Evaluation of Family Functions of Children and Adolescents with Attention-Deficit Hyperactivity Disorder with and without Oppositional Defiant Disorder¶

KARŞIT OLMA-KARŞI GELME BOZUKLUĞU EŞLİK EDEN VE ETMEYEN DİKKAT EKSİKLİĞİ AŞIRI HAREKETLİLİK BOZUKLUĞUNDA AİLE İŞLEVLERİNİN DEĞERLENDİRİLMESİ

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Summary

Objective: The family functions of children and adolescents with attention-deficit hyperactivity disorder (ADHD) and co-occurrence of oppositional defiant disorder (ADHD/ODD) are evaluated and compared with each other.

Method: Two groups of children and adolescents were included in this study; subjects with ADHD only (n=40) and ADHD/ODD (n=25), who were chosen from 93 subjects consecutively referred to a child and adolescent mental health clinic and diagnosed with ADHD according to the DSM-IV criteria. Each parent was asked to rate their family functions by using the Family Assessment Device.

Results: According to both parents' reports on their children, the families of ADHD/ODD group had significantly higher rates of "abnormal behavior control" when compared with those of ADHD only group. In addition, according to the fathers' reports on ADHD/ODD group, the rates of "abnormal affective involvement" were higher than those of ADHD only group.

Conclusions: Our findings suggest that family functioning may be important to determine the co-occurrence of ODD with ADHD and may be used as a predictor of co-occurrence of ODD with ADHD.

Key Words: Attention-deficit hyperactivity disorder, Oppositional defiant disorder, Family functions, Children, Adolescents, Comorbidity

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Özet

Amaç: Yalnızca dikkat eksikliği aşırı hareketlilik bozukluğu (DEAHB) ile eşlik eden karşıt olma-karşı gelme bozukluğu (KO-KGB) tanısı konan çocuklar ve ergenlerin aile işlevlerinin değerlendirmesi ve karşılaştırılması amaçlanmıştır.

Yöntem: Polikliniğe ardışık olarak getirilen DSM-IV kriterlerine göre DEAHB tanısı konan 93 çocuk ve ergenden yalnızca DEAHB (n=40) ve DEAHB'na eşlik eden KO-KGB (n=25) olan iki grup çalışmaya alınmıştır. Anne ve babalardan Aile Değerlendirme Ölçeği ile aile işlevlerini değerlendirmeleri istenmiştir.

Bulgular: DEAHB/KO-KGB grubundaki anne-babalar, yalnızca DEAHB grubundaki anne-babalara oranla "anormal davranış kontrolü"nü daha sık olarak bildirdi. Ayrıca DEAHB/KO-KGB grubundaki babalar, yalnızca DEAHB grubundaki babalara oranla "anormal gereken ilgiyi gösterme"yi daha fazla olarak bildirdi.

Sonuç: Bulgular DEAHB'nda ailesel işlevselliğinin KO-KGB binişikliğinde belirleyici olduğunu düşündürmektedir.

Anahtar Kelimeler: Dikkat eksikliği aşırı hareketlilik bozukluğu, Karşıt olma-karşı gelme bozukluğu, Aile işlevleri, Çocuklar, Ergenler, Komorbidite

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Comorbidity is a major problem in children and adolescents with attention-deficit hyperactivity disorder (ADHD). Almost two thirds of the school-age children with ADHD have at least one other diagnosable psychiatric disorder (1). Oppositional defiant disorder (ODD) seems to

have the highest rates of co-occurrence in ADHD samples (2).

Negativistic, hostile or defiant behavior, creating disturbances in at least one of the three domains of functioning (academic, occupational or social), and lasting for more than six months are the characteristics of ODD. The diagnosis also refers to angry, vindictive behavior and problems about controlling temper. Most of the negativistic behaviors are directed to a determined person, generally an authority figure. However, they don't have major antisocial acts or excessive violence. To diagnose ODD according to DSM-IV criteria, at least four of the ODD criteria are required to be met (3).

