Euras J Fam Med 2021;10(2):92-9. doi:10.33880/ejfm.2021100207 **Original Research**

Evaluation of Adolescents' Status of The First-Step Health Services Use and Healthy Nutrition Behaviors

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ABSTRACT

Aim: This study aimed to evaluate the status of the first-step health services use, healthy nutrition behaviors in adolescents and investigate their relationships with each other.

Methods: One hundred and forty-six adolescents between the ages of 10 and 18 were included in this descriptive study. A survey of 15 questions about the participants' healthy nutritional behaviors, the status of knowing their family physicians, and going to their family physicians for the examination was applied. The obtained data were analyzed using the SPSS 22 package program, and $p < 0.05$ was considered significant.

Results: Of the participants, 85.6% went to their family physicians for the examination, the mean age was 16.4±1.6, and 58.9% were girls. Girls' mean scores of healthy nutritional behavior and going to their family physicians for the examination were significantly higher than boys'. In those who were obese and overweight, the rate of knowing their family physicians, the mean score of going to their family physicians for the examination, and healthy nutritional behavior were lower than normal weight.

Conclusion: In our study, lower obesity and overweight rates and having a healthier diet were seen in adolescents using primary health care services more. We believe that to eliminate obesity, which has been a significant public health problem today, increasing the rate of using primary health care services for adolescent individuals needs to be increased. We hope that our comments raised herein will encourage other physicians to be more sensitive about this issue and direct patients to primary care more often to receive such services.

Keywords: adolescents, nutrition behavior, primary health care

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Introduction

The adolescent age group, a transition bridge between childhood and adulthood with age-specific developmental features, makes up more than 16% of the world's population (1,2). The adolescent period covering the interval between 10 and 19 years is a critical meantime, where there are specific cognitive, physical, psychological, and social changes. Therefore, healthy cognitive, physical, sexual, and psychosocial development is necessary for all adolescents to enter adulthood successfully (2). While improvements in health, nutrition, education, and technology help raise healthy adolescents, environmental factors such as unhealthy products, deterioration in family structure, war, and migration inhibit this possibility (3). Despite the decreasing frequency of maternal, neonatal, and nutritional diseases, malnutrition, overweight, and obesity remain major public health problems (4).

Nutritional disorders in children and adolescents have been related to delay in growth, impaired cognitive maturation, low IQ levels, behavioral problems, and increased risk of communicable and non-communicable diseases (5). Food quality and food insecurity in low- and middle-income countries cause difficulties accessing meat, fruit, vegetables (6,7). It has also been reported in several prior studies that food preferences in adolescents may also be associated with nutritional disorders (8,9). According to the World Health Organization (WHO), 2016 data, where one in six adolescents were stated to be overweight globally, iron deficiency anemia was explained as the second most frequent cause of years lost by adolescents due to death and disability (10). Besides, while obesity prevalence was below 10% in the Southeast Asia region, it was above 30% in America (10). Turkey Association of Endocrine and Metabolism recommends body mass index (BMI) calculation and measuring fasting blood glucose, serum lipid panel, and serum ALT level in obese once a year (11).

Effective primary health care services are required to protect adolescents from possible health problems, reveal their neglected diseases, and provide them treatment and follow-ups. First of all, by creating an environment where they feel safe, consultancy services and information, screening, diagnosis, treatment, and referral need to be made (12). Some researchers have thought that the adolescents' health problems usually as part of the change are perceived but not noticed, and the frequency of consulting a doctor is less than other age groups (13,14). Therefore, the diagnosis of health problems affecting adolescents' whole lives can be skipped (13). This study aims to evaluate adolescents' status of the first-step health services use and nutritional behaviors.

Methods

With a decision number of 2020/1295, ethical approval of the research was obtained from the Health Sciences Non-Interventional Clinical Research Ethics Committee of İnönü University Scientific Research and Publication Ethics Board, followed by verbal informed consent was incurred from the adolescents and parents. A healthcare professional applied a questionnaire to adolescents aged 10-18 years (n=146) through a face-to-face interview in this descriptive study. Subjects without their parents' or their consent to participate in the study and with speech or mental problems at a level that cannot answer questions were excluded. A questionnaire form with 15 questions, querying the study participants' sociodemographic characteristics, healthy nutritional behaviors, and the status of going to their family physicians for the examination, created by the researcher in the light of the literature obtaining data, was used. BMI percentiles of each child by age and gender for obesity were determined based on reference values according to Neyzi standards. In assessing obesity risk, using the WHO's BMI cut-off values for children, those with BMI values below the 5th percentile were considered underweight, those between the 5th to 85th percentile normal-weight, and those between the 85th to 95th percentile overweight (15,16).

