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Mothers' Emotional States and Attitudes Regarding Their Children with Asthma

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Mothers' Emotional States and Attitudes Regarding Their Children with Asthma

Abstract

Objectives: The aim of this study was to investigate the associations of asthma with the psychological profile (depression and anxiety) of children with asthma and their mothers as well as the attitudes of these mothers toward their children and their family relationships.

Methods: Sixty-four children with asthma, 60 healthy children, and their mothers were included in the study. The Children's Depression Inventory (CDI) and Childhood Anxiety Sensitivity Index (CASI) were applied to the children. All mothers completed the Beck Depression Inventory, the State-Trait Anxiety Inventory, the Parental Attitude Research Instrument, and the Family Assessment Device.

Results: CASI scores were significantly higher in children with asthma ($p < 0.001$) than in healthy children. The increasing duration and severity of asthma were associated with increasing anxiety levels in children with asthma. Depression and anxiety scores were

significantly higher in the mothers of children with asthma than in the comparison group. The mothers of children with asthma did not have supportive and friendly relationships with their children. In addition, these mothers had significantly higher Attitude of Hostility and Rejection, Attitude of Over-parenting, and Authoritarian Attitude scores than those of the comparison group. Increasing duration and severity of asthma influenced family functions and the attitude of the mothers of children with asthma. There was a correlation between an increasing number of emergency department visits and increasing depression in the mothers of children with asthma.

Conclusion: This cross-sectional study revealed that the disease may negatively affect the lives of children with asthma and their mothers and their family relationships.

Keywords: Asthma, Depression, Anxiety, Parental attitude, Family functioning

Introduction

As one of the most common chronic, debilitating diseases of childhood, asthma is a significant health issue among children, and its prevalence is increasing in numerous countries [1]. Childhood asthma results in long-term stress in children and their entire family, like many other chronic diseases. This disease leads to some psychological problems due to its early onset, unpredictable doctor visits, the presence of attacks requiring a hospital stay, long-term drug use, and restricted social life [2].

Behavioral and emotional problems are frequently observed in children with asthma. Most studies have revealed that depressive and anxiety symptoms are higher in children and adolescents with asthma than in healthy children and adolescents [3,4]. In addition, researchers have found that the prevalence of asthma is high among patients with anxiety disorders compared to other chronic diseases and healthy individuals without anxiety

disorders and it has been suggested that anxiety disorders and depression may trigger asthma [5].

Easter et al. conducted a literature review concerning anxious and depressive symptoms experienced by caregivers of children with asthma. They revealed that mothers of children with asthma had higher levels of anxious and depressive symptoms than mothers with healthy children [6]. The levels of depression and anxiety symptoms were determined to be statistically higher in Turkish mothers of children with asthma than those with children without asthma [7]. The fact that anxious and depressive symptoms are observed in caregivers at higher rates is related to poorer outcomes for children with asthma [8]. Depressive and anxiety symptoms experienced by caregivers constitute risk factors for children in terms of higher asthma morbidity. Depressive symptoms in caregivers are associated with a higher number of emergency care visits induced by asthma, emergency department visits, and hospital stays in children [9,10]. Children of caregivers suffering from anxiety disorders also have greater risk in terms of hospital stays caused by asthma than children of caregivers with no anxiety disorders [9]. It has been suggested that the correlation between the depressive symptoms of mothers and the asthma morbidity of children is associated with lower maternal self-efficacy related to the management of attacks and lower compliance to asthma treatment [8].

Maternal anxiety/depression, parental functioning, and their correlation with pediatric asthma have recently drawn more attention. The family environment has the capacity to act as a buffer, decreasing the effects of stressors on the psychological adaptation of children [11]. Therefore, the level of parental stress is significant, especially for children suffering from a chronic disease to develop a positive attitude. An early study on maternal mental health and pediatric asthma examined parental coping behaviors, revealing that poor parenting skills and

parental coping were predictive of asthma onset [12]. In another study, the family's psychological adaptation was associated with parents' perceptions of asthma control [13].

