

# Various ADHD-Associated Problematic Life Events in Parents of Children with ADHD Diagnosis

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## INTRODUCTION

Various ADHD-associated problematic life events in parents of children with ADHD diagnosis

**Objective:** The purpose of this study was to establish whether there was any relationship between diagnosis of ADHD and various problematic life events in parents of children monitored with a diagnosis of ADHD.

**Method:** Two hundred forty nine parents of 167 children followed-up with a diagnosis of ADHD and 146 healthy controls with no diagnosis of ADHD in their children or themselves were included. DSM-IV diagnostic criteria were used in diagnostic evaluation. Diagnostic criteria recommended for DSM-V and ADHD symptom assessment scales (Wender Utah Rating Scale-25, Adult Attention Deficit Hyperactivity Disorder Self-Report Scale) were also used. Problematic life events were recorded on a data form prepared by the authors.

**Results:** Parents meeting a diagnosis of ADHD experienced nearly all problematic life events at a higher level compared to parents not meeting that diagnosis and to the healthy controls.

**Conclusion:** Parents of children diagnosed with ADHD are exposed to a high, lifelong level of ADHD-associated life events. These parents should be evaluated in terms of diagnosis of ADHD.

**Key words:** ADHD, ADHD in adults, parents of children with ADHD, problematic life events



## ÖZET

DEHB tanılı çocukların ebeveynlerinde DEHB ile ilişkili bazı sorunlu yaşam olayları

**Amaç:** Bu çalışmanın amacı, DEHB tanısı ile izlenen çocukların ebeveynlerinde DEHB tanısı ile bazı sorunlu yaşam olayları arasında ilişki olup olmadığını ortaya koymaktır.

**Yöntem:** Çalışmaya, DEHB tanısı ile takip edilen 167 çocuğa ait 249 ebeveyn ile, çocuğunda ve kendisinde DEHB tanısı olmayan 146 kişiden oluşan sağlıklı kontrol grubu dahil edilmiştir. Tanısal değerlendirmede DSM-IV tanı ölçütleri kullanılmıştır. Ayrıca, DSM-V için önerilen tanı kriterlerinden ve DEHB belirtilerini tarama ölçeklerinden (Wender Utah Derecelendirme Ölçeği-25, Erişkin Dikkat Eksikliği Hiperaktivite Bozukluğu Kendi Bildirim Ölçeği) yararlanılmıştır. Sorunlu yaşam olayları, araştırmacılar tarafından hazırlanan bilgi formuna kaydedilmiştir.

**Bulgular:** DEHB tanı kriterlerini karşılayan ebeveynlerin, bu kriterleri karşılamayan ebeveynlere ve sağlıklı kontrollere göre hemen hemen tüm sorunlu yaşam olaylarını daha yüksek oranda yaşadıkları bulundu.

**Sonuç:** DEHB tanılı çocukların ebeveynleri, yaşamları boyunca DEHB ile ilişkili sorunlu yaşam olaylarına yüksek oranda maruz kalırlar. Bu ebeveynlerin DEHB tanısı açısından değerlendirilmeleri gereklidir.

**Anahtar kelimeler:** DEHB, erişkinlerde DEHB, DEHB'li çocukların ebeveynleri, sorunlu yaşam olayları

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## INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder that begins in childhood, the symptoms of which persist to

a large extent in adulthood and whose effects persist in all stages of life, that compromises academic, social and occupational life and that has a strong genetic component (1). The high familial transition characteristic of ADHD has been shown in various family, twin and

adoption studies (2,3), and heritability as high as 76% has been determined (4). Diagnosis of ADHD in parents of children diagnosed with ADHD is reported to be between 2 and 8 times higher compared to the general population in the international literature (5-9). Similarly high rates (6.8%-39.1%) have also been reported in studies from Turkey (10-13).