Participants have been inquired five questions about their healthy nutritional behaviors; those who gave positive answers to them were given "1 point"

and negative answers "0 points". Likewise, six questions were asked about going to their family physicians for the examination; for each question, those who went were given "1 point" and those who did not go "0 points". As a result, a total score ranging from 0-5 for healthy nutritional behaviors, 0-6 for going to their family physicians for the examination was calculated. In surveys to measure feeding behavior; Questions about eating breakfast regularly, consuming fatty and sugary foods, consuming coffee/cola/tea, consuming fast food products such as hamburger/french fries/pizza, and consuming fruit/vegetables were asked. While the study's independent variables were gender, age, BMI category, and the status of knowing their family physicians, dependent variables were determined as healthy nutritional behavior total score and the score of going to their family physicians for the examination.

The obtained data were analyzed using SPSS 22 statistical package program (SPSS 22.0 version, SPSS Inc., Chicago, Illinois, USA). In the study, descriptive and categorical data were denoted by n,% values, continuous data by mean ± standard deviation, median, interquartile range (25th 75th percentile). The categorical variables were compared using Chi-square analysis (Pearson Chi-square) between groups. As a result of chi-square analysis, a Post hoc analysis and Bonferroni correction were performed to determine the difference between the two groups. The compliance of continuous variables to normal distribution was evaluated with the Kolmogorov-Smirnov Test. The independent-samples T-test was applied in comparison of variables that fit normal distribution between two groups, One Way ANOVA in the comparison between more than two groups, Mann-Whitney U test in the comparison of variables that do not conform to normal distribution between two groups, and Kruskal Wallis test in the comparison between more than two groups. In examining the relationship of continuous variables with each other, the Spearman correlation test was used. The statistical significance level was accepted as $p<0.05$ in the analyzes.

Results

Of the adolescents included in the study, 86 (58.9%) were female, and 60 (41.1%) were male, with a mean age of 16,4±1,6 (min=12, max=18) (and a median age of 17). Participants of 16 (11%) ranked underweight, 99 (67,8%) as normal-weight, 13 (8,9%) as overweight, and 18 (12,3%) as obese. 108 (74%) of subjects stated that they knew their family physicians (Table 1).

Table 1. Adolescents' demographic characteristics, body measurements, and the status of knowing their family physicians

		Number	%
Gender	Girl	86	58,9
	Boy	60	41,1
Age, Median (IQR)		17,0 (15,0-18,0)	
Height, Median (IQR)		165,0 (160,0-171,0)	
Weight, Median (IQR)		57,0 (50,0-65,0)	
BMI, Median (IQR)		20,7 (19,1-23,0)	
BMI classification	Underweight	16	11,0
	Normal-weight	99	67,8
	Overweight	13	8,9
	Obese	18	12,3
The status of knowing their family physicians	Yes	108	74,0
	No	38	26,0

Overweight and obese rates of boys were significantly higher than girls' (p=0,003). There was a significant difference in BMI comparison according to gender; this difference, the post hoc analysis revealed, was due to the difference between those with normal weight and those who were obese and those who were obese and overweight (Table 2).

Table 2. Comparison of BMI classification by gender

BMI classification	**Gender**				**p**
	Girl		Boy		
	n	%	n	%	
Underweight	13	15,1	3	5,0	**0,003**
Normal-weight	63	73,3	36	60,0	
Overweight	5	5,8	8	13,3	
Obese	5	5,8	13	21,7	

The rate of girls knowing their family physicians was significantly higher than that of boys (p<0,001). According to BMI classification, a significant difference was observed in knowing their family physicians (p<0,001). Those with normal weight

appeared to be the most knew their family physicians. Post hoc analysis showed this difference originates from the difference between those with normal weight and those obese (Table 3).