When families with children with asthma were compared with those of healthy children, it was determined that there was less parent-child communication and parental anxiety was higher [6]. Hazzard and Angert reported monthly asthma-related arguments between parents and children in 34% of families with children with asthma [14]. The stress and coping theory states that the absence of sufficient parental coping resources may cause parental stress, which may result in ineffective parenting behavior. In all children, the family acts as the primary system for the mediation of life events, particularly when facing challenges such as chronic illnesses. With chronic illness, the family environment retains the potential to serve as a buffer to reduce the effects of the stressors on the child's psychological adaptation [11]. Therefore, the level of parental stress would appear to be important to the development of a positive attitude, especially for children suffering from a chronic illness.

The effect of pediatric asthma on maternal psychological health has been increasingly examined, but its effect on mothers' attitudes and family functioning has been studied less frequently. The relationship between childhood asthma and maternal anxiety, depression, attitudes and family functioning is not fully understood. The aim of this study was to examine the associations of the asthma-related factors, including the disease severity, the frequency of asthma attacks, and the duration of disease on the psychological profile (depression and anxiety) of children with asthma and their caregivers as well as the attitudes of these mothers toward their children and their family relationships.

Methods

Participants

The study was planned and conducted at the Department of Child and Adolescent Psychiatry and the Department of Pediatric Allergy in a University School of Medicine in 2015. The study involved a series of 64 children with asthma and their mothers. 75 children with asthma were selected from the Pediatric Allergy Department; 6 children and their mothers from the asthma group declined to participate while 69 agreed to join the study. Two mothers and four children from the asthma group did not complete the scales properly so they were excluded. The comparison group consisted of 60 healthy children and their mothers. A total of 70 healthy children and their mothers were defined; 7 declined to participate in the study while one mother and three children did not complete the necessary scales properly and did not return the necessary forms so they were excluded. The children in the sample group were 7-14 years of age. The comparison group had sociodemographic characteristics (age, gender, the education of children and the ages of parents, family income, the educational level and profession of mothers, and the number of siblings) similar to those of the asthma group. The comparison group was randomly selected from a primary school located in the epidemiological catchment area of the University Hospital. The mothers of children with asthma and those of the healthy children who had any known chronic disease or any known or diagnosed psychiatric disorder were excluded from the study. Children with mental retardation and chronic medical/neurological disorders were also excluded. Informed consent was obtained from all the mothers for the participation of their children, and the children also gave their assent. Approval for the study was granted by the Institutional Ethics Committee. All the study procedures were implemented based on the Declaration of Helsinki and local laws and regulations.

A priori sample size analysis at the planning stage using G*Power 3.1 soft-ware revealed that for a two-tailed Student's t test on independent groups at an allocation ratio of 1:1 and a p level of 0.05 to achieve 80% power (with a medium effect size, 0.5) required 145 subjects but

only 124 subjects were found to fulfill the criteria within the study duration, thereby resulting in a power of 70% [15].

An experienced psychiatrist conducted interviews with both the children and their mothers. A sociodemographic data form was used to record the socio-demographic characteristics, medical history, and family history of children and their mothers. This form included socio-demographic characteristics of the educational, occupational, marital, and economic status of the mothers as well as data on known chronic diseases and psychiatric disorders.

All asthma groups were recruited consecutively at the time of the visit to the outpatient Pediatric Allergy Clinic at the University School of Medicine Hospital in 2015. The diagnosis and severity of asthma were defined according to the recently published WHO Global Initiative for Asthma (GINA) guidelines revised in 2015. The children were diagnosed by an asthma specialist, and the asthma treatment was implemented in accordance with this guideline [16]. According to the severity, asthma is divided into two groups as intermittent and persistent. Persistent asthma is classified as mild, moderate, and severe. The asthma-related data covered the age at onset of the disease, the duration of disease, the severity of disease, the number of emergency visits within the past 12 months, the frequency of asthma attacks within the past 12 months, and the modalities and dosages of asthma treatment/controlling and quick relief medications. The data were collected using the patient files during visits to the pediatric allergy department. Children received asthma care regularly, initially on a monthly basis and every 3-6 months thereafter, and their disease status and adjustment to the treatment were checked at every visit.

