

# Perceptions and Approaches of Mothers Towards the Weight of Their Overweight and Obese Child

## Fazla Kilolu ve Obez Çocuğu Olan Annelerin Çocuklarının Kilosuna Yönelik Algıları ve Yaklaşımları

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### Abstract

**Introduction:** This study aimed to determine how mothers with overweight and obese child perceived their child's weight and how they approached his/her weight problem.

**Materials and Methods:** The study was carried out between April and December 2017 with 212 mothers who agreed to participate voluntarily in the study at a university hospital and a public hospital. The data that were collected using a questionnaire prepared by the researchers were gathered by face-to-face interview method. The questionnaire consists of four parts including demographic information about the mother and the child, mothers' perceptions of their child's weight, mothers' applications for his/her weight and the methods used by mothers and the attitude they had in applying these methods respectively.

**Results:** The mean age of the mothers was  $35.75 \pm 5.56$ . 50% of them had secondary school or below education level. 52.4% of overweight or obese children were girls, and the mean age of the children was  $7.94 \pm 2.91$ . Besides, 47.6% of mothers were at a normal weight, 39.2% were overweight and 12.3% were obese. 54.7% of mothers perceived their child's weight inaccurately.

**Conclusions:** The study demonstrated that the majority of the mothers perceived the weight of their overweight and obese child inaccurately and considered him/her at a normal weight. Mothers who were aware of the fact that their child was overweight or obese performed various applications to solve the child's weight problem

### Keywords

Childhood obesity, child overnutrition, mother, perception

### Anahtar kelimeler

Çocukluk çağı obezitesi, çocukta aşırı beslenme, anne, algılama

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### Öz

**Giriş:** Bu araştırma, fazla kilolu ve obez çocuğa sahip annelerin çocuklarının kilolarını nasıl algıladıklarını ve annelerin çocuklarının kilo problemlerine nasıl bir yaklaşımda bulduklarını belirlemek amacıyla yapıldı.

**Gereç ve Yöntem:** Araştırma, üniversite hastanesinde ve bir devlet hastanesinde çalışmaya gönüllü olarak katılmayı kabul eden 212 anne ile Nisan-Aralık 2017 tarihleri arasında gerçekleştirildi. Araştırmacılar tarafından hazırlanan anket formu ile veriler yüz yüze görüşme yöntemi ile toplandı. Anket, sırasıyla anne ve çocuğa ilişkin demografik bilgiler, annelerin çocuklarının kilosuna ilişkin algıları, annelerin kilosuna yönelik başvuruları ve annelerin kullandıkları yöntemler ve bu yöntemleri uygularken sahip oldukları tutumlar olmak üzere dört bölümden oluşmaktadır.

**Bulgular:** Annelerin yaş ortalaması  $35,75 \pm 5,56$  idi. Annelerin %50'si ortaokul ve altında eğitim seviyesindeydi. Fazla kilolu veya obez çocukların %52,4'ü kız olup, çocukların yaş ortalaması  $7,94 \pm 2,91$ 'di. Ayrıca annelerin %47,6'sı normal kilolu, %39,2'si fazla kilolu ve %12,3'ü obezdi. Annelerin %54,7'si çocuklarının kilosunu yanlış algıladı.

**Sonuç:** Çalışma annelerin büyük çoğunluğunun, fazla kilolu ve obez çocuklarının kilosunu yanlış algıladıklarını ve çocuklarını normal kiloda gördüklerini göstermiştir. Çocuklarının fazla kilolu veya obez olduğunun farkında olan annelerin, çocuğun kilo problemini çözmek için çeşitli uygulamalar yaptığı belirlendi.

## Introduction

Childhood obesity, which has been a significant health issue in developed countries until recent years, also poses a serious threat to developing countries today. The prevalence of overweight and obese children in developing countries is reported to be 13% (1). According to the Organization for Economic Co-operation and Development (OECD) data for 2017, nearly one in six children is overweight/obese (2). The estimated prevalence among the world's child population is 6.7% and is expected to be 9% in 2020. If the current increasing trend in childhood obesity continues, it is predicted that the number of overweight or obese children and babies will increase to 70 million by 2025 (3). Overweight and obesity in childhood cause problems such as insulin resistance, diabetes, hypertension, hyperlipidemia, and metabolic syndrome (4). Recently, it is also known that overweight is a major risk factor for atherosclerosis in children (5). In addition to physical problems, obesity also causes problems such as social isolation and behavioral and mental problems and low self-esteem in children (6).

