.0	6	15.8	3	7.9	29	76.3	
Radio	>50	0	0.0	1	4.5	3	13.6	18	81.8	*0.340*
	≤50	2	5.3	6	15.8	2	5.3	28	73.7	

*p<0.05   *Mann-Whitney U Testi*

Table 7. The Relationship between Media Use and Frequency of Food Consumption

Food	TV	Internet	Magazine	Newspaper	Radio
Milk dessert (rice pudding, ice cream)	0,245	0,791	0,656	0,216	*0,011**
Fish	0,883	0,846	0,717	*0,012**	0,173
Fresh Fruit	0,237	0,383	0,720	*0,001**	0,169
Bulgur wheat	0,697	0,068	*0,025**	0,534	0,399
Pasta	0,146	*0,021**	0,203	0,705	0,127
Homemade Pastries	0,298	*0,029**	0,592	0,758	0,090
Fizzy Drinks	0,053	0,766	0,628	0,852	*0,034**
Hamburger	0,112	*0,028**	0,926	0,110	0,057

*p<0.05   *Mann-Whitney U Testi*

The relationship between media use and frequency of food consumption is given in Table 7. While a statistically significant relationship was observed between the frequency of internet use and consumption of pasta, homemade pastries and hamburgers (p=0.021, p=0.029, p=0.028), no significant correlation was observed between daily energy intake and media use.

Table 8. Distribution of Media Follow-up Status by Physical Activity

Media Tools	Do You Do Physical Activity? (At least 150 minutes of moderate intensity or 75 minutes of vigorous intensity per week)	Media Tool Follow Frequency								p
		Everyday		1-2 times a week		One day a month		None		
		n	%	n	%	n	%	n	%	
TV	Yes	19	51.4	3	21.4	0	0.0	2	40.0	0.035*
	No	18	48.6	11	78.6	4	100.0	3	60.0	
Internet	Yes	19	37.3	3	50.0	0	0.0	2	100.0	0.279
	No	32	62.7	3	50.0	1	100.0	0	0.0	
Magazine	Yes	1	50.0	2	28.6	5	62.5	16	37.2	0.607
	No	1	50.0	5	71.4	3	37.5	27	62.8	
Newspaper	Yes	0	0.0	4	57.1	1	25.0	19	38.8	0.614
	No	0	0.0	3	42.9	3	75.0	30	61.2	
Radio	Yes	1	50.0	5	71.4	1	20.0	17	37.0	0.298
	No	1	50.0	2	28.6	4	80.0	29	63.0	

*p<0.05 Mann-Whitney U Testi

The distribution of the frequency of the following media tools according to physical activity is given in Table 8. The analysis observed that only daily television use had a statistically significant difference in physical activity groups (p< 0.035)

3.4 Evaluation of Variables According to Nutritional Habits

Table 9. Distribution of Nutritional Habits by BMI and Gender

	Number of Meals	Gender					BMI				
		Male (n=35)		Female (n=25)			≤50 per (n=38)		>50 per (n=22)		
		n	%	n	%	P	N	%	N	%	P
How many main meals do you eat per day?	1	3	8.6	0	0.0	0.555	3	7.9	0	0.0	0.288
	2	6	17.1	9	36.0		10	26.3	5	22.7	
	3	26	74.3	16	64.0		25	65.8	17	77.3	
	Hiç	4	11.4	3	12.0		4	10.5	3	13.6	
How many snacks do you eat per day?	1	8	22.9	13	52.0	0.073	11	28.9	10	45.5	0.490
	2	10	28.6	4	16.0		11	28.9	3	13.6	
	3	9	25.7	4	16.0		8	21.1	5	22.7	
	≥4	4	11.4	1	4.0		4	10.5	1	13.6	

*p<0.05 Mann-Whitney U Testi

It was observed that eating habits did not differ between the groups according to gender and BMI (p>0.05). When the correlation between the number of main meals and BMI is examined, when the correlation between the BMI value and the number of meals a day is reviewed, the correlation value

is positive (0.13), but it is not a statistically significant value. Considering the distribution of food types preferred outside the home according to BMI, it was observed that the type of food selected outside the house did not differ according to BMI groups (p>0.05)