The etiological studies of ODD have been carried on the body of research on conduct disorder. It is believed that contextual factors such as poverty, crowded families and neighborhoods with high crime rates contribute to the predisposition of disruptive behavior disorders (ODD or conduct disorder), but it seems that these disorders are mostly related with poor family functioning and deficient parenting (4).

We have suggested that parents of ODD/ADHD group would report significantly more family dysfunction than those of ADHD only group. Therefore, the purpose of this study was to investigate and compare the characteristics of family relationship between the subjects with ADHD only and with ODD/ADHD.

Method

Subjects

We recruited subjects from the Child and Adolescent Psychiatry and Mental Health Division, an outpatient clinic of Gülhane Military Medical Academy. We evaluated consecutive 93 subjects, 7 to 15 years of age, who were diagnosed with ADHD according to DSM-IV criteria (3), and who were referred by their families during 2000-2001. The subjects were excluded if they had also other psychiatric disorders (conduct disorder, any anxiety disorder, depressive disorder, learning disorder etc.) except ODD, if they had major sensorimotor handicaps and mental retardation and if their families were not intact or the subjects had been adopted. After that, the subject were divided into two groups according to the diagnosis; ADHD only group (37 males, 3 females) and ADHD/ODD group (co-occurrence; 23 males, 2 females). There was no significant difference between the mean ages of the groups; 9.1+2.1 (7 to 15 years) for ADHD only group and 9.9+2.0 (7 to 13 years) for ADHD/ODD group.

All of their families were intact and had identical socioeconomic status (moderate). Informed consents were taken from all the families, included in the study.

Procedures and Assessment Measures

Ninety-three children and adolescents consecutively referred to GATA Child and Adolescent Mental Health Clinic, and subsequently diagnosed with ADHD according to DSM-IV criteria were evaluated. All subjects were diagnosed by one child psychiatrist using information obtained from each parent, their teachers, and diagnostic interviews through the DSM-IV Based Behavior Disorders Screening and Rating Scale for ADHD and ODD. if any comorbidity other than ODD had been suspected during diagnostic interviews, in order to exclude them, other necessary scales (the Children's Depression Inventory, the State-Trait Anxiety Inventory, the Learning Disorders Check-List etc.) were used. The rest of the subjects (n=65) were divided into two groups in respect of the presence of ODD comorbidity. After that, the Family Assessment Device was given to each parent and then was analyzed by a social worker.

The DSM-IV Based Behavior Disorders Screening and Rating Scale: The scale was prepared by Turgay (5). The validity and reliability of the Turkish Version were done by Ercan and colleagues (6). Cronbach-alpha scores were calculated as .88 for inattention subscale, .95 for hyperactivity-impulsivity subscale, and .89 for ODD subscale. The scale has three subscales for ADHD, ODD, and conduct disorder (CD) which inquires according to the DSM-IV criteria. These subscales have 41 items, which include 9 inattention items, 6 hyperactivity items, 3 impulsivity items, 8 items related with ODD, and 15 items related with CD. Informants describe the severity of each symptom

Table 1. The parental features of ADHD only group and ADHD/ODD group

Parent Features	**ADHD only** (N=40)	**ADHD/ODD** (N=25)	**P**
Age-mother (year)	32.3 ± 5.2	32.7 ± 5.3	*NS*
Age-father (year)	35.6 ±6.2	36.4 ± 5.4	*NS*
Education-mother			
Primary-Elementary	25.0 % (10)	12.0 % (3)	
High school	37.5 % (15)	44.0 % (11)	*NS*
University	37.5 % (15)	44.0 % (11)	
Education-father			
Primary-Elementary	10.0 % (4)	8.0 % (2)	
High school	57.5 % (23)	64.0 % (16)	*NS*
University	32.5 % (13)	28.0 % (7)	
Socioeconomic status	Moderate	Moderate	*NS*

NS: No significant difference (It was compared with Student t test for the ages of their parents and Pearson X^2 test for their education levels)

Table 2. Comparison of family functions reported by their mothers.

