

The Role of Parental Nutrition Education in Developing Healthy Eating Behaviors in Primary School Students: A Controlled School-Based Intervention Study

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ABSTRACT

Aim: This study was conducted to evaluate the effects of nutrition education provided to parents in two primary schools with different socioeconomic levels on parents' mealtime behaviors and children's eating habits. **Materials and Methods:** The study was conducted as an intervention-control study between January 2019 and April 2019 in Gaziantep province with the participation of 168 students and their parents (education group: n=70, control group: n=98). A 40-minute structured nutrition education program aimed at supporting healthy eating behaviors in children was provided by the researchers to the parents in the education group. Data were collected twice, before the education and 15 days after the education, using the sociodemographic characteristics form, the Student Health Assessment Questionnaire (SHAQ), the Parent Mealtime Action Scale (PMAS), and food consumption records. **Results:** A statistically significant increase was found in the total number of main meals and total number of meals among the parents in the education group after the education ($p=0.034$ and $p=0.027$, respectively). Although the changes were not statistically significant, it was observed that the rates of skipping breakfast and lunch decreased, while the rates of having breakfast at home and bringing lunch from home increased among the students whose parents received education ($p>0.05$). In the education group, no statistically significant change was found in the PMAS subscale scores after the education ($p>0.05$). After the education, significant relationships were identified between students' protein, carbohydrate, and fat intakes and the parents' positive persuasion, use of rewards, insistence on eating, and daily fruit and vegetable availability subscales ($p<0.05$). **Conclusion:** It is considered that nutrition education programs conducted in schools may create important effects both in the school environment and in family life. It should be taken into consideration that the duration and continuity of the education programs may be decisive factors on the outcomes obtained. It was concluded that the dissemination of school-based interventions involving parental participation may contribute to the development of healthy eating behaviors in children.

Keywords: Nutrition education, parental behaviors, feeding practices, child nutrition, school-age children

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INTRODUCTION

Health, nutrition, and education are among the fundamental factors affecting individuals' quality of life and the level of development of societies (1). School age (6–12 years), which falls within childhood when the foundations of these factors are established, is a critical period in which children are at greater risk than other groups in society in terms of negative health outcomes, particularly nutrition, due to increased physiological requirements associated with growth, cognitive development, and preparation for puberty (2). Covering middle childhood and early adolescence, this period represents an important and final opportunity to address deficiencies resulting from undernutrition, enable children to catch up with normal life-cycle development, and mitigate the long-term consequences of overnutrition (3). The foundations of children's eating habits are established within the family environment, and parents' educational and socioeconomic levels play a determining role in children's food choices, access to food, and the quality of their meals (4). In addition, parents' child-feeding behaviors and attitudes, as well as their own eating behavior patterns, are among the important factors influencing the formation of children's food preferences and eating habits. Therefore, increasing parents' levels of knowledge and awareness is of great importance in supporting healthy eating behaviors in children (5).

It has been reported that nutrition education interventions directed at parents can improve children's diet quality by supporting the adoption of healthy eating practices in the home environment and can provide positive effects on health outcomes in the long term (6). Due to their ability to reach children and parents simultaneously, implement sustainable education programs, and provide an environment that supports healthy lifestyle behaviors, schools are considered one of the most suitable settings for nutrition education (7). When the literature is examined, it is seen that studies evaluating nutrition education practices directed at parents of primary school children in Türkiye are limited in number. Furthermore, it is noteworthy that studies examining the effects of nutrition education provided to parents on parents' mealtime behaviors together with children's food consumption are also insufficient (8,9). Therefore, this study aimed to evaluate the effects of nutrition education provided to parents in the school setting on children's eating habits and parents' mealtime behaviors.

SUBJECTS AND METHODS

Study Design and Sample

This study was conducted as an intervention-control study within the scope of the “Healthy Eating Habit Acquisition Project” with the participation of third- and fourth-grade students and their parents from two primary schools characterized as having high and low socioeconomic status in the Şahinbey district of Gaziantep province. The research protocol was approved by the Hacettepe University Non-Interventional Clinical Research Ethics Committee (Date: 11.12.2018, Decision No: 16969557-2189). Data were collected between January 2019 and April 2019 after obtaining an “Informed Consent Form” from the parents and a “Child Assent Form” from the children. The sample size was determined based on similar studies and calculated using the G*Power (v3.1.7) program according to Cohen’s effect size coefficients; assuming that the comparisons between two independent groups would have a medium effect size ($d=0.5$), it was calculated that at least 64 individuals were required in each group (10,11). Considering possible sample losses during the study process, it was planned to include 70 students and parents in both the education and control groups. Individuals who were not third- or fourth-grade students, were not citizens of the Republic of Türkiye, had a physical disability, had any diagnosed disease requiring diet and/or medication use, and parents who did not have sufficient Turkish reading, comprehension, and writing skills were not included in the study.

In order to evaluate the school snack-time practice more effectively, schools with a regular full-day education system, without a school cafeteria, and that had not previously been involved in any project in the field of “nutrition and dietetics” other than the Nutrition-Friendly School Project were preferred for the study. In the socioeconomic status classification of schools (low, medium, and high), the classification defined by the District Directorate of National Education at the neighborhood level was taken into consideration. The researchers organized 40-minute face-to-face educational sessions on “healthy, adequate and balanced nutrition and active living” for parents in two primary schools, and the 70 parents who attended the education and their children constituted the education group of the study. The 98 parents who did not attend the education but completed the data collection form and their children were included in the control group. The educational intervention was delivered by dietitians using a standardized educational presentation. In addition, parents in both the intervention and control groups received a one-month sample lunchbox menu prepared by the researchers and a lunchbox container. The content of the education consisted of adequate and balanced nutrition, nutrients and their functions, food groups, recommended daily portion amounts, the healthy eating plate,

the harms of excessive sugar and fat consumption, meal patterns, nutrition-related health problems, the importance of nutrition in school-age children, recommendations for parents on preparing a healthy lunchbox, and active living.

Data Collection Instruments

The data required for the study were collected using a questionnaire form. The questionnaire form consisted of questions related to sociodemographic characteristics and eating habits, anthropometric measurements, the Parent Mealtime Action Scale (PMAS) (12,13), the Student Health Assessment Questionnaire (SHAQ) (14,15), and the 24-Hour Dietary Recall Form. Data were collected at two time points: at the beginning of the study and 15 days after the parent education sessions. At the beginning of the study, dietary intake records of the children were obtained from the parents in both groups and the questionnaire form was administered. Anthropometric measurements of the students were obtained at baseline, and the SHAQ was administered to the students both at the beginning and at the end of the study.

