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Attention Deficit Hyperactivity Disorder (ADHD) and Other Psychiatric Symptoms in Parents of Children with ADHD

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) and other psychiatric symptoms in parents of children with ADHD

Objective: The aim of this study is to investigate Attention Deficit Hyperactivity Disorder (ADHD) and other psychiatric symptoms of the parents of children with ADHD.

Method: Mothers (n=34) and fathers (n=29) of 34 children with ADHD were included into the study group. Mothers (n=34) and fathers (n=31) of 34 children with no history of referral to a doctor due to previous psychological problems and for whom diagnoses of ADHD and Disruptive Behavior Disorder (DBD) according to DSM-IV were ruled out were assigned as the controls. The parents were given Symptom Check List (SCL-90-R) and Adult Attention Deficit Hyperactivity Scale (ADHD-A).

Results: Parents from the patient group were found to have significantly more ADHD and psychiatric symptoms compared to parents from the control group.

Conclusion: In the evaluation and treatment process of children with ADHD, it would be beneficial to monitor their parents in terms of adult ADHD and related co-morbid psychiatric conditions. It is suggested that treating parents would benefit in the improvement of ADHD symptoms in children.

Key words: Attention deficit hyperactivity disorder, parent, psychopathology

ÖZET

Dikkat Eksikliği Hiperaktivite Bozukluğu (DEHB) olan çocukların ebeveynlerinde DEHB ve diğer psikiyatrik belirtiler

Amaç: Bu çalışmanın amacı, Dikkat Eksikliği Hiperaktivite Bozukluğu (DEHB) olan çocukların ebeveynlerindeki DEHB ve diğer psikiyatrik belirtileri araştırmaktır.

Yöntem: DEHB olan 34 çocuğun anne (n=34) ve babaları (n=29) araştırma grubuna alındı. Kontrol grubuna ise, daha önce ruhsal sorunlar nedeniyle doktora başvuru öyküsü olmayan, DSM-IV tanı ölçütlerine göre, DEHB ve Yıkıcı Davranım Bozukluğu (YDB) tanıları dışlanan 34 çocuğun anne (n=34) ve babaları (n=31) alındı. Ebeveynlere, Belirti Tarama listesi (Symptom Check List: SCL-90-R) ve Erişkin Dikkat Eksikliği Hiperaktivite Ölçeği (DEHÖ-E) uygulandı.

Bulgular: Hasta grubunda bulunan ebeveynler, kontrol grubundaki ebeveynlere göre anlamlı oranda daha fazla DEHB belirtilerine ve psikiyatrik belirtilere sahip bulundu.

Sonuç: DEHB'li çocukların değerlendirilmeleri ve tedavi süreçlerinde ebeveynlerinin, DEHB ve diğer psikiyatrik bozukluklar açısından yakından izlenmesi faydalı olabilir. Ebeveynde var olabilecek hastalığın tedavisinin, çocuğun DEHB belirtilerinin düzelmesine katkı sağlayacağına inanılmaktadır.

Anahtar kelimeler: Dikkat eksikliği hiperaktivite bozukluğu, ebeveyn, psikopatoloji

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INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is a disorder which symptoms such as inattention, disability to focus, excessive motor activity and impulsiveness are observed and impairs academic, occupational and social functionality of the individual (1). ADHD affects 5–10% of children and 4% of adults and is a worldwide problem (2-4). In a study done in school-age children in Turkey, ADHD prevalence was found 8.1% (5).

In studies about ADHD, it was shown that this disorder has strong familial inheritance and inheritance rate varies between 55 and 92% (6). Gene-environment interaction had been pronounced for occurrence of ADHD symptoms (7). Familial inheritance risk was

proposed to be higher in ADHD which continues in adulthood. Similarly, proportion of ADHD among children of parents with ADHD was found higher than parents of children without ADHD (8). It was reported in family studies that ADHD prevalence was 2-8 times higher in siblings and parents of children with ADHD (9-11).