The children were asked to complete the Children's Depression Inventory (CDI) and the Childhood Anxiety Sensitivity Index (CASI). The CDI is a 27-item self-report scale that includes cognitive, affective, and behavioral symptoms of depression in children between 8 and 17 years of age. Each item is rated as absence (0 point), mild presence (1 point), or clear

presence (2 points) of the symptom. A total score ranging from 0 to 54 is obtained and can be converted into percentile scores for age, gender, and educational level. A total score ≥ 16 signifies possible clinical depression requiring further investigation [17]. The adaptation study of the inventory in Turkey was conducted by Oy [18]. The internal consistency coefficient of the inventory was found to be 0.86 and test-retest reliability was 0.77. The correlation between the CDI points and the CASI points was found to be 0.61, and this value was considered to be sufficient for the validity of the inventory.

The CASI was developed by Silver for school-age children between 6 and 17 years of age [19]. The 18-item CASI is based on scoring the fear of anxiety-related bodily sensation. The CASI is scored as never (1), sometimes (2), and a lot (3). The total scores range from 18 to 54 points. The validity and reliability study of this index was conducted by Yılmaz et al. [20]. The Cronbach Alpha internal consistency coefficient of the Turkish version of the scale was found to be 0.74, and the test-retest reliability was 0.77.

All mothers completed the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory (STAI), the Parental Attitude Research Instrument (PARI), and the Family Assessment Device (FAD) in a specific room in the clinic [21-24]. The BDI was used for depressive symptoms in this study. It was developed by Beck and is widely used to evaluate depressive symptoms in clinical settings [21,25]. On the other hand, the STAI was used to assess anxiety symptoms. The STAI has been used in studies evaluating the effect of chronic medical conditions on the psychological well-being of patients and their families [26]. Mothers' attitudes were evaluated with the PARI. As defined by the PARI, an *attitude of over-parenting* refers to an over-controlling, anxious, and over-demanding parental attitude. A *democratic attitude* refers to an encouraging, supportive, and sharing relationship. An *attitude of hostility and rejection* refers to nervous, distressed, and angry mothers in relationship with their children. *Marital discordance* refers to the marital discordance on the child-rearing

activities of the parents. An *authoritarian attitude* reflects over-punishing and a rigid parental attitude [23]. Family adjustment was assessed using the FAD. The FAD is based on the McMaster Model of Family Functioning and consists of a 60-item questionnaire designed for completion by parents and adapted for the Turkish population by Bulut [27]. It consists of 7 subscales with 60 items. These include 6 items on “Problem solving”, 9 items on “Communication”, 11 items on “Roles”, 6 items on reacting emotionally, 7 items on “Affective Responsiveness”, 9 items on “Behaviour Control and 12 items on “General Functioning”. *Problem solving* reflects the family’s problem-solving abilities. *Communication* refers to the effectiveness, extent, clarity, and directness of information exchange in the family. *Roles* refer to the efficacy of allocated and accomplished family tasks. *Affective responsiveness* refers to the ability of family members to respond to appropriate emotion, including feelings of welfare (joy, love, concern, affection) and emergency (sadness, depression, anger, fear). *Affective involvement* refers to the quality of interest, concern, and investment of family members toward each other. *Behavior control* refers to the standards and attitudes for behavior. *General functioning* refers to a general problem in all functions in the family [24]. Each item is assessed with a score from 1 to 4. A score of 1 indicates a healthy answer whereas a score of 4 indicates a pathological finding. There is no global cut-off point for the FAD. The average of the scores is taken into consideration in each subscale according to the adapted Turkish version of FAD. Scores above 2 indicate impairment in family functioning and theoretically the cut-off point is 2 in each subscale [27].

In studies of the implementation of the scale in Turkish, examination was made of the reliability, internal consistency and invariability of the points and it was determined that the Cronbach alpha internal consistency coefficient of the sub-scales varied between 0.38 and 0.86. As there is no total score for the scale, the test-retest correlation for each sub-scale was calculated with Pearson-product-moments. Correlation coefficients for the sub-scales have

been given as 0.62 as the lowest and 0.90 as the highest. The validity study of the scale tested construct validity and consistency validity. Construct validity was investigated in groups with and without mental illnesses and those going through divorce and not. The scale was determined to have differentiated the groups at a significant level.