FAD Subscales	**ADHD only** (N=40)	**ADHD/ODD** (N=25)	X^2
Problem solving	30 % (12)	44 % (11)	1.32
Communication	32.5 % (13)	40 % (10)	0.38
Roles	45 % (18)	68 % (17)	3.28
Affective responsiveness	25 % (10)	48 % (12)	3.64
Affective involvement	52.5 % (21)	60 % (15)	0.35
Behavior control	35 % (14)	60 % (15)	3.90*
General functions	32.5 % (13)	44 % (11)	0.87

* p<.05 (*Pearson X^2 test)*

as “not at all”, “just a little”, “pretty much”, and “very much”. To diagnose ADHD, at least six of the criteria on either inattention subscale or hyperactivity-impulsivity subscale and to diagnose ODD at least four of the criteria on the ODD subscale should be met.

The McMaster Family Assessment Device (FAD): This scale allows family members to assess the quality of the following aspects of family life: communication, sharing of affect, emotional sensitivity, roles and boundaries, behavior control and problem solving. The items are coded from 1 to 4. The validity of the scale was reported by Epstein and colleagues (7). Bulut made its validity in Turkey (8).

Statistical Analyses

The ages of the two groups’ parents were analyzed with Student t test. and their education levels with Pearson X^2 test. In FAD scale, the values up 2 points (*clinical cutoff*) are to accepted as abnormal. Pearson X^2 test also was used in comparing the abnormal rates of two groups.

Results

There were no statistically significant differences between two groups for paternal age and education levels ($p < .05$). All of the two groups were intact and had moderate socioeconomic levels (Table 1).

In FAD scale, the values up 2 points (*clinical cutoff*) are to accept as abnormal. According to mother’s reports, the rate of “having abnormal behavior control score” was 60% among ADHD/ODD subjects, whereas those of ADHD only group were 35% ($X^2 = 3.9$, $df = 1$, p= .049). There were no significant differences in other FAD subscales (Table 2).

Table 3 shows that according to fathers’ reports, ADHD/ODD subjects had significantly higher rates of “abnormal behavior control” com-

Table 3. Comparison of family functions reported by their fathers.

FAD Subscales	**ADHD only** (N=40)	**ADHD/ODD** (N=25)	X^2
Problem solving	25 % (10)	24 % (6)	0.01
Communication	22.5 % (9)	40 % (10)	2.23
Roles	37.5 % (15)	48 % (12)	0.70
Affective responsiveness	25 % (10)	40 % (10)	1.63
Affective involvement	40 % (16)	68 % (17)	4.83*
Behavior control	17.5 % (7)	48 % (12)	6.92**
General functions	30 % (12)	36 % (9)	0.25

* p<.05; ** p<.01 (*Pearson X^2 test)*

pared with ADHD only probands (48% versus 17.5%, respectively, X^2= 6.92, p= .009). ADHD/ODD group had a 68% rate of "abnormal affect involvement" compared with 40% in ADHD only group (X^2= 4.83, p= .04). There were no significant differences in other FAD subscales (Table 3).

An average family score for each subject was calculated by averaging the sum of both parents' FAD scores. Two separate mean family score were calculated for both two groups by dividing the total sum of average family scores by the total number of each group and compared with each other. ADHD/ODD subjects had significantly higher rates of "abnormal behavior control" compared with ADHD only probands (48% versus 22.5%, respectively, X^2= 4.57, p= .03) (Table 4).