Adverse effects resulting from difficulties in regulating attention, activity and impulsivity in individuals with ADHD, and that begin in the first years of life, may give rise to different life problems at all ages (14). Although these ADHD-related life difficulties in children and adolescents have been considered in a great many studies, the number of studies involving adults is more limited. Some studies have shown that individuals diagnosed with ADHD experience life problems such as academic failure, receipt of disciplinary punishments, expulsion from school, repeating academic years and a low level of education in school age years (15-18), and failures in romantic relationships, a large number of spouses, frequent contraction of sexually transmitted diseases, marital problems, divorce (19,20), frequent changes of employment, unemployment and a low level of income (15,16,21,22), difficulties in adapting to social life and its rules and resulting criminality problems, traffic offenses and risky behavior (21,23,24) and alcohol and substance use (20,25-27) in adulthood. Given their probable genetic burdens, the parents of children with ADHD are an ideal population for investigating problems associated with the disorder. One study reported that parents of children with ADHD and also diagnosed with ADHD themselves exhibited higher levels of unemployment and more frequent job changes, lower education and socioeconomic levels and higher rates of alcohol and substance use compared to parents with no such diagnosis (9). One study performed in Turkey involving a control group of parents of children diagnosed with enuresis nocturna reported greater use of alcohol and histories of crime (albeit very low numbers) in the parents of children with ADHD, but determined no difference between the groups in terms of marital status and education levels (10). In this study, in contrast, they determined no difference in terms of these parameters

between parents of children with ADHD themselves diagnosed with ADHD and parents with no such diagnosis.

The purpose of this study was to determine whether diagnosis of ADHD was associated with problematic life events in parents of children with ADHD.

## METHOD

### Participants

Our study sample consisted of the parents of children diagnosed with ADHD on the basis of DSM-IV and treated by our child and adolescent psychiatry clinic. Parents of children with an additional diagnosis of severe medical or neurological disease, psychosis, widespread developmental disorder or mental retardation and of adopted children were excluded. Three hundred fifty-six parents were invited to participate, of which 65 declined. The most common reason for refusal was lack of time. Parents with active Axis I psychiatric disorder according to DSM-IV other than ADHD, or with mental retardation or with a history of bipolar disorder or psychotic disorder were excluded. Eleven patients were excluded due to major depressive disorder, 25 due to anxiety or somatoform disorder and 6 due to a history of bipolar disorder. Finally, 249 parents of 167 children diagnosed with ADHD were enrolled. Both parents of 82 children, the mothers only of 60 children and the fathers only of 25 children participated.

A healthy control group consisting of a population of hospital staff and their relatives, with at least one child over the age of 6 and with no diagnosis of ADHD was also enrolled (n=163). In addition to the criteria applied to parents of children with ADHD, meeting the criteria for diagnosis of ADHD at any time in their lives (in childhood or persisting) was an exclusion criterion for the healthy control group. The healthy control group was subjected to the same screening procedure as the parents of children with ADHD. Seventeen of the parents assessed for inclusion in the healthy control group met the diagnostic criteria for ADHD at some time in their lives (6 limited to childhood and 11 in

adulthood). A further 28 had another active Axis I diagnosis (13 with major depressive disorder, 5 with obsessive compulsive disorder, 4 with widespread anxiety disorder, 2 with panic disorder, 2 with somatoform disorder, 1 with alcohol use disorder and 1 with dysthymic disorder). These parents were excluded from the study. The healthy control group finally consisted of 146 parents.

### Diagnostic Procedure for ADHD

These parents were first administered two self-report scales serving to screen symptoms of ADHD. The Wender-Utah Rating Scale short version (WURS-25) was applied to retrospectively assess parent's childhood ADHD symptoms (28), and the Adult Attention Deficit Self-Report Scale (ASRS) (29) to screen adulthood symptoms. These scales were used only as support material at interviews and were not regarded as diagnostic. A diagnostic interview based on DSM-IV was subsequently performed by a specialist psychiatrist. Use was also made in diagnosis of the "adult ADHD diagnostic criteria" for DSM-IV recommended by Barkley (30). These scales are a new criterion group that inquire into adulthood-specific problems (work, marriage and social relations, money management, motor vehicle use etc.) and that also define the concept of "ADHD in remission." At this stage, retrospective information was obtained from first-degree relatives of patients when possible. At the end of the diagnostic process, 142 of the 249 patients did not meet a diagnosis of ADHD for any time in their lives [ADHD (-) group], while 107 (42.97%) met a diagnosis of ADHD, either restricted to childhood or else still persisting [ADHD (+) group]. Parents meeting the ADHD diagnostic criteria in adulthood (n=53, 21.28%) were informed about the disorder and referred for treatment.