3.5 Evaluation of Anthropometric Measurements with Other Variables

Table 10. The Relationship between BMI and Regular Physical Activity

Do you regularly do physical activity? (At least 150 minutes of moderate intensity or 75 minutes of vigorous intensity per week)	BMI		Total	p
	≤50 percentil (n=38)	>50 percentil (n=22)		
Yes	19	5	24	0.038*
No	19	17	36	

*p<0.05 Ki-Kare Testi

The relationship between regular physical activity and BMI is given in table 10. In the analysis, it was observed that there was a dependency and a relationship between BMI groups and regular sports since the Pearson chi-square p-value was less than 0.05. While there was equality in the 50th percentile and below groups, it was found that the majority of the 50th percentile group did not do physical activity regularly.

3.6 Demographic Characteristics

This study was carried out to examine the effects of media on nutritional habits, physical activity status, and anthropometric measurements in adolescents in a secondary school in Istanbul Başakşehir district. To research; Among the 12-18 age group children, 63.3% are in the 50th percentile, and below, 36.7% are in the 50th percentile group, as the BMI group, which is between the ages of 14-18 (93.3%) and consists of 58% men and 42% women. Sixty participants were recruited.

3.7 Distribution of Variables by Gender

The fact that the participants are exposed to rapid growth, development, and risk in terms of the effect of healthy nutrition due to being in the adolescence period is essential in terms of food consumption and planning of nutritional habits. In the study, while the minimum energy intake for men is 787.5 kcal, the maximum intake is 3793 kcal; It was determined that while it was a minimum of 768 kcal in women, it was a maximum of 2669.5 kcal. It was observed that the mean daily calorie intake in women (1491.00±532.02) was lower than in men (1739.80±701.50). It was observed that the average daily energy intake did not differ according to gender (p>0.05) (Table 1). In a study conducted with adolescents, dietary energy intake was calculated as 1837.1± 461.09 kcal/day in men and 1154.5±361.48 kcal/day in women (Gümüş et al., 2011). Daily energy intakes, respectively; It was determined that it was 2473±595.9 kcal

in men and 2327±613.2 kcal in women (Yabancı and Pekcan, 2010). When macronutrients were evaluated in the study, daily carbohydrate intake was found to be 216.15±90.64 g/day in men and 194.09±92.08 g/day in women; Daily dietary protein intake was 58.37 ± 26.33 g/day in men and 42.31 ± 13.93 g/day in women; The mean consumption of dietary fat was determined as 67.95±31.08 in men and 56.71±18.71 in women. While it was observed that carbohydrate and fat averages did not differ according to gender (p=0.190, p=0.087), it was observed that protein consumption averages differed statistically according to gender (p=0.017) (Table 2). In a study examining the macronutrient intake in adolescents, dietary carbohydrate intake was 193.6±61.72 g/day in males and 123.6±46.22 g/day in females; Mean dietary protein intake was 51.7±14.62 g/day in men and 37.1±12.50 g/day in women; Dietary fat intake was determined as 93.6±36.56 g/day in men and 55.9±20.30 g/day in women (Gümüş et al., 2011). When the distribution of micronutrients by gender is evaluated, the average consumption of vitamin B12 is 1.86 ± 1.34 g/day in men and 1.10 ± 0.79 mcg/day in women. Men consume statistically more vitamin B12 than women. The average consumption of vitamin C is 28.48 ± 48.83 mg/day in men and 57.84 ± 81.84 mg/day in women. Women consume more vitamin C than men statistically. It was observed that the averages of B12 and C vitamins differed statistically significantly according to the gender groups (p <0.05) (Table 3). In a study conducted with adolescents, the consumption of vitamins B12 and C was determined as 1.8±1.40 mcg/day in men, 97.6±57.28 mcg/day in women, 1.6±1.08 mg/day, and 73.4±50.64 mg/day in women, respectively (Gümüş et al., 2011).