Anthropometric Measurements: The students' height (cm), body weight (kg), and waist circumference (cm) measurements were obtained by the researchers, and body mass index (BMI) (kg/m^2) and waist circumference-to-height ratio were calculated. Body weight, height, and BMI values were evaluated using the WHO AnthroPlus software (16) based on the "WHO-2007 reference values for children aged 5–19 years" and classified according to z-score (SD) cut-off points (17). Waist circumference reference values were evaluated according to the waist circumference percentiles developed by Hatipoğlu et al. for Turkish children aged 7–17 years (18), and the waist circumference-to-height ratio was evaluated according to the Ashwell classification (19).

Parent Mealtime Action Scale (PMAS): The questionnaire was developed by Hendy et al. (12) and tested for its Turkish validity and reliability (13). The scale is a three-point likert-type scale (1=never, 2=sometimes, 3=always) consisting of 31 questions. By focusing on the behaviors exhibited by parents while feeding their children during mealtimes over a one-week period, the scale examines these behaviors in detail under nine subdimensions (12). These subdimensions are snack limits (SL), positive persuasion (PP), daily fruit and vegetable availability (DFVA), use of rewards (UR), insistence on eating (IE), snack modeling (SM), special meals (SpM), fat reduction (FR), and many food choices (MFC). The scale does not have a total score, and each subdimension is evaluated as an independent scale. Scale scores are calculated by dividing the sum of the scores given to the items in the relevant subdimension

by the number of items. Only items 2 and 31 are reverse scored. A higher mean score obtained for each subdimension indicates that parents use that behavior more frequently.

Student Health Assessment Questionnaire (SHAQ): The Student Health Assessment Questionnaire (SHAQ) was used to evaluate students' nutrition and physical activity behaviors. The scale, originally named the Student Health Assessment Questionnaire (SHAQ) and developed as a short version of the School Physical Activity and Nutrition (SPAN) questionnaire (14), was adapted into Turkish by Küçük Yetgin and its validity and reliability study was conducted (15). The scale consists of a total of 33 questions evaluating demographic characteristics, eating habits, dietary intake behaviors during the previous 24 hours, physical activity and sedentary habits, and individual and family attitudes. In addition, composite scores related to students' consumption of meat, dairy products, fruits and vegetables, fat and sugar, physical activity duration, and screen time are obtained from the questionnaire. In this study, the questionnaire was administered twice under researcher supervision on weekdays, at baseline and 15 days after the intervention; the effects of the education provided on students' food preferences, nutrition and physical activity behaviors, and composite scores were evaluated.

Daily Energy and Nutrient Intake: Dietary intake records of the children for one school day (weekday) were obtained from the parents twice, at the beginning of the study (Day 0) and approximately 15 days later. The energy, micronutrient, and macronutrient values provided by the consumed foods were calculated using the Nutrition Information Systems Software Program (BeBIS) (20). The percentages of meeting daily reference intakes for energy and nutrients were evaluated using the "Turkey-Specific Food and Nutrition Guide 2015" (21).

Statistical Analyses: The quantitative data obtained from the participants were tested for normality Shapiro–Wilk and Kolmogorov–Smirnov tests, and it was determined that the data showed a normal distribution. Therefore, parametric tests were used in the analyses. The independent samples t-test was applied to compare quantitative variables between the education and control groups. The chi-square test was used to evaluate the relationships between categorical variables. Paired samples t-test was applied to examine the differences between pre- and post-education quantitative measurements in the education and control groups. Relationships between quantitative variables were evaluated using Pearson correlation analysis. Correlation coefficients were interpreted as follows: <0.20, very weak; 0.20–0.39, weak; 0.40–0.59, moderate; 0.60–0.79, strong; and ≥ 0.80 , very strong. All statistical analyses were performed using SPSS 20.0 software, and the level of statistical significance was accepted as $p < 0.05$.

RESULTS

A total of 168 students participated in the study, of whom 52.9% were female and 47.1% were male. Of the participants, 54.8% were third-grade students and 45.2% were fourth-grade students. The anthropometric characteristics of the students are presented in Table 1. No statistically significant difference was found between the low and high socioeconomic status groups in terms of weight-for-age, height-for-age, and BMI-for-age z-scores, waist circumference, and waist-to-height ratio ($p>0.05$). When all students were evaluated, it was determined that 14.9% were overweight and 8.3% were obese according to BMI-for-age z-scores. In addition, 90.5% of the students were in the normal waist circumference category, while 77.3% had an appropriate waist-to-height ratio.

Table 2 presents the changes in PMAS subdimension scores of parents in the education and control groups between baseline and follow-up measurements. In the education group, no statistically significant change was found in PMAS subdimension scores after the education ($p>0.05$). In this group, the highest mean score both before and after the education was obtained from the “daily fruit and vegetable availability” subdimension. In the control group, statistically significant decreases were observed between baseline and follow-up measurements in the “positive persuasion,” “snack modeling,” and “many food choices” subdimension scores ($p<0.001$, $p=0.039$, and $p=0.031$, respectively). No significant change was observed in the other subdimensions (Table 2).

Table 3 examines the distribution of students’ dietary behaviors during the previous 24 hours before and after the education in the education and control groups. While the rate of skipping breakfast increased from 15.3% to 18.4% at the end of the study in the control group, it decreased from 12.9% to 11.4% in the education group. Similarly, the rate of skipping lunch increased from 9.2% to 12.2% in the control group, whereas it decreased from 15.7% to 8.6% in the education group. In the education group, the rates of having breakfast at home and bringing lunch from home increased after the education compared with the pre-education period. However, the changes in breakfast, lunch, and preference for ready-to-eat foods consumed outside the home between baseline and follow-up measurements were not reflected as statistically significant ($p>0.05$).