Discussion

Rutter's studies of the Isle of Wight and inner borough of London revealed six risk factors within the family environment that correlated significantly with childhood mental disturbances (9). Likewise, Biederman and colleagues found significant concurrent associations between indices of exposure to parental conflict and psychopathology of children (10). Therefore, it is necessary to enquire specifically into each aspect of family behaviors, because family relationships have an important influence on children's psychological development and play a major role in the causation of psychiatric disorders. Family dysfunction is considered as a risk factor that may reveal ODD in subjects with ADHD. It has already been demonstrated that abnormal parenting is related closely with ODD comorbidity in ADHD. Barkley et al. suggest that the development and maintenance of ODD in hyperactive children is strongly associated with aggression and negative parent-child interactions in childhood (11). However, in which aspects or domains of family relationships are affecting ADHD/ODD comorbidity are not clear. Doane and colleagues suggested that deviant communication patterns, as well as style of affectivity, might be important as a cause or course of psychiatric disorder (12). We found that the parents of ADHD/ODD group exhibits more "abnormal behavior control" than those of ADHD only, accord-

Table 4. Comparison of average family scores.

FAD Subscales	**ADHD only** (N=40)	**ADHD/ODD** (N=25)	X^2
Problem solving	20 % (8)	20 % (5)	0.00
Communication	27.5 % (11)	36 % (9)	0.52
Roles	32.5 % (13)	56 % (14)	3.49
Affective responsiveness	22.5 % (9)	40 % (10)	2.28
Affective involvement	32.5 % (13)	56 % (14)	3.49
Behavior control	22.5 % (9)	48 % (12)	4.57*
General functions	25 % (10)	48 % (12)	3.64

* p<.05 (*Pearson X^2 test)*

ing to the reports of both parents. In addition, according to the fathers' reports; "abnormal affective involvement" rates were higher in the families of the ADHD/ ODD group than those of ADHD only group.

When we evaluate our first main finding about "abnormal behavior control", we see that the families of ADHD/ODD show more inadequate, poor or inconsistent parenting styles. These families have trouble in setting discipline on their children and controlling their abnormal behaviors. Either they exhibit insufficient parental supervision and discipline on their children or they exhibit very hard discipline. Such discipline styles can lead to repetitive pattern of conflict between parents and their children. Afterwards, these children are being more likely to develop negativistic, hostile or defiant behaviors. Consistent to this result, in a comparative study with ADHD only and ADHD/ODD, Demir and colleagues found that families of ADHD/ODD subjects had lower consistency rate in performing discipline/supervision than those of ADHD only (13).

However, it is difficult to determine whether "abnormal behavior control" leads to the development of ODD behaviors or, in contrast, the manifestation of ODD cause "abnormal behavior control". If there are negativistic, over criticizing, hostile or defiant behaviors among their parents and other family members, the possibility of modeling or imitating abnormal behaviors will gradually increase for these children. In contrast to, ODD parents may develop abnormal behavior control as a result of not knowing how to manage negativistic and defiant behaviors.

The second main finding is, according to the fathers' reports; "abnormal affective involvement" rates of ADHD/ODD subjects were higher than those of ADHD only. Affective involvement consists of sharing the emotions. "Abnormal affective involvement" causes two possible abnormal parenting patterns to emerge; emotional overinvolvement pattern or neglecting pattern. Parents exhibiting emotional overinvolvement tries to carry on their activities instead of their children, protect them excessively and interfere their behaviors continuously. Thus, they exhibit a constant overcontrol on their children and this attitude mostly causes some defiant behaviors to arise on ADHD subjects. On the other hand, the families who have neglect pattern exhibit a lack of active parental responses to their children's negative acts. The lack of parental supervision over their children may cause unlimited behaviors.

Before concluding, it is important to consider the limitations of this study. First limitation is that, the samples are predominantly from the moderate socioeconomic status. Secondly, the small number of clinical subjects in this study is another limitation. The results should be confirmed with large number of samples and field studies. Third, nonexistence of Turkish versions of structured and valid clinical interview scales for diagnosing cooccurring psychiatric disorders in children and adolescent was a considerable limitation for this study.

In conclusion, the results suggest that the presence of ODD behaviors in subjects with ADHD may be associated with the abnormal family functioning, especially the domains of behavior control and affective involvement.

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