

Determination of depression and anxiety levels among parents of ADHD children

Identification of depression and anxiety levels in parents of adolescent children with ADHD

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Abstract

Aim: Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common psychiatric disorders of childhood. The aim of this study is to compare the depression and anxiety levels of parents of children with ADHD with a healthy control group.

Material and Method: In this case-control study, cases were selected from the parents of patients aged 7-17 years who applied to Firat University Medical Faculty Child and Adolescent Psychiatry Outpatient Clinic, and the control group was selected from allied health personnel who had healthy children. A questionnaire consisting of questions investigating socio-demographic characteristics, the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) was applied to the participants.

Results: The mean BDI score of the mothers in the case group was found to be 15.61 ± 10.301 , and the mothers of the control group was found to be 8.56 ± 6.973 , and a statistically significant difference was determined between them ($p=0.001$). The mean BAI score of the mothers in the case group was 14.20 ± 10.442 , the mean score of the mothers of the control group was found to be 8.90 ± 8.516 and the difference was statistically significant ($p=0.001$).

The mean BAI score of the fathers of boys with ADHD was significantly higher than the fathers of girls with ADHD. It was found that the mean BDI score of mothers increased significantly when the diagnosis period of children with ADHD was increased ($p=0.004$). The mean BDI and BAI scores of the mothers in the study group were significantly higher than the mothers in the control group.

Discussion: In this study, no relationship was found between the ages of the mother and father and their level of depression and anxiety. In a study conducted by Ergin et al. with parents of disabled children, it was found that maternal age did not affect the level of depression [22]. In the study by Özdel et al., they did not find a relationship between age and depression level in university students.

Keywords

Lack of attention; Hyperactivity disorder; Depression; Anxiety; Parent

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Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a lifelong neurodevelopmental disorder characterized by short attention span, hypermobility, and impulsive behavior. ADHD is characterized by inattention, hyperactivity, and impulsivity symptoms, which begin in childhood and are not appropriate to the age and developmental level of the individual. It is one of the most common psychiatric disorders seen in childhood [1]. Many studies are being done worldwide and in Turkey on the prevalence of this disease. In two highly comprehensive meta-analysis studies in recent years, the mean prevalence of ADHD across the world has been shown to be 5.29% and 5.9-7.1% [2]. In a new meta-analysis study that included 41 studies from 27 countries in which the prevalence of all psychiatric disorders in children and adolescents was investigated, the prevalence of psychiatric disorders was found to be 13.4% and the prevalence of ADHD was 3.4% [3]. The prevalence of ADHD in the 7-14 age group in Istanbul was between 2.7% and 9.6% [4]. Also in the preschool period, ADHD is a common psychiatric disorder. In a study carried out in Izmir Behçet Uz Children's Diseases and Surgery Training and Research Hospital, Child Psychiatry Outpatient Clinic, the prevalence of ADHD in the pre-school period was found to be 7.8% [5].

Genetic, neuroanatomical, neurophysiological, neurochemical, and environmental factors have been implicated in the etiopathogenesis of the disease. Developmental deficiencies in ADHD are two-dimensional. On the one hand, there is attention deficit and on the other hand there are hyperactivity-impulsive behaviors. In the hyperactivity dimension, there are findings such as being constantly wiggling, not staying in one place, fidgeting with hands and feet, eagerness to move and wander around, not sitting in the same place for a long time and running, climbing everywhere especially in childhood [6].

These stresses cause different symptoms in mother and father. The fact that mother and father are constantly confronted with this stressor causes changes in their emotional status. One of these changes, and most importantly, is depression [7]. In studies, it was found that having a disabled child had very important effects on the mental health of parents and especially having a constant dependency with the child, the need for special care and education of the child and the fact that they were concerned about their future life were important dimensions of stress [8]. Children with ADHD often experience social and school-related problems, difficulties in forming a friendship with others, and conflict with their parents. Studies with parents indicate that the care burden of parents increased, parental satisfaction and self-confidence decreased, and parental stress and divorce increased [9].

In a study on children with autism spectrum disorder, the level of depression and anxiety in mothers of children with autism was found to be higher than the mothers of normal children [10].