Families have important responsibilities in preventing obesity in children (7). Because Family is the first environment in which the first social and permanent behaviors of the child are mostly shaped (8). The family's eating style, family composition, approaches and determining the child's eating habits affect the child's eating preferences (9). Therefore, the family's role is very important in determining the child's weight status and diet (8). Accordingly, it is also an important requirement that parents perceive their children's diet and weight accurately. Parents who cannot accurately assess the weight of their children will not take any action since they are not aware of the problem. In addition, parents will continue to nutrition wrong and unsuitable diets for their children (10). Parents who are aware that their child is overweight will be worried about the child's weight and will be willing to take measures and get professional help (11). Literature reports that parents do not always assess

their children's weight accurately (1,12,13). In a meta-analysis conducted by Lundahl et al. (2014), 50% of the parents were found to be unaware of their children's weight problem and misinterpreted their situation (11). It is also reported that there are parents who believe that a chubby child is a healthy child (1,13). Therefore, this study was conducted to determine how mothers with overweight or obese children perceived their child's weight, and how they approached this problem. The study is thought to reveal the information needs of parents and shed light on the education to be planned. Considering childhood obesity, which is increasingly common nowadays, this research will raise awareness about the approach of mothers to overweight or obese children and necessary measures will be taken.

## Materials and Methods

This study was conducted between April and December 2017 with 212 mothers who had overweight/obese children and who applied to the children's outpatient clinics of a university and a state hospital. To evaluate the adequacy of our sample after the study, posterior power analysis was performed according to the alpha value of 0.05 using G. Power-3.1.9.2 program and the power of the study was determined as 90%.

### *Data Collection Tools*

As the data collection tool, a questionnaire prepared by the researchers within the framework of the literature was used (1,5,10,11) and the data were collected by face-to-face interviews with the mothers. The first part of the questionnaire investigates the demographic characteristics of the mothers such as age, occupation, working status, height, weight, income status, and gender and age of the overweight or obese child, the second part examines the mothers' perceptions of their child's weight, the third part includes the applications that mothers perform for the weight problem of their child (reducing the number of meals, restricting pastries and sugary foods, etc.), and the last part reveals the methods mothers used (such as applying to a health institution, drinking

herbal tea) and which attitude they had in applying them (free, strict, tolerant). In this study, the height and weight of the mothers and their children who applied to the pediatric clinic were measured by the researcher and their body mass indexes were determined using the  $\text{kg}/\text{m}^2$  formula. Weight measurements of the children and mothers were made with an electronic scale without their shoes and jackets. Their height was measured upright, with the weight evenly distributed on both feet, with the head leaning backwards vertically and without shoes. BMI values of mothers; Those between 18.5-24.9  $\text{kg}/\text{m}^2$  were grouped as normal weight, those between 25.0-29.9  $\text{kg}/\text{m}^2$  as overweight and those  $>30.0$   $\text{kg}/\text{m}^2$  as obese (14). Since the body mass index values differ according to age and gender in children, the classification was made by considering the percentile values. Accordingly, the percentile values developed by Neyzi were used, and the American Center for Disease Control (CDC) classification was used for the classification of percentile values determined by age and gender (Table 1); (4,15).

#### *Ethical Standards Disclosure*

This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving research study participants were approved by the research ethics committee approval was received from the Ethics Committee Scientific Research of Karadeniz Technical University on 07 March, 2017. Protocol number 2017/29. In addition, all the mothers participated in the study voluntarily.

Mothers were informed with informed consent.

#### *Evaluation of the Data*

The data of the study were presented by numbers, percentage distributions, and chi-square tests. In the chi-square test, the most commonly used effect size Phi coefficient was used for 2x2 tables and Cramer's V was used for 2x3 tables. This coefficient varies

between 0 and 1, and it was evaluated as 0.10/ small effect, 0.30/ medium effect and 0.50/large effect (16).

### **Results**

Demographic characteristics of mothers and their overweight or obese children was given in Table 2.

