

Assessment of Perceived Parental Acceptance-Rejection and Psychological Adjustment Levels of Children Diagnosed with Attention-Deficit Hyperactivity Disorder

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ABSTRACT

Assessment of perceived parental acceptance-rejection and psychological adjustment levels of children diagnosed with attention-deficit hyperactivity disorder

Objective: This study aimed to assess the perceived parental acceptance-rejection and psychological adjustment levels of children diagnosed with attention-deficit hyperactivity disorder (ADHD).

Method: This study included 64 children aged 9 to 12 who were diagnosed with ADHD and 52 healthy children and their parents. Children were evaluated with 'Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version'. The Parental Acceptance-Rejection Questionnaire-Child Form, Personality Assessment Questionnaire and a Personal Information Questionnaire formed by the researchers have been used as data collection tools.

Results: In this study in which ADHD and control groups were compared, it was found that children diagnosed with ADHD perceived parental rejection more and had worse psychological adjustment than those without the diagnosis. Children with ADHD reported more rejection from the mother whereas children in the control group reported less care from the father.

Conclusion: This study is exceptionally important in terms of demonstrating perceived parental acceptance-rejection and psychological adjustment of children with ADHD. Besides, it has been seen that depending on the presence of ADHD, the child's perceived parental acceptance-rejection is differently affected from the mother and the father. The findings on acceptance-rejection, in addition to giving helpful clues for ADHD family education, they will be also helpful in studies to improve the psychological assessment of these children.

Keywords: Attention deficit hyperactivity disorder, parental acceptance-rejection, psychological adjustment

ÖZ

Dikkat eksikliği hiperaktivite bozukluğu tanısı konulan çocukların ebeveynlerindeki kabul-red durumunu algılayışları ve psikolojik uyum düzeylerinin incelenmesi

Amaç: Bu çalışmada dikkat eksikliği hiperaktivite bozukluğu (DEHB) olan çocukların algıladıkları ebeveyn kabul-red ve psikolojik uyumlarının incelenmesi amaçlanmaktadır.

Yöntem: Çalışmaya DEHB tanısı konulan 9-12 yaş arasındaki 64 ve herhangi bir tanısı olmayan 52 çocuk ve aileleri katılmıştır. Çocuklar ilk olarak 'Okul Çağı Çocukları için Duygulanım Bozuklukları ve Şizofreni Görüşme Çizelgesi-Şimdi ve Yaşam Boyu Versiyonu' ile değerlendirilmiştir. Veri toplama aracı olarak Ebeveyn Kabul-Red Ölçeği- Çocuk formu, Kişilik Değerlendirme Ölçeği ve araştırmacılar tarafından hazırlanan Kişisel Bilgi Formu kullanılmıştır.

Bulgular: Klinik ve normal örneklem gruplarının karşılaştırıldığı bu çalışmada, DEHB'li çocukların, tanısı olmayanlara göre anne ve babaları tarafından daha fazla reddedildiklerini algıladıkları, bunun yanı sıra daha kötü psikolojik uyuma sahip oldukları bulunmuştur. DEHB'li çocuklar annelerinden daha fazla red algılayan, normal örneklemdeki çocuklar babalarından daha az ilgi aldıklarını bildirmektedir.

Sonuç: Bu çalışma DEHB'li çocukların ebeveyn kabul-red algılarını ve psikolojik uyumlarını göstermesi açısından son derece önemlidir. Bunun yanı sıra, ebeveynin anne ya da baba olmasının, çocuğun DEHB tanısı olup olmamasına bağlı olarak, kabul-red algısını etkilediği görülmüştür. Kabul-red ile ilgili olarak elde edilen bu bulgular, DEHB aile eğitimlerinde kullanılabilecek yararlı ipuçları sunmasının yanı sıra bu çocukların psikolojik uyumlarını geliştirmek için yapılacak çalışmalar için de yararlı olacaktır.