It was observed that mothers with children with ADHD experienced psychological difficulties specific to the role of both general and motherhood and had inadequate maternity feelings, compared to the mothers of children who were not diagnosed with ADHD [11]. The results will guide the planning

of the steps to be taken to support the families of children with ADHD during their childrens' treatment.

Material and Methods

In this study conducted as case-control research, the parents of the ADHD patients aged between 7-17 years who applied to the Child and Adolescent Psychiatry Outpatient Clinic of Firat University Medical Faculty between November 2017 and February 2018 (92 parents) formed the cases group and the control group consisted of allied health personnel of the same hospital who has healthy children with similar demographic characteristics in the same age group (101 parents). The parents of children with mental retardation, chronic medical history, and autism spectrum disorder were excluded from the study. In the selection of the control group, it is possible to choose the healthy individuals who apply to the Pediatric Policlinic [11] and there are also studies using allied health personnel [7]. A questionnaire was applied to both groups during the study period. Patients diagnosed with ADHD according to DSM-V criteria were selected from patients who applied to Child and Adolescent Psychiatry outpatient clinic.

Before starting the survey, the participants were informed that the information received would not be used outside the scientific platform of this study, and the necessary explanations were made about the survey questions. The questionnaire formed by searching the literature by the researchers consisted of two stages. The first section included sociodemographic questions and the second part included the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI).

Beck Depression Scale was developed by Beck et al. to measure the physical, emotional, cognitive, and motivational symptoms of depression [12]. The scale determines the degree of depression symptoms objectively. There are 4 options in each of the twenty- one items and a score of 0-3 is given to each item. Depression score is determined by adding these scores. The total score indicates the severity of depression. The validity and reliability study was conducted by Hisli in Turkey [13].

Beck Anxiety Inventory measures the frequency of anxiety symptoms of the individual. It is a Likert-type self-rating scale, which consists of 21 items each scored between 0-3. The total score indicates the degree of anxiety experienced by the person. BAI was developed by Beck et al. [14] and validity and reliability studies were performed by Ulusoy et al. [15].

The survey was implemented to volunteer individuals included in the study under direct observation. Ethical approval was obtained from the Firat University Non-Interventional Research Ethics Committee and the written permission was obtained from Firat University Hospital Chief Physician.

The data obtained from the research were evaluated with statistical packaged software. The Pearson and Spearman correlation analyzes were used for statistical features such as percentage, mean, t-test, chi-square; the Kolmogorov-Smirnov test was used to measure the distribution of normality, and the Mann-Whitney U and the Kruskal-Wallis tests were used to compare means. The means were given as standard deviation (mean±SD), $p < 0.05$ was accepted as statistical significance.

Results

From the point of marital status, 91.3% in the case, and 98% in the control group were married. The borderline significant difference was found between the two groups by marital status ($p=0.05$). The mean age of the subjects in the case group was 37.11 ± 5.502 (min:26; max:48) years and 41.83 ± 5.339 (min:29; max:55) years for mothers and fathers, respectively. The parents in the control group consisted of mothers whose mean age was 38.90 ± 5.300 (min:28; max:59) years and fathers whose mean age was 43.38 ± 5.902 (min:29; max:63) years. As there was no statistically significant difference in the age of mothers between the two groups ($p=0.06$), no significant differences in the age of the fathers between the groups ($p = 0.117$) was also found.

The parents (mothers (79.3%) and fathers (83.3%)) defined their economic situation as intermediate in the case group, similar to the control group (mothers (76.2%) and fathers (74.7)). Most mothers (50.5%) and fathers (98.0%) in the control group were working to make a living. In contrast, the control group was composed of parents, where 27.2 % and 98.0% of mothers and fathers were working, respectively. Among the mothers included in the case group, 48.9% were primary school graduates, and below, 32.6% were middle school/high school graduates, 18.5% were graduated from a university. The education level of fathers in the case group was as follows: 21.4%, 42.9%, and 35.7% of those were primary school graduates, and below, middle school/high school graduates and graduated from a university, respectively. Among mothers included in the control group, 21.7% were with primary school graduates, and below, 33.7% were middle school/high school graduates, and 44.6 % were graduated from a university. Additionally, 6.1%, 42.4%, and 51.5% of the fathers constituting the control group were found to be primary school graduates and below, middle school/high school graduates, and graduated from a university, respectively. The differences between the case (mothers (12%), fathers (9.5%)) and control groups (mothers (9.9%), fathers (6.1%)) concerning the use of psychiatric drugs were also noted. In both groups, mothers had higher rates of using psychiatric drugs than fathers.