66.5% of the mothers participating in the study were between 31-40 years old, and their mean age was  $35.75 \pm 5.56$ . 50% of them were educated at secondary school and below, 87.7% had income equal to expenditures, 84.0% were unemployed, 70.8% had two or fewer children. The gender distribution of overweight or obese children showed that 52.4% were girls, and the mean age of the children was  $7.94 \pm 2.91$ . Besides, 47.6% of mothers were at a normal weight, 39.2% were overweight and 12.3% were obese. 54.7% of mothers perceived their child's weight inaccurately (Table 2).

While 35.8% of mothers educated at a secondary school and below perceived their child's weight accurately, the percentage was 54.7% in the mothers with high school and above education, and the difference between these two groups was statistically significant ( $\chi^2=7.615$ ;  $p=0.006$ ). 42.9%, 50.0% and 69.2% weight of their child under 6 years of age, the 7-12 age group and the 13-18 age group mothers perceived accurately respectively (Table 3).

A statistically significant difference was found between the age of the child and the perception of the mothers ( $\chi^2=15.188$ ;  $p=0.001$ ). 60.4% of normal-weight mothers and 39.6% of overweight mothers correctly assessed their child's weight, and a statistically significant difference was found between the mothers' body mass indexes and their perceptions of their child's weight ( $\chi^2=15.196$ ;  $p<0.001$ ) (Table 3). No statistically significant difference between mothers' perceptions of their child's weight and the age of the mother ( $\chi^2=0.567$ ;  $p=0.753$ ), the employment status of the mother ( $\chi^2=0.958$ ;  $p=0.328$ ), the number of children the mother had ( $\chi^2=0.001$ ;  $p=0.982$ ) and gender of the child ( $\chi^2=1.065$ ;  $p=0.982$ ).

Table 1. Children's BMI classification

Percentile range	Weight status category
Less than the 5 <sup>th</sup> percentile	Underweight
5 <sup>th</sup> percentile to less than the 85 <sup>th</sup> percentile	Healthy weight
85 <sup>th</sup> to less than the 95 <sup>th</sup> percentile	At risk for overweight
Equal to or greater than the 95 <sup>th</sup> percentile	Overweight

Table 2. Demographic characteristics of mothers and their overweight or obese children

Characteristics	n	%
<b>Mother Age Group (Years)</b>		
18-30	38	17.9
31-40	141	66.5
41-50	33	15.6
<b>Mother Age Median</b>	36.0	
<b>Education level</b>		
Secondary school and below	106	50.00
High school and above	106	50.00
<b>Employment Status</b>		
Employed	34	16.0
Unemployed	178	84.0
<b>The number of children</b>		
2 and fewer	150	70.8
3 and more	62	29.2
<b>Income status</b>		
Income more than expenditures	21	9.9
Income equal to expenditures	186	87.7
Income less than expenditures	5	2.4
<b>Gender of the Child</b>		
Girl	111	52.4
Boy	101	47.6
<b>Child age group (years)</b>		
6 years and under	70	33.0
7-12	116	54.7
13-18	26	12.3
<b>Child age median</b>		8.0
<b>Maternal Body Mass index</b>		
Low weight	2	0.9
Normal weight	101	47.6
Overweight	83	39.2
Obese	26	12.3
<b>Mean age of the</b>		
	<b>Mean</b>	<b>Sd</b>
Mother	35.75	5.56
Child	7.97	2.91
<b>Mother's perception of her child's weight</b>		
	<b>n</b>	<b>%</b>
Inaccurate perception (considering it as normal)	116	54.7
Accurate perception (considering it as overweight)	96	45.3

The results showed that 6.9% and 25% of the mothers assessing the weight of their overweight or obese child as normal and overweight respectively cut down on the number of meals of their children, and a statistically significant difference ( $\chi^2=13.433$ ;  $p<0.001$ ) were found between two groups. 78.4% and 93.8% of mothers considering their children as normal weight and overweight respectively did not let him/her eat more than enough, and there was a statistically significant difference ( $\chi^2=9.852$ ;  $p=0.002$ ) between two groups. 67.2% and 93.8% of the mothers assessing their child as normal weight and overweight respectively did not let the child eat junk food between the meals, and a statistically significant difference ( $\chi^2=29.570$ ;  $p<0.001$ ) were determined between two groups. 37.9% and 63.5% of the mothers considering their children as normal and overweight respectively did not let the child eat in front of the computer, and there was a statistically significant difference ( $\chi^2=13.783$ ;  $p<0.001$ ) between two groups. 34.5% and 49% of the mothers assessing their children as normal and overweight respectively set a good example for their children as a family in terms of physical activities, and there was a statistically significant difference ( $\chi^2=4.549$ ;  $p=0.033$ ) between two groups (Table 4).