Anxiety disorders, depression, antisocial personality disorder and alcohol and substance abuse were all reported more prevalent in parents of children with ADHD (12,13). Similarly, comorbid mood disorders, anxiety disorders and alcohol/substance abuse are frequently observed in adult ADHD patients. It was also shown that these comorbid conditions affect prognosis and treatment of the disease negatively (14). Moreover, psychiatric disorders are more frequently reported in parents of children with psychiatric disorders other than ADHD (15).

Aim of this study is comparing ADHD and other psychiatric symptoms in parents of children with ADHD and parents of children in control group.

METHODS

This study was initiated by 58 children between 6 and 17 years old who were diagnosed as ADHD according to interviews based on DSM-IV diagnostic criteria and Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL) and admitted to outpatient clinic of Akdeniz University Medical School, Child and Adolescent Psychiatry Outpatient Clinic between June 2008–December 2008. Parents of thirteen cases did not want to fill the forms, mental capacities of parents of 6 cases were not adequate to be able to fill the forms and 5 cases were excluded due to incomplete filling of forms. No inclusion criterion was established according to severity of ADHD. All ADHD cases included were receiving treatment. There was anxiety disorder in 23 patients, destructive conduct disorder (oppositional defiant and conduct disorder) in 14 patients, tic disorder in 6 patients, internalazing disorders (enuresis and encopresis) in 9 patients and depression in 2 patients as additional diagnoses. Mothers (n=34) and fathers (n=31) of 34 children between 6 and 17 years old who did not previously seek medical help due to mental problems and in whom ADHD and Overt Destructive Conduct Disorder (ODCD) diagnoses were excluded according to K-SADS-PL and DSM-IV diagnostic criteria were taken as control group. Control group was selected society-based and composed of children and families found mainly by friends and relatives of hospital staff. All mothers from both groups were included in the study; however, 4 fathers from ADHD group and 6 fathers from control group could not be accessed.

While parents of both groups were included in the study, mental retardation (WISC-R test was administered to cases suspected at interview and children having IQ under 80 were excluded from the study), chronic physical disorder (epilepsy, malignancy etc.) and being an adopted child were considered as exclusion criteria.

Children and parents of both groups participated in the study were informed, consent forms were signed and ethical committee approval was obtained.

Data Collection Tools

Interview Form

Forms prepared to obtain information about socio-demographic data of the sample group were filled during interview with parents. There were questions in the form in order to get information about gender, age, number of siblings of children and age, educational level, family characteristics, income level and tobacco and alcohol consumption of parents.

Symptom Check List (SCL-90-R): Symptom Check List (SCL-90-R) is a self-rated scale assessing psychiatric symptoms. Scale consists of 90 items and assesses 9 different symptom dimensions (somatization, obsessive-compulsive disorder, inter-personal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism and additional section not included these sub-scales). Validity and reliability study of Turkish version of this scale which was developed by Derogatis (16) was done by Dağ (17).

Adult Attention-Deficit Hyperactivity Scale (ADHD-A): This scale was developed by Turgay and validity and reliability study was done by Günay et al. (18). It is a five-item Likert type rating scale and consists of 58 items which nine items assess attention deficit, nine items assess excessive motor activity and impulsivity and 30 items assess characteristics of ADHD. Subjects received scores lower than 3 from attention-deficit and excessive motor activity/ impulsivity sections are accepted to have lower levels, subjects received scores between 3.01 and 10.99 are accepted to have moderate levels and subjects received scores over 11 are accepted to have high levels of attention-deficit and excessive motor activity/ impulsivity. Subjects receiving scores between 0 and 12.99 from Problem (P) section have low, the ones receiving scores between 13 and 35 have moderate and the ones receiving scores between 35 and 75 have high levels of these characteristics. In total, cases receiving scores lower than 20 have low, cases receiving scores between 20 and 59 have moderate and cases receiving scores higher than 59 have high levels of ADHD symptoms (18).

Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL): K-SADS-PL is the Turkish version of Kiddie Schedule for Affective Disorder and Schizophrenia for School Aged Children – Present and Lifetime Version which is a frequently used structured interview scale. K-SADS-PL was developed by Kaufman et al. (19) in 1994 after DSM-IV had been published. K-SADS-PL was adapted to Turkish by Gökler et al. (20) in 2004. K-SADS-PL can evaluate 20 different psychiatric diagnoses. K-SADS-PL is administered by interviewing children and parents and final assessment was performed by information obtained from all available sources. If there is inconsistency between information from different sources then clinician uses his/her own clinical judgment.

Statistical Methods

Study data were evaluated by using SPSS (Statistical Package for Social Sciences) for Windows v.13.0 software. In addition to descriptive statistical methods (mean, standard deviation), t-test was used for comparison of paired groups of qualitative data. Quantitative data were compared by chi-square test. Pearson correlation test was used to determine the direction and level of correlation between ADHD-A and SCL-90. Significance was taken as $p<0.05$.

RESULTS

There was no statistically significant difference between age, educational level and age and educational levels of parents of children in patient and control groups ($p>0.05$). Only children were matched according to age and gender in the study. Indifference for parents was a random finding. Demographic characteristics of parents of patient and control group were shown in Table 1.

After comparing Adult Attention-Deficit Hyperactivity Scale sub-scale scores, mothers of ADHD group received statistically significantly higher scores than control group at all scales and in total ($p<0.05$).

Table 1: Demographic characteristics of parents of ADHD and control groups

	ADHD group n=34	Control group n=34	t	p
Mother				
Age, year, mean±SD	35.3±6.4	35.5±5.5	0.138	>0.05
Education, year, mean±SD	9.2±3.6	9.7±3.0	0.0622	>0.05
Father				
Age, year, mean±SD	39.1±6.0	39.4±6.1	0.204	>0.05
Education, year, mean±SD	10.3±3.4	10.7±3.2	0.499	>0.05

ADHD: Attention Deficit Hyperactivity Disorder; t: Student's T test, SD: Standard deviation

Table 2: Comparison of sub-scale scores of Adult Attention Deficit Hyperactivity Scale of parents from patient and control groups

	ADHD Mother n=34 Father n=29	Control Mother n=34 Father n=31	t	p
Attention Deficit				
Mother	7.88±5.80	4.47±3.66	2.899	0.005
Father	6.00±3.99	4.03±4.23	1.856	0.028
Hyperactivity				
Mother	7.00±5.14	3.71±3.72	3.023	0.003
Impulsivity				
Father	6.41±4.93	3.39±3.26	2.779	0.016
Problem				
Mother	19.85±12.90	10.0±6.54	3.971	<0.001
Father	20.48±13.16	11.45±8.05	3.180	0.003
General Total				
Mother	35.03±22.49	18.24±12.46	3.807	<0.001
Father	32.90±20.02	18.87±13.94	3.130	0.060

ADHD: Attention Deficit Hyperactivity Disorder; t: Student's T test

When fathers of both groups were compared, fathers of ADHD group received statistically significantly higher scores than control group at all sub-scale scores except general total score obtained by the sum of 3 sub-scale scores ($p<0.05$). While both parents of the control group showed lower level of ADHD symptoms at all sub-scales, both parents of ADHD group showed moderate levels of ADHD symptoms at all sub-scales (Table 2).

After comparing SCL-90-R sub-scale scores, mothers of ADHD group received statistically significantly higher scores than control group at all sub-scales except phobia ($p<0.05$). When fathers were examined for psychiatric symptoms, fathers of ADHD group received statistically significantly higher scores than fathers from control group at sub-scales of obsessive symptoms, depressive symptoms, paranoid symptoms and sensitivity at inter-personal relations ($p<0.05$) (Table 3).

