

Original Article

A Comparison of emotional and behavioral problems in children with ADHD at home and school

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Article info

Article History:

Received: 8 Jan. 2014

Accepted: 11 Mar. 2014

Keywords:

ADHD,
Emotional-Behavioral
Problems,
Behavioral Rating

Abstract

Introduction: The aim of this study was to compare emotional and behavioral difficulties of students with Attention deficit hyperactivity disorder (ADHD) from the perspectives of parents and teachers.

Methods: In the present study, 55 children, who were 7-12 years of age, were diagnosed as ADHD by qualified psychiatrists, and were receiving medication, were selected using convenient sampling method. Their fathers, mothers, and teachers filled out Conner's Teacher Rating Scale (39 items) and Conner's Parent Rating Scale (48 items). To analyze data, Kolmogorov-Smirnov test and analysis of variance with repeated measures were used.

Results: The results indicated that conduct disorder symptoms are underestimated by parents and symptoms of anxiety disorder are overestimated by teachers ($\alpha \leq 0.05$).

Conclusion: Based on the findings, it is concluded that using different sources for recognizing ADHD and co-occurring disorders is necessary and prevents the labeling of children, overlooking the disorder, and enhances the accuracy of diagnosis.

Citation: Eimani-Oshnari M, Amiri-Majd M, Babakhany V. **A Comparison of emotional and behavioral problems in children with ADHD at home and school.** *J Anal Res Clin Med* 2014; 2(2): 64-70.

Introduction

Attention deficit hyperactivity disorder (ADHD) is one of the most important psychiatric disorders of children. In terms of prevalence, 3 to 7% of school-age children and 2 to 4% of the adult population have this disorder.¹ Boys are affected 2 to 9 times more than girls.² Results of a study in Iran showed that total prevalence rate of Attention deficit hyperactivity disorder was 12.3 ± 2.12 which has a significant statistical correlation with gender.³ In addition to problems of attention, impulsivity, and hyperactivity, affected children experience problems in social, academic, behavioral, cognitive, and emotional areas, which are significantly related to ADHD.⁴ Moreover, recent studies indicate that

it is a lifelong disorder.⁵ For example, researchers compared executive functions of three groups (children with Tourette syndrome, children with ADHD, and normal children). Results showed impairment of attention and planning, and working memory impulsivity (executive function) in children and adolescents with Tourette and ADHD.⁶ Due to its chronicity, patients are at risk of other psychiatric disorders in adulthood, such as antisocial personality disorder, alcoholism, drug addiction, and interpersonal and psychological problems.⁷ Better understanding of ADHD helps the better understanding of many other comorbid disorders such as conduct disorder, oppositional defiant disorder, and learning difficulties.⁸

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People with this disorder may not be able to pay meticulous attention to details, or may make mistakes in doing homework, work or other activities out of recklessness. There is often an irregularity in their performance in activities and tasks due to carelessness and lack of sufficient thought. Maintaining attention on playing or tasks is usually difficult for these people and they find it difficult to focus on doing tasks.⁹ These children are at risk of leaving school early.¹⁰

The etiological models of this disorder emphasize the interaction of genetic, biological, environmental, psycho-social, psychological, neurochemical, and nutrition related factors.¹¹

ADHD is an unobservable disorder and no psychiatric or physiologic test can diagnose it. Criteria of this disorder may be evident, but the diagnosis is delayed due to their not being problematic.¹²

The diagnosis of ADHD and labeling can have a significant effect on a child's life and his family; therefore, to avoid confusion in diagnosis, different methods of evaluation and consideration of correlations can be used.^{13,14} The neurological comorbidity in ADHD is abundant, harmful, and difficult to understand.¹⁵ The study of Mashhadi et al. showed that 11 other psychiatric disorders in 73% of cases are associated with ADHD.¹⁶ The study of Weiler et al. indicated that parents and teachers are appropriate sources for investigation of symptoms associated with ADHD and resolution tools in treatment.¹⁷ Pelham et al. also suggest using a teacher rating and report scale in evaluation of behavioral disorder symptoms.¹⁸ Karahmadi and Shahrivar showed that training parents can reduce behavioral problems in children, but has no effect on major symptoms of ADHD.¹⁹