Anahtar kelimeler: Dikkat eksikliği hiperaktivite bozukluğu, ebeveyn kabul-red, psikolojik uyum



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INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a chronic neuropsychological disorder that is common in childhood and may impair functioning in school, family and social relationships (1). For many years, many researchers have been studying symptoms of ADHD as well as trying to understand the effect of this condition on the child and the family (2-5). Although it has been clearly demonstrated to be hereditary (2,6), some environmental factors, such as parenting, are also effective in the clinical course of this disorder and on the functioning of the child (7,8). Compared to normal children without any psychiatric diagnosis, children with this disorder have been shown to be exposed to more inconsistent and hostile parenting and with less affection from their parents (7,9-11). In addition, some factors such as family problems, parental ADHD, emotional problems during pregnancy, or alcohol-substance use are thought to increase the risk of developing ADHD (12). Various treatment approaches such as medical treatment, neuropsychological intervention, family counseling, and parental attitude and behavior management are applied (2).

The Parental Acceptance-Rejection Theory (PART) is one of the theories that outlines the importance of parental behavior in childhood, integrates it with personality theory, and predicts the consequences of parental acceptance/rejection. This theory explains the possible consequences of perceived parental acceptance/rejection on behavioral, cognitive, and emotional development of both children and adults (13). According to Rohner and his colleagues, this theory is based on the assumption that all people in the world need to receive warmth from people who are important to them (13). According to this theory, parents can be "rejecting" in four different ways: 1) Parental warmth: Parents can deny their warmth, love and compassion to their children. 2) Hostility: they may feel hostile towards their children and behave aggressively. 3) Indifference and negligence: they may neglect their children with their indifference. 4) Undifferentiated rejection: The child may believe that he is not loved by

his parents even though there is no apparent coldness, neglect or aggression.

In studies regarding parental acceptance-rejection, it was stated that accepting parents generally loved their children and respected their personality. These parents are those who give hugs, caress, kiss, and tell beautiful things to their children (14). In addition, children who perceive acceptance by their parents are those who have self-esteem, do not need protection, and feel free (15). Rejecting parenting includes behaviours of neglecting, disdaining, disapproving, and too much criticizing. Children who think they are rejected by the parent are isolated, fragile, have been unable to learn love from their parents, have a low self-esteem, and feeling of inadequacy (14,16). Some studies have found that perceived parental acceptance and warmth are related to some personality predispositions as well as to psychological and social adaptation of children (17-19).

In addition, perceived parental rejection has been shown to be associated with depression, anxiety, social phobia, behavioral problems, externalizing problems, and substance abuse (20-25).

PART states that child's feeling of being emotionally self-reliant depends on the quality of the relationship with the parents, as well as that acceptance or rejection by the parent has an impact on personality and psychological state of the child. According to its personality sub-theory, regardless of ethnic identity and culture, it is proposed that parental rejection presents with seven specific personality dispositions (26). These personality dispositions, generally defined as "psychological adjustment," are "dependence or defensive independence, hostility and aggression, emotional unresponsiveness, negative self-esteem, negative self-adequacy, emotional instability, and negative worldview." These personality dispositions are in fact indicative of the psychological adjustment and mental health of the person and perceived rejection have negative effects on their psychological adjustment and mental health (11).

In a meta-analysis study of the relationship of negative personality dispositions and perceived parental hostility and psychological adjustment in the

context of PART, perceived both maternal and paternal hostility were associated with negative personality dispositions in children. These children present worse psychological adjustment, as well (27). Similar to these results, another meta-analysis states that perceived parental neglect is associated with poor psychological adjustment (28).

Many studies have examined the relationship between children with ADHD and their families (7,29-33). Mothers of children with ADHD behave more negativism and controlling, give more instructions and respond less positively to their children's social interventions (32,34). Fathers prefer to have more indirect relationships with their children and mostly spend time with activities such as playing games (35). Many studies on psychopathology in children have focused on the relationship of the child with the mother rather than the father (36).

In this study, it is aimed to examine perceived parental acceptance/rejection and psychological adjustment of children with ADHD. It is predicted that, compared to healthy controls, in children with ADHD, both academic and social difficulties affects family relationships; they perceive parental rejection and they have worse psychological adjustment. When studies on this topic are examined, it is seen that there are many studies on children with ADHD and their parents (29,30,37-39). However, this study is important since it is the first study investigating parental acceptance/rejection perceptions and psychological adjustment of children with ADHD in terms of parental acceptance/rejection theory.