Table 3. The participants' status of knowing their family physicians according to gender and BMI classification

		The status of knowing their family physicians				p
		Yes		No		
		n	%	n	%	
Gender	Girl	76	88,4	10	11,6	**<0,001**
	Boy	32	53,3	28	46,7	
BMI classification	Underweight	10	62,5	6	37,5	**<0,001**
	Normal-weight	84	84,8	15	15,2	
	Overweight	8	61,5	5	38,5	
	Obese	6	33,3	12	66,7	

Among 125 participants, 21 (14.4%) of whom never went to their family physicians for the examination, but 85.6% went, girls' mean scores of healthy nutritional behavior and going to their family physicians for the examination were significantly higher (p<0,001) than boys'. There was a significant difference in mean healthy nutritional behavior scores between BMI classification (p=0,007). This difference appeared to be more likely due to the difference between the overweight group and normal-weight group and the obese group and normal-weight group. The mean scores of going to their family physicians for the examination differed significantly between BMI classification (p<0,001). Likewise, this difference was due to the difference between the overweight and normal-weight groups and the obese and normal-weight groups. At the same time, the mean scores of healthy nutritional behavior and going to their family physicians for the examination of those who knew their family physicians were significantly higher than those who did not know (respectively p<0,001 and p=0,003) (Table 4, Figure 1).

Table 4. Comparison of the healthy nutritional behavior score and the status of going to their family physicians for the examination according to various parameters

		Healthy nutritional behavior score		The score of going to their family physicians for the examination	
		Median (IQR)	p	Mean±SD	p
Gender	Girl	3,0 (2,0-4,0)	**<0,001***	2,2±1,5	**<0,001*****
	Boy	2,0 (1,0-3,0)		1,1±,9	
BMI classification	Underweight	2,0 (1,0-3,5)[a,b]	**0,007****	1,4±1,2[a,b]	**<0,001******
	Normal-weight	3,0 (2,0-3,0)[a]		2,1±1,1[a]	
	Overweight	1,0 (,0-3,0)[b]		,9±1,1[a,b]	
	Obese	1,5 (1,0-3,0)[b]		,9±1,1[b]	
The status of knowing their family physicians	Yes	3,0 (2,0-3,0)	**<0,001***	1,9±1,4	**0,003******
	No	1,0 (1,0-3,0)		1,3±1,1	

Mann Whitney U test, **Kruskal Wallis test, * T-test in independent groups, ****One Way ANOVA test were performed. [a,b] The group from which the difference was originated IQR: Interquartile Range*

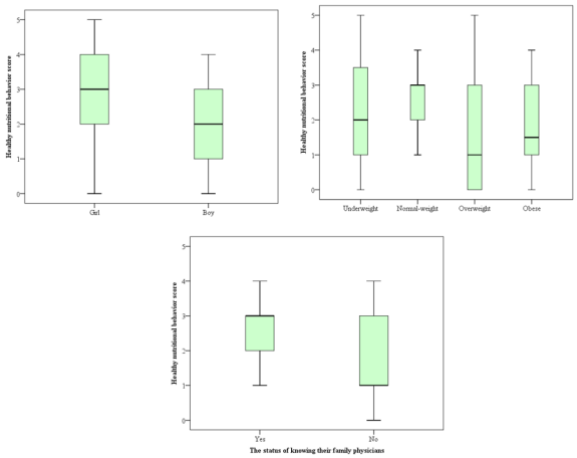

Figure 1. a. Comparison of healthy nutritional behavior scores by gender, **b.** by BMI classification, **c.** by the status of knowing their family physicians

In the correlation analysis, a negative relationship was found between age and healthy nutritional behavior scores (r=-0,302 p<0,001) and scores of going to their family physicians for the examination (r=-0,237 p=0,004). A striking positive relationship also appeared between healthy nutritional behavior scores and the status of going to their family physicians for the examination (r=0,206 p=0,013).

Discussion

According to the World Health Organization data, one-sixth of the world's population, about 1.6 billion people, are in the adolescent age group (17).