Table 1. Distributions of Weight-for-age, Height-for-age, BMI-z Scores for Age, and Waist-to-height Ratios Among Students by Socio-economic Status

	Low socioeconomic status		High socioeconomic status		Total		p
	n	%	n	%	n	%	
Gender							
Girls	62	53.5	27	51.9	89	52.9	>0.05
Boys	54	46.5	25	48.1	79	47.1	
Grade							
3.	69	59.5	23	44.2	92	54.8	>0.05
4.	47	40.5	29	55.8	76	45.2	
Weight for age (z-score) (WHO, 2007)							
Severe underweight	1	0.9	1	2.1	2	1.2	0.782
Underweight	18	15.8	5	10.6	23	14.3	
Normal	72	63.2	31	66.0	103	64.0	
Overweight	17	14.9	6	12.8	23	14.3	
Obese	6	5.3	4	8.5	10	6.2	
Height for age (z-score) (WHO, 2007)							
Severely stunted	1	0.9	1	1.9	2	1.2	0.660
Stunted	21	18.1	9	17.3	30	17.9	
Normal	77	66.4	30	57.7	107	63.7	
Tall	15	12.9	10	19.2	25	14.9	
Very tall	2	1.7	2	3.8	4	2.4	
BMI classification for age (z-score) (WHO, 2007)							
Severe underweight	4	3.4	1	1.9	5	3.0	0.703
Underweight	17	14.7	4	7.7	21	12.5	
Normal	70	60.3	33	63.5	103	61.3	
Overweight	16	13.8	9	17.3	25	14.9	
Obese	9	7.8	5	9.6	14	8.3	
Waist circumference (percentile) (IDF)							
Normal	107	92.2	45	86.5	152	90.5	0.188
Obese	9	7.8	7	13.5	16	9.5	
Waist/Height ratio (Ashwell)							
Take Care	11	15.9	3	10.7	14	14.4	0.342
OK	54	78.3	21	75.0	75	77.3	
Consider Action	4	5.8	4	14.3	8	8.2	
Take Action	0	0.0	0	0.0	0	0.0	

The chi-square test was used to analyze the data. **WHO**: World Health Organization (World Health Organization), **BMI**: Body Mass Index, **IDF**: International Diabetes Federation.

Table 2. Changes in PMAS Subscale Scores in the Intervention and Control Groups Before and After the Education

PMAS subscales	Control Group (n=98)					Education Group (n=70)				
	Pre-education		Post-education		P	Pre-education		Post-education		P
	$\bar{X}$	SD	$\bar{X}$	SD		$\bar{X}$	SD	$\bar{X}$	SD	
Snack Limits	2.19	0.56	2.19	0.58	0.999	2.33	0.55	2.32	0.63	0.928
Positive Persuasion	2.53	0.40	2.35	0.49	<0.001*	2.35	0.45	2.38	0.44	0.683
Daily Fruit and Vegetable Availability	2.37	0.50	2.37	0.47	0.990	2.41	0.40	2.50	0.41	0.156
Use of Rewards	1.85	0.48	1.79	0.47	0.312	1.86	0.50	1.76	0.49	0.128
Insistence on Eating	1.79	0.64	1.77	0.59	0.734	1.69	0.52	1.63	0.59	0.386
Snack Modeling	1.74	0.46	1.65	0.38	0.073	1.66	0.42	1.67	0.37	0.905
Special Meals	1.49	0.36	1.58	0.38	0.039*	1.48	0.31	1.52	0.29	0.427
Fat Reduction	1.96	0.57	1.94	0.54	0.736	1.94	0.54	2.01	0.55	0.340
Many Food Choices	2.08	0.42	1.98	0.47	0.031*	2.03	0.46	1.92	0.47	0.076

A paired-samples t-test was used to evaluate the data. * $p < 0.05$ was considered statistically significant. Statistically significant data are shown in bold. $\bar{X} \pm SD$: mean $\pm$ standard deviation, PMAS: Parent Mealtime Action Scale

Table 3. Comparison of Students' 24-hour Dietary Behaviors Before and After the Education

		Pre-education				Post-education				P
		Control		Education Group		Control		Education		
		Group (n=98)		(n=70)		Group (n=98)		Group (n=70)		
		n	%	n	%	n	%	n	%	
Location of Breakfast Consumption	Did Not Consume Breakfast	15	15.3	9	12.9	18	18.4	8	11.4	0.267
	Home	65	66.3	50	71.4	72	73.5	52	74.3	
	School Canteen	11	11.2	8	11.4	5	5.1	6	8.6	
	Bakery	1	1.0	0	0.0	3	3.1	0	0.0	
	Other	6	6.1	3	4.3	0	0.0	4	5.7	
Location of Lunch Consumption	Did Not Consume Lunch	9	9.2	11	15.7	12	12.2	6	8.6	0.615
	Home	56	57.1	44	62.9	52	53.1	50	71.4	
	School Canteen	29	29.6	13	18.6	33	33.7	13	18.6	
	Other	4	4.1	2	2.9	1	1.0	1	1.4	
Menu Choice When Eating Out	Did Not Consume Ready-to-Eat Foods	37	37.8	31	44.3	26	26.5	28	40.0	0.228
	Salad Menu	7	7.1	2	2.9	8	8.2	4	5.7	
	Fast-Food Menu	47	48.0	26	37.1	48	49.0	30	42.9	
	Bakery Menu	7	7.1	11	15.7	16	16.3	8	11.4	

The chi-square test was used to analyze the data.

Table 4 compares the numbers of main meals, snacks, and total meals of students and parents before and after the education. In the parents of the education group, statistically significant increases were found in the total number of main meals and total number of meals after the education ($p=0.034$ and $p=0.027$, respectively). In the control group, no significant change was found in the number of meals of the parents between baseline and follow-up measurements ($p>0.05$). When evaluated in terms of students, no statistically significant difference was found in either the number of main meals or snacks between the pre- and post-education periods in either the education or control groups ($p>0.05$) (Table 4).

Table 4. Comparison of Meal Frequency of Students and Parents Before and After the Education

			Pre-education		Post-education		p
n			$\bar{X}$	SD	$\bar{X}$	SD	
Control Group	Parents' Total Number of Main Meals	98	2.79	0.41	2.83	0.41	0.287
	Parents' Total Number of Snacks	98	0.18	0.56	0.08	0.34	0.058
	Parents' Total Number of Meals	98	2.97	0.68	2.91	0.50	0.379
	Children's Total Number of Main Meals	98	2.93	0.26	2.97	0.17	0.208
	Children's Total Number of Snacks	98	1.63	1.14	1.50	1.17	0.357
	Children's Total Number of Meals	98	4.56	1.15	4.47	1.17	0.520
Education Group	Parents' Total Number of Main Meals	70	2.80	0.40	2.90	0.30	0.034*
	Parents' Total Number of Snacks	70	0.29	0.62	0.36	0.72	0.199
	Parents' Total Number of Meals	70	3.09	0.76	3.26	0.81	0.027*
	Children's Total Number of Main Meals	70	2.94	0.23	2.91	0.28	0.321
	Children's Total Number of Snacks	70	1.77	0.92	1.89	1.04	0.403
	Children's Total Number of Meals	70	4.70	0.97	4.80	1.11	0.477

A paired-samples t-test was used to evaluate the data. * $p < 0.05$ was considered statistically significant. Statistically significant data are shown in bold. $\bar{X} \pm SD$: mean $\pm$ standard deviation

Table 5 presents the relationships between students' daily energy and nutrient intakes and PMAS subdimension scores in the education and control groups as examined by correlation analysis. In the education group, before the education, both positive and negative significant relationships were found between parental feeding behaviors and students' protein, energy, and fat intakes ($p < 0.05$). After the education, significant relationships were identified between students' protein, carbohydrate, and fat intakes and the parents' positive persuasion, use of rewards, insistence on eating, and daily fruit and vegetable availability subdimensions ($p < 0.05$). In the control group, numerous significant relationships were found at baseline between parental feeding behaviors and students' energy, macronutrient, and dietary fiber intakes ($p < 0.05$); at the end of the study, these relationships decreased, but positive significant relationships between the reduction of animal fats subdimension and students' energy, protein, and fat intakes continued to be observed ($p < 0.05$) (Table 5).