The mean number of children from families of the case group (2.58 ± 1.102) was higher than children in the control group (2.16 ± 0.765) ($p=0.025$). Among children with ADHD, 31.5% ($n=29$) were girls and 68.5% ($n=63$) were boys. While 81.5% of the case group lived in the provinces, 13.0% lived in the districts and 5.5% lived in the villages; 97.0% of the participants in the control group lived in the provinces and 3.0% lived in the districts. While 37.0% of the case group lived in a rented house, 57.6% lived in their own house and 5.4% was staying in their relative's house. In the control group, these rates were 25.7%, 70.3%, and 4.0% respectively.

While the rate of the working status of the mothers in the study group was found to be significantly lower than the mothers in the control group ($p=0.001$), there was no significant difference in the working status of the fathers in both groups ($p=0.415$). The education levels of the parents in the case group were significantly lower than the parents in the control group (<0.005). The drug use status of the parents in the case group and the drug use status of the parents in the control group were

Table 1. BDI and BAI Means of Parents in Case-Control Group

	Case group mean±ss	Control group mean±ss	P- value*
Mother depression score (BDI)	15,61±10,301	8,56±6,973	p=0,001
Mother anxiety score (BAI)	14,20±10,442	8,90±8,516	p=0,001
Father depression score (BDI)	11,43±10,322	8,91±7,582	p=0,207
Father anxiety score (BAI)	9,24±8,631	7,51±7,521	p=0,185

*Mann-Whitney U test

Table 2. The Relationship of BDI and BAI Mean Scores of Parents in Case Group with the Gender of Children with ADHD

	Girl with ADHD mean±ss	Boy with ADHD mean±ss	P- value*
Mother depression score (BDI)	15,90±10,001	15,48±10,512	p=0,695
Mother anxiety score (BAI)	15,03±10,14	13,81±10,636	p=0,493
Father depression score (BDI)	9,32±10,59	12,32±10,165	p=0,086
Father anxiety score (BAI)	6,52±7,451	10,39±8,894	p=0,027

*Mann-Whitney U test

Table 3. Correlation of BDI and BAI Mean Scores of Parents in Case-Control Group

		Mother depression score	Mother anxiety score	Father depression score	Father anxiety score
Mother depression score	Correlation (r * value)	1,000	0,636	0,387	0,329
	P- value	-	0,000	0,000	0,000
Mother anxiety score	Correlation (r value)	0,636	1,000	0,289	0,451
	P- value	0,000	-	0,000	0,000
Father depression score	Correlation (r value)	0,387	0,289	1,000	0,661
	P- value	0,000	0,000	-	0,000
Father anxiety score	Correlation (r value)	0,329	0,451	0,661	1,000
	P- value	0,000	0,000	0,000	-

* Spearman correlation coefficient

similar.

The mean BDI and BAI scores of the mothers in the case group were significantly higher than the mothers in the control group. Although the BDI and BAI scores of the fathers in the case group were found to be higher than the fathers in the control group, this was not statistically significant (Table 1).

As a result of the correlation analysis, no significant relationship was found between the ages of the mother and father and the mean scores of BDI and BAI. There was no correlation between the number of children and mothers' BDI, BDI, and BAI scores of the fathers ($p=0.183, 0.213, 0.108$). However, as the number of children increased, the mean BAI score of the mother increased significantly ($p=0.022$).

While in the fathers of boys with ADHD, BDI scores were significantly higher than the the fathers of girls, there was no significant difference between the mother's BDI, BAI, father's BDI scores and the gender of the child (Table 2).

There was no significant difference between the parents' BDI and BAI mean scores and the place where the family lives, ownership of the residence, how the parents perceive their own economic levels, birth order of the child with ADHD ($p>0,05$).

BAI scores of the working mothers were found significantly higher compared to the mothers who did not work, while there was no significant difference between the mothers' BDI, fathers' BDI and BAI scores and their working status.

As the education levels of the parents of both the case group and the control group increased, their BDI and BAI mean scores decreased significantly.