The reliability and validity studies of all these instruments were conducted in the Turkish population [28]. All instruments were self-report scales that are widely used in psychiatric studies and are applicable to chronic conditions [25,26].

Statistical evaluation

SPSS 15.0 (SPSS Inc., Chicago, IL), a packaged software program, was used for statistical analysis. The Kolmogorov-Smirnov test was used to determine normally distributed continuous variables. The chi-square test was used for categorical data. The children with asthma and the healthy comparison group were compared using Student's *t*-test in terms of parametric scales, whereas non-parametric scales were analyzed with the Mann-Whitney *U*-test. Effect size estimates were calculated using Cohen's *d* [29]. Pearson's correlation test was used to determine the correlations of asthma duration with the BDI, STAI, PARI, and FAD scores in the mothers of children with asthma and with the CDI and CASI scores in children with asthma. Correlations between non-parametric data were examined through Spearman rank correlation analysis. These tests are commonly used in such psychiatric studies [25]. A value of $p < 0.05$ was accepted as statistically significant. Backward elimination involving starting with all candidate factors identified by univariable logistic regression at cutoff of 0.2 was carried out to build the final multivariable model. Only those factors with *p* value less than 0.05 were included in the final model. Multivariable logistic regression was performed to identify those potential factors in differentiating between patients with asthma and without. Our final model included six coefficients.

Results

Table 1 summarizes the average age and gender distribution of the asthma and comparison groups. No statistically significant difference was found between the two groups ($p=0.155$, $p=0.327$, respectively) in terms of age and gender. Table 1 summarizes the socio-demographic characteristics of the children and their mothers.

The mean asthma duration of children with asthma was 46.44 ± 20.40 ($r=23-96$ months). Twenty-three (35.9%) of the children with asthma had mild persistent asthma, 30 (46.9%) had moderate persistent asthma, and 11 (17.2%) had severe persistent asthma.

Thirteen (20.3%) children with asthma had no asthma attack, 20 (31.3%) had one attack, 21 (32.8%) had two attacks, and 10 (15.7%) had three or more attacks within the past 12 months. The number of emergency department visits of the children with asthma in the previous 12 months was determined as none in 45 cases (70.3%), 1 in 9 cases (14.1%), 2 in 6 cases (9.4%), and 3 or more in 4 cases (6.2%).

The CASI scores of the children with asthma were significantly higher than those of the comparison group ($p<0.001$, $d=1.17$). Table 2 shows the mean scale scores of the asthma and comparison groups. A statistically significant positive correlation was found between the CASI scores of children with asthma and the duration of asthma ($r=0.484$, $p=0.004$). The CASI scores of children with severe persistent asthma were significantly higher ($p=0.019$). No correlation was found between the CDI and CASI scores of children with asthma and the number of emergency department visits.

The depression ($p<0.001$, $d=0.68$), state anxiety ($p<0.001$, $d=0.74$), and trait anxiety ($p<0.001$, $d=0.87$) scores were significantly higher in the mothers of children with asthma than in the mothers of the comparison group. They had significantly lower scores on democratic attitude ($p=0.003$). They had significantly higher scores on hostility and rejection

($p=0.001$), authoritarian ($p<0.001$, $d=1.88$) and over-parenting ($p<0.001$, $d=0.85$) attitudes as well as affective involvement ($p<0.001$, $d=0.71$) compared to the mothers in the comparison group. Table 3 shows the mean scale scores of the mothers of children with asthma and the mothers of the healthy children.

There was no correlation between the scores of mothers and the scores of patients and healthy children.

There was a statistically significant positive correlation between the duration of asthma and the problematic family functioning scores such as affective involvement ($r=0.427$, $p=0.011$) and roles ($r=0.365$, $p=0.024$).

The mothers of children with severe persistent asthma had significantly higher scores in over-parenting attitude ($p=0.003$).

The BDI scores of the mothers of children with three or more asthma attacks within the previous 12 months were significantly higher ($p=0.024$).