Table 5. Relationship Between Parents' PMAS Subscale Scores and Students' Average Daily Energy and Nutrient Intakes (Before the Education)

			Control Group (n=98)										Education Group (n=70)									
			Snack Limits	Positive Persuasion	Daily Fruit and Vegetable	Use of Rewards	Insistence on Eating	Snack Modeling	Special Meals	Fat Reduction	Many Food Choices	Snack Limits	Positive Persuasion	Daily Fruit and Vegetable	Use of Rewards	Insistence on Eating	Snack Modeling	Special Meals	Fat Reduction	Many Food Choices		
Pre-education	Energy (kcal)	r	0.004	0.131	0.190	0.227	0.060	-0.088	0.126	0.223	0.286	0.088	-0.147	0.287	-0.124	-0.083	0.086	-0.021	0.138	-0.082		
		p	0.970	0.198	0.062	0.025*	0.557	0.389	0.215	0.027*	0.004*	0.468	0.226	0.016*	0.306	0.492	0.477	0.862	0.256	0.499		
	Protein (g)	r	-0.093	0.121	0.243	0.166	0.104	-0.023	0.089	0.242	0.217	-0.088	-0.235	0.142	-0.155	-0.135	0.002	-0.022	-0.014	-0.136		
		p	0.363	0.237	0.016*	0.103	0.308	0.824	0.385	0.016*	0.032*	0.470	0.050	0.242	0.201	0.267	0.988	0.857	0.909	0.263		
	Protein (%)	r	-0.073	0.046	0.119	-0.103	0.147	-0.027	-0.108	0.051	-0.070	-0.282	-0.267	-0.266	-0.056	-0.120	-0.149	0.032	-0.260	-0.141		
		p	0.477	0.650	0.244	0.312	0.149	0.788	0.289	0.618	0.491	0.018*	0.025*	0.026*	0.644	0.323	0.218	0.792	0.030*	0.244		
	Fat (g)	r	-0.020	0.037	0.176	0.163	0.039	-0.134	0.102	0.165	0.243	0.122	-0.187	0.301	-0.144	-0.129	0.043	0.019	0.179	-0.115		
		p	0.842	0.716	0.083	0.108	0.706	0.188	0.316	0.104	0.016*	0.316	0.121	0.011*	0.234	0.286	0.721	0.877	0.139	0.345		
	Fat (%)	r	0.035	-0.103	0.130	-0.031	0.033	-0.199	-0.086	-0.035	0.054	0.070	-0.199	0.036	-0.033	-0.124	-0.044	0.129	0.071	-0.073		
		p	0.734	0.311	0.202	0.762	0.750	0.049*	0.402	0.735	0.598	0.563	0.099	0.764	0.789	0.306	0.720	0.287	0.560	0.546		
	Carbohydrate (g)	r	0.049	0.181	0.139	0.247	0.047	-0.051	0.130	0.213	0.278	0.099	-0.053	0.259	-0.075	-0.010	0.128	-0.050	0.120	-0.017		
		p	0.635	0.074	0.172	0.014*	0.648	0.620	0.200	0.035*	0.006*	0.413	0.663	0.030*	0.536	0.933	0.292	0.682	0.320	0.888		
	Carbohydrate (%)	r	0.138	0.137	-0.003	-0.056	0.095	-0.156	-0.078	-0.049	-0.052	-0.028	0.105	-0.087	0.119	0.188	0.159	0.012	-0.082	0.100		
		p	0.174	0.178	0.978	0.583	0.352	0.124	0.447	0.632	0.610	0.820	0.385	0.476	0.327	0.118	0.189	0.923	0.501	0.410		
	Fibre (g)	r	0.093	0.121	0.292	0.141	-0.002	-0.039	-0.013	0.285	0.288	0.115	0.010	0.056	-0.055	-0.086	-0.006	0.021	0.198	-0.022		
		p	0.363	0.235	0.003*	0.165	0.984	0.706	0.901	0.005*	0.004*	0.344	0.936	0.643	0.652	0.479	0.964	0.866	0.100	0.857		

Pearson correlation analysis was used to evaluate the data. * $p < 0.05$ was considered statistically significant. Statistically significant data are shown in bold.

Table 5 (Continued). Relationship Between Parents' PMAS Subscale Scores and Students' Average Daily Energy and Nutrient Intakes (After the Education)