METHOD

The clinical sample of this study consisted of children with a history of ADHD, but have not received treatment in the last 3 months and newly diagnosed ADHD cases who admitted to Ankara Child Health and Diseases Hematology Oncology Training and Research Hospital Child Psychiatry Outpatient Clinic. ADHD diagnoses were set according to the DSM-IV diagnostic criteria by pediatric and adult psychiatrists blinded to the study.

The children who were admitted by parents for causes such as sibling jealousy, school adjustment problems, counseling about sibling birth or developmental processes but did not meet any diagnostic criteria constitutes normal sample group.

Since it was determined in the reliability and validity study that the scales used in the study were more appropriate for children aged 9 years and older, especially this age group was included in the study (40). The presence of a specific learning disability, mental retardation, medical or neurological disorder, or a physical disability was accepted as exclusion criteria. No psychometric measurements were used for mental retardation diagnosis, it was based on separate clinical evaluations by a pediatric psychiatrist and a clinical psychologist. In addition, since internalizing problems such as anxiety and depressive symptoms, and externalizing problems such as conduct disorder and oppositional defiant disorder, are considered to affect children's perception of their parents, those who have been identified as having these co-morbid conditions were excluded from the study. The children of parents who answered yes to the question on the parental information form: "have you received a psychiatric treatment in the last 6 months?" were not included in the study. Parental physical disability has also been questioned, but there were no disabled persons among those who agreed to participate in the study.

Initially, data of 139 children between the ages of 9 and 12 who were diagnosed with ADHD and

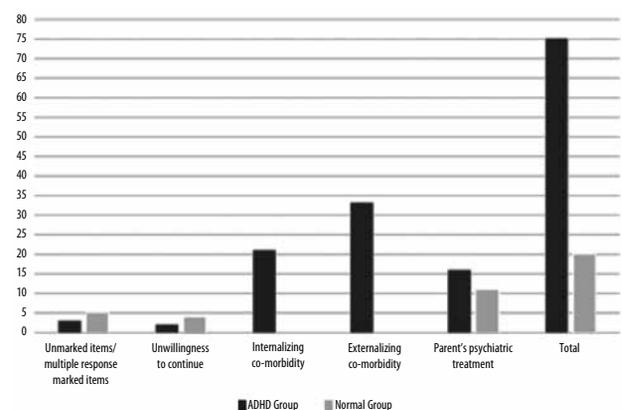


Figure 1: Characteristics of excluded subjects.

ADHD: Attention-Deficit Hyperactivity Disorder

72 children without any diagnosis were collected. However, as a result of the exclusion criteria, data of 64 children with ADHD and 52 children without any diagnosis were evaluated. Since it is important to determine sample power in clinical trials, power analysis was performed (41). Post-hoc power analysis, in which type I error is $\alpha=0.05$, type II error is $\beta=0.2$, and the distribution ratio of the groups is 1:1, revealed $n=71$ using the formula $n = \frac{2\sigma^2(Z\alpha/2 + Z\beta)^2}{d^2}$. This study was carried out with the sample obtained because ADHD is a disorder presenting with both internalizing and externalizing psychiatric co-morbidities.

Measures

Personal Information Form: This form, made up by researchers, contains information such as the child's age, gender, number of siblings, parent's education and age, occupations, and living conditions of the family.

Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL):

This is a semi-structured interview that was used to identify ADHD and additional diagnoses of the children in the patient group and to exclude psychiatric diagnoses in the control group. The diagnosis was made after having the interview with one of the parents. K-SADS-PL was developed by Kaufman et al. (42) in order to determine past and present psychopathologies in children and adolescents (aged 6-18). The Turkish validity and reliability study was conducted by Gokler et al. (43).

