Original Article

Children with food refusal: An assessment of parental eating attitudes and their styles of coping with stress

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Abstract

Background: In this study, we aimed to assess the eating attitudes and stress coping styles of parents whose children presented to the clinic complaining of food refusal. Methods: The parents of 31 children aged ≥3 years, presented to the clinic with the complaint of food refusal. The control group consisted of 30 healthy children with no prior history of food refusal, and their parents. In both groups, birth features, body mass indexes (BMIs), eating attitudes and stress coping styles of the parents were assessed. The parents of both groups were studied, in part utilizing the eating attitudes test (EAT), and the coping styles of stress scale (CSSS).

Results: Our study found that body weights and BMI values of the fathers in the study group were significantly lower than fathers in the control group. There was no significant difference in EAT scores between the two groups; however, where the children’s body weight and height for age percentile was under 25%, the parents had significantly lower EAT scores. When CSSS scores were assessed, the optimistic approach score of the mother and the self-confident score of the father were found to be significantly high in both groups.

Conclusion: The parental perception and definition of eating problems does not necessarily indicate the presence of an eating disorder in a child. In fact, the eating attitudes of the fathers were related to the low percentile weight and height values of the children, and a child’s food refusal was not dependent on the stress coping style used by the parent.

Keywords: child; coping with stress; eating behavior; pediatric eating disorder

1. Introduction

Eating disorders are observed in 25% of normally-developing children during childhood, and commonly present in 80% of children with developmental disorders. The current literature suggests that childhood eating problems, which also have a bio-psychosocial component, are widely assessed in a broad range of circumstances, such as food refusal, anorexia, abnormal eating behaviors, and vomiting before or after eating; it is also believed that physiological, psychological, and social causes play a role in childhood eating disorders.

Therefore, the symptoms, epidemiology, diagnosis, and treatment of eating disorders basically start at the pediatric and medical level, although recommended solutions typically involve a multi-disciplinary approach. Food refusal is frequently seen in 25% of normally developing children, and in 35% of children having developmental disorders such as physical and mental retardation.

Like several other studies, Hampton emphasized that eating problems generally are not easily categorized as well-defined disorders, but originate from a combination of physiological, social, and emotional causes. Today, the general...
belief about the origins of eating disorders has essentially remained unchanged, and eating disorders are assessed depending on many components, including organic, cognitive, environmental and psychological factors.11–14

In the literature, studies investigating eating problems in infancy and childhood were usually performed on the children between the ages of 1 year and 6 years.15–17 A variety of factors were considered in these studies, including the babysitter-parent relationship, cultural structure, parent history, developmental level and mood of the child, breastfeeding duration, weaning, sensual contact, and the changing of the mother-focused feeding models over time.18

Babies and infants are dependent on their caregivers to meet their feeding needs,3 which plays an important role in shaping the eating behaviors of children. It is also known that the mothers of children who exhibit food refusal talk less with their children, show a reduced response to the movements, behaviors and calls of their babies, play fewer games, have less physical contact, make less sensory warning, and are less sensitive to the reactions of their babies.19

While the act of feeding may be a pleasurable activity for both child and mother, it may also be a source of stress. Thus, failing to meet the mutual expectations of both child and mother in the feeding process can increase the possibility of creating a tense and conflict-filled feeding process.16,20 In a survey assessing children with eating problems and mother-child communications, it was determined that mothers with pronounced supervisory tendencies and an obedience-demanding character increased the eating sensitivity of the child, and made the mealtime unhappier and more stressful.21 In other studies that assessed this vicious cycle from the parent’s viewpoint, a parent’s perception of their own adequacy was often damaged due to their child’s eating problems, with the parent often becoming more anxious, more hostile, less tolerant, more supervisory, and with increased depression.22,23 Similar surveys also showed the importance of parents and their environment in creating eating problems and eating disorders.24 In a study performed on children whose average age was 4 years, it was observed that mothers of children with food refusal exhibited more signs of anxiety and depression than mothers of children who did not refuse food. It was also noted that mothers of children with food refusal were themselves much more frequently diagnosed with eating disorders than parents in the other group.16,17

Social and cultural factors, as well as genetic influences, were observed to affect the feeding, weight, and eating habits of children.25–27 In Turkey, while a ‘trencherman’ and bouncing child is considered healthy, a weak-looking child generates concern in the parents. In this study, children presented to the clinic with the complaint of eating problems were generally aged 3 years. When parental explanations such as “while I was a child, I had eating problem, too, and I still have”, and “our mealtimes are so stressful that I get angry” are considered, it was concluded that the children were affected by their parents who still had unresolved eating problems. Yet these same children were expected to form good eating habits and gain the ability to express themselves at the age of three.

