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The Effect of Parents' Nutritional Practices on Children's Eating Behaviors

Ebeveynlerin Beslenme Uygulamalarının Çocukların Yeme Davranışlarına Etkisi

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ABSTRACT

It is known that parents' feeding practices have an important effect on children's health, and children learn nutrition by imitating their parents. In this study, it was aimed to examine the effects of parents' nutritional practices on the eating behaviors of children attending pre-school education.The sample of the study consisted of the parents of 206 children aged 3-6 who were educated in kindergartens. The data related to the research were obtained with a questionnaire form. Parents' statements were taken as basis in obtaining nutritional and anthropometric data of parents and children. 85.9% of the parents participating in the study were mothers. As the education level of the parents increased; the controlled feeding scores increased, while the emotional feeding scores decreased ($p<0.05$). Similarly, emotional overeating and emotional undereating scores of children decreased with increasing age of parents ($p<0.05$). According to BMI, 27.7% of children with normal body weight were perceived as underweight by their parents. On the other hand, 77.4% of overweight children were perceived as normal weight by their parents ($p<0.01$). Parents' nutrition and feeding practices affect children's nutrition significantly. It will be very beneficial to provide nutrition education practices for parents to prevent childhood obesity, which is becoming increasingly common today.

Keywords: Feeding Practices, Child Nutrition, Parents, Eating Behaviors.

ÖZ

Ebeveynlerin besleme uygulamalarının çocukların beslenmelerinde önemli bir yere sahip olduğu bilinmektedir. Bu araştırmada ebeveynlerin beslenme uygulamalarının okul öncesi eğitime devam eden çocukların yeme davranışları üzerine etkilerinin incelemesi amaçlanmıştır. Araştırmanın örneklemini Ankara'da bulunan bir devlet üniversitesine bağlı ana okullarında eğitim gören 3-6 yaş grubu 206 çocuğun ebeveyni oluşturmuştur. Araştırmaya ilişkin veriler anket formu ile elde edilmiştir. Ebeveynlerin ve çocukların antropometrik verilerinin elde edilmesinde ebeveynlerin beyanları esas alınmıştır. Araştırmaya katılan ebeveynlerin %85,9'u annelerdir. Ebeveynlerin eğitim seviyelerinin artmasıyla kontrollü besleme puanları artarken duygusal besleme puanları azalmıştır ($p<0.05$). Benzer şekilde ebeveynlerin yaşının artmasıyla çocukların duygusal aşırı yeme ve duygusal az yeme puanları azalmıştır ($p<0.05$). BKİ'ye göre normal vücut ağırlığında olan çocukların %27,7'si ebeveynleri tarafından düşük kilolu olarak algılanmıştır. Hafif şişman çocukların ise %77,4'ü ebeveynleri tarafından normal ağırlıkta olarak algılanmıştır ($p<0.01$). Ebeveynlerin beslenme ve besleme uygulamaları çocukların beslenmesini önemli derecede etkilemektedir. Günümüzde gittikçe yaygınlaşan çocukluk çağı obezitesinin önlenmesi için ebeveynlere yönelik besleme eğitimi uygulamalarının sağlanması oldukça faydalı olacaktır.

Anahtar Kelimeler: Besleme Pratikleri, Çocuk Beslenmesi, Ebeveyn, Yeme Davranışları.

The necessary ethical permission (with decision number: E-30640013-050) was obtained from the Amasya University Ethical Comittee.

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INTRODUCTION

Nutrition, which is one of the most important environmental factors for the continuity of a healthy life, is learned through parents at the first stage. This process, which starts by imitating the mother and father, affects the way of nutrition in later ages.[1] Therefore, it has been known for a long time that the feeding methods applied by parents to their children affect both children and other generations through intergenerational transmission.[2]

Parents who assume the primary responsibility for the child's food choice also undertake the practices of promoting or restricting feeding.[1-3] Parents, who can intervene in the content and amount of food if they deem it necessary, can change the child's diet according to their personal perceptions and expectations.[3]

This can affect both the child's eating behavior and body weight. In addition, the attitudes of the parents may lead to the development of wrong body image in children and thus to eating disorders.[4]

This research was conducted to examine the effects of parents' nutritional practices on the eating behaviors of children attending pre-school education.

MATERIAL AND METHOD

The sample of this cross-sectional study consisted of the parents of children aged 3-6 who were educated in kindergartens affiliated with the state schools, Ankara/Turkey, between March –April 2023. According to the G-Power program analysis, the study was completed with 0.05 error level, 80% power, and 90% confidence interval and a sample size of 206.