When correlation between ADHD symptoms of parents and SCL-90-R sub-symptom clusters was examined, all SCL-90-R sub-symptom scores were found to increase by increasing ADHD sub-symptom scores of mothers in the patient group, all SCL-90-R sub-symptom scores increase by increasing ADHD problem and general total symptom scores in fathers but no significant correlation was found between attention deficit and hyperactivity/impulsivity symptom scores. In the control group, all SCL-90-R sub-symptom scores increase by increasing ADHD attention deficit, problem and general total symptom scores of mothers and fathers but no significant correlation was found between hyperactivity/impulsivity symptom scores.

Linear regression analysis was performed to determine the correlation between ADHD symptoms and SCL-90-R sub-symptom clusters of parents. Scores of all SCL-90-R sub-symptom (dependent variables) clusters increase by increasing ADHD problem and ADHD total (independent variables) scores in both mothers and fathers of the patient group. A similar relationship was found in the control group (Table 4).

DISCUSSION

In this study, we found that general psychiatric and ADHD symptoms are seen more in both mothers and fathers of ADHD group than parents with children without ADHD or other destructive conduct disorder. ADHD has been known to have a strong genetic transmission and 75% of transmission was shown in studies done with

Table 3: Comparison of SCL-90-R scores of parents from ADHD and control groups

SCL–90-R	ADHD group Mother n=34 Father n=29	Control group Mother n=34 Father n=31	t	p
Somatic symptoms				
Mother	1.15±0.86	0.68±0.55	2.684	0.009
Father	0.61±0.58	0.63±0.53	0.139	0.907
Anxiety symptoms				
Mother	0.85±0.80	0.29±0.27	3.867	<0.001
Father	0.48±0.57	0.30±0.34	1.473	0.148
Obsessive symptoms				
Mother	1.10±0.67	0.55±0.40	4.109	<0.001
Father	0.86±0.53	0.51±0.45	2.748	0.008
Depressive symptoms				
Mother	1.00±0.79	0.54±0.42	2.997	0.004
Father	0.70±0.62	0.37±0.44	3.079	0.022
Sensitivity in interpersonal relations				
Mother	1.00±0.91	0.49±0.55	2.796	0.004
Father	0.77±0.60	0.47±0.49	2.122	0.043
Psychotic symptoms				
Mother	0.55±0.75	0.26±0.31	2.083	0.037
Father	0.42±0.45	0.30±0.31	1.195	0.221
Paranoid symptoms				
Mother	0.85±0.77	0.39±0.38	3.123	0.002
Father	0.78±0.62	0.46±0.49	2.208	0.032
Anger				
Mother	1.00±0.94	0.28±0.28	4.280	<0.001
Father	0.75±0.79	0.41±0.58	1.889	0.059
Phobia				
Mother	0.47±0.52	0.25±0.38	1.991	0.051
Father	0.32±0.46	0.19±0.29	1.299	0.159
Additional				
Mother	0.86±0.79	0.40±0.33	3.132	0.003
Father	0.63±0.65	0.47±0.46	1.093	0.262
General symptom index				
Mother	0.90±0.71	0.43±0.31	3.537	<0.001
Father	0.61±0.50	0.42±0.36	1.590	0.091

SCL–90-R: Symptom Check-List; ADHD: Attention Deficit Hyperactivity Disorder; t: Student's T test

children with ADHD and their families (21). Several studies found a higher prevalence of ADHD symptoms in families of children with ADHD compared to control groups (22-24). Moreover, it was reported that ADHD symptoms continuing through adulthood have stronger genetic transmission (25). In the study of Camcıoğlu et al. (26), mean scores of Wender-Utah Rating Scale (WURS; a scale evaluating childhood ADHD symptoms retrospectively) and Adult Attention-Deficit Hyperactivity Scale (ADHD-A; a scale evaluating current ADHD symptoms) of parents of children with ADHD were found to be significantly higher than the control group.