Therefore, we studied the following: the relationship between the child’s food refusal and the eating habits of the parents, considering that parents may be social models for children; the skills of the parents to cope with stress, as the eating process was defined as a stressful event; and the parents’ body structure as it related to genetic composition.

2. Methods

2.1. Sample

Our survey sample consisted of 61 children who presented to the Pediatrics Clinic of Fatih University Medical School in Turkey, from March—September 2009. The study group consisted of 31 children with food refusal at the age of ≥3 years, and their parents. The control group consists of 30 healthy children with no food refusal and their parents. Within the context of the survey, the children and their parents were assessed after determining the ages of the parents, their educational level, body mass indexes (BMIs), eating attitudes and the style of coping with stress, the delivery week and delivery type of the children, and when additional food was introduced.

2.2. Inclusion criteria of the study and control groups for children and parents

1. The study group included persistent food refusal covering all different kinds of food, or food refusal lasting more than one month.
2. Inclusion criteria for both groups included body weight and height-for-age percentile of 10% to 90%, and examination findings within normal limits.
3. In order to determine the effect of the parent, inclusion criteria is age ≥3 years, at which time children are expected to form eating habits, and gain the ability to express themselves.
4. To gain the informed consent of the parents to take part in the study after the necessary information is provided.

2.3. Exclusion criteria of the study and control groups the children and parents

1. The presence of family history of any serious illness.
2. The presence of gastrointestinal disorders and complaints of chronic medical illness.
3. The presence of any psychiatric or pediatric developmental disorder in the child.
4. Diagnosed mental or physical illness that may impair the reliability of information the parent provides during the clinical interview with the parent.

After undergoing an examination in the Pediatric Clinic, all children in the study and control groups and their parents were assessed by a psychiatrist and psychologist, to help distinguish between subjects with common eating disorders, and those
with eating problems related to developmental disorders, according to DSM-IV criteria. Three children in the study group were exempted from the study due to their low percentile value. The other 31 children were not diagnosed with a psychiatry-based eating disorder. In total, 36 of 58 children who came to the polyclinic for routine controls, without eating problems, not diagnosed with any physical problem and whose body weight and height-for-age percentile value was between 10% and 90% were chosen. They correlated with the age, gender, and economic level distribution of the children in the study group. However, six children were exempted as their parents did not want to take part in the study. The “eating attitudes test” (EAT) was administered in order to determine the possible eating disorders and eating attitudes of the parents in both of the groups, while “coping styles of stress scale (CSSS)”, is used with the parents, in order to determine the styles of coping with stress were applied to the parents.

2.4. Data collection tools

Information Form: The pediatrician or psychiatrist registered information about the gender, age, percentile values, delivery week, delivery type, and start time of giving additional food to children; demographic information such as the age, weight and height, BMI, educational level of the parents, and the parents’ response to the question: “is feeding a stress factor for you?” was also included.

EAT: This was developed by Garner and Garfinkel28 in 1979 to assess the disorders associated with eating attitudes and eating behaviors. The EAT is a kind of self-assessment scale consisting of 40 items, rated as a six-grade Likert-type. The assessment is made by scoring 3 points for each extreme response, 2 and 1 for the other choices. The scale was first used by Doğan30 in Turkey in 1985, and psychometric studies on the scale were made in the following years.30–32 The validity and reliability of data at the end of the studies was determined to have a test-retest reliability of r = 0.65, and Cronbach α reliability coefficient = 0.70.30 Batur32 applied the EAT scale on both girls and boys and identified it for both genders. The Cronbach α reliability coefficient for girls varied between 47 and 90, and between 34 and 80 for boys. When overseas studies are taken into consideration, the breakpoint in rating indicates the presence of disorders in eating attitudes and behaviors when scores are at and above 30.

CSSS: The “ways of coping inventory” was first developed by Folkman and Lazarus33 in 1980. The validity and reliability study of the CSSS that is adapted to a Turkish population from the aforementioned scale was made by Sahin and Durak.34 The scale was developed to measure the individuals’ styles of coping with stress, and consists of 30 items and five different subscales that are fourth grade Likert-type. For the subscales, the coefficient of the scale was identified as follows: optimist approach 0.68, self-confident approach 0.80, helpless approach 0.73, submissive approach 0.70, social support 0.47. The Cronbach α reliability coefficient was 0.68. It was observed that the reliability coefficient of the subscales were as follows: self-confident approach 0.69, optimist approach 0.67, helpless approach 0.62, submissive approach 0.71, social support 0.60.34 This scale has two main dimensions: effective problem-focused coping and ineffective emotion-focused coping. The five factors, “self-confident” (7 items), “optimist” (5 items), “helpless” (8 items), “submissive” approaches (6 items) and “social support” (4 items), reflect these two dimensions. In the rating of each subscale separately, the scores between 0 and 3 are rated by adverse scoring of the first and ninth items in the rating of social support. The scores obtained from each subscale are rated by being divided to the number of items in the relevant subsupport. Higher scores obtained from these subtests mean that the individual more often uses the relevant coping style.