### Measures

**Information Form:** This form which was prepared by the authors and completed during interview, provides sociodemographic data for parents, and also contains questions concerning whether they had

experienced various ADHD-related life problems (failing an academic year at school, receiving disciplinary punishments, academic level, physical trauma, changes of employment, criminal actions, traffic infringements and a history of accidents) and if so, their number and history of cigarette/alcohol/substance use. Experiencing a problem once in life, or never, was investigated as one variable, and the number of problematic events as a separate variable.

**The Wender-Utah Rating Scale-short version (WURS-25):** This scale was developed to inquire childhood ADHD symptoms retrospectively and to assist the diagnosis of ADHD in adults (31). Turkish-language adaptation and validation was performed by Oncu et al. (28). The scale is a 5-point Likert type scored from 0 to 4 (0=no or very mild, 1=mild, 2=medium, 3=considerable and 4=very considerable). Possible scores range from 0-100. Internal consistency coefficient of the Turkish-language version is 0.93, and test-retest reliability 0.81. A cutoff point score of 36 is recommended, and this is reported to accurately classify the ADHD group at a level of 82.5% and the healthy control group at a level of 90.8%.

**Adult Attention Deficit Self-Report Scale (ASRS):** This scale was developed by the World Health Organization on the basis of DSM-IV ADHD diagnostic criteria for the purpose of screening ADHD symptoms in adults (32). Validity of the Turkish-language version was performed by Dogan et al. (29). The 18 questions in the scale are intended to determine the frequency at which each symptom has appeared within the preceding 6 months. Nine items in this 5-point Likert-type scale (0=never, 1=rarely, 2=sometimes, 3=often, 4=very often) concern lack of attention, and the other nine assess symptoms of hyperactivity/impulsiveness. Scores of 24 or above from any of these subscales are regarded as "highly probable ADHD," scores of 17-23 as "possible ADHD", and scores of 0-16 as not being ADHD. During validation of the Turkish-language version of the scale, internal consistency coefficients of 0.78-0.88 and test-repeat-test coefficients of 0.73-0.89 were determined for the total scale and subscales.

**Table 1: Parents' ADHD symptom scores**

	1- ADHD (+) (n=127)	2- ADHD (-) (n=122)	3- HC (n=146)
	Ort.±SS		
WURS	44.71±10.98	15.78±9.05	13.22±7.85
ASRS attention	16.97±5.95	10.93±5.37	10.21±4.25
ASRS hyperactivity	15.92±5.99	10.27±5.00	10.73±4.93
ASRS total	32.70±10.51	21.01±9.14	20.84±8.07

WURS: Wender-Utah Rating Scale-Short Version, ASRS: Adult Attention Deficit Self-Report Scale, HC: Healthy control group

## Statistical Analysis

The chi square test was applied for categorical variables at analysis of the three groups [1-ADHD (+) group; 2-ADHD (-) group; 3-Healthy control group (SK)]. Numerical variables were tested using one-way ANOVA, and Tukey test was used for post hoc analysis. Numerical variables were expressed as mean±standard deviation (Mean±SD) and categorical variables as observation number and percentage (n, %) in the tables. Post hoc analysis results are given in the “comparisons” column in the tables. Significant differences in two-way comparisons of groups expressed as numerals (1,2,3) in this column are indicated with the signs “>” or “<”. Significance was set at 0.95 ( $p<0.05$ ) and data were analyzed on SPSS 16.0.

## RESULTS

### Groups ADHD Symptom Degrees

Scores from scales showing groups' ADHD symptom scores are shown in Table 1.

### Groups' Sociodemographic Characteristics and Problematic Life Events

Values for groups' sociodemographic characteristics and problematic life events, together with analysis results, are shown in Table 2. Data concerning problematic life events were considered from two perspectives in this study. The first is whether or not that event was experienced at least once in a lifetime. For example, the reference to “repeating an academic

year” in Table 2 expresses the percentage of individuals in that group, who have repeated an academic year at least once. On the other hand, for most problematic life events considered, we investigated the number of times that even had taken place. This was compared between groups by showing mean values, in Table 2.