The data related to the research were obtained with a questionnaire consisting of three parts. The questionnaire form, which were delivered to the parents through the kindergarten teachers, was given to the researchers by the teachers after the parents answered them.

The Parental Feeding Style Questionnaire (PFSQ) was used to evaluate the child feeding behaviors of the parents. The scale consists of 27 likert-type items (1- never, 2- rarely, 3- sometimes, 4- often, 5- always) and 5 sub-scales as controlled feeding, tolerant feeding, emotional feeding, encouraging feeding and, instrumental feeding. The Turkish validated version of the scale was used in the research. The increase in the score for each sub-scale indicates the tendency of the parent to the feeding style in that sub-scale.[5]

The Children's Eating Behavior Questionnaire (CEBQ) was used to evaluate the children's eating behaviors. The scale consists of a total of 35 likert-type items.

Each item is scored as 1-never, 2-rarely, 3-sometimes, 4-often, 5-always, respectively. The scale has 8 subscales as food responsiveness, emotional overeating, enjoyment of food, desire to drink, satiety responsiveness, slow eating, emotional undereating, and food selectivity, and the Turkish validated version was used in the study.[6] An increase in the score for each subscale indicates the child's tendency towards eating behavior in that sub-scale.

Height and body weights of the parents were evaluated according to their own statements. Body mass indexes (BMI) were obtained by dividing the body weight (kg) by the square of the height (m) ($BMI=kg/m^2$). According to the BMI classification of the World Health Organization (WHO), those with a BMI of 18.5-24.9 were considered normal, those with a BMI of 25.0-29.9 were considered overweight and those with a BMI of ≥30.0 were considered obese.[7]

The children's height and body weight were also taken according to their parents' statements. Children's BMI and z-score values for age were calculated using the

WHO Antroplus program (WHO 2017). Gender-specific BMI-for-age Z-score cut-points of < − 1.0, ≥-1 to +1, > 2.0 and > 3.0 were used to classify children as underweight, normal, overweight and obese, respectively.[8]

Statistical Analysis

The data were analyzed using the Statistical Package for Social Sciences 22.0 (SPSS 22.0) program. Descriptive analysis were shown as number-percentage and mean±standard deviation. Chi-square analysis was used to compare categorical data between groups.

When the assumption of normality was provided, the analysis were evaluated with parametric tests. One way-ANOVA analysis was used to compare more than two independent variables according to the BMI classification.

Significance was accepted as $p<0.05$ at the 95% confidence interval.

Ethical Considerations

The necessary ethical permission (with the decision number: E-30640013-050) was obtained from the Amasya University Ethical Comittee. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Table 1. Demographic Information of Parents and Children

	n	%
Parent		
Mother	177	85.9
Father	29	14.1
Parent age		
20-29	53	22.8
30-39	109	55.9
40-49	44	21.3
Parent education		
Primary school	20	9.7
Secondary school	11	5.3
High school	58	28.2
University	117	56.8
Parent BMI (kg/m^2)		
Normal	118	57.8
Overweight	74	35.4
Obese	14	6.8
Child age		
3	21	10.2
4	67	22.3
5	56	27.2
6	82	40.3
Child BMI (z-skor)		
Underweight	17	8.3
Normal	83	40.3
Overweight	106	51.4

Table 2. Comparison of Parental Feeding Style Questionnaire Scores with Demographic Variables

		Controlled feeding		Tolerant feeding		Emotional feeding		Encouraging feeding		Instrumental feeding	
		mean±sd	p	mean±sd	p	mean±sd	p	mean±sd	p	mean±sd	p
Parent education (n)											
Primary school	20	12.5±0.6		15.3±0.6		14.4±0.8		27.5±0.9		10.6±0.6	
Secondary school	11	14.0±1.3	0.05	15.4±1.3	0.20	13.4±1.2	0.04*	27.2±1.9	0.59	9.7±1.0	0.67
High school	58	14.2±0.3		14.5±0.3		13.6±0.5		28.1±0.5		10.2±0.3	
University	117	14.6±0.2		15.1±0.2		12.0±0.4		28.5±0.3		9.8±0.3	
Parent age											
20-29	53	13.8±0.4		15.8±0.4		14.7±0.5		27.7±0.5		11.4±0.4	
30-39	109	14.2±0.2	0.01*	14.7±0.2	0.01*	11.8±0.4	0.14	28.7±0.4	0.07	9.6±0.2	0.27
40-49	44	14.5±0.4		14.7±0.4		12.8±0.5		27.6±0.5		9.3±0.3	

*p<0.05.