Media, school environment, friends are influential groups on nutrition attitudes in this period. In the study, when examining whether there is a significant difference in the frequency of food consumption according to gender, it was observed that the frequency of consumption of sunflower oil was statistically higher in women than in men. On the other hand, men consume these foods more frequently than women, statistically, in the frequency of consumption of fast-food-style foods with high carbohydrates (empty calorie sources) (Table 4). In a study, looking at the foods consumed at school, it was seen that the frequency of consuming mostly "fast food" type foods increased with age. In contrast, women consumed food and beverages from the canteen more often than men, and these foods were chocolate and sweets (23.4%), carbonated drinks (13.3%), biscuits, respectively. (12%), pastry, toast (12%), hamburger (10%), chips (9%), fruit juices (8%) (Aksoydan and Çakır, 2011). It is known that being physically active in adolescence is beneficial for both health and academic success. Still, it is generally seen that physical activity is not common among adolescents (Zhang et al., 2020). In this study, it was seen that while 48.5% of the boys were inactive, 76% of the girls were fixed. There is a statistically significant relationship between gender and regular physical activity level (p=0.033) (Table 5). In a study conducted with 319 students, when the distribution of physical activity rates by gender was examined, it was seen that 70.7% of boys and 86.4% of girls were not physically active. There is a statistically significant relationship between gender and regular physical activity level (p <0.001) (Aksoydan & Çakır, 2011).

3.8 Distribution of Variables by Media Usage Status

The use of media, which gains importance in our lives due to its ability to reach large masses with the development of technology, increases in adolescence (Kartal, 2017). This study determined that 100% of the group with a percentile value above 50 used the internet every day, and a statistically significant difference was observed in the frequency of following internet tools in the groups according to BMI (p=0.014) (Table 6). In a study conducted by Ferrari et al. On adolescents in 2015, it was determined that the level of physical activity decreased, and BMI value was higher in people who had a computer in their bedroom compared to those who did not have a laptop (Ferrari et al., 2015). In a study conducted by Kartal, when the relationship between BMI values of adolescents and media use was examined, the average BMI of computer use on weekdays was ≥85. It was found to be 4.06±2.11 hours in adolescents with a BMI<85th percentile and 3.12±2.03 hours in adolescents with a BMI<85th percentile. Weekend computer use average BMI ≥85. It is 5.44±3.30 hours in adolescents with a BMI <85. It was observed that it was higher than the percentile of adolescents (3.94±2.61 hours). In addition, the difference between the computer use times of overweight (BMI≥85th percentile) and normal adolescents (BMI<85th percentile) was not statistically significant (p>0.05) (Kartal, 2017). Food advertisements can have an impact on nutritional status in adolescence. In the study, when the distribution of the products purchased by BMI and gender, influenced by food advertisements, is examined, the most purchased product influenced by food advertisements is bread, pastry chocolate, chips, cake and candy for men, white bread, pastry chocolate, chips, cake and candy, and fast food. According to the BMI values, the products affected by the 50th percentile and below are bread, pastries, chocolate, chips, cake and candy. In contrast, the least purchased product is vegetables and vegetable dishes. Above the 50th percentile, with 40.9%, the most affected product is bread, pastry, chocolate, chips, cake and candy. Vegetables and vegetable dishes are products that are not influenced and bought. Influenced by food advertisements, it was observed that product purchases did not differ according to gender and BMI. (p>0.05) In a study on this subject, the media's most affected food groups are meat and meat products, fast food products, milk, and dairy products, chocolates (Yıldırım, 2018). In the study conducted by Imece on the effect of the media on adolescent nutrition, the majority of the products that women buy, influenced by food advertisements, are milk, coffee, carbonated drinks, and fruit juice. In contrast, most men are yogurt, meat, milk, chips, and carbonated beverages (İmece, 2018). As the time spent on mass media increases, the impact of food marketing on the nutritional habits of adolescents increases (Mahan & Raymond, 2016). In this study, a statistically significant relationship was observed between the frequency of internet use and consumption of pasta, homemade pastries, and hamburgers (p=0.021, p=0.029, p=0.028) (Table 7). In another data obtained, there was a negative correlation between internet and radio use and daily calorie intake. In contrast, a positive correlation was observed between TV, magazine, and newspaper and daily calorie intake. It is thought that the content of the advertisements in the media and the amount of time spent may be effective based on this relationship.