Multivariable logistic regression was performed to identify those potential factors in differentiating between patients with and without asthma among 124 participants. The final model was able to explain between 62.8% and 83.8% of variance. The model was found to fit the data adequately (Hosmer and Lemeshow's $\chi^2 = 10.529$, $p = 0.230$), and was able to predict asthma status (Omnibus $\chi^2 (4) = 122.723$, $p < 0.001$). Overall, the model was able to correctly predict 51.6% of all cases. Six predictors were included in the model, using the Enter method (squared Wald statistics are displayed in Table 4). Improvements in CASI, STAI-trait, PARI-authoritarian and FAD-affective involvement scores were associated with increased odds of asthma (OR 1.274; 1.105; 1.366; 7.892, respectively). Improvements in PARI- democratic and FAD-roles scores were associated with decrease odds of asthma (OR 0.739; 0.017, respectively). Assumptions for linearity and multi-collinearity were satisfied.

Discussion

The results of the present study revealed that children with asthma had higher anxiety scores than healthy children, and statistically significant differences were observed between the mothers of children with asthma and those of healthy children in terms of their psychological well-being, attitudes toward their children, and family functioning. The activities of daily living and functioning of the whole family are associated with the presence of chronic conditions. Family systems theory states that changes in the health or functioning of individuals affect all family members [30]. This study confirmed the hypothesis that mothers of children with asthma experience difficulties with their children's chronic condition. Children with chronic diseases are at greater risk of having psychological problems [31]. Numerous studies have reported that children with asthma have higher anxiety than healthy children [32]. In a meta-analysis with data from almost 5,000 children with asthma, McQuaid et al. determined that these children had more psychological problems, particularly internalizing problems, compared to their healthy peers [33]. In a U.S. study, while pediatric asthma was related to anxiety in particular, anxiety was not associated with other chronic diseases, including sickle cell anemia, diabetes, leukemia, and cardiac problems, that limited physical activity. On the other hand, depression was not associated with asthma, but with other chronic diseases [34]. A clinical study conducted in France had similar results [32]. Similarly, in the present study, children with asthma showed heightened levels of anxiety compared to healthy children, but their depression levels did not differ. Anxiety may be associated with the nature of this disease. Other than such chronic stress, children with asthma have greater stress in acute asthma attacks. They may not go to school because of frequent admissions to hospitals. Their symptoms may be severe and sometimes even life-threatening [35]. However, asthma symptoms can be controlled well under proper evaluation, management, and regular monitoring and children generally experience normal, active lives as

healthy individuals if asthma control is achieved. Therefore, in this study, it was determined that experiences such as helplessness and hopelessness induced by depression were not significantly different in children with asthma versus healthy children, although the probability of having asthma attacks might have increased the anxiety scores in these children. These results may have been associated with the unpredictable course of the disease for children in the cases in which there was a risk of death during asthma attacks.

In the current study, the increasing asthma duration was associated with increasing anxiety levels in children with asthma. This result was supported by some studies but contradicted by others. The increase in the anxiety level in children with asthma was found to be associated with the duration of the disease in some studies, but not in others [32,36,37]. This suggests that despite risk factors in the formation of psychiatric problems, family and individual protective factors, such as the parents' educational level and the child's intelligence level, may be effective during the asthma process.

In the results of the present study, an increased severity of asthma was associated with increased anxiety in the children with asthma. This supports the results of many studies in literature [32,33]. One potential cause of this could be the increasing threat of potential asphyxia with increased severity of asthma. Furthermore, in terms of the severity of asthma, changes in breathing were also found to provoke anxiety [38]. Another finding concerning the severity of asthma is the risk of forming a potential psychiatric disorder: central chemoreceptors sensitive to the PaCO_2 amount elicit panic attacks and feelings of asphyxia and increase anxiety. Researchers have found that recurrent hypercapnia and hypoxia exposure sensitizes neurons in the centers such as the amygdala and locus ceruleus, which are the fear-response centers in the brain, and this leads to disorders, such as anxiety disorder and depression [39].