The study also showed that 65.5% and 83.3% of the mothers who considered their children as normal and overweight respectively did not put too much food on their children's plate, and there was a statistically significant difference ( $\chi^2=8.578$ ;  $p=0.003$ ) between two groups. 70.7% and 94.8% of the mothers of the mothers who assessed their children as normal weight and overweight respectively restricted sugary foods, and there was a significant difference ( $\chi^2=20.326$ ;  $p<0.001$ ) between two groups. Besides, the majority of the two groups were found not to set an example for their children as a family in terms of physical activity and restrict them to play computer games (Table 4).

According to Table 5, 65.6% of the mothers who were aware that their children were overweight or obese applied to the health institution for their weight problem and 30.3% of these mothers stated that they received counseling from physicians and 26.1% from dieticians. It was determined that 34.4% of the mothers gave their children herbal tea to solve the children's weight problem, and as herbal tea 42.4% of the mothers gave senna tea, 18.1% gave green tea, and 15.1% gave anise tea. It was also determined that mothers gave

their children an average of  $1.06 \pm 0.25$  cups of herbal tea per day. When the sports the children did were examined, it was found that 35.2% did judo, 21.5% swam and 19.7% played football. 73% of mothers had a tolerant attitude applying these methods.

### Discussion

In the study, it was found that mothers perceived their obese or overweight children as normal weight. In some studies, similar to this study, it was reported that mothers misperceived the weight of their obese or overweight children. In Warschburger and Kroller (2009)'s study, 64.5% of mothers correctly evaluated the overweight silhouettes of their children (17). Maynard et al. (2003) reported that nearly one-third of mothers correctly assessed the weight of their overweight children (18). Parkinson et al. (2017) explained that mothers could only classify their children as overweight only in extremely obese cases (19). In the study of Carrillo-Larco (2017), the overlap between the mothers' perceptions and the actual weight of the child was very low and that the chubby child was considered as a healthy child (1). Hossain et al. (2019) asserted that more than two-thirds of mothers were not aware that obesity was a health problem in childhood (20). Lindsay et al. (2010) found that the majority of mothers were of the opinion that having a chubby child meant being a good parent which was due to familial and cultural influence, and that some of the mothers perceived

their children as skinny even if they had normal weight (13). When the studies conducted in turkey were reviewed, it was determined that, similar to our study findings, most of the families had wrong perceptions about their overweight or obese children's weight (5, 10, 21). However, contrary to these studies, Aksoy et al. (2016) found that the majority of parents with obese children were aware that their children were obese (7). Therefore, it is seen that mothers who have overweight or obese children have few studies that correctly evaluate the weight of their children. In this direction, it is important to inform mothers about this issue.

In this study, the mothers who had high school education and above and the mothers who had normal weight according to body mass index perceived their children's weight more accurately, and there was a significant difference between mother's educational status, mother's body mass index and mother's perception of her child's weight. Similar to our research findings, Hossain et al. (2019) expressed that mothers perceived the child's weight more accurately as their educational status increased (20). It is seen that the education level of the mothers is important for their children to perceive their weight correctly. Accordingly, it is observed that mothers with low educational level need to be informed. Similar to our research findings, in the study of Almoosawi et al. (2016), non-overweight mothers perceived their child's weight more accurately than the overweight

Table 3. Mothers' perception of the weight of their children according to some characteristics of the mothers and their children