2.5. Data analysis

The statistical assessment of data was carried out by SPSS for Windows release 11.5 packet program. The Chi-square test in data was indicated with numbers for comparing study and control groups, and the t test in independent samples for EAT and CSSS subdimensions were implemented. The t test of independent samples in the comparisons according to EAT and CSSS subdimensions for two-category features of the parent, one-way analysis of variance and Tukey test in the case of more than two categories, and Pearson correlation analysis for the variables indicated with measurements were used. Also, two-way analysis of variance (F) was implemented in order to evaluate the effect of a child’s gender, body weight percentile and having a sibling on EAT and CSSS subdimensions together with the group. The number and percentage as descriptive values for data indicated with numbers, the arithmetic mean ± standard deviation (X ± SD) for data indicated with measurements were used. Statistically significance level was noted as 0.05.

3. Results

When the study’s demographic features were evaluated, we observed that the average age of the study group was 6.5 ± 3.1 years; the average age of the children in the control group was 6.6 ± 3.5 years. No statistically significant difference was found between the groups arising from gender and average age. Other features of the groups are shown in Table 1. The rate of being a single child of the children in the study group was observed to be significantly higher than the control group (Table 1).

When the groups were assessed from the view of parental features, it was detected that the age of parents, the weight and BMI value of the father were significantly lower (p < 0.05). Regarding the other features examined, no significant difference was found between the groups (Table 2).

When the study and the control groups were compared using the EAT and the scores of the self-confident, optimist, helpless, and submissive approaches, and social support that are subdimensions of CSSS were considered, it was found that EAT scores were similar in both of the groups. For CSSS
scores in the study group, the optimist approach score of mother and self-confident score of father were statistically significantly high ($p < 0.05$). It was further detected that there was no significant difference between the two groups from the view of CSSS (Table 3).

When the EAT and CSSS scores of the parents were assessed with the gender of the children, it was detected that the optimist approach score of a mother with a female child was higher in both the study and the control group ($p = 0.04$), and the submissive approach score of the father was higher only when the father had a boy ($p = 0.006$). The effect of gender and group/gender interactions in the other EAT and CSSS subscales were not found to be statistically significant.

When the EAT and CSSS scores of the parents were assessed with the body weight percentiles of the children, lower EAT scores were found in fathers of children whose body weight percentiles were $<25\%$ in both the study and control groups ($p = 0.037$).

When the effects of age and BMI on EAT and CSSS scores of the mother were investigated, it was detected that as BMI increased in the study group, EAT scores decreased ($r = -0.359$, $p < 0.05$), and as the age in mothers of the control group increased, EAT scores decreased ($r = -0.398$, $p < 0.05$).

When the group and the sibling availability were evaluated together, it was found that EAT scores of the mother were high in single-child families ($p = 0.001$), but the social support score of the father was higher in families having more than one child ($p = 0.001$).

When the effects of the educational level of the mother on EAT and CSSS scores of mother were investigated, the scores of optimist approach ($p = 0.001$), helpless approach ($p = 0.001$), submissive approach ($p = 0.001$), and social support ($p = 0.004$) were found to be higher than those scores in mothers who graduated from primary school in the control group, while the educational level had no effect in the study group.

When the effects of educational level of the father on EAT and CSSS scores were investigated, the scores of the helpless approach were found to be lower in fathers who graduated from university in both study and control group ($p = 0.001$). No statistically significant differences were detected for the others.