Weine et al. compared the behavioral and emotional problems of 6 to 13 year old children in China and the US from the perspective of parents. Their findings showed that there is a remarkable similarity in problems reported in children with ADHD in very different populations.²⁰ Mothers are more sensitive in reporting symptoms and it is better to use

important and strong information resources (both parents and teachers) for ADHD and its subgroup diagnosis.²¹ However, analysis of the findings of the study by Kóbor et al. suggested that teachers are more accurate in reporting compared to parents.²² Moreover, teachers who had more knowledge and more positive attitudes showed better performance.²³ DuPaul obtained a rating scale, with valid and relevant criteria for ADHD diagnosis, using reports from parents and teachers.²⁴

1- The ADHD symptoms reported by parents differed from that reported by teachers.

2- Conduct disorder symptoms from the view of parents differ from that of teachers.

3- The anxiety symptoms from the view of parents are different from that of teachers.

Methods

This study was a cross-sectional study. A sample of 70 students of 7-12 years of age was obtained using convenient sampling from among students who were referred to one of the psychological clinics of Tabriz, Iran, from October 1st to the end of November and were diagnosed as ADHD by qualified psychiatrists and were receiving medication. The inclusion criteria of the study were the diagnosis did not entail having other problems such as brain, visual, hearing, speech damages, and etcetera. Thus, children with major problems other than ADHD were not included in the study. In order to find out about the intelligence quotient (IQ) of children and make sure of the absence of mental retardation, children took the Raven test and those who were living with both parents were selected. The confidentiality of the research and freedom to withdraw from the research, and how to complete the questionnaire were fully explained to the parents and teachers.

One instrument used for data collection was Conner's Behavior Rating scale-Teachers' Forms. It evaluates the three areas of classroom behavior, participation in group, and attitudes toward authority. In addition it measures the following subscales of hyperactivity, conduct

problems, nonchalance, excitement, anxiety, antisocial disorders, dreaming, and attention problems. Reliability and validity of this scale in Iran is 0.76 and for the subscales is 0.74, and Cronbach's alpha coefficient for the whole questionnaire is 0.86 and for subscales varies from 0.74 to 0.89.²⁵

Furthermore, Conner's Behavior Rating Scale-Parents' Forms was used to measure the following subscales: Conduct problems; learning problems; psychosomatic problems; hyperactivity/impulsivity; and anxiety problems. The reliability coefficient of this scale in Iran varies from 0.41 to 0.86. The correlation coefficient of subscales varies from 0.76 to 0.90.²⁶

Parents and teachers graded the questionnaire, which was classified in the form of Likert scale with four choices. Therefore, the score range of each question varies from 0 (not true at all, or never, rarely) to 3 (absolutely true, or often, almost always). Kolmogorov-Smirnov test and analysis of variance were used frequently for data analysis.

Results

In short, descriptive and inferential statistical methods showed that 10.9% of the samples were girls and 89.1% were boys. The average age of participants was 8.04 and the mean was 7 years old. The mean of the parents' education was diploma; 40.0% fathers and 60.0% mothers. In addition, 52.7% of samples had 3 family members and 47.3% had 4. Disease rate in mothers was 9.4% and in

fathers was 5.5%. In this study, the rate of disorders associated with ADHD is as follows:

Passivity: 63.6%; inattention/dreaming: 47.0%; learning problems: 40.0%; hyperactivity: 34.5%; impulsivity: 14.5%; and conduct disorder: 16.4%. Table 1 shows the results of variance analysis with frequent values for comparing hyperactivity problems from the views of fathers, mothers, and teachers. As shown in table 1, the significance level is greater than 0.05; therefore, it is concluded that hyperactivity problems from the view of fathers, mothers, and teachers have no significant difference. Thus, the null hypothesis is approved and H_1 is rejected.