		Control Group (n=98)										Education Group (n=70)									
Post-education			Snack Limits	Positive Persuasion	Daily Fruit and Vegetable Availability	Use of Rewards	Insistence on Eating	Snack Modeling	Special Meals	Fat Reduction	Many Food Choices	Snack Limits	Positive Persuasion	Daily Fruit and Vegetable Availability	Use of Rewards	Insistence on Eating	Snack Modeling	Special Meals	Fat Reduction	Many Food Choices	
	Energy (kcal)	r	0.188	0.079	0.004	0.108	-0.030	-0.071	-0.095	0.259	0.143	0.133	0.215	0.124	0.216	0.162	-0.026	0.163	0.197	0.055	
		p	0.064	0.442	0.972	0.290	0.768	0.484	0.352	0.010*	0.159	0.272	0.073	0.305	0.072	0.179	0.831	0.177	0.101	0.652	
	Protein (g)	r	0.050	0.122	0.000	0.041	-0.083	-0.139	0.018	0.292	0.126	0.128	0.294	0.193	0.339	0.243	-0.083	0.219	0.159	0.095	
		p	0.624	0.230	0.999	0.685	0.414	0.173	0.860	0.004*	0.215	0.292	0.013*	0.110	0.004*	0.042*	0.497	0.068	0.189	0.436	
	Protein (%)	r	-0.184	0.022	-0.044	-0.133	-0.046	-0.079	0.105	0.021	-0.095	0.020	0.089	0.068	0.140	0.039	-0.102	0.085	-0.081	0.029	
		p	0.070	0.833	0.665	0.192	0.654	0.437	0.301	0.836	0.350	0.870	0.466	0.578	0.246	0.747	0.402	0.483	0.505	0.813	
	Fat (g)	r	0.146	0.058	-0.015	0.060	-0.029	-0.064	-0.073	0.297	0.103	0.062	0.196	0.209	0.228	0.076	-0.050	0.125	0.162	0.033	
		p	0.150	0.572	0.881	0.559	0.778	0.531	0.477	0.003*	0.314	0.612	0.103	0.083	0.057	0.530	0.680	0.301	0.179	0.787	
	Fat (%)	r	-0.013	-0.014	-0.063	-0.067	0.020	0.063	-0.022	0.066	-0.053	-0.128	0.058	0.244	0.165	-0.078	-0.019	-0.024	0.025	-0.015	
		p	0.901	0.887	0.541	0.511	0.847	0.537	0.832	0.522	0.604	0.290	0.634	0.041*	0.171	0.519	0.875	0.841	0.840	0.900	
Carbohydrate (g)	r	0.190	0.055	0.012	0.119	-0.013	-0.045	-0.110	0.156	0.129	0.169	0.159	-0.007	0.119	0.186	0.021	0.145	0.191	0.055		
	p	0.061	0.593	0.907	0.245	0.899	0.659	0.281	0.125	0.204	0.161	0.188	0.951	0.326	0.124	0.861	0.231	0.113	0.654		
Carbohydrate (%)	r	0.084	-0.017	-0.016	0.080	0.081	-0.011	-0.162	-0.144	0.008	0.122	-0.073	-0.269	-0.202	0.078	0.074	-0.008	0.006	0.006		
	p	0.411	0.870	0.878	0.431	0.430	0.918	0.111	0.156	0.934	0.314	0.550	0.025*	0.094	0.521	0.540	0.950	0.963	0.959		
Fiber (g)	r	0.058	0.018	0.120	0.038	-0.025	0.011	0.027	0.188	0.165	0.118	0.016	-0.134	0.001	-0.099	-0.080	0.051	0.102	-0.085		
	p	0.569	0.859	0.240	0.713	0.809	0.912	0.791	0.064	0.105	0.331	0.897	0.267	0.996	0.414	0.512	0.676	0.400	0.486		

Pearson correlation analysis was used to evaluate the data. *p<0.05 was considered statistically significant. Statistically significant data are shown in bold.

DISCUSSION

Today, together with industrial developments, the transition to a sedentary lifestyle (22), increased time spent in front of computers and television, increased consumption of energy-dense foods, larger portion sizes, easier access to food and food establishments, family eating habits, particularly those of parents, insistence on eating, foods and beverages offered to children as rewards, meal frequency, socioeconomic and cultural characteristics, and physical activity level are considered among the causes of obesity (23–25).

The World Health Organization (WHO) reported in 2016 that 340 million children aged 5–19 years were overweight or obese (26). In the Monitoring Growth in School-Age Children (6–10 years) Project (TOÇBİ) conducted in Türkiye in 2011, 14.3% of children were identified as overweight and 6.5% as obese according to BMI-for-age z-scores (27). In the Childhood Obesity Surveillance Initiative (COSI) conducted in Türkiye in 2016, the prevalence of overweight and obesity among children aged six to nine years was found to be 14.6% and 9.9%, respectively (28). In the preliminary report of the Gaziantep Nutrition and Health Survey, conducted as a pilot study of the Turkey Nutrition and Health Survey (TBSA)-2017, 16.1% of children aged 6–14 years were identified as overweight and 12.3% as obese (29). In the present study, 14.9% of the children were overweight and 8.3% were obese according to BMI-for-age z-scores, and these averages were found to be lower than those reported in the TOÇBİ (2012) study but higher than those reported in Gaziantep Nutrition and Health Survey (2017). This difference may be attributed to the effects of dietary habits, physical activity levels, and environmental factors of the sample. On the other hand, calculation of the waist circumference-to-height ratio in children and adolescents aged 8–17 years is considered an important indicator of cardiovascular risk (30). When the waist circumference-to-height ratio of the children in this study was evaluated according to the Ashwell classification (19), 77.3% of the children were found to have an appropriate ratio (0.4–0.5), while 8.2% were found to require consideration of an action plan for weight management (0.5–0.6) (Table 1). Based on these findings, it is considered that the majority of the children included in the sample were at low risk for cardiovascular diseases.

Meals and meal patterns throughout the day are of great importance in maintaining a healthy and balanced diet. The intake of nutrients at regular intervals and consumption of three main meals per day can help ensure that metabolism functions in a healthy and balanced manner. Ideally, the three main meals should be consumed at intervals of approximately four to five hours. In addition to main meals, snacks consumed when desired may help regulate blood

glucose levels and consequently contribute to metabolic balance, preventing rapid hunger and excessive food consumption at the subsequent meal (31). In this study, parents were found to consume an average of three main meals per day (2.79 ± 0.41) at baseline. According to the results of the Turkey Nutrition and Health Survey 2010, 70.8% of individuals in the Southeastern Anatolia Region consumed three main meals per day (31). In the present study, while no change was observed in the control group between baseline and follow-up, the total number of main meals consumed by parents in the education group increased significantly ($p < 0.05$), and the number of snacks also increased, although not significantly ($p > 0.05$). This finding highlights that nutrition education resulted in a positive change among parents toward consuming three main meals per day. However, an increased number of meals should not, in itself, be interpreted as an indicator of healthier eating habits. The children in this study were also found to consume approximately three main meals and two snacks per day. In a study conducted in Scotland, Macdiarmid et al. reported that children aged 5–11 years had a median of 3.3 main meals and 2.1 snacks per day (32). Kerr et al. similarly reported that children in Northern Ireland consumed an average of three main meals and 2.3 snacks per day (33). These findings are consistent with those reported in other studies in the literature (32,33). When post-education results were evaluated, it was observed that the total number of main meals decreased and the total number of snacks increased among children in the education group; however, these changes were not statistically significant ($p > 0.05$) (Table 4). This finding suggests that the relatively short-term education provided resulted in only limited changes in children's eating habits.

