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Research Article

The Association of Parental Feeding Style and Sociodemographic Characteristics with Child Anxiety in Preschool Children

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Abstract

Objective: This descriptive, cross-sectional study aims to determine the relationship between parent feeding style and anxiety in children.

Methods: The research was conducted with 338 mothers with children aged 3-6 years. Sociodemographic Information Form, Revised Preschool Anxiety Scale and the Parent Nutrition Style Questionnaire were used for data collection.

Results: The mean Preschool Anxiety Scale scores significantly differed concerning the number of children's siblings, mothers' employment, fathers' employment, mothers' education, fathers' education and family income. There was a significant positive weak correlation between anxiety levels and the mean scores on emotional feeding, instrumental feeding and the Parent Nutrition Style Questionnaire.

Conclusion: Health professionals should be aware of several sociodemographic features that affect anxiety in children. Therefore, families at risk should be identified, their children should be closely monitored in terms of health problems like anxiety and depression, and appropriate interventions should be designed to prevent anxiety in children. Considering that parental feeding style affects eating habits in children, further studies are needed to examine the relationship between parental feeding behavior and anxiety in children.

Keywords: Parental Feeding Style, Anxiety, Preschool

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1. Introduction

Nutrition is one of the most essential elements of child development. Eating habits acquired in the preschool period affect health in adulthood. Children accept their parents as role models and realize their first learning by imitating individuals around them (1). Parental feeding style, a subset of general parenting style, is a framework how parents react to their children's hunger and fullness cues (2). Studies have shown that parents reporting symptoms of stress, anxiety, and depression more frequently adopt strict-controlling, permissive and indifferent feeding than those without these symptoms (3, 4).

Anxiety can appear at different places and times, and occasional anxiety in children is considered part of their normal development. Several factors like separation of children from their parents, caregivers or siblings (5), familial traumatic events (grief, violence, abuse, conflicts and divorces) (6), and overprotective attitudes and behaviors of parents (7) cause children to feel anxious. Anxious preschoolers can be nervous and touchy, making it difficult to leave their parents. They do not want to go to school, may experience difficulty sleeping, wet themselves at night and have nightmares (5).

Anxiety disorders are one of the most common psychiatric disorders in children and teenagers (8), and the rate of anxiety disorders in preschoolers ranges from 5.2% to 22.2% (9, 10). Tosun and Zorlu (11) found in a study with Turkish third-grade students that 4.3%-12% of the male students and 1.1%-6.7%

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of the female students had high anxiety levels. Göker et al. (12) reported that of 1910 children and teenagers aged 4-18 years, 7.6% had at least one anxiety disorder.

It can be expected that children can experience a certain level of anxiety depending on their age. However, when their anxiety levels increase and reach an extent that will affect the quality of their lives, it is important for parents and teachers to know and keep its causes under control. Nutrition a physiological event and but also a special moment shared with the family when social and psychological needs are fulfilled. Although there have been many studies on the relation between parental psychology and style and the psychosocial status of children (13, 14), a limited number of studies have focused on the relation between parental feeding style and anxiety development in children (15). Therefore, the present study aimed to determine the relationship between parental feeding style and anxiety in children. Parents' attitudes and behaviors have an important effect on children's physical and psychosocial development (13). Therefore, the results of the present study will be important in taking appropriate measures earlier in the interest of both parents and children.

Research questions:

1. Are there statistically significant differences in the anxiety scores of children based on their sociodemographic characteristics?
2. Based on sociodemographic variables, are there statistically significant differences in parental feeding style?
3. How much does the mean score on instrumental and emotional feeding predict anxiety in children?

2. Methods

2.1. Design

This was a descriptive and cross-sectional study.

2.2. Settings and sample

The study was performed with mothers whose 3-6-year-old children attended a state kindergarten in a city in the western part of Türkiye. G*Power was utilized to make a power analysis based on a reference study by Boucher (16), and a sample size of 317 was determined. Power was computed for the multiple regression analysis with power set at 0.8, an α of 0.05 and a small-medium effect size. When data loss was taking into account, the sample size increased by 10%, and the study sample reached 338. Mothers with children between the ages of 3 and 6 who were enrolled in a kindergarten affiliated with the National Education Directorate and had no health issues that could potentially impact their children's well-being, able to understand and speak Turkish, being at least literate, being 18 years of age or older, and not having any hearing or speech issues were included in the study.