### 4. Discussion

The study group was comprised of 31 children with food refusal and their parents; 30 healthy children who were matched with the study group on the basis of age, gender, economic situation, no prior diagnosis of eating problem or disorder, were chosen with their parents as the control group. In contrast to the findings of the studies performed with a similar age group as children in the literature, it was detected in our study that there was no significant difference between the children with food refusal, and the control group from the view of delivery week, delivery type, and the start time of additional food. There are many reports in the literature describing the eating problems of babies and little children, which are investigated and reported with a variety of titles and different diagnostic criteria.\textsuperscript{35,36} It is thought that the above-mentioned result is due to the differences in diagnostic criteria, and the assessment of children who were not diagnosed with an eating disorder with any psychiatric or pediatric definition.\textsuperscript{37} It is clinically recommended that if there is inadequate weight gain accompanying food refusal, these complaints by the parents should be taken into consideration.\textsuperscript{37} Supporting this recommendation, it was also seen that the perceptions and the characteristics of the parents did not reflect any pathology related to the child.
Eating behavior includes all actions defining the relationship between human beings and food. Therefore, it is accepted that eating habits are formed with eating experiences and practices observed from familial and societal applications in early childhood. In studies assessing children with food refusal in the literature, it is observed that the features and the state of mind related to only the mother in the family are investigated, and that mother child interaction is taken into consideration, to the exclusion of the father. We found that the body weights and BMI values of the fathers in the group with food refusal were significantly lower than in the control group. At the same time, it is remarkable that without a difference in the groups, the eating behaviors of children who had body weight percentile <25% were correlated with their fathers’ eating attitudes. Although the fathers had no eating disorders, beside the fact that the similarity with the physiological structure of their children may be related to genetic predisposition, it raises the question: “do children take their fathers as a model in eating process?” It is known, especially from genetic studies, that certain genes determine food intake, eating behavior, and weight gain over time in women, and that the children of obese mothers react by overeating instead of food refusal. This finding supports the idea that that genetic make-up may play an important role in food acceptance. Also, in literature investigating metabolic gene expression in mammals, it has been shown that a diet consumed by male mice can affect gene expression in their offspring. Considering the physiological similarities of children with food refusal and their fathers, it is thought that comprehensive genetic studies assessing the fathers as well should also be conducted.

Sanders et al observed that problematic behaviors in children specific to meal time, such as food refusal, being obstinate, whining and playing with food occurred more frequently in children aged 1 year to 6 years. Furthermore, this kind of child sometimes frustrated their parents by holding food in their mouths and chewing for a long time. Douglas and Bryon determined in their studies that children aged <7 years with eating disorders were frequently born prematurely, with low birth weight; parental complaints of feeding difficulties and vomiting were also more common in these children in the first 6 months after birth. For many parents, their ability to shape the eating behavior of their children, including the amount, the variety and the quality of foods, have a great importance. The success of the parents in every step of this process increases parental perception of adequacy. Therefore, a simple vomiting reflex or retching by the child may lead to the beginning of a complex set of problems particular to meal time.

In a study performed on children aged 3 years to 5 years, it was determined that verbal and physical supportive attitudes of the mother, and presentation of food affected the child’s eating duration and calorie intake. It was also detected that the frequency of feeding requests made by the child, and greater parental control of the child caused eating behaviors to be delayed; this affected such primary eating physiological clues in the child as hunger and satiety.

In the literature, we have not found any study related to stress coping styles of parents of children with eating problem. The optimist approach, one of the styles of coping with stress, reflects a more tolerant and optimistic look at events, assessing problems in a calmer and more realistic way. The self-confident approach emphasizes assessing the importance of solution-based choices of a problem, to be remedial, cautious, and planned, to make active, sensible and conscious efforts to change the situation. It was detected that in the study group, mothers used the optimist approach, and fathers used the self-confident approach in coping with stress more frequently than in the control group. Considering that the eating process of a child with an eating problem is a also stress factor for the parent, the fact that these two styles recommended in coping with stress are more frequently preferred by the parents of children in the study group reveals that food refusal of the child is not dependent on the stress coping method used. The low scores of parents who utilized the helpless approach, particularly for fathers who graduated from university as shown in both the study and the control group, demonstrate that educational level affects problem solving techniques positively in fathers. This approach has been shown to be ineffective, emotion-focused, and not a recommended option in coping with stress.