Mean age and length of education of the healthy control group were higher than those of the parents of children with ADHD. There was no difference between the three groups in terms of gender distribution. The level of women was higher than that of men in all groups. There was no difference between the groups in terms of number of marriages. In terms of graduation from university, the healthy control group had a higher level compared to the other two groups, and parents with no diagnosis of ADHD [ADHD (-)] has a higher level than parents with such a diagnosis. A diametrically opposite trend was observed in terms of repeating an academic year at least once. The ADHD (+) group had a higher level compared to the other two groups, and the ADHD (-) group had a higher level compared to the healthy control group. In terms of all other variables exhibiting significant differences (receipt of disciplinary punishments, level of changing employment, level of experience of physical trauma, level of involvement in criminal actions, number of traffic violations and level of cigarette-alcohol-substance use), there was no difference between the ADHD (-) and healthy control groups, while the ADHD (+) group had higher values compared to the other two groups. Number of changes of employment was significantly higher in the ADHD (+) compared to the ADHD (-) group. No significant difference was determined in terms of other variables (Table 2).

**Table 2: Comparison of groups in terms of sociodemographic characteristics and problematic life events**

	1- ADHD (+)	2- ADHD (-)	3- HC	$\chi^2/t$	Comparisons
	(n=107)	(n=142)	(n=146)		
	Mean±SD/ %(n)				
Age	37.77±6.26	37.88±5.67	40.76±7.26	9.423***	1.2<3
Female gender	54.2 (58)	59.2 (84)	60.3 (88)	1.013	
Number of marriages	1.05±0.26	1.02±0.14	1.01±0.11	1.885	
Years of education	10.27±4.21	10.48±3.74	12.14±4.49	8.224***	1.2<3
University graduation	16.8 (18)	33.1 (47)	50.0 (73)	30.231***	1<2<3
Level of repetition of academic years	50.5 (54)	31.0 (44)	13.0 (19)	41.748***	1>2>3
Number of repetitions of academic years	1.34±0.88	1.13±0.34	1.05±0.23	2.001	
Level of receipt of disciplinary punishments	15.0 (16)	1.4 (2)	5.5 (8)	18.664***	1>2,3
Number of disciplinary punishments	1.50±1.09	1.00±0.00	1.25±0.46	0.386	
Level of physical trauma	42.1 (45)	23.9 (34)	18.5 (27)	18.405***	1>2,3
Number of physical traumas	1.88±1.54	1.58±1.18	1.29±0.66	1.925	
Level of job changes	45.8 (49)	28.2 (40)	29.5 (43)	10.156**	1>2,3
Number of job changes	2.28±1.56	1.65±0.86	1.74±0.92	3.800*	1>2
Level of criminal actions	11.2 (12)	3.5 (5)	3.4 (5)	8.894*	1>2,3
Number of criminal actions	2.41±2.35	1.40±0.54	1.20±0.44	1.042	
Level of traffic violations	34.6 (37)	31.0 (44)	26.7 (39)	1.845	
Number of traffic violations	3.00±2.91	1.93±1.56	1.79±0.86	4.424*	1>2,3
Level of traffic accidents	30.8 (33)	19.7 (28)	26.0 (38)	4.134	
Number of traffic accidents	1.62±0.79	1.21±0.62	1.44±0.72	2.416	
Cigarette use	54.2 (58)	36.6 (52)	37.7 (55)	9.360**	1>2,3
Alcohol use	31.8 (34)	20.4 (29)	20.5 (30)	10.880**	1>2,3
History of substance use	8.4 (9)	1.4 (2)	1.4 (2)	12.088**	1>2,3

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001,  $\chi^2$ : Ki kare test, t: Student T test

## DISCUSSION

Our findings showed that among the parents of children with ADHD, the ones who had diagnosis of ADHD experienced greater difficulties in the field of education than the parents without the disorder. Shorter duration of education and lower rates of university graduation and a higher level of repetition of academic years are all indicative of this difficulty. Although the difference in mean numbers of repetitions of academic years was not significant, the level was still higher in the ADHD (+) group than in the other groups. Consistent with our findings one previous study on this subject, with a small sample, reported lower levels of education in parents of children with ADHD and themselves diagnosed with ADHD (9). In contrast, one study from Turkey with a larger sample reported no difference in education levels between parents of children with ADHD and a control group consisting of parents of children diagnosed with enuresis nocturna (10). Various

comprehensive and previous studies with an extended design have shown that having ADHD creates difficulties in educational life and academic progress, particularly in association with problems in the attention domain (15-18). One study of university students in Turkey showed that the ADHD had a higher loss of academic years in school than the non-ADHD group, and that those in the attention deficit subtype had greater difficulty in fulfilling their potential (33). Additionally, the ADHD group, and particularly the attention deficit subtype, had a lower perception of success than the non-ADHD group. In our study, parents of children with ADHD but with no such diagnosis themselves had a more negative profile in the area of education (a lower level of university graduation, more repetitions of academic years, etc.) compared to the healthy control group. One probable reason for this is that the healthy control group was consisted of individuals with a higher level of education (years in education), and this may have led to a bias in comparison