It is argued that, because children are limited to eating the foods offered by their parents, particularly their mothers, in the home environment, mothers' food offering behaviors may influence children's attitudes toward liking and disliking foods (4). Wenrich et al. (34) also reported that children's vegetable choices stemmed from their parents' vegetable offerings. Similarly, Groele et al. reported that the fruits not consumed by mothers were the same as those not consumed by their children, attributing this situation to the absence of various foods in the home environment and consequently children's lack of exposure to these foods (35). In the present study, parents were provided with nutrition education to increase their level of nutrition knowledge, and the PMAS was administered to evaluate changes in subdimension scores after the education. Although no statistically significant differences were observed between the groups, it was determined that the Daily Fruit and Vegetable Availability (DFVA) and Fat Reduction (FR) behavior scores of parents in the education group increased after the education,

whereas this increase was not observed in the control group. DFVA is a subdimension measuring parents' behaviors regarding how frequently they consume fruits and vegetables themselves and offer them to their children, while FR is a subdimension measuring parents' use of animal fats during the preparation of meals for themselves and their children (12). Therefore, it is considered that parents' level of knowledge on these issues increased (Table 2). Asakura et al. also reported a positive relationship between parents' nutrition knowledge level and vegetable consumption of both themselves and their children (36). In a study conducted with fourth- and sixth-grade students and their parents, higher parental nutrition knowledge was associated with greater fruit consumption by children throughout the week and increased frequency of bringing vegetables to school, while children who selected their own lunches had higher weekly portions of fruits and vegetables in their lunchboxes. At the end of the study, it was emphasized that, in addition to increasing parents' nutrition knowledge, encouraging parents to allow children to decide on their lunch selections could increase fruit and vegetable consumption among children (11). On the other hand, in the present study, parents' PMAS scores were similar before and after the education, and no significant changes were observed. This finding indicates the importance of continuously informing parents about their children's nutrition. It is considered that increasing the frequency of nutrition education provided to parents may result in these changes reaching a significant level. Göbel et al. (37), following a total of three nutrition education sessions provided to parents of preschool children at different time points, examined children's food consumption records and reported significant increases in the intake of important macro- and micronutrients such as protein, iron, and magnesium. It is considered that repeated educational interventions may lead to significant changes in children's eating habits. Şanlıer and Bölükbaşı also recommend that nutrition education programs be repeated at regular intervals and conducted in a practical manner (38).

It has been reported that parents are responsible for offering reliable and healthy foods to their children during mealtimes; however, decisions regarding food preference and consumption amount should be left to the children (39,40). Parents also play a direct role in shaping children's eating habits by modeling their own eating behaviors and food and taste preferences (41,42). Feeding practices include behaviors such as pressuring children to eat, using foods as rewards, restricting access to selected foods or food groups, and modeling or using foods for calming or controlling purposes (42). Hendy et al. (12) reported that the most frequently used behaviors by mothers were Snack Limits (SL) and DFVA, whereas Uslu and Pazarcıklı (43) in their study conducted with children and parents with a mean age of 7.7 ± 2.2 years, found that

DFVA, Positive Persuasion (PP), and SL behaviors were used most frequently. Similarly, in the present study, PP, DFVA, and SL were identified as the most frequently exhibited behaviors in both the education and control groups before and after the education, and these findings were observed to be consistent with those reported in previous studies (12,43). These results indicate that parents make efforts to display positive behaviors regarding their children's nutrition. On the other hand, it is thought that the observed changes in some PMAS subscale scores in the control group between study onset and study end measurements may be due to natural variability or external influences unrelated to the intervention.

In this study, the relationships between parents' mealtime behaviors and children's intake of certain nutrients were examined. In the education group, a negative relationship was identified before the education between parents' SL and PP behavior scores and children's protein (%) intake, whereas a positive significant relationship was identified after the education between protein (g) intake and PP behavior scores. In addition, although not statistically significant, parents' PP behavior scores were observed to increase after the education (Table 5). Kral and Rauh also reported that children who were positively persuaded by their parents consumed greater amounts of nutrient-dense foods (41). The absence of a similar finding in the control group suggests that the increase in children's protein intake may have resulted from improvements in parental behaviors associated with the education received. On the other hand, a significant inverse relationship was found in the education group before the education between SL behavior and children's protein (%) consumption ($r=-0.282$, $p<0.05$). This finding suggests that children for whom snack consumption was more restricted consumed lower amounts of dietary protein. No change was observed in SL behavior after the education, which may be attributable to the limited duration of the educational intervention.

The literature emphasizes that family-involved school-based nutrition programs may be effective in increasing children's fruit and vegetable consumption (44,45). Wenrich et al. reported that children's vegetable choices stemmed from their parents' vegetable offerings (34), while Groele et al. found that the fruits not consumed by mothers and their children were similar (35). In the present study, the significant positive relationship between DFVA behavior and dietary fiber intake among parents in the control group is considered to be consistent with the findings of previous studies (34,35). Although dietary fiber intake decreased, albeit not significantly, among children whose parents were in the education group, the increase in parents' mean DFVA behavior scores suggests that parents' knowledge regarding fruit and vegetable consumption may have improved after the education; however, they may not have

been able to keep sufficient amounts of fruits and vegetables in their homes due to reasons such as seasonality, income level, and affordability. In addition, the fact that the mean dietary fiber intake of children in the control group decreased significantly while parents' mean DFVA behavior scores remained unchanged supports this interpretation.

Fat reduction is a subdimension measuring parents' behaviors regarding controlling their children's food intake and energy intake, as well as their use of animal fats during the preparation of meals for themselves and their children (12). In the correlation analysis, a significant positive relationship was found at baseline in the control group between children's mean energy and carbohydrate (g) intake and parents' FR behavior ($r=0.223$, $p=0.027$ and $r=0.213$, $p=0.035$, respectively). In addition, it was observed that the children of parents who obtained the highest scores from this subdimension were also obese. This finding suggests that restrictive parental behaviors regarding fat consumption may influence children's food choices and contribute to a preference for foods with a high carbohydrate content. Similar findings have been reported in other studies (46,47), indicating a positive relationship between children's BMI values and parents' restrictive and controlling behaviors.

The strength of this study is that it is one of the pioneering studies in the literature to simultaneously examine the effect of nutrition education on parents' mealtime behaviors and the relationship and changes between these behaviors and children's nutrient intakes. The limitations of the study include the restriction of dietary intake records to a single day, the implementation of nutrition education as a single session, and the conduct of the study in a sample limited to two schools. In addition, the relatively short follow-up period of 15 days may not have been sufficient to evaluate long-term or sustained behavioral changes. Therefore, the findings primarily reflect immediate changes in awareness and short-term behaviors rather than permanent dietary habits. Additionally, it should be noted that participants were allocated to groups based on attendance at the educational sessions rather than randomization; therefore, the possibility of selection bias cannot be completely excluded. However, no significant differences were observed in the measured baseline characteristics between the intervention and control groups.

In the present study, the effect of a short-term educational program aimed at increasing nutrition awareness among parents was evaluated. The findings indicate that significant relationships exist between parents' child-feeding behaviors and children's nutrient intakes. Ensuring adequate and balanced nutrition during childhood is a fundamental factor in raising healthy generations, and this should be supported through sustainable nutrition education programs.