However, the small number of personnel in the study makes the results very sensitive. The fact that there is a negative relationship between the internet and the radio shows that the results should be evaluated by increasing the sample size. According to Calvert et al., in 2009, food marketers increased their presence in internet advertisements by 50%. This is because it is cheaper in terms of cost in the internet environment, and the time spent by children on the internet increases. These advertisements include fast food-style foods with high carbohydrate content and calories (Calvert, 2008). In another study, it was seen that women consume significantly more total milk group and cheese cottage cheese (31.2±43.9% in girls and 9.0±26.8% in boys, respectively) while using media tools than men (Kartal, 2017). In the adolescence period, sedentary life is increasing day by day. One of the influential points in sedentary life is the media (Kartal, 2017). Considering this study, it was observed that there was a statistically significant difference between daily television use and physical activity groups (p< 0.05) (Table 8). In the study conducted by Kartal in 2017, a negative correlation was found between the time that adolescents watch TV and their total daily energy expenditure (Kartal, 2017).

3.9 Evaluation of Variables According to Nutritional Habits

It is essential to know that many factors affect adequate and balanced nutrition and unique eating habits in adolescence, and during this period, meals are often skipped. When the relationship between BMI value and how many meals a day was examined as a correlation, the correlation value was positive (0.13), but it was not a statistically significant value. When the distribution of nutritional habits according to gender and BMI was examined, it was observed that there was no difference between the groups (p>0.05) (Table 9). Considering the distribution of food types preferred outside the home according to BMI, it was observed that the kind of food chosen outside the house did not differ according to BMI groups (p>0.05). A study conducted on this subject determined that most of the adolescents had three main meals a day, that those who skipped meals in public school mostly skipped breakfast, and participants in private schools also skipped dinner. (Ozturk, 2016). In a study conducted by Yıldırım in 2018, it was stated that adolescents mostly consumed three or more meals and that breakfast and lunch were skipped the most (Yıldırım, 2018).

3.10 Evaluation of Anthropometric Measurements with Other Variables

When the BMI and physical activity status were examined, it was found that the 50th percentile and below groups were equal. In contrast, most of the 50th percentile group did not regularly engage in physical activity (Table 10). In the study of Aksoydan et al., 21.7% of inactive boys were overweight, and 8.5% were obese, while these frequencies were 13.7% and 2.7% in passive girls, respectively. While there was no obese group among physically active students, a significant relationship was observed between physical activity levels and BMI groups (p <0.05) (Aksoydan & Çakır, 2011).

4. Conclusion

The formation of Adolescent habits and prevention of disease that can be seen during adulthood is also a crucial part. In the study, the frequency of following TV and internet tools was high in general. A statistically significant relationship was observed between internet usage frequency and pasta, homemade pastries, and hamburgers consumption. In contrast, the relationship between TV, magazine, and newspaper and daily calorie intake was seen with a weak but positive correlation. In the group above 50. percentile, the proportion of regular sports was significantly lower than the other group. In general, strong evidence could not be found between media use and dietary habits, but based on the results determined in many studies on the subject, it is thought that more research should be done on this subject. Since the media has a strong side in reaching the society and the frequency of following in the organization is high, it is possible to raise awareness of the community by improving nutrition on these platforms. By reducing the time spent in front of media tools and encouraging physical activity, positive effects can be created on food, physical activity, and anthropometric values. Thus, the healthy growth of future generations can be achieved.

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