2.3. Data collection

2.3.1. Sociodemographic information form

A sociodemographic information form was prepared to collect data from the mothers. It comprises questions about the gender and age of children, number of siblings and age, education, employment status, occupation and socioeconomic status of parents. Body Mass Index (BMI) was evaluated according to the World Health Organization's obesity classification for mothers (17). For children, a BMI < the 5th percentile was considered underweight, a BMI ≥ the 5th and ≤ the 85th percentiles was considered normal weight, a BMI > the 85th and ≤ the 95th percentiles was considered overweight, and a BMI > the 95th percentile was considered obese (18).

2.3.2. Revised preschool anxiety scale (RPAS)

Edwards et al revised the The Preschool Anxiety Scale and renamed it the Revised Preschool Anxiety Scale (RPAS) in 2010 (19). The scale is used to collect data from 3-6-year-old children's parents. It is a five-point Likert scale (zero= never true; four=mostly true) and composed of 30 items and four subscales: generalized anxiety, social anxiety, separation anxiety and specific fears. Güler (20) examined the validity and reliability of the RPAS in Turkish children aged 3-6 years. Cronbach's alpha was reported to be .90 for the Turkish version of the RPAS and ranged from .69 to .80 for its subscales (20). Cronbach's alpha coefficient was 0.90 for this study.

2.3.3. The parental feeding style questionnaire

The Parental Feeding Style Questionnaire (PFSQ) is a 27-item, five-point Likert scale (one= never; five= always) developed by Wardle et al. and used to collect parents' data. The scale had a four-factor structure, and Cronbach's alpha was reported to range between 0.67 and 0.83 for its subscales. This suggested that the PFSQ was valid and reliable (21). The scale was adapted into Turkish by Özçetin, Yılmaz, Erkorkmaz, and Esmeray (22). Its Turkish version has five subscales: emotional feeding, instrumental feeding, encouraging feeding, strict control over feeding and permissive feeding. Cronbach's alpha for the subscales of the Turkish version of the PFSQ was reported to range from 0.54 to 0.83 (22). Cronbach's alpha coefficient was 0.78 for this study.

2.4. Ethical considerations

Ethical approval for the study was obtained from the Noninvasive Research Ethics Board of XXX University (15/11/2018-E.7785), and written permission was taken from the national education directorate in the city where the kindergartens included in the study were located. The mothers included in the study were informed about the study, and they were told they could leave it at any time, and informed consent was obtained.

2.5. Data analysis

Data were analyzed with the Statistical Package for Social Sciences 22. Before statistical analyses, incomplete or inaccurate data were checked. Total scores on the scales were determined by adding scores on their items and, the normality of the data was checked using skewness and kurtosis. When skewness and kurtosis values ranged from -1 to +1, data were considered to have a normal distribution (23). It is recommended in the literature that these skewness and kurtosis values should be used when the sample size is >50 (23, 24). Therefore, parametric tests were utilized to make comparisons in terms of demographic variables. Pearson correlation test was used to determine relations between the scores on the scales, and independent samples t-test was used to compare the scores between two groups, and one-way ANOVA was used to compare the scores on the scales between at least three groups. The post-hoc analysis LSD was adopted to determine which groups differed from each other. As an important hypothesis in comparisons, the normality of the continuous scores and a sufficient sample size in each cell (n>25) were checked and achieved. The effects of emotional feeding and instrumental feeding on anxiety levels were evaluated using multiple regression analysis. Statistical significance was set at $p<.05$.

3. Results

The sociodemographic characteristics of the participants are presented in Table 1.

Table 1. Sociodemographic Characteristics of the Participants

Sociodemographic Characteristics	n=338
Age†	
Children	5.31 ± 0.76
Mothers	34.38 ± 4.88
Fathers	37.42 ± 5.07
Children's Gender§	
Female	176 (52.1)
Male	162 (47.9)
Number of siblings§	
None or one	272 (80.5)
More than two	66 (19.5)
Mothers' BMI†	26.27 ± 8.49
Mothers' BMI§	
Normal	188 (55.6)
Overweight	101 (29.9)
Obesity	49 (14.5)
Children's BMI§	
Underweight	37 (10.9)
Normal	229 (67.8)
Overweight	34 (10.1)
Obesity	38 (11.2)
Employment status (Mothers)§	
Employed	147 (43.5)
Unemployed	191 (56.5)
Employment status (Fathers)§	
Employed	323 (95.6)
Unemployed	15 (4.4)
Educational status (Mothers)§	
Primary school	38 (11.2)
Secondary school	41 (12.1)
High school	107 (31.7)
University	152 (45.0)
Educational status (Fathers)§	
Primary school	27 (8.0)
Secondary school	46 (13.6)
High school	92 (27.2)
University	173 (51.2)
Income status§	
Low	50 (14.8)
Middle	231 (68.3)
High	57 (16.9)