The psychological health of the mother is strongly affected by their child's chronic disease. In the current study, depression and state and trait anxiety were determined to be higher in the mothers of children with asthma than in the comparison group, which was consistent with previous studies [19,36,40]. These results may have been caused by the unpredictable course of the illness when the child may have been at risk of death during asthma attacks. Moreover, the families have to deal with stressors related to the illness such as frequent health check-ups and treatment procedures.

The fact that mothers of children with asthma have high levels of anxiety and depression could influence their attitudes toward their children and family functioning. In this study, the mothers in the asthma group had lower democratic attitude scores than those in the comparison group. This indicates that the mothers in the asthma group were not supportive parents and did not have a sharing relationship with their children. In the present study, the mothers in the asthma group displayed more hostility and rejection, over-parenting, over-punishing, and more rigid parental attitudes than those in the comparison group. This may signify that the mothers in the asthma group were unhappier and had higher dissatisfaction with their maternal role than those in the comparison group. They had feelings of nervousness, distress, and anger in their relationships with their children. The change in family roles associated with a chronic condition of children may lead parents to experience anger or guilt. The isolation of parents from family and friends may restrict them in their own self-care [41]. Asthma could also lead to significant negative social stigmatization, as having a child with a chronic disease may result in challenges in the motherhood role.

The present findings revealed that with an increasing duration of the disease, the family functions such as affective involvement and roles worsened. As the duration of the disease increases, the impaired family functions may adapt poorly to the disease. The existing structures in the family system are adversely affected by chronic conditions, which may result

in changes to restore equilibrium and reestablish or recreate roles, rituals, and daily routines. Families may cope with disease-related stressors, such as the requirement for frequent medical visits, a multi-component treatment regimen, and an unpredictable course of the disease. They may also be more nervous and angry in their relationships with their children with the intention of protecting the child or due to asthma-associated fears. When the functional areas were considered in the results of the present study, it could be asserted that a longer duration of the disease may lead to several problems in parents.

It was determined that the increased severity of asthma influenced the attitude of over-parenting. The presence of issues related to an over-parenting attitude refers to an over-controlling, anxious, and over-demanding parental attitude. Therefore, mothers of children with severe asthma might play over-supportive and caring roles, enabling their children to become more dependent and less able to have independent functions.

In this study, there was a correlation between an increasing number of emergency department visits and increasing depression among mothers of children with asthma. Barlet et al. determined a correlation between the depressive symptoms of such mothers and emergency room use [10]. This was thought to be associated with hopelessness and despair experienced by mothers whose children have asthma attacks and a severe condition requiring emergency department visits.

Limitations

There was no evaluation in the study of the interactions of children suffering from asthma with their siblings and fathers as well as their relationship characteristics. In future studies, in terms of understanding the psychosocial processes related to asthma, it could be beneficial to examine the interactions with family members other than the mothers of children with asthma, as this is a chronic disease affecting all family members. This could be considered a limitation of the study. Another limitation of the present study was that the psychological well-being of

mothers and children participating in the study was not assessed using a semi-structured clinical interview, but it was evaluated by an experienced clinician via a clinical interview. Based on these limitations, in the study the children were assessed in terms of their psychopathology and psychological symptoms, revealing the efficacy of psychological tools such as the PARI and FAD to examine the psychosocial effects of a chronic disease such as asthma on patients and their families.

Conclusions

In conclusion, the results of the present study confirmed the hypothesis that mothers of children suffering from asthma may have challenges related to their child's chronic condition. The mothers' attitudes and family functioning were adversely influenced during this process. Pediatricians should remember that mothers can be directly influenced by their child's chronic disease. The management of the psychosocial dimensions of asthma should be realized with these patients and their families with information provided about the significance of preventive approaches and treatment interventions.