	Perceived inaccurately		Perceived accurately		$\chi^2$ ; p	Phi/ Cramer's V
	n	%	n	%		
<b>Education Level</b>						
Secondary school and below	68	64.2	38	35.8	7.615; <b>0.006</b>	<b>0.19</b>
High school and above	48	45.3	58	54.7		
<b>Child Age Group</b>						
6 years and under	40	57.1	30	42.9	15.188; <b>0.001</b>	<b>0.12</b>
7-12	58	50.0	58	50.0		
13-18	18	30.8	8	69.2		
<b>Maternal Body Mass Index</b>						
Low weight and normal	46	39.6	69	60.4	15.196; <b>p&lt;0.001</b>	<b>0.14</b>
Overweight and obese	59	60.4	38	39.6		

Table 4. Applications of mothers according to their perceptions of children's weight

Applications	Perceived inaccurately		Perceived accurately		$\chi^2$ ; p	Phi
	n	%	n	%		
<b>I reduce the number of his/her meals.</b>						
Yes	8	6.9	24	25.0	13.433	<b>0.25</b>
No	108	93.1	72	75.0	<b>&lt;0.001</b>	
<b>I don't let him/her eat more than enough.</b>						
Yes	91	78.4	90	93.8	9.852	<b>0.21</b>
No	25	21.6	6	6.3	<b>0.002</b>	
<b>I don't let him/her eat junk food between meals.</b>						
Yes	78	67.2	90	93.8	29.570	<b>0.32</b>
No	38	32.8	6	6.3	<b>&lt;0.001</b>	
<b>I don't let him/her eat in front of the computer.</b>						
Yes	44	37.9	61	63.5	13.783	<b>0.25</b>
No	72	62.1	35	36.5	<b>&lt;0.001</b>	
<b>As a family, we set an example for the child in physical activity.</b>						
Yes	40	34.5	47	49.0	4.549	<b>0.14</b>
No	76	65.5	49	51.0	<b>0.033</b>	
<b>I don't put too much food on his/her plate.</b>						
Yes	76	65.5	80	83.3	8.578	<b>0.20</b>
No	40	34.5	16	16.7	<b>0.003</b>	
<b>I restrict sugary foods.</b>						
Yes	82	70.7	91	94.8	20.326	<b>0.31</b>
No	34	29.3	5	5.2	<b>&lt;0.001</b>	
<b>I restrict sugary drinks.</b>						
Yes	59	50.9	58	60.4	1.939	<b>0.09</b>
No	57	49.1	38	39.6	<b>0.164</b>	
<b>I restrict the pastry.</b>						
Yes	78	67.2	87	90.6	16.646	<b>0.28</b>
No	38	32.8	9	9.4	<b>&lt;0.001</b>	
<b>I mainly feed him/her with vegetables.</b>						
Yes	62	53.4	55	57.3	0.314	<b>0.03</b>
No	54	46.6	41	42.7	<b>0.575</b>	
<b>I direct him/her to physical activities.</b>						
Yes	47	40.5	43	44.8	0.393	<b>0.04</b>
No	69	59.5	53	55.2	<b>0.531</b>	
<b>I restrict him/her to play computer games.</b>						
Yes	44	37.9	26	27.1	2.795	<b>0.15</b>
No	72	62.1	70	72.9	<b>0.095</b>	
<b>I follow his/her weight regularly.</b>						
Yes	81	69.8	91	94.8	21.385	<b>0.31</b>
No	35	30.2	5	5.2	<b>&lt;0.001</b>	

mothers (22). When mothers are overweight or obese, it appears that they perceive their children who are overweight or obese is normal weight. In this direction, it is thought that the body mass index of mothers is also important for the body mass index of children. Mothers need to know within which range both their own weight and their children's weight are normal.

Table 5. Applications of mothers who were aware that their children were overweight or obese (n=96)

Applications	n	%
<b>Applying to a health institution for the child's weight problem</b>		
Yes	63	65.6
No	33	34.4
<b>The person who provided counseling about the child's weight problem</b>		
Physician	29	30.3
Dietician	25	26.1
Neighbor	8	8.5
Nurse	1	1.1
<b>Giving the child herbal tea for his/her weight problem</b>		
Yes	33	34.4
No	63	65.6
<b>Kinds of herbal teas given to the child (n=33)</b>		
Senna	14	42.4
Green tea	6	18.1
Aniseed	5	15.1
Camomile	3	9.1
Fennel	3	9.1
Sage	1	3.1
Linden	1	3.1
<b>Sports that the children do (n=51)</b>		
Judo	18	35.2
Swimming	11	21.5
Football	10	19.7
Taekwondo	5	9.8
Running	4	7.9
Basketball	2	3.9
Fencing	1	2.0
<b>Mother's attitude</b>		
Tolerant	70	73.0
Free/indifferent attitude	21	21.8
Strict	5	5.2