Parental Acceptance-Rejection Questionnaire Child Form (PARQ): PARQ is a self-report scale developed to assess the child's perceived parental rejection. There are 60 items in the child form and it contains four dimensions. These are warmth/affection subscale, hostility/aggression subscale, indifference/neglect subscale, undifferentiated rejection subscale. PARQ is filled

separately for each parent. The form, where perceived paternal acceptance/rejection is evaluated is called "Father PARQ", the one where perceived maternal acceptance/rejection is evaluated is called "Mother PARQ". The items are scored on a 4-point Likert type scale. The internal consistency coefficient ranged from 0.72 to 0.90 for the subtests (44). Turkish translation and adaptation study of the scale in Turkey was performed by Anjel (45); and internal reliability coefficients were found between 0.88 and 0.89. The reliability and validity study of the child/adolescent PARQ in our country was carried out by Varan (46). In that study, the Cronbach's-alpha internal consistency coefficient was 0.71 for Mother PARQ; and it was 0.73 for Father PARQ.

Personality Assessment Questionnaire (PAQ):

This is a self-report scale developed to assess the effects of parental acceptance-rejection perceptions on the individual. The seven personality dispositions that parental acceptance/rejection most affected according to the PART, are the subscales of the PAQ. These are "Hostility/Aggression, Dependence, Negative Self-Esteem, Negative Self-adequacy, Emotional unresponsiveness, Emotional Instability; Negative World View". The items are scored on a 4-point Likert type scale. The higher the score, the more psychological maladjustment is, while the lower the score the more psychological adjustment is (47). Validity and reliability studies of child/adolescent PAQ were performed by Varan (40). The internal consistency coefficient of Cronbach-alpha was found to be 0.70 for PAQ.

Collection of the data: The data were collected between May 2013 and July 2014. Before administering, the children were taken to a separate test room without the parents, at first they were informed by the psychologist on how they should fill out the measurement tools, once they were checked that they understood the instructions they filled out the questionnaire on their own. The administration lasted approximately 20-25 minutes.

Procedure

Our study was approved by the Hospital Ethics Committee (Decree Number: 2013/027- 08.05.2013). After the children and parents who were included in the study were informed about the purpose and method of the research, written consent was obtained from both groups. PARQ (child form) and PAQ (child form) were administered to the children who were evaluated with K-SADS-PL by blinded professionals.

Statistical Analysis

Data of the study were analyzed using SPSS (Statistical Package for Social Sciences) for Windows 17.0 software. Multivariate analysis of variance (MANOVA) was conducted in order to compare children with and without ADHD in terms of parental acceptance/rejection and psychological adaptation variables. Multiple regression analyzes were performed separately for ADHD and the control group to examine the extent to which psychological adjustment predicted parental acceptance/rejection. $p < 0.05$ was considered significant in all tests.

RESULTS

In the clinical sample group, 36 boys (56.3%) and 28 girls (43.8%), totaling 64 children between the ages of 9 and 12 years took part. The mean age of this group was 10.17 (SD=1.09). In the normal sample group, there were 30 boys (57.7%) and 22 girls (42.3%) totaling 52 children and the mean age was 10.71 (SD=1.03) (Table 1).

There was no difference between clinical and normal sample groups in terms of gender ($p=0.513$), income ($p=0.31$), mother and father education level ($p=0.706$; $p=0.127$), mother occupation ($p=0.128$) and father occupation ($p=0.889$). In addition, the mean age of the children with and without ADHD was found to be almost the same, and according to the applied t test result, it was determined that the children in these two groups were not different in terms of age ($p=0.725$).

Differences in PARQ Child Form and the PAQ Sub-Scales between the Groups:

Multivariate analysis of variance (MANOVA) was performed to examine whether there was a difference between the clinical and normal sample children in parental assessments in the PARQ and the PAQ subscales.

The results of multivariate analysis of variance yielded a significant multivariate main effect in the subtests of the mother and father scale of the PARQ in the clinical and normal sample (Wilks=0.765, $F_{[4,116]}=8.524$, $p < 0.01$, $\eta^2=0.235$ for the mother; Wilks=0.783, $F_{[4,116]}=7.675$, $p < 0.001$, $\eta^2=0.217$ for the father). When the subscales of the PARQ mother form were examined, there were statistically significant differences between the two groups in warmth, hostility, indifference-neglect, and undifferentiated rejection subscales ($F_{[1,116]}=15.01$, $p < 0.001$, $\eta^2=0.116$); $F_{[1,116]}=29.98$, $p < 0.001$, $\eta^2=0.208$); $F_{[1,116]}=10.56$, $p < 0.001$, $\eta^2=0.085$; $F_{[1,116]}=22.07$, $p < 0.001$, $\eta^2=0.162$; respectively). Hence, it is seen that the children in the ADHD group have a statistically higher mean scores in aggression, indifference/neglect and undifferentiated rejection subscales and lower mean scores in the warmth subscale compared to the children in the normal sample.