Furthermore, it was concluded that educational programs implemented in schools to increase parents' nutrition knowledge may improve parents' mealtime behaviors and thereby increase children's nutrient intakes compared with the control group. Accordingly, it can be stated that nutrition education programs conducted in schools may create important effects both in the school environment and in family life. In this context, implementing nutrition education programs at more frequent intervals and providing support from dietitians and psychologists during the process may be beneficial in increasing parents' knowledge levels, improving their awareness of mealtime behaviors, and correcting negative behaviors.

Finally, it is considered that repeated interventions and long-term follow-up studies are needed in order to better understand these relationships and evaluate their long-term effects.

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Conflict of interest: *The authors declare that they have no conflict of interest.*

Author contributions: *Study design: ME; Data collection: ME; Data analysis: ME; Draft preparation: ME, MÇ; Critical review for content: ME, MÇ; Final approval of the version to be published: ME, MÇ.*

REFERENCES

1. Nutrition Education in Primary Schools. Vol. 1: The Reader. 1-6 Introduction. ISBN 92-5-105454-1. FAO 2005 [cited 2026 June 10]. Available from: <https://www.fao.org/4/a0333e/a0333e00.pdf>.
2. Bundy DAP, Silva N de, Horton S, Patton GC, Schultz L, Jamison DT. Child and Adolescent Health and Development: Realizing Neglected Potential. In: Bundy DAP, Silva N de, Horton S, Jamison DT, Patton GC, editors. Washington (DC); 2017.
3. Saavedra JM, Prentice AM. Nutrition in school-age children: a rationale for revisiting priorities. *Nutr Rev*. 2023 Jun;81(7):823–43.
4. Salama A, Elhawary D, El-Nmer F. Nutritional knowledge, attitude, and practice of parents and its impact on growth of their children. *Menoufia Med J*. 2014;27:612.
5. Yee AZH, Lwin MO, Ho SS. The influence of parental practices on child promotive and preventive food consumption behaviors: a systematic review and meta-analysis. *Int J Behav Nutr Phys Act*. 2017 Apr;14(1):47.
6. Hingle MD, O'Connor TM, Dave JM, Baranowski T. Parental involvement in interventions to improve child dietary intake: a systematic review. *Prev Med (Baltim)*. 2010 Aug;51(2):103–11.
7. Langford R, Bonell C, Jones H, Poulou T, Murphy S, Waters E, et al. The World Health Organization's Health Promoting Schools framework: a Cochrane systematic review and meta-analysis. *BMC Public Health*. 2015 Feb;15:130.
8. Küçükkaraca Zakkour H, Yıldırım H. Ebeveyn Beslenme Eğitiminin Okul Çağı Çocuklarında Verilen Beslenme Eğitiminin Etkisi. *Gazi Sağlık Bilim Derg [Internet]*. 2022;7(3):135–48. Available from: <https://doi.org/10.52881/gsbdergi.1140710>
9. Karadoğan SR, Çakıroğlu FP. The Effect of Parent-Supported Education on Nutritional Knowledge and Eating Behaviors in Primary School Children TT - İlköğretim Çocuklarında Ebeveyn Destekli Beslenme Eğitiminin Beslenme Bilgisi ve Yeme Davranışı Üzerine Etkisi. *Genel Tıp Derg [Internet]*. 2025;35(4):704–13. Available from: <https://doi.org/10.54005/geneltip.1691046>
10. Taşdemir A. A research on nutrition education in primary school students. *Heal Acad Kastamonu [Internet]*. 2019;4(1):34–52. Available from: <https://doi.org/10.25279/sak.345061>
11. Sutter C, Taylor JC, Nishina A, Ontai LL. Parental and family predictors of fruits and vegetables in elementary school children's home-packed lunches across a school week. *Appetite*. 2019 Feb;133:423–32.
12. Hendy HM, Williams KE, Camise TS, Eckman N, Hedemann A. The Parent Mealtime Action Scale (PMAS). Development and association with children's diet and weight. *Appetite*. 2009 Apr;52(2):328–39.
13. Arslan N, Erol S. Ebeveyn Yemek Zamanı Davranışları Ölçeği'nin Türkçe Geçerlik ve Güvenirliliği TT - Validity and Reliability of the Turkish Form of the Parent Mealtime Action Scale. *Hemşirelikte Araştırma Geliştirme Derg [Internet]*. 2014;16(3):16–27. Available from: <https://doi.org/10.69487/hemarge.695861>
14. Hoelscher DM, Day RS, Kelder SH, Ward JL. Reproducibility and validity of the secondary level School-Based Nutrition Monitoring student questionnaire. *J Am Diet Assoc*. 2003 Feb;103(2):186–94.
15. Kucuk Yetgin M. The student health assessment questionnaire (SHAQ): the study of adaptation to Turkish. *Int J Acad Res*. 2017;9:47–53.
16. World Health Organization Anthroplus Software web page. Available from: <https://www.who.int/tools/growth-reference-data-for-5to19-years/application-tools>.
17. World Health Organization. Growth reference data for 5-19 years. Available from: <https://www.who.int/toolkits/growth-reference-data-for-5to19-years>.
18. Hatipoğlu N, Öztürk A, Mazicioğlu MM, Kurtoglu S, Seyhan S, Lokoglu F. Waist circumference percentiles for 7- to 17-year-old Turkish children and adolescents. *Eur J Pediatr*. 2008 Apr;167(4):383–9.
19. Ashwell M, Hsieh SD. Six reasons why the waist-to-height ratio is a rapid and effective global indicator for health risks of obesity and how its use could simplify the international public health message on obesity. *Int J Food Sci Nutr*. 2005 Aug;56(5):303–7.
20. BeBiS (Beslenme Bilgi Sistemi) bilgisayar yazılım programı versiyon 8 (Ebispro für Windows, Stuttgart, Germany; Türkçe Versiyonu, Veri kaynakları: Bundeslebensmittelschlüssel, 11.3 (Alman veri besin bileşim veri bankası).
21. Besler T, Rakıcıoğlu N, Ayaz A, Büyüktuncer DZ, Gökmen ÖH, Eroğlu SG. Türkiye'ye Özgü Besin ve Beslenme Rehberi. Ankara: Hacettepe Üniversitesi, Sağlık Bilimleri Fakültesi, Beslenme ve Diyetetik Bölümü; 2015.
22. Yılmaz M, Ağartıoğlu Kundakçı G, Dereli F, Özgüven Öztornacı B, Egelioglu Cetişli N. İlköğretim Öğrencilerinde Yaş ve Cinsiyete Göre Obezite ve İlişkili Özellikler Obezite ve İlişkili Faktörler TT - Obesity Prevalence and Associated Characteristics in Primary School Students According to Age and Gender. *Güncel Pediatr [Internet]*. 2019;17(1):127–40. Available from: <https://doi.org/10.32941/pediatric.544498>
23. Baysal A. Çocukluk Çağı Şişmanlığı. *Beslenme ve Diyet Derg [Internet]*. 2016;44(2):88–89. Available from: <https://beslenmeve diyetdergi.org/index.php/bdd/article/view/86>
24. Yayan EH, Çelebioğlu A. Obezitenin Çevre ve Çocukluk Çağı Obezitesine Etkileri. *Acibadem Univ Sağlık Bilim Derg*. 2018;1(2):90–6.
25. Parnas C, Popkin BM. Trends in snacking among U.S. children. *Health Aff (Millwood)*. 2010;29(3):398–404.
26. World Health Organization. Obesity and overweight. 2018 [Erişim Tarihi 2 Aralık 2018]. Erişim adresi: <http://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>.
27. T.C. Sağlık Bakanlığı, Temel Sağlık Hizmetleri Genel Müdürlüğü, Hacettepe Üniversitesi Sağlık Bilimleri Fakültesi Beslenme Ve Diyetetik Bölümü, Milli Eğitim Bakanlığı. Türkiye'de Okul Çağı Çocuklarında (6-10 Yaş Grubu) Büyümenin İzlenmesi (TOÇBİ) Projesi.
28. Özcebe H, Bağcı Bosi T, Yardım N, Yardım M, Gögen S. Türkiye çocukluk çağı (ilkokul 2. sınıf öğrencileri) şişmanlık araştırması. Ankara: Sağlık Bakanlığı, Türkiye Halk Sağlığı Kurumu, Milli Eğitim Bakanlığı, Hacettepe Üniversitesi; 2016.
29. T.C. Sağlık Bakanlığı, Halk Sağlığı Genel Müdürlüğü, Gaziantep beslenme ve sağlık araştırması. 2017. [Erişim Tarihi 20 Eylül 2021]. Erişim adresi: https://hsgm.saglik.gov.tr/depo/birimler/saglikli-beslenme-hareketli-hayat-db/TBSA-2017/fact_sheet