As shown in table 2, P values < 0.05 are considered significant; therefore, it is concluded that conduct disorders from the view of mothers, fathers, and teachers are significantly different. Fathers evaluated less conduct disorders. Thus, the H_0 is rejected and H_1 is approved, and the probability of making a type 1 error is 0.007.

As shown in table 3, anxiety problems from the views of fathers, mothers, and teachers, are significantly different ($P < 0.05$). Teachers evaluated less anxiety problems than parents. H_0 is rejected and H_1 is approved.

In summary, hyperactivity problems were evaluated as 30.9% by fathers and 34.5% by mothers. Conduct disorders were evaluated as 10.9% by fathers, 16.4% by mothers, and 12.7% by teachers. Anxiety disorders were evaluated as 14.5% by fathers, 16.4% by

Table 1. Results of variance analysis with frequent values

Change source	Average	Standard deviation	Wilks' Lambda value	F	Degree of freedom	Degree of freedom	Significance level
Mother	4.097	1.915					
Father	3.855	1.984	0.937	1.782	2	53	0.178
Teacher	3.670	2.340					

Table 2. Results of analysis of variance with frequent values for comparing conduct disorders from the views of fathers, mothers, and teachers

Change source	Average	Standard deviation	Wilks' Lambda value	F	Degree of freedom	Degree of freedom	Significance level
Mother	2.923	1.844					
Father	2.485	1.633	0.828	5.501	2	53	0.007
Teacher	2.774	1.955					

Table 3. Results of variance analysis with frequent values for comparing anxiety problems based on the evaluation of fathers, mothers, and teachers

Change source	Average	Standard deviation	Wilks' Lambda value	F	Degree of freedom	Degree of freedom	Significance level
Mother	3.108	1.842	0.846	4.846	2	53	0.012
Father	2.848	2.003					
Teacher	3.832	1.744					

mothers, and 23.6% by teachers. Learning problems were evaluated as 36.4% by fathers and 40% by mothers. Impulsivity problems were evaluated as 14.5% by fathers and 80.0% by mothers. Psychosomatic disorder in children was not diagnosed by parents. The inattention/dreaming problem was evaluated as 47.3% by teachers. The passivity problem was measured as 63.6% by teachers.

Discussion

The results showed that symptoms of ADHD disorder are not different from the view of fathers, mothers, and teachers. However, symptoms of conduct disorder and anxiety problems are different from their views. Mothers evaluated more conduct disorders than fathers and teachers. Moreover, teachers evaluated more anxiety problems than fathers and mothers.

The above findings can be explained by the intensity of hyperactivity symptoms and being problematic in schools and homes being the probable causes for visiting a doctor; in a way that parents and teachers have observed symptoms in both environments. Fathers evaluating less conduct disorders could be related their lower rate of presence beside their children. More observations of anxiety symptoms by teachers could be due to the child becoming anxious because he/she is expected to follow a set of rules in the school and the class while he/she is not able to do so, is constantly being compared and punished while he/she is affected by learning problems due to lack of attention, and is rejected by classmates due to their immature behavior.

The Results of this research are consistent with the studies of Weiler et al.¹⁷, Weine et al.²⁰, Kolko and Kazdin,²⁷ Sollie et al.²¹,

Drabick et al.²⁸, Rettew et al.²⁹, Kóbor et al.²², and Pelham et al.¹⁸ The findings of these researchers showed that to increase the confidence coefficient of ADHD diagnosis and associated disorders it is better to use more than one resource, because the occurrence of some disorders are situational and they may be seen only in one environment (home or school), or some disorders are ignored due to not being problematic. Background check indicated that the grading scales are used in different cultures.

Some studies found mothers report more accurately and some others found fathers report more accurately, but they have emphasized that it is better to use multiple resources due to the above mentioned reasons. In respect to the degree of emotional disorder in ADHD affected children from the view of fathers, mothers, and teachers, the results show that the prevalence of learning difficulties in mothers' view is moderate and other disorders are below moderate level.