When the subscales of the PARQ father form were examined, there were statistically significant differences between the two groups in warmth, hostility, indifference-neglect, and undifferentiated rejection subscales ($F_{[1,116]}=7.51$, $p < 0.01$, $\eta^2=0.062$); $F_{[1,116]}=23.54$, $p < 0.001$, $\eta^2=0.171$); $F_{[1,116]}=4.35$, $p < 0.05$, $\eta^2=0.037$; $F_{[1,116]}=20.42$, $p < 0.001$, $\eta^2=0.152$; respectively). Accordingly, the children in the ADHD group were found to have significantly higher mean scores in aggression, neglect, and undifferentiated rejection subscales and lower mean scores in the warmth subscale compared to the normal sample.

In addition, the main effect was found to be statistically significant (Wilks=0.710, $F_{[7,116]}=6.297$, $p < 0.01$, $\eta^2=0.290$) in the PAQ subscales in the clinical and normal sample. When the difference between the subscales were analyzed, it was found that there were statistically significant differences between the two groups in the mean scores of aggression, negative self-adequacy, and negative self-esteem subscales

Table 1: Socio-demographic and descriptive characteristics of ADHD group, control group, and the entire study sample

	ADHD Group		Control Group		Total	
	N	%	N	%	N	%
Gender						
Girls	28	43.8	22	42.3	50	43.1
Boys	36	56.3	30	57.7	66	56.9
	Mean	SD	Mean	SD	Mean	SD
Age	10.17	1.09	10.71	1.03	10.41	1.09
	N	%	N	%	N	%
Maternal occupation						
Housewife	58	90.6	40	76.9	98	84.5
Blue-collar	3	4.7	6	11.5	9	7.8
Civil servant	3	4.7	6	11.5	6	7.8
Paternal occupation						
Unemployed	1	1.6	1	1.9	2	1.7
Blue-collar	27	42.2	21	40.4	48	41.4
Civil servant	16	25.0	10	19.2	26	22.4
Retired	2	3.1	3	5.8	5	4.3
Freelance	18	28.1	17	32.7	35	30.2
Maternal education level						
Elementary school	26	40.6	17	32.7	43	37.1
Middle School	11	17.2	8	15.4	19	16.4
High School	25	39.1	24	46.2	49	42.2
Vocational School	2	3.1	2	3.8	4	3.4
College and higher	0	0	1	1.9	1	0.9
Paternal education level						
Elementary school	21	32.8	9	17.3	30	25.9
Middle School	8	12.5	10	19.2	18	15.5
High School	24	37.5	28	53.8	52	44.8
Vocational School	9	14.1	3	5.8	12	10.3
College and higher	2	3.1	2	3.8	4	3.4
Economic level						
Very low (850TL and less)	6	5.2	1	0.9	7	6
Low (851TL-1500TL)	18	15.5	12	10.3	30	25.9
Medium (1501TL-2500TL)	34	29.3	33	28.4	67	57.8
High (2500TL and more)	6	5.2	6	5.2	12	10.3
Siblings						
Single child	4	6.25	6	11.54	10	8.62
One sibling	29	45.31	24	46.15	53	45.69
Two siblings	26	40.63	20	38.46	46	39.65
Three siblings and more	5	7.81	2	3.85	7	6.04
Order of birth						
First child	13	20.31	11	21.15	24	20.69
Second child	25	39.06	18	34.61	43	37.07
Third child	26	40.63	23	44.24	49	42.24

ADHD: Attention-Deficit Hyperactivity Disorder, SD: Standard deviation, TL: Turkish Lira

($F_{[1,116]}=19.80$, $p<0.001$, $\eta^2=0.148$; $F_{[1,116]}=5.304$, $p<0.05$, $\eta^2=0.044$; $F_{[1,116]}=11.105$, $p<0.001$, $\eta^2=0.089$; respectively). According to these results, the mean scores of the children in the ADHD group in aggression, negative self-adequacy and negative self-esteem subscales were found to be statistically higher than the children in the normal sample (Table 2).