RESULTS AND DISCUSSION

In total, 85.9% of the parents participating in the study were mothers. A high percentage of all parents (55.9%) were between the ages of 30-39 and were university graduates (56.8%).When parents were classified according to BMI, 57.8% were normal, 35.4% were overweight and, 6.8% were

obese. Most of the children (40.3%) in the study were in the 6-year-old group.

When children were classified according to BMI (z-score), 40.3% were found to have normal BMI and 51.4% were overweight (Table 1).

Table 3. Comparison of Children's Eating Behavior Questionnaire Scores with Demographic Variables

		Food responsiveness	Emotional overeating	Enjoyment of food	Desire to drink	Satiety responsiveness	Slow eating	Emotional undereating	Food selectivity
		Mean±sd	Mean±sd	Mean±sd	Mean±sd	Mean±sd	Mean±sd	Mean±sd	Mean±sd
Parent Education (n)									
Primary school	20	10.6±4.2	9.2±3.8	16.4±3.2	8.5±1.9	21.7±2.9	11.6±1.7	13.0±2.6	9.5±2.6
Secondary school	11	10.4±4.5	8.6±3.8	16.6±4.6	9.4±3.4	20.0±5.6	11.6±4.1	12.7±3.3	9.5±3.0
High school	58	10.7±4.7	8.1±4.1	15.6±4.5	8.0±2.5	22.4±4.2	11.9±3.6	11.7±3.3	9.3±2.6
University	117	10.9±4.4	8.0±3.5	15.9±3.6	8.4±3.0	22.9±5.1	11.7±3.3	11.1±3.4	9.0±2.6
p		0.09	0.01*	0.36	0.24	0.56	0.66	0.02*	0.14
Parent age									
20-29	53	12.9±4.4	10.3±4.2	15.1±3.8	8.6±2.5	22.1±4.7	11.8±3.2	12.4±3.2	8.9±2.8
30-39	109	11.9±3.5	7.5±3.3	14.7±4.1	8.2±3.0	22.6±4.7	11.7±3.5	11.3±3.5	8.1±2.7
40-49	44	12.1±3.9	7.2±3.1	14.6±3.5	8.3±2.7	23.0±4.8	11.7±3.1	11.0±2.9	8.1±2.4
p		0.18	0.01*	0.22	0.54	0.06	0.06	0.04*	0.11

*p<0.05; **p<0.01

With the increase in the education level of the parents, the controlled feeding scores increased, while the emotional feeding scores decreased (p<0.05). While the controlled feeding scores of the university graduate parents were the highest (14.6±0.2), the emotional feeding scores were the lowest (12.0±0.4) (Table 2.).

As a result of increasing age, the controlled feeding score increased and the tolerant feeding score decreased (p<0.05) (Table 2.). Parents between the ages of 40-49 had the highest controlled feeding scores (14.5±0.4) while their tolerant feeding scores were the lowest (14.7±0.4) (Table 2.).

Table 4. Comparison of Parental Feeding Style and Children's Eating Behavior Questionairres According to the BMI Classification of Children

	Underweight	Normal	Overweight	
PFSQ	mean±sd	mean±sd	mean±sd	**p**
Controlled feeding	15.0±2.9	14.5±3.1	13.9±2.9	0.108
Tolerant feeding	14.4±2.2	14.9±3.0	15.1±2.6	0.362
Emotional feeding	12.2±4.1	11.9±4.6	13.5±3.9	0.010*
Encouraging feeding	27.4±4.7	29.0±4.2	27.8±3.9	0.201
Instrumental feeding	9.6±2.2	9.6±3.4	10.3±2.9	0.175
CEBQ				
Food responsiveness	8.6±4.5	9.8±4.1	12.0±4.4	0.001**
Emotional overeating	6.0±2.3	7.1±3.4	9.3±3.8	0.001**
Enjoyment of food	13.1±4.2	15.0±4.5	15.0±3.3	0.253
Desire to drink	8.2±3.9	8.3±3.2	8.5±2.3	0.572
Satiety responsiveness	24.8±4.8	22.6±4.9	22.2±4.4	0.190
Slow eating	12.4±3.4	12.0±3.7	11.4±2.9	0.339
Emotional undereating	11.7±3.0	12.6±3.6	12.3±3.1	0.298
Food selectivity	7.2±2.2	8.2±3.0	8.5±2.4	0.188

*p<0.05

Emotional overeating (8.0±3.5) and emotional undereating (11.1±3.4) scores of children decrease as the education level of the parents increases ($p<0.05$). Similarly, emotional overeating (7.2±3.1) and emotional undereating (11.0±2.9) scores of children decrease with increasing parental age ($p<0.05$) (Table 3).