In this study, significant differences were found between the mothers who perceived their overweight and obese children's weight accurately and inaccurately in terms of their applications. Those who perceived their children's weight accurately reduced the number of meals more than the others, they did not let their children eat more than enough, eat junk food between meals, eat in front of the computer, they set an example for the child in sports as a family, they did not put much food on their plates, they restricted sugary food, they cut out snack/junk food and followed the child's weight regularly. Lynda et al (2011) found that mothers of children with obesity problems followed their children's eating and drinking behavior (13). Also, related literature reports that mothers who consider their children as overweight encourage them to eat less, do not allow them to eat between meals (23). while mothers who perceive their overweight and obese children inaccurately apply more unhealthy diets than the others (22). Parents state that they will increase the physical activities of their obese children to solve their weight problem, they will encourage them to go to school on foot and reduce junk food, they will not use food as a reward, they will do sports activities as a family, and apply family-based strategies (24). Despite this, Aksoy et al. (2016) indicated that half of the parents provided their obese children with all food and drink they wanted, and the majority of the parents did not restrict food and beverage (7).

In this study, most of the mothers who were aware that their child was overweight or obese applied to the health institution for their weight problem, and supported their children to do physical activities. In a similar study, it was found that most of the parents applied methods such as sending their children to the gym for weight problems, contacting a dietician, and applying diet with the information they obtained from the internet and television (7). It is reported that there is a significant positive relationship between the inadequate physical activity and the time spent at the computer/TV and the risk of childhood obesity, however it is stated that the physical activity of children in our country is not sufficient and the time spent at the computer/TV is high (25, 26). Savashan et al. (2015) expressed that the majority of obese children had a habit of snacking between meals and that the frequency of obesity was significantly higher in children who spent more time in front of the

computer/TV (21). In this respect, it can be said that most of the mothers' applications for obese children are compatible with the literature. However, in our study, more than one-third of the mothers expressed that they gave their children senna, green tea and anise tea for their weight problem. Although it is stated in the literature that some herbal teas can be effective in weight loss, constipation management and gas relief, herbal teas may risk for child health. Therefore, such traditional practices of mothers should be determined (27-34).

#### *Study Limitations*

The limitation of the study was that it was only conducted with volunteer mothers applying an university hospital and a public hospital between April and December 2017.

#### **Conclusion**

We determined that the majority of mothers did not accurately assess the weight of their children and were unaware that their children were overweight or obese. The education level of the mother and their body mass index were found to affect the mothers' accurate assessment of their children's weight. Mothers with high school education and above assessed the weight of their children more accurately than mothers with secondary school and lower education, and similarly, mothers with normal weight assessed the weight of their children more accurately than overweight mothers.

A difference was found between the applications of mothers according to their perceptions of their children's weight in the study. Mothers who were aware that their children were overweight or obese significantly reduced the number of meals compared to others, they did not let their children eat more than necessary, eat junk food between meals, eat in front of the computer, they did not put much food on their plate, they restricted sugary foods, pastry, snack/junk food, and they set an example for their children in sports as a family. It was also determined that the majority of mothers who perceived their children's weight both accurately and inaccurately did not set an example for their children in sports as a family, did not offer the child an option to eat, did not prefer the sugar-free ones, did not direct the child to sports activities and did not restrict them to play computer games.

The methods of the mothers who were aware of the weight of their children showed that the majority of the mothers applied to the health institution for their weight problem of the child and mostly consulted with the physician and dietician. 34.4% of the mothers had herbal tea for the child's weight problem and the majority of them had a tolerant attitude in applying these methods.

#### *Ethics*

**Ethics Committee Approval:** This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving research study participants were approved by the research ethics committee approval was received from the Ethics Committee Scientific Research of Karadeniz Technical University on 07 March, 2017. Protocol number 2017/29.

**Conflict of Interest:** No conflict of interest was declared by the authors.

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