Regression Analysis

Regression analyzes were performed separately for the clinical sample and the normal sample. The gender variable was entered in the first block. In the second block acceptance-rejection scores of the children about mothers and fathers were included stepwise.

Table 2: MANOVA results of PARQ Mother-Father forms and PAQ subscales of ADHD and control groups

	ADHD Group N=64		Control Group N=52		F	p	η^2
	Mean	SD	Mean	SD			
Total Maternal Acceptance-Rejection	106.25	23.69	86.00	16.32	27.391	<0.001	0.194
Warmth	67.97	7.96	73.02	5.53	15.01	<0.001	0.116
Hostility	29.70	8.13	22.40	5.67	29.98	<0.001	0.208
Indifference and neglect	25.59	7.21	21.88	4.40	10.56	0.002	0.085
Undifferentiated rejection	18.92	5.58	14.73	3.54	22.07	<0.001	0.162
Total Paternal Acceptance-Rejection	104.41	26.54	85.92	22.49	15.92	<0.001	0.123
Warmth	67.03	9.15	71.46	8.01	7.51	0.007	0.062
Hostility	27.70	8.98	20.48	6.51	23.54	<0.001	0.171
Indifference and neglect	25.78	6.73	23.17	6.66	4.35	0.039	0.037
Undifferentiated rejection	17.95	5.74	13.73	3.92	20.42	<0.001	0.152
Global PAQ	88.98	15.74	81.75	15.382	6.18	0.014	0.051
Aggression	12.53	3.68	9.75	2.87	19.80	<0.001	0.148
Dependence	16.37	3.01	17.50	3.42	3.54	0.063	0.030
Negative Self-Esteem	10.81	3.52	9.42	2.83	5.30	0.023	0.044
Negative Self- Adequacy	11.78	3.23	9.86	2.88	11.10	0.001	0.089
Emotional Unresponsiveness	12.50	3.77	11.38	3.68	2.57	0.112	0.022
Emotional Instability	14.81	3.19	14.35	3.38	0.58	0.447	0.005
Negative World View	10.17	4.14	9.48	3.35	0.95	0.333	0.008

ADHD: Attention-Deficit Hyperactivity Disorder, PARQ: Parental Acceptance-Rejection Questionnaire, PAQ: Personality Assessment Questionnaire, SD: Standard deviation

Table 3: Predictives of Psychological adjustment for each group

	ADHD Group				Control Group		
	R ²	Adjusted R ²	β		R ²	Adjusted R ²	β
Step 1							
Gender	0.01	-0.005	-0.11	Gender	0.05	0.03	-0.21
Step 2							
Maternal acceptance-rejection	0.34	0.32	0.57	Paternal undifferentiated rejection	0.19	0.16	0.39

As shown in Table 3, the gender variable analyzed in the first step for the clinical sample did not predict psychological adjustment significantly ($R^2=0.01$, $F_{[1,62]}=0.701$, $p>0.05$). In the second step, it was found that the child's perceived maternal rejection predicted the psychological adjustment and resulted in a significant increase in R^2 ($R^2=0.34$, $F_{[2,61]}=15.74$, $p<0.05$). In summary, perceived maternal rejection of children with ADHD significantly predicts psychological adjustment problems and accounted for 34% of the variance.

For the normal sample, the gender variable analyzed in the first stage did not predict psychological

adjustment significantly ($R^2=0.05$, $F_{[1,50]}=2.38$, $p>0.05$). In the second stage, it was found that perceived paternal rejection predicted psychological adjustment and resulted in a significant increase in R^2 ($R^2=0.19$, $F_{[2,49]}=5.92$, $p<0.05$). In brief, perceived paternal rejection of the normal sample children significantly predicts psychological adjustment problems, accounting for 19% of the variance.