According to the Center for Disease Control and Prevention (CDC), risky behaviors that threaten health in adolescents have been accepted as tobacco, alcohol, substance use, unhealthy diets, lack of physical activity, and risky sexual and violent behavior (18,19). The prevalence of overweight and obesity, similarly observed to rise even in low- or middle-income countries with malnutrition, has increased significantly in a short time in childhood (20). In this sense, it was observed in Aksoydan et al.'s study that 5.6% of adolescents were underweight and 4.1% obese; in Agadayı et al.'s study that 5,12% of participants were underweight, and 6,9% obese (21,22). In the USA, it was determined that adolescents aged 12-19, with a rate of 20.6%, were the most obese (23). A prior study conducted in South Africa reported obesity at a rate of 8.57% in adolescents (24). In another study performed on 933 adolescents in Ankara, it was concluded that 2.8% of the subjects were underweight and 10.5% obese, also that in boys, underweight, overweight, and obesity rates were higher than girls (25). As a substantial source of concern for our country, it is critical to emphasize that the study covering seven countries in Europe where 5206 school children participated reported Turkish children to rank second in obesity prevalence with 7.7 (11). In our study, 11% of study participants were evaluated as underweight, 8.9% overweight, and 12.3% obese, with being the obesity rate similar to the studies carried out in recent years was remarkable (25). In the present study, overweight and obese rates of boys were significantly higher than that of girls, suggesting this situation may be, in Turkey in recent years, due to a rapid increase in the prevalence of obesity among males and that children cannot leave the house because of the pandemic. Based on this observation, we also consider that girls having an earlier onset of puberty and having much more body perception, and having more instincts of being liked than boys, might have been effective in these results.

Looking into the subjects' status of knowing their family physicians, 74% of adolescents from our study expressed that they knew their family physicians; the rate of knowing their family physicians of girls was higher than that of boys. In another study with 485 adults, 84.9% of participants stated that they knew their family physicians (26). These results might have been obtained because awareness and the need for periodic check-ups due to an age difference are higher in adults. However, in the current study, adolescents' scores of going to their family physicians for the examination decreased as the age increased. Further, large-scale studies are needed to investigate adolescents' status of knowing their family physicians and going to their family physicians for check-ups and raise awareness. Our trial also revealed that those with a normal weight the most knew their family physicians, with they also had a higher mean healthy nutritional behavior score. Additionally, our study concluded that those with normal weight were more likely to go to their family physicians for the examination than overweight and obese. Herein, we point out that by increasing the persons' rate of using primary health care services and knowledge about the periodic health examinations, their nutritional behaviors can be changed, and thus, obesity, which is one of the problems of our age, can be prevented.

The mean scores of girls' healthy nutritional behaviors and status of going to their family physicians for the examination were significantly higher than boys' in the present research. Another study with 638 adolescents emphasized that boys' nutritional behaviors were riskier than girls' (27). In different studies, female students were more frequently on a weight loss diet (28-34). This suggestion might have caused a higher mean healthy nutritional behavior score in girls in our study; in contrast, many studies have shown that boys' nutritional behaviors are better than girls' in the literature (35). Future in-depth more studies are needed to understand possible causes of the difference between the sexes.

The present study detected the mean healthy nutritional behavior score higher in those with normal weight than obese and overweight. This shows us the effect of healthy nutritional behavior on body mass index. Almost half of adult body weight is being gained during adolescence (36). Therefore, proper

nutritional behaviors developed in adolescence are highly effective in achieving healthy body measures in adulthood. Raising awareness on this issue will ultimately help them be in the healthy weight range in maturity. The current study demonstrated that healthy nutritional behavior scores decreased with increasing age in adolescents. In support of our study findings, a previous study with 319 students suggested that the number of overweight individuals increases as the teaching level grows (21).

Similarly, in Demirezen et al.'s study, it has been noticed that unhealthy nutritional behavior scores increase with age (27). Our comments raised herein show that healthy nutritional behavior scores that decrease with age could be successfully prevented by introducing appropriate eating habits at an early age. Therefore, specific data obtained by depth-in further studies concerning the factors potentially influencing adolescents' healthy nutritional behaviors are urgently required. We hope our study results will encourage and guide the relevant physicians interested in accomplishing these objectives.

There are some limitations in our study. Since our study was a cross-sectional study, a causal relationship could not be established. At the same time, a standard scale with validity and reliability was not used in the study.

Conclusion

The lower rates of obesity and overweight and eating healthier in adolescents using primary health care services have been good news welcomed positively and pleasantly in public health practices. Based on all data currently available in the literature, adolescents should be informed more to use primary health care, and they should be encouraged to make healthy nutritional behavior changes.

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