of education profile. Another possibility is that the parents with no diagnosis in our study had some symptoms of ADHD in childhood and at university age, but that parents did not recall these since they were at below threshold levels. Therefore, in our study, these patients were diagnosed retrospectively with childhood ADHD. However, even though they did not meet the diagnostic criteria, their functionality in terms of education was affected. Since the other problematic life events investigated in our study were more concerned with adulthood, recollection difficulties created less difficulty in the evaluation of these issues.

Parents of children diagnosed with ADHD in our study had higher levels of having a disciplinary punishment (in school or in professional life) and being exposed to a physical trauma throughout their lives. This finding is supported by a number of previous studies (30). Patients with ADHD having difficulty in obeying rules may lead to their receiving disciplinary punishments at school in childhood or in working life in adulthood, and to their being expelled from school or fired from work. In addition, problems arising from hyperactivity and impulsivity may lead to physical accidents and trauma, while problems arising from lack of concentration may cause work accidents. Although no statistically significant difference was determined between the groups in terms of receipt of disciplinary punishment and experience of physical trauma, the levels were higher in the ADHD (+) group compared to the other groups.

In terms of changing employment, the highest levels of at least one change and the highest number of changes were observed in the ADHD (+) group. This finding is also supported by several previous studies (15,16,21,22). As a result of their impulsivity, when individuals with ADHD encounter problems that they would normally be able to deal with, they may act without thinking and resign, or if they are working in a stationary job (such as deskwork), they may become bored due to their hyperactivity and start looking for a more suitable job. For that reason, they have higher levels of job changing and higher numbers of job changes compared to individuals with no diagnosis of ADHD.

In terms of levels and numbers of criminal actions, traffic accidents and traffic violations, although the ADHD (+) group had higher values for all variables compared to the other groups, differences were significant for only criminal actions and number of traffic violations. The least difference between the groups among these problematic life events was in receipt of traffic violations. When the generality of experiencing this problem at least once in life time is considered this result is not surprising. More determining in terms of this variable is the number of this life event. Indeed, individuals in our ADHD (+) group received significantly more traffic violations than those in the other groups. ADHD (+) also exhibiting a higher level of involvement in at least one criminal action compared to the other groups is also not surprising, considering these individuals' impulsive behavior and that ADHD has high comorbidity with alcohol-substance use and particularly borderline personality and antisocial personality disorder. This finding supports the results of studies in the international literature (21,23,24). On the other hand, one study from Turkey reported that while parents of children diagnosed with ADHD had a significantly greater history of criminal actions compared to the control group, in contrast to our findings they determined no difference in that respect between parents meeting a diagnosis of ADHD and parents not meeting such a diagnosis (10). The quite considerable numerical difference between the groups in that study [ADHD (-)=220, ADHD (+)=16] may have influenced the results, however.

Finally, present alcohol and cigarette use and a past history of substance use were higher in our ADHD (+) group compared to the other two groups. Individuals with ADHD are known to have a higher level of substance use, even at diagnostic levels (20,25-27). Factors such as impulsivity, a tendency to risky behavior, novelty seeking or concentration problems may have played a role in this situation.

One of the limitations of our study is that information regarding participants' ADHD symptoms in childhood was obtained retrospectively. Although a psychometric tool with high childhood predictability was used (WURS-25) and information was obtained from parents'

close relatives whenever possible, factors such as recollection difficulties and error may have adversely affected the reliable assessment of participants' childhoods. Another limitation is that parents with active (major depression, anxiety disorder, somatoform disorder etc.) or previous (for bipolar disorder and psychotic disorders) psychiatric disease were excluded from the study in order to reduce confounding factors. Although this made it possible to examine the effect of ADHD in problematic life events purely, since ADHD

is a clinical picture with high comorbidity of other psychiatric disorders, this may have reduced our sample's representativeness of clinical sample with ADHD diagnosis.

In conclusion, on the basis of our findings, among the parents of children with ADHD, the ones who had diagnosis of ADHD experience problems in many areas of their lives. These results suggest that the parents of children with ADHD should be assessed in terms of this disorder.

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