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TABLE 1: Sociodemographic features of children and the mothers

	Children with Asthma (n=64)		Healthy Children (n=60)		p value	Cohen's d
	Mean±standart deviation		Mean± standart deviation			
Mean age of childrens (years)	10.67±2.39		10.12±1.81		0.155	0.26
Mean age of mothers (years)	33.56±6.27		35.45±5.89		0.472	0.31
	n	%	n	%		OR (95% CI)
<i>Gender</i>					0.327	1.47 (0.71-3.09)
Female	26	40.6	19	31.7		
Male	38	59.4	41	68.3		
<i>Number of siblings</i>					0.161	1.71 (0.80-3.67)
One	17	26.6	23	38.3		
Two or more	47	73.4	37	73.4		
<i>Education of the mother</i>					0.448	1.24 (0.33-2.45)
Elementary	35	54.7	29	48.3		
High school or University	29	45.3	31	51.7		
<i>Profession of the mother</i>					0.290	1.47 (0.72-2.98)
Housewife	46	71.9	37	61.7		
Worker	18	28.1	23	38.3		
<i>Marital Status of the mothers</i>					0.436*	0.54 (0.12-2.37)
Married	61	95.3	55	91.7		
Separated	3	4.7	5	8.3		
<i>Socioeconomic status</i>					0.174	0.52 (0.20-1.35)

Low/middle income	56	87.5	47	78.3		
High income	8	12.5	13	21.7		

OR: Odds Ratio; CI: Confidence Interval

* Fisher's test

TABLE 2: Psychometric scores of children with asthma and healthy children.

	Children with Asthma (n=64) Mean±standart deviation	Healthy Children (n=60) Mean±standart deviation	<i>p</i> value	Cohen's d
CASI	20.82±10.34	11.68±3.86	<0.001	1.17
CDI	7.46±4.86	8.73±5.65	0.293	0.24

CDI: Children's Depression Inventory; CASI: Childhood Anxiety Sensitivity Index

TABLE 3: All scale results of mothers of children with asthma and mothers of healthy children.

	Asthma (n=64) Mean±standart deviation	Control (n=60) Mean±standart deviation	<i>p</i> value	Cohen's d
Beck Depression Inventory	12.60±5.20	9.53±3.72	<0.001	0.68
State Trait Anxiety Inventory-State	43.34±9.43	36.56±5.68	<0.001	0.74
State Trait Anxiety Inventory-Trait	43.93±7.70	38.68±6.44	<0.001	0.87
PARI- over-parenting	36.10±9.94	29.06±6.27	<0.001	0.85
PARI- democratic	24.04±4.36	26.56±4.24	0.003	0.59
PARI- hostility and rejection	27.31±5.62	23.92±6.81	0.001	0.54
PARI- marital discordance	13.30±4.32	12.21±3.94	0.148	0.26
PARI- authoritarian	34.06±4.53	24.20±5.87	<0.001	1.88

FAD- problem solving	1.62±0.59	1.58±0.59	0.640	0.07
FAD- communication	1.53±0.54	1.51±0.51	0.910	0.04
FAD- roles	1.77±0.38	1.89±0.26	0.063	0.37
FAD- affective responsiveness	1.90±0.42	1.78±0.38	0.036	0.30
FAD- affective involvement	2.28±0.53	1.93±0.45	<0.001	0.71
FAD- behavior control	2.02±0.39	1.94±0.35	0.099	0.22
FAD- general functionality	1.72±0.43	1.60±0.56	0.033	0.24

PARI: Parental Attitude Research Inventory; FAD: Family Assessment Device

TABLE 4: Logistic Regression Analysis of asthma and comparison group (n = 124).

Predictor Variable	Cox & Snell R ²	Nagelkerke R ²	HL χ^2	Sig	Wald ²	df	p	Exp(B) (95% CI)
Final Model	0.628	0.838	10.529	0.230				
CASI					10.896	1	0.001	1.274 (1.103-1.470)
State Trait Anxiety Inventory-Trait					4.230	1	0.040	1.105 (1.004-1.219)
PARI- democratic					7.741	1	0.005	0.739 (0.597-0.914)
PARI-authoritarian					18.272	1	<0.001	1.366 (1.184-1.576)
FAD-roles					6.259	1	0.012	0.017 (7.253-0.015)
FAD- affective involvement					7.211	1	0.007	7.892 (1.747-35.646)
Constant					3.157	1	0.076	0.001

HL: Hosmer and Lemeshow goodness of fit; CI: Confidence Interval; CASI: Childhood Anxiety Sensitivity Index; PARI: Parental Attitude Research Inventory; FAD: Family Assessment Device