DISCUSSION

When the clinical and normal sample groups were compared, children with ADHD were found to

perceive more rejection from their parents, and they had poorer psychological adjustment as well. More specifically, children in the clinical sample perceive less warmth, more aggression, more neglect, and more undifferentiated rejection from their parents than the ones in the normal sample; besides, they see themselves as being more aggressive, having more negative self-esteem and self-adequacy. Other studies on this subject have found that children with ADHD perceive their parents as more rejecting and negligent; and perceive mothers as rigid disciplining and having less democratic treatment (48,49). Findings of our study are consistent with findings of the study showing that perceived parental rejection is associated with psychological adjustment and psychiatric problems such as, depression, anxiety, social phobia, behavioral problems, externalizing problems, and substance abuse (19-25).

According to the results of this study, parental rejection was found to have more effect on the psychological adjustment of the children in the clinical sample. Besides, parental rejections that predict the psychological adaptation differ according to the sample characteristics (normal/clinical). Hence, psychological adjustment in the clinical sample was predicted by the child's perceived maternal rejection, whereas psychological adjustment in the normal sample was predicted by the perceived paternal undifferentiated rejection. Studies in the field seem to focus specifically on relationships between the children with ADHD and their mothers (36). In a longitudinal study on mother-child and father-child relationship, ADHD symptoms were associated with externalizing and attention problems of the children, high levels of control in mothers and low levels of support in fathers (39). Another longitudinal study, examining the role of the mother-child relationship on the child's behavioral problems, has shown that the child's ADHD symptoms negatively affect the relationship with the mother (30).

When the child is diagnosed with ADHD, mothers who already care their children more devote more time to the child, deal with academic and social adaptation problems and to try more to cope with

ADHD symptoms. It may be that, in an attempt to prevent behavioral problems in the child, these mothers' over-controlling efforts may have caused a negative perception in the child leading a perceived rejection by the mother. As a matter of fact, the study of McLaughlin and Harrison (32) has shown that the weakness of coping skills and poor parenting skills of mothers of children with ADHD, lead to behavioral problems in children. In addition, considering that environmental factors such as parenting affect the clinical presentation of this disorder (7,8), negative attitudes of the mother, regardless of the child's psychopathology, can be considered as an important factor leading to the perceived rejection of the child. In addition, mothers who care more these children are reported to have more sleep problems, anxiety, depression and somatic complaints (9,33). These psychological problems and burnout feelings in the mother may have an impact on the child's perceived rejection by causing more negative attitudes and behaviors towards the child.

"Undifferentiated rejection" is the child's belief that he/she is not really loved or cared, even though there is no obvious behavioral indicators that the parent is unaffectionate or aggressive (13). Perceived parental undifferentiated rejection expressed by the children in the normal sample can be explained by the fact that, in Turkish family structure the fathers is more distant and away from the family system and that the children have closer relationship with their mothers while the interactions with the fathers are fewer (50).

In this study, the diagnosis of ADHD was considered holistically, and the fact that the possible effects of subtypes on perceived parental acceptance/rejection are not included in our hypothesis, is a significant limitation of our study. Besides, the fact that the information source for the scales used is the child and that, the children who were admitted to the pediatric psychiatric clinic by their parents—even if they have not had any diagnosis—have been selected as the control group. There is a need for further studies in which ADHD subtypes are also investigated with a control group that is not referred to the psychiatric outpatient clinic. On the other hand, factors such as

for the first-time examination of perceived acceptance-rejection and psychological adjustment of children with ADHD, having set the diagnosis by semi-structured interview, exclusion of both internalizing and externalizing psychiatric co-morbidities, and exclusion of parents with psychiatric diagnosis are among the strengths of this study.

In conclusion, our findings indicate that children with ADHD perceive more rejection from their parents and have worse psychological adjustment than those without a diagnosis. Recently, the significance of parental education in the treatment of ADHD has become increasingly important. In view of the results of this study, considering the fact that perceived rejection and poor psychological adjustment complicate the treatment process in ADHD children, it

may be advisable to add parental education to pharmacologic therapy of ADHD.

Contributions category	Authors name
Development of study idea	H.S.G.
Methodological design of the study	H.S.G.
Data acquisition and process	E.G., G.S.D.
Data analysis and interpretation	H.S.G.
Literature review	H.S.G.
Manuscript writing	H.S.G., E.G., G.S.D.
Manuscript review and revision	H.S.G., E.G., G.S.D.

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