† *Mean ± SD*

§ *Frequencies*

The mean ages of the mothers, fathers and children were 34.38 ± 4.88, 37.42 ± 5.07 and 5.31 ± 0.76 years respectively. Regarding the other sociodemographic characteristics, 45% of the mothers and 51.2% of the fathers were university graduates, 56.5% of the mothers and 3.4% of the fathers were unemployed, and 68.3% of the parents reported having an income equal to their expenses. According to their body mass index (BMI), 11.2% of the children and 14.5% of the mothers were classified as obese.

Table 2. Mean Scores on the PFSQ and the RPAS with Standard Deviations

Scale Scores	N	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
PFSQ	338	45	117	85,07	11,37	-0,306	0,675
RPAS	338	32	120	66,57	18,61	0,386	-0,471

Descriptive statistics about the participants' scores on the scales are shown in Table 2. The scores on the PFSQ ranged from 45 to 117, and the mean score on the questionnaire was 85.07 ± 11.37. The total RPAS score ranged from 32 to 120, and the mean RPAS score was 18.61 ± 18.61. Data about the scores on the PFSQ and RPAS had a normal distribution.

Table 3. Comparisons of the Scores on the PFSQ and RPAS According to Demographic Characteristics

		PFSQ		**RPAS**		
Demographic Characteristics	**N**	**Mean±SD**	**p**	**Mean±SD**	**p**	**Difference§**
Gender						
Female	176	84.86±11.23	.735†	67.18±19.24	.536†	
Male	162	85.28±11.56		65.92±17.94		-
Number of Siblings						
0-1	272	85.21±11.25	.636†	65.50±18.46	**.031**†	-
2 or more	66	84.47±11.94		71.00±18.73		
Mothers' Employment						
Unemployment	191	84.83±11.79	.662†	69.09±18.48	**.004**†	-
Employed	147	85.37±10.83		63.31±18.34		
Fathers' Employment						
Unemployed	15	87.80±14.31	.341†	76.40±14.77	**.036**†	
Employed	323	84.94±11.23		66.11±18.67		-
Mothers' Education						
Primary School (1)	38	83.74±12.13		74.68±19.98		
Secondary School (2)	41	85.80±13.12	.622‡	73.29±20.61	**.000**‡	***(4–1,2,3)***
High School (3)	107	84.27±11.91		67.14±17.97		***(3–1)***
University (4)	152	85.76±10.28		62.34±17.00		
Fathers' Education						
Primary School (1)	38	85.04±13.39	.091‡	80.63±18.65		
Secondary School (2)	41	86.83±11.24		73.91±19.15	**.000**‡	***(1–3,4)***
High School (3)	107	82.59±11.97		65.89±17.77		***(2–3,4)***
University (4)	152	85.92±10.61		62.79±17.42		
Perceived Income						
Less than expenses (1)	50	82.58±14.8	.233‡	75.84±20.11	**.000**‡	
Equal to expenses (2)	231	85.39±10.41		65.50±18.24		***(1–2,3)***
Higher than expenses (3)	57	85.95±11.63		62.81±16.39		
Mothers' BMI						
Normal	188	84.95±10.96	.077‡	64.56±18.2	.069‡	-
Overweight	101	86.66±11.19		68.44±19.43		
Obesity	49	82.20±12.85		70.45±17.84		
Children's BMI						
Underweight	38	85.35±12.28		66.46±20.43		
Normal	41	85.81±11.16	.185‡	66.62±18.01	.610‡	
Overweight	107	83.35±9.14		63.35±19.14		
Obesity	152	81.84±13.13		69.29±20.20		-

†*p-value for independent sample t-test;*
‡ *p value for ANOVA;*
§ *ANOVA followed by LSD posthoc testing*

The scores on the PFSQ did not significantly differ regarding demographic variables (p>.05). The results are summarized in Table 3. However, there was a significant difference in the RPAS scores in terms of the number of siblings, mother's employment, father's employment, mother's education, father's education, and family income (p<.05). The children with two or more siblings had a significantly higher RPAS score than those without a sibling or with one sibling (t= -2.165, p = .031). The children with unemployed mothers had a significantly higher score on the RPAS than those with employed mothers (t= 2.862, p = .004), and the children with unemployed fathers had a significantly higher score on the RPAS than those with employed fathers (t= 2.102, p = .036).