The mean BDI and BAI scores of mothers who used any psychiatric medication were higher than the mean scores of mothers who did not ($p < 0.05$). Although the BDI and BAI scores of the fathers who used any psychiatric medication were higher than the mean scores of the fathers who did not use them, no significant difference was found ($p > 0.05$).

As the diagnosis period of children diagnosed with ADHD increased, the mean BDI score of mothers increased significantly ($p < 0.05$). There was no significant relationship between the mother's BAI mean score and the father's BDI and BAI mean scores ($p > 0.05$).

A significant positive correlation was found between the BDI and BAI scores of the parents of the case group and the mean scores of the parents of the control group (Table 3).

Discussion

In this study, depression and anxiety levels of the mothers in the ADHD group were significantly higher than the normal group. In a controlled study by Brown and Pacini, which examined parents of children with ADHD who admitted to the clinic and parents of normal children, it was found that parents in the case group had more common depressive symptoms than in the control group [16]. Similar results have been obtained in many studies [11]. Having children with ADHD is a source of stress for parents. Stress also triggers the development of depression [17]. In the results obtained in this study, it was concluded that children with ADHD were a source of stress for their mothers and impaired their quality of life.

Depression and anxiety levels of the fathers in the case group were higher than the fathers in the control group, but this was not statistically significant. Mothers have more challenges than fathers when they deal with their children with ADHD because they are primarily responsible for the child and spend more time with the child [18]. Although mothers with mentally and/or physically disabled children were reported to be more stressed than their fathers [19] in some studies, fathers were also effected similarly to mothers [8]. In studies generally, it is seen that psychiatric illness affecting children's life function affects mothers more than fathers but the significance of this difference is not clear. It can be said that there is a need for large-scale studies.

In this study, no relationship was found between the ages of the mother and father and their level of depression and anxiety. In a study conducted by Ergin et al. with parents of disabled children, it was found that maternal age did not affect the level of depression [20]. In the study by Özdel et al., they did not find a relationship between age and depression level in university students [21].

There was no significant relationship between the number of children and mothers' depression and fathers' depression and anxiety levels. In our study, as the number of children increased,

mothers' level of anxiety increased significantly. Yıldırım Doğru and Arslan's study on mothers of children with disabilities showed no significant difference between the number of children and mothers' anxiety levels [22]. ADHD affects the mother.

No significant relationship was found between the gender of children with ADHD and parents' depression level. Similarly, Ergin et al. found no significant relationship between the child's gender and the level of depression in their study [20].

In this study, no significant relationship was found between the gender of the child with ADHD and the mother's anxiety level. A significant relationship was found between the gender of the child with ADHD and the father's anxiety level in support of the boy. Coşkun and Akkaş did not find a significant relationship between the gender of the child and the mother's anxiety level in their study on families with handicapped children [23].

In this study, it was found that the majority of the mothers in the case group did not work. In addition to being a requirement of the traditional structure, the fact that mothers do not have a job because of the obligation to engage their disabled child at home, this effort can be an explanation for this heavy situation. When the case and the control groups were evaluated together, the anxiety levels of the working mothers were found to be significantly higher than the mothers who did not work, while there was no significant difference between the mothers' depression, the fathers' level of depression and anxiety, and working status. While the anxiety level of the working mothers in the ADHD group was higher than the mothers who were not working, the anxiety levels of the mothers working in the healthy group were found to be significantly lower than those of the mothers who did not work. According to a study conducted by Dönmez et al. in 2017, the anxiety level of working mothers was found to be lower than non-working mothers [24]. The results of our study appear to be compatible with this study, which includes children with no disease. However, since there is such a difference between the anxiety scores of working mothers in the case and control groups, it can be said that the presence of ADHD in children has a different effect on working and non-working mothers.

In this study, the levels of depression and anxiety decreased significantly as the education levels of both the case group and the control group increased. In a study conducted by Cengiz Özyurt and Deveci among married women aged 15-49, a negative correlation was found between the level of education and the level of depression [25]. As the year of the diagnosis of children diagnosed with ADHD increased, the level of depression in mothers increased significantly. This situation can be explained by increasing mother's despair, increasing wear, and exhaustion level as the year of diagnosis increases.

As a result, ADHD affects not only the quality of life of the child, but also all family members. It is known that mothers are affected more than fathers, but it is useful to study this in larger groups in order to examine the effects on fathers in detail.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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