In our study, we found that mothers of ADHD group have more psychiatric symptoms than the control group. Fathers of ADHD group have more obsessive, depressive, paranoid symptoms and interpersonal sensitivity. In the literature, it was reported that parents of children with ADHD are more frequently get an axis I diagnosis and comorbid psychiatric disorders and anxiety disorders in particular are more prevalent in adult ADHD (27-31). Individuals with ADHD have problems in adulthood, working and home environment

Table 4: Representation of correlation of ADHD symptoms and psychiatric symptoms in the patient group by linear regression analysis

SCL–90		Attention deficit	HyperactivityImpulsivity	Problem	Total
Somatic symptoms					
Mother	r	0.30	0.19	0.38	0.44**
Father		0.53*	-0.04	0.72**	0.66**
Anxiety symptoms					
Mother	r	0.13	0.42*	0.48**	0.53**
Father		0.44	0.12	0.72**	0.69**
Obsessive symptoms					
Mother	r	0.43*	0.23	0.608**	0.635**
Father		0.65**	0.01	0.762**	0.755 **
Depressive symptoms					
Mother	r	0.16	0.37	0.51**	0.53**
Father		0.55*	-0.08	0.78**	0.69**
Sensitivity in interpersonal relations					
Mother	r	0.37	0.17	0.46**	0.52
Father		0.47	-0.18	0.56**	0.48
Psychotic symptoms					
Mother	r	0.37	0.29	0.47**	0.56**
Father		0.56*	0.06	0.72**	0.72**
Paranoid symptoms					
Mother	r	0.37	0.30	0.59**	0.64**
Father		0.15	-0.01	0.56**	0.42*
Anger					
Mother	r	0.17	0.35	0.41**	0.47**
Father		0.20	0.17	0.72**	0.62**
Phobia					
Mother	r	0.48**	0.13	0.47**	0.55 **
Father		0.65**	-0.12	0.60**	0.60**
Additional					
Mother	r	0.42*	0.27	0.58**	0.64**
Father		0.47	-0.01	0.65**	0.60**
General symptom index					
Mother	r	0.33	0.32	0.54**	0.60**
Father		0.42	0.07	0.75**	0.69**

SCL–90-R: Symptom Check-List, *p<0.05, **p<0.01

and interpersonal relations (22). Some of the familial problems of these individuals are difficulty to adhere rules at home, problems with taking responsibilities about home and marriage and frequent separations.

When relationship between ADHD symptoms of parents and SCL-90-R sub-symptom clusters were examined, we found that by increasing ADHD symptoms (problem and total scores), other psychiatric symptoms also increase. We found a similar relationship in the control group as well. We commented this finding as increasing severity of ADHD symptoms make a risk for other psychiatric disorders. Problems of an adult with a child ADHD with his/her child and with difficulties with his/her own ADHD symptoms might have caused higher level of psychiatric symptoms in these parents. Relations of children with ADHD with their parents are generally negative due to their stressful, demanding, insisting and intrusive nature and it was reported that this situation concludes with a negative effect on familial relations and mental states of parents (32-34). Also when difficulties to perform behaviors and attitudes having calmness, patience, ability to limit and not being impulsive due to problems are considered, it can be predicted that how difficult is living in such a house for individuals and mental health of both child and mother is negatively affected. It was also reported

that mothers with more severe ADHD symptoms respond less to parental education (35). This enables the child to have an adequate treatment. For this reason, both child and his/her parents should be evaluated for ADHD in the beginning of the treatment and should be directed to treatment for psychiatric problems if needed. This evaluation is even more important when comorbidity of ADHD and several psychiatric disorders is considered.

Our study has some limitations. Psychiatric symptoms including ADHD symptoms in adults were assessed by self-rating scales; however, structured interviews were not performed. Therefore, it is possible to comment on the presence and severity of symptoms rather than diagnostic validity of ADHD or other psychiatric disorders. Not investigating comorbid psychiatric disorders in children is among limitations of the study. Generalization of findings is also limited due to big sample size as well.

In conclusion, collaboration of the family is an important factor affecting treatment success for both medication use and maintenance of treatment and for behavioral regulations recommended by physician. For this reason, in the evaluation and treatment process of children with ADHD, considering evaluation of their parents for adult ADHD and related comorbid psychiatric conditions will be beneficial for the operation of this process more efficiently.

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