The one-way ANOVA revealed a significant relationship between the mean score on the RPAS and mothers' education (F= 7.224, p = .000), fathers' education (F= 10.804, p = .000) and socioeconomic status (F= 8.073, p = .000). To understand which variables were responsible for the differences, LSD adjustments were used. The children whose mothers were university graduates had significantly lower anxiety levels than those whose mothers were high school, secondary school, and primary school graduates (p<.05). Besides, the children whose mothers were high school graduates had a significantly lower anxiety level than those whose mothers were primary school graduates (p<.05). The children whose fathers were university or high school graduates had a significantly lower anxiety level than those whose fathers were secondary school or primary school graduates (p<.05). The children whose families had an income lower than their expenses had a significantly higher anxiety level than those whose families had an income equal to or higher than their expenses (p<.05). However, children's anxiety levels did not significantly differ in terms of their gender and BMI and mothers' BMI (p>.05).

There was a significant positive weak correlation between anxiety levels and the mean scores on emotional feeding (r = 0.234, p < .001), instrumental feeding (r = 0.229, p < .001) and the PFSQ (r=0.146, p<.01).

Table 4. Instrumental and Emotional Feeding Predicting Anxiety in Children

Variables	**Model 1** **B**	**Model 2** **B**	**Model 3** **B**
Instrumental feeding	.229*		.154*
Emotional feeding		.234*	.163*
R^2	.052	.055	.073
Adj. R^2	.050	.052	.068
F	18.615	19.423	13.238
p	.000	.000	.000
DW	1.949	1.922	1.926

*p<.05

The multiple regression analysis revealed models based on the relation between the subscales of the PFSQ and anxiety. According to Model 1, as the scores on instrumental feeding increased, so did the anxiety scores of the children and instrumental feeding was responsible for 5% of anxiety (R2:.052). A one-unit increase in the mean score on instrumental feeding caused a rise in anxiety by 0.229% times (β=.229). According to Model 2, as the mean score on emotional feeding increased, so did the anxiety scores of the children and emotional feeding accounted for 6% of anxiety (R^2:.055). A one-unit increase in the mean score on emotional feeding brought about a rise in anxiety by 0.234% times (β=.234). Instrumental feeding and emotional feeding were included in Model 3. The model showed that emotional feeding (β=.163, p<.05) and instrumental feeding (β= .154, p<.05) were significant predictors of anxiety in children (Table 4).

4. Discussion

It is thought that this study will contribute to determinning the factors related to parents that cause anxiety in preschool children. Based on this, the relationship between parental feeding style and sociodemographic variables with anxiety in preschool children was analyzed. According to the results of the analysis, children with two or more siblings had higher anxiety levels than those with no or one sibling. The present study was directed towards determining the effect of parental feeding style on anxiety in children. It was found that children with two or more siblings had higher anxiety levels than those with no or one sibling. As the number of siblings increased, so did children's anxiety. Demiriz and Ulutaş (25) also pointed out that as the number of siblings increased, so did state anxiety scores of children aged 9-12 years. Children can be deprived of parental love and attention, may not fulfill their needs and experience conditions increasing anxiety like jealousy due to a high number of siblings. This can have a negative effect on children's psychology and increase the risk of anxiety (25).

In the present study, the children whose parents were unemployed had higher anxiety scores than those whose parents were employed, which is consistent with the literature. Teze and Aslan (26) examined the relationship between separation anxiety and bonding styles, gender and employment status of mothers in 6-year-old children. They discovered that children having unemployed mothers obtained higher scores on the fear of abandonment as a subscale of separation anxiety than children having employed mothers (26). Besides, in the current study, the children from families with an income lower than their expenses felt more anxious than those with an income equal to or higher than their expenses, which is compatible with the literature. Bitsko et al. found out in their study, including children aged 6-17 years, that anxiety and depression were more common among older children and children from families with a low income (27). A low income brings about many problems. Financial difficulties, the inability of families to fulfill their basic needs and their children's needs, familial conflicts and difficulties in accessing education and healthcare services create stress and increase anxiety in family members (28). Therefore, children whose parents have low socioeconomic status and feel anxious have higher anxiety levels.