### Table 3
The comparison of EAT and CSSS subscales of mother and father in the study and control groups.

<table>
<thead>
<tr>
<th></th>
<th>Control group (n = 30)</th>
<th>Study group (n = 31)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating attitudes test</td>
<td>17.2 ± 10.2</td>
<td>18.5 ± 7.1</td>
<td>0.583</td>
</tr>
<tr>
<td>Coping with stress styles scale</td>
<td>2.0 ± 0.2</td>
<td>1.1 ± 0.5</td>
<td>0.884</td>
</tr>
<tr>
<td></td>
<td>2.4 ± 1.7</td>
<td>1.7 ± 0.7</td>
<td>0.046</td>
</tr>
<tr>
<td>Helpless approach</td>
<td>1.3 ± 0.6</td>
<td>1.5 ± 0.6</td>
<td>0.259</td>
</tr>
<tr>
<td>Submissive approach</td>
<td>1.4 ± 0.5</td>
<td>1.2 ± 0.4</td>
<td>0.207</td>
</tr>
<tr>
<td>Social support</td>
<td>1.8 ± 0.8</td>
<td>1.7 ± 0.8</td>
<td>0.603</td>
</tr>
<tr>
<td><strong>Father</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating attitudes test</td>
<td>14.2 ± 5.8</td>
<td>18.1 ± 11.2</td>
<td>0.100</td>
</tr>
<tr>
<td>Coping with stress styles scale</td>
<td>1.8 ± 0.5</td>
<td>2.3 ± 0.3</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>1.9 ± 0.6</td>
<td>2.0 ± 0.5</td>
<td>0.391</td>
</tr>
<tr>
<td>Helpless approach</td>
<td>1.3 ± 0.5</td>
<td>1.1 ± 0.4</td>
<td>0.142</td>
</tr>
<tr>
<td>Submissive Approach</td>
<td>1.2 ± 0.5</td>
<td>1.2 ± 0.5</td>
<td>0.780</td>
</tr>
<tr>
<td>Social support</td>
<td>1.5 ± 0.9</td>
<td>1.1 ± 0.8</td>
<td>0.132</td>
</tr>
</tbody>
</table>
According to previous studies assessing parental styles of copies with stress, involving children between the ages of 2 years and 12 years, how parents deal with stress and their coping behaviors can differ in predicting the asthmatic status of their children, and such associations may change as children grow. Among mothers of children with Down Syndrome, parenting stress is also significantly correlated with frequent use of the acceptance, religious, and optimist coping styles, and is also associated with the presence of maternal depression, anxiety and stress symptoms.\textsuperscript{45,46} In a study comparing mechanisms of women who had preterm delivery and term delivery, delivery type and coping styles were found to be associated.\textsuperscript{37} In another study, it was observed that women who had premature deliveries applied emotional strategies more frequently than they applied task-oriented strategies and avoidance strategies.\textsuperscript{38} The evaluation of coping strategy among parents of children with mental retardation, parents were found to have high trait anxiety.\textsuperscript{49}

Considering that information related to the child is obtained from the parent, not every complaint of food refusal is associated with a psychiatric-based eating disorder. In a study including children and adolescents, it was determined that false perception of the parent was common when development of their child was involved and only 16.7\% of the parents could report their children’s development correctly. Although food refusal and inadequate weight gain are usually assessed together, the number of cases involving normal development despite the presence of food refusal is remarkable.\textsuperscript{37} In studies that addressed eating attitudes of adults, the patients with anxiety disorders had higher rates of disorder in eating attitude as compared to the healthy controls.\textsuperscript{50} No significant relationship was detected between the eating attitudes of the parents and their family structure, ages, gender, monthly income or stressful life events.\textsuperscript{51–53}

In our study, the status of “single child” was more prevalent in the study group than the control group. There has not been sufficient study of single-child families in the literature, although, in one study, there was no association between the presence of an eating disorder and the number of children in a family.\textsuperscript{16} In another study, it was indicated that a single child parent devoted greater focus to the child, and was more sensitive to the needs of the child.\textsuperscript{55} Considering the fact that children brought with the complaint of food refusal did not have an eating disorder parallel with the definitions of their parents, our study may also support the proposition that parents are more sensitive to their child’s needs in single-child families.\textsuperscript{54}

While there are studies in the literature that suggest that there is no significant difference in the ages of mothers of children with an eating problem, it was found in our study that parents in the study group were generally younger than in the control group.\textsuperscript{17} However, this difference was not found to be statistically significant, as the average ages of the parents in the two groups were close to each other.

As a result, the findings obtained from our study reveal the importance of assessing the features related to both the mother and the father, with a multi-disciplinary approach, when analyzing the children with food refusal. Given the fact that the weight and BMIs of the fathers of children with food refusal were significantly lower than in the control group, this demonstrates the possibility of a paternal genetic predisposition, with the father as a model in the child’s food refusal. The fact that the stress coping styles of the parents were not associated with the child’s food refusal demonstrates that identifying the parents’ general coping style is not sufficient to predict the specific relationship between parent and child in the eating process. Within this context, it is thought to be beneficial that the investigation is supported by a genetic study in order to be able to generalize the findings reached in our study. A more comprehensive study in which the children’s eating hours are observed for the purpose of assessing parental modeling and genetic influence of the father should be pursued, with the investigation extended to present a societal sample by increasing the number of cases.

References