In evaluating children's emotional/behavioral problems at home, in both fathers' and mothers' view, the highest averages belong to learning difficulties, hyperactivity, impulsivity, anxiety, conduct disorder, and psychosomatic disorders subscales. In evaluating children's emotional/behavioral problems at school, the highest averages in teachers' view belong to passivity, dreaming, anxiety, hyperactivity, and conduct disorders, respectively.

The obtained results showed that impulsivity, anxiety, and hyperactivity problems in fathers' and mothers' views have no significant difference. In addition, mothers evaluated more conduct disorders and learning difficulties than fathers. To explain

this we can mention difference in the amount of time parents spend with children.

The results of this study in the case of the prevalence of comorbid disorders differ with the results of the studies of Mashhadi et al.¹⁶ and Sadock and Caplan.³⁰ Sadock and Caplan's findings showed less conduct disorder and anxiety, and more hyperactivity.³⁰ The findings indicate that despite the use of available sampling, the prevalence rate among boys is higher than girls and that is consistent with the reports of APA.³¹, Sadock et al.³², Sadock and Caplan,³⁰ Soleimannejad et al.³³, and Salehi et al.³⁴

The highest rate of visiting the doctor and diagnosis is at age 7 and it decreases in the following years. To explain this we can say that at age 7, with the beginning of school years and appearing of problems, parents go to counseling and psychiatric clinics and start the treatment. The possibility of calculating the economic situation of families and the prevalence rate of emotional/behavioral problems did not exist, because the majority of the families introduced themselves as middle class.

About the parents' disease record and incident rate of emotional/behavioral problems, calculating the correlation was not possible since the majority of mothers and fathers declared that they are healthy and have no mental or physical diseases. This is not consistent with the findings of Kolko and Kazdin,²⁷ Cussen et al.³⁵, Scahill et al.³⁶, Takeda et al.¹⁵, Drabick et al.²⁸, and Rettew et al.²⁹ Their findings indicate that parents of children with ADHD, especially fathers, have anxiety, depression, severe stress, and drinking problems. In this case, cultural context may be involved. Many people fear that their information will be published, although the confidentiality of data in questionnaire was emphasized. Another reason for this issue could be people's lack of awareness about the symptoms of diseases and disorders such as anxiety, stomach/intestinal disorders, neurologic headaches, organ and joint disorders, because parents' remarks about

being anxious and worried were clear in the majority of questionnaires.

Results of the study showed that the rate of behavioral/emotional problems had no relationship with parents' education. This finding is not consistent with the findings of Salehi et al.³⁴ Moreover, it is not consistent with the findings of Bayati et al.³⁷, Amani and Khajeh Mougahi,³⁸ Gimpel and Kuhn,³⁹ Rowland et al.⁴⁰ and Biederman et al.⁴¹ This is probably because of using available samples.

No relationship was found between emotional/behavioral disorders of children and the number of children. No study was found to compare this finding with, and the reason why this was examined in this study is that some people believe that ADHD occurs more in families with one child. The findings of the present study do not confirm this. In summary, results showed that parents and teachers may have different points of view about behavioral problems. Therefore, we suggest that all clinicians and institutions use multi-dimensional method for screening ADHD to increase validity of diagnosis because children's behavior may vary at home and school.

Limitations

One limitation of this study was that convenient sampling was used. In spite of clearly describing the study and having the consent of the parents, 15 samples were lost out of 70 samples. It was not possible to compare some ADHD associated disorders. Teachers' reluctance to fill the questionnaire probably played a role in giving accurate responses. Furthermore, we could not assess physical and mental health of parents using reliable methods and we trusted the parents' reports.

Conclusion

Results showed that parents and teachers rated emotional and behavioral difficulties of children with ADHD differently. This is mainly due to the children showing different behaviors at home and school and parents and teachers having different perspectives about emotional and behavioral problems.

Therefore, it can be concluded that using different methods for rating children's behavior will increase the reliability of scores.

Conflict of Interests

Authors have no conflict of interest.

Acknowledgments

We appreciate the assistance of Dr. Rakhshan, Dr. Hashem Nosrat Abadi, Mrs. Kabiri, and Mrs. Khodaey in different stages of the study and we are deeply grateful to them.

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