The current study also showed that as parents' education levels increased, children's anxiety levels decreased. It may be that parents with high education levels might have had a high awareness of anxiety in children and opportunities to improve themselves about the issue and created an environment filled with a wide variety of positive stimuli. Consistent with the findings of the current study, several studies have revealed that parental education plays an important role in psychosocial problems of children like anxiety and depression and that as parents' education levels rise, children's psychosocial problems decrease (27, 29).

In the present study, three regression models were created, taking account of the correlations between the mean scores on the subscales of the PFSQ and the mean score on the RPAS. Model 1 showed that the children with mothers adopting instrumental feeding had higher anxiety levels. Instrumental feeding accounted for 5% of anxiety in the children. Model 2 revealed that the children with mothers having an emotional feeding style had higher anxiety levels. Emotional feeding explained 6% of anxiety in children. Overall, 7 % of anxiety in the children was explained by emotional feeding and instrumental feeding ($F = 13.238$, $p < .001$). It can be suggested that instrumental feeding, which increases sensitivity to rewards, and emotional feeding cause children to experience more severe anxiety. Anxiety in children is associated with decreased risk-taking behavior and sensitivity to rewards (30). Instrumental feeding gives children food as a reward when they display a desirable behavior or consume food they do not like (21). Rewarding children with food reduces their food regulation and increases their emotional eating (31). It has been reported in the literature that children exhibiting emotional eating behavior experience anxiety and depression (32, 33). As a means of self-regulation, emotional feeding provides children with

comfort foods they enjoy when they are dissatisfied or sad (21). Houldcroft et al. (15) reported that general anxiety, social anxiety and depression in children had a positive relation with their emotional eating and parents' restricting food and pressuring them to eat. There is evidence that parental feeding style, generalized anxiety about social circumstances, emotional eating, social avoidance, discomfort in novel settings, and tolerant controlled feeding all have a role in the development of childhood obesity (34). Consequently, parents may observe that food has a soothing effect on their children, resulting in an increased tendency to encourage them to eat when when they are anxious. Nonetheless, given the link between feeding strategies and child anxiety, our data suggest that parents should adjust their feeding strategies. Besides, the present study's findings point out the need for further studies to examine the relationship between anxiety in children and instrumental and emotional feeding.

Although there has been a sufficient number of studies on the relation between children's eating behaviors and psychological status (13, 14), few studies have focused on the relation between parental feeding style and anxiety in children (15). Food neophobia, which is defined as unwillingness to eat food or avoidance of food, is associated with anxiety in children. In Maiz and Balluerka's study, neophobic children were shown to experience more significant anxiety than their peers (35). Menatti et al. also determined a relationship between social anxiety and pathological eating behavior(36). Considering that parental feeding style affects eating habits in children, further studies are needed to examine the relation between parental feeding behavior and anxiety in children.

5. Conclusions and Recommendations

In the present study, several sociodemographic features like the number of siblings, employment status of parents, education levels of parents, and family income were found to affect anxiety in children. Families with low socioeconomic status may experience anxiety due to financial difficulties, a high number of children and negative environmental conditions. Therefore, health professionals such as public health and pediatric nurses and doctors should identify families at risk, closely monitor children for health problems such as anxiety and depression, and design appropriate interventions to prevent anxiety in children. Another finding of the present study is that children with parents adopting instrumental feeding and emotional feeding had higher anxiety levels. This study is the first one to examine the relationship between parental feeding style and anxiety in children. Further studies are needed to elucidate the factors affecting the relationship between anxiety in children and emotional and instrumental feeding.

In summary, this study reveals that some sociodemographic variables and parental feeding styles affect anxiety in children. There is a need for further studies that examine the factors affecting the relationship between emotional feeding style and instrumental feeding style and the child's anxiety.

Limitations

In this study, we used parental self-reports to study how parental feeding style was connected with child anxiety. Therefore, one of this study's limitations was that the self-reported assessments of parental feeding style and child anxiety may not accurately reflect the participants' actual state. Additionally, there might be cultural variations across the country, which indicates that different parental feeding styles and perceptions may differ. Because of this, the study's conclusions cannot be generalized to all children in the country. Despite these limitations, we believe that our research contributes to a better understanding of the relationships between parental feeding style and child anxiety.

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