When the emotional feeding score of the PFSQ subscales and the BMI of the children for age were compared, it was observed that the emotional feeding scores of the parents with overweight children (13.5±3.9) were higher than the other groups ($p<0.05$). Considering the eating behaviors of children; It was observed that as the BMI classification increases, the children's food responsiveness and emotional overeating subscale scores increase ($p<0.01$) (Table 4.).

Considering the parents' perception of their children's body weight, it was seen that 27.7% of children with normal body weight according to BMI were perceived as underweight by their parents.

On the other hand, 77.4% of overweight children were perceived as normal weight by their parents ($p<0.01$) (Table 5).

Eating behaviors, the basis of which is laid in childhood, are associated with many health problems, especially obesity, in adulthood.[9] Considering the role of parents (especially the mother) on child nutrition, correct feeding practices are very important for a healthy future.[10] The majority of the parents participating in this study were mothers. This was an expected result, as most of the food preparation and child feeding practices were done by mothers. In other studies on parental feeding practices, mothers' participation rates were also found to be higher.[2,9]

Table 5. Comparison of Parents' Body Weight Perception According to Children's BMI

	BMI						p
	Underweight		Normal		Overweight		
	n	%	n	%	n	%	
Body weight perception							
Underweight	11	64.7	23	27.7	11	10.4	0.001**
Normal	6	35.3	59	71.1	82	77.4	
Overweight/obese	0	0.0	1	0.3	13	12.2	

**p<0.01

It is known that the body weight of the parents also significantly affects the feeding practices of their children.[11] It was observed that the parents participating in this study had a high rate of slightly overweight. In parallel with this, the obesity rate in children was also quite high. When we look at similar studies conducted in different countries on the subject, it is seen that parents and children are mostly in the normal BMI range, contrary to this study.[11-13] This can be explained both by the increasing prevalence of obesity in Turkey and by the incorrect feeding practices of obese parents to their children.[14]

With increasing education level and age, it is expected that awareness of nutrition will increase and nutrition practices will become more conscious.[15] In this study, as a result of the increase in the education level of individuals, controlled feeding practices increased and emotional feeding practices decreased.

Similarly, other studies have shown that as the level of education increases, controlled feeding practices increase.[16, 17] On the other hand, the increase in age increased the controlled feeding practices and decreased the tolerant feeding practices. Similarly, in the study of Bante et al. (2008), incorrect feeding practices were decreased by increasing age, while controlled feeding practices increased.[18]

It is also an important factor on child nutrition that parents change their feeding practices according to their children's

emotional state. Parents' use of food (especially junk food) as a tool to suppress the emotional changes of their sad or angry children may increase childhood obesity. Parental use of food (especially junk food) as a tool to suppress the mood swings of their sad or angry children may increase childhood obesity.[19] In this study, the emotional overeating subscale scores of overweight children and their parents' emotional feeding subscale scores were found to be higher than the children with normal BMI. In the study of Haszard et al. (2019), the risk of obesity was found to be higher in children of parents with a high tendency for emotional feeding.[20] Similarly, another study found that mothers' emotional feeding practices caused an increase in children's body weight.[21]

Another important cause of childhood obesity is parents' perceptions of their children's body weight. The underlying reason for this situation is that overweight children are generally seen as healthier.[22] In this study, 77.4% of overweight children were perceived as normal by their families.

Other studies on parents' perception of children's weight have also found that overweight children are perceived as normal at a high rate by their parents.[22-24]

This research has some limitations. The majority of parents participating in the study are mothers and the majority of children are in the 6-year-old age group. However, this result is inevitable due to the fact that children's nutrition practices are mostly carried out by mothers and that pre-school education starts in the age group of 6 at most. Despite these limitations, the evaluation of the effect of parental feeding behaviors on child nutrition has added strength to this study due to the gradual increase in childhood obesity. However, more studies are needed to generalize the results obtained.

CONCLUSION AND RECOMMENDATIONS

Parents' feeding practices significantly affect children's eating habits. Especially the changes in the emotional state of the child change the amount of food consumed. The decrease in incorrect feeding practices with the increase in education level shows that some parents need a special nutrition education program.

In order to prevent childhood obesity, which is becoming more and more widespread today, it will be very useful to provide nutrition education practices for parents in kindergartens.

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