_gaziante.

30. Aksu B, Özcan C. Okul Çağı Çocuklarında Beslenme Sorunları ve Bazı Öneriler. *Beslenme ve Diyet Derg* [Internet]. 1981 Jun 30;10(0 SE-Makale):19–25. Available from: <https://beslenmevediyetdergisi.org/index.php/bdd/article/view/932>
31. T.C. Sağlık Bakanlığı. Türkiye Beslenme ve Sağlık Araştırması 2010: Beslenme Durumu ve Alışkanlıklarının Değerlendirilmesi Sonuç Raporu. Sağlık Bakanlığı Yayın No: 931, Ankara, 2014.
32. Macdiarmid J, Loe J, Craig LCA, Masson LF, Holmes B, McNeill G. Meal and snacking patterns of school-aged children in Scotland. *Eur J Clin Nutr*. 2009 Nov;63(11):1297–304.
33. Kerr MA, Rennie KL, McCaffrey TA, Wallace JMW, Hannon-Fletcher MP, Livingstone MBE. Snacking patterns among adolescents: a comparison of type, frequency and portion size between Britain in 1997 and Northern Ireland in 2005. *Br J Nutr*. 2009 Jan;101(1):122–31.
34. Wenrich TR, Brown JL, Miller-Day M, Kelley KJ, Lengerich EJ. Family members' influence on family meal vegetable choices. *J Nutr Educ Behav*. 2010;42(4):225–34.
35. Groele B, Głabska D, Gutkowska K, Guzek D. Mother's Fruit Preferences and Consumption Support Similar Attitudes and Behaviors in Their Children. *Int J Environ Res Public Health*. 2018 Dec;15(12).
36. Asakura K, Todoriki H, Sasaki S. Relationship between nutrition knowledge and dietary intake among primary school children in Japan: Combined effect of children's and their guardians' knowledge. *J Epidemiol*. 2017 Oct;27(10):483–91.
37. Gobel P, Ercan A, Bayram S. The Impact of Nutrition Education of Parents on Food Choices of Their Children. *Acta Sci Nutr Heal*. 2009 Aug 28;4:89–98.
38. Şanlıer N BH. Kadının aile beslenmesi ve sağlığındaki rolü. *Türkiye Klin J Nutr Diet-Special Top*. 2015;1(1):85–90.
39. Ogata B., Feucht S.,A., Lucas B.,L. Nutrition in Childhood. Mahan, L. K., Raymond, J. L editors. Krause's food & the nutrition care process. 14 st edition. Philadelphia, United States: Elsevier Health Sciences; 2017.
40. Daniels LA. Feeding Practices and Parenting: A Pathway to Child Health and Family Happiness. *Ann Nutr Metab*. 2019;74 Suppl 2:29–42.
41. Kral TVE, Rauh EM. Eating behaviors of children in the context of their family environment. *Physiol Behav*. 2010 Jul;100(5):567–73.
42. Patrick H, Nicklas TA. A review of family and social determinants of children's eating patterns and diet quality. *J Am Coll Nutr*. 2005 Apr;24(2):83–92.
43. Uslu N, Pazarcıkcı F. The correlation between maternal mealtime behaviors and children's body mass index. *Adıyaman Üniversitesi Sağlık Bilim Derg* [Internet]. 2020;6(2):223–30. Available from: <https://doi.org/10.30569/adiyamansaglik.740506>
44. Evans CEL, Christian MS, Cleghorn CL, Greenwood DC, Cade JE. Systematic review and meta-analysis of school-based interventions to improve daily fruit and vegetable intake in children aged 5 to 12 y. *Am J Clin Nutr*. 2012 Oct;96(4):889–901.
45. Pearson N, Biddle SJH, Gorely T. Family correlates of fruit and vegetable consumption in children and adolescents: a systematic review. *Public Health Nutr*. 2009 Feb;12(2):267–83.
46. Canals-Sans J, Blanco-Gómez A, Luque V, Ferré N, Ferrando PJ, Gispert-Llauradó M, et al. Validation of the Child Feeding Questionnaire in Spanish Parents of Schoolchildren. *J Nutr Educ Behav*. 2016 Jun;48(6):383-391.e1.
47. Nowicka P, Sorjonen K, Pietrobelli A, Flodmark C-E, Faith MS. Parental feeding practices and associations with child weight status. Swedish validation of the Child Feeding Questionnaire finds parents of 4-year-olds less restrictive. *Appetite* [Internet]. 2014;81:232–41. Available from: <https://www.sciencedirect.com/science/article/pii/S019566631400275X>