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### Comparison of Fathers Knowledge with Mothers Knowledge of Attention Deficit – Hyperactivity Disorder (ADHD) Among Referred to the Teaching Hospital Clinics in Ahvaz

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#### KEYWORDS

Knowledge, fathers, mothers, attention deficit-hyperactivity disorder (ADHD), KADDS.

#### A B S T R A C T

Attention deficit-hyperactivity disorder (ADHD) is among the most common psychiatric disorders in children and adolescents. Since parents (father and mother) and teachers are directly associated with the academic and behavioral problems in children, they play a key role in the identification, referral and treatment of children with attention deficit-hyperactivity disorder (ADHD). It is therefore important that parents have the necessary knowledge about this disorder to achieve the earlier diagnosis and treatment of the disorder. The present study compares the parents' knowledge about ADHD. In a descriptive analytical study 354 (pairs of) parents are studied as convenient samples to compare fathers' and mothers' knowledge about ADHD. In this study KADDS (Knowledge of attention deficit disorder scale) (16 and 17), plus a questionnaire on the demographic information are used. And finally using the t tests and chi-square test of SPSS version 20 the data are analyzed. Test results show that the mean general knowledge of ADHD in the group of mothers (M = 5.96, SD = 2.30) is significantly higher than the group of fathers. (M = 5.55, SD = 2.58) Also the mean level of knowledge about ADHD in the group of mothers (M = 4.12, SD = 1.69) is significantly higher than fathers (M = 3.79, SD = 2.1). However the results of t-test for independent samples indicates the lack of significant difference between the mean level of knowledge about symptoms and how to diagnose ADHD in the group of fathers and mothers. Mean level of knowledge about ADHD treatment in the group of mothers (M = 4.12, SD = 1.69) is significantly more than fathers (M = 3.79, SD = 2.1). The results also indicate that there is a significant relationship between parents' knowledge and education (P < 0.001) but there is no significant relationship between age and residence location. In general, the level of general knowledge and the knowledge about how to treat the disorder in mothers is higher than fathers and indicates the need to train parents, especially fathers of ADHD patients also these results suggest mothers as more suitable option to participate in ADHD children treatment.

## **Introduction**

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common psychiatric disorders in children and adolescents (Tashakori *et al.*, 2011). ADHD is sustainable attention deficit or hyperactivity and impulsive behaviors (as a severer and more common form) which exist in children and adolescents with similar growth levels. The causal factors of ADHD include genetic, growth, brain damage, neuro-chemical, neuro-physiological and psychosocial factors (Sadock *et al.*, 2007). ADHD is prevalent among 3-7% elementary school girls before the age of puberty and it is 2-9 times more frequent in boys (Sadock *et al.*, 2007). In our country the prevalence is reported as 5.8-8.5% (Alishahi *et al.*, 2003). Studies indicate that about 40-50% of the symptoms continue until the adulthood. The prevalence of ADHD in adults is estimated to be 5% (Adler *et al.*, 2004). The disease causes certain dysfunction in children and one of the functioning areas in children is their academic performance (Ghanizadeh *et al.*, 2006; Greenhill *et al.*, 2009). Affected children due to the deficit in focusing on homework, impulsive behavior and difficulty in emotional control have problems in interpersonal and academic relationships (Greenhill *et al.*, 2009; Snider *et al.*, 2003) and since parents (father and mother) and teachers are directly associated with the academic and behavioral problems in children, they play a key role in the identification, referral and treatment of children with attention deficit-hyperactivity disorder (ADHD). In fact, treatment of these children is the result of interaction between the family, teachers and therapists. Parents' lack of knowledge in this case, inappropriate attitude and sometimes hostile attitudes could have irreversible impacts on the future and the fate of these children (Snider *et al.*, 2003). It is therefore important that parents have the necessary knowledge about this

disorder to achieve the earlier diagnosis and treatment of the disorder. It seems that fathers spend less time with their children and have less information than mothers who spend more time with their children and watch more television programs and since fathers play an important role in accepting children's disorder, it is important for them to have more information so that they could diagnose and take actions to treat it as soon as possible. Thus the present study compares the fathers and mothers' knowledge about attention deficit-hyperactivity disorder (ADHD).

## **Method**

After permission from the Ethics Committee of Jundishapur Medical University of Ahvaz in a descriptive analytical study after signing the informed written consent form 354 (pairs of) parents are selected by convenient sampling to compare the fathers and mothers' knowledge about attention deficit-hyperactivity disorder (ADHD). Inclusion criteria included literate parents with no history of neurological disorders. In this study KADDS (Knowledge of attention deficit disorder scale) (Guerra *et al.*, 2012), plus a questionnaire on the demographic information are used. KADDS questionnaire includes 36 items. The 36 items are in three subscales of general knowledge about ADHD (15 items), knowledge of how to recognize and diagnose the symptoms (9 items) and information on how to treat ADHD (12 items). Scoring the items is based on three options of agree, disagree or no comment. The right answer has 2 points, the wrong answer has 0 points and the no comment option has 1 point. In general the maximum score of knowledge gained in these three subscales are 15, 9 and 12 and it will be equal to 35 for the total amount of knowledge. The reliability (Guerra *et al.*, 2012) of the questionnaire is 84% (using the

Re-test). Results are expressed as percentage and then the information and knowledge are measured in three areas. At the end of collecting the questionnaires the paired t test is used to compare fathers and mothers' knowledge and chi-square test is used for correlation analysis. Descriptive statistics are also used to present the data that all of them are performed by SPSS software version 20.

## **Results and Discussion**

The mean age of fathers is 34.4 years with a standard deviation of 8.14 years and the mean age of mothers is 31.8 a standard deviation of 7.16 years. Analyzing the education level of the participants has indicated that among all respondents 8.8% have education below high school diploma, 43.6 percent have diploma, 19.9% have associate's degree and 27.7 have bachelor and master's degree. It should also be noted that among total respondents 88.6 percent are Ahvaz residents and 11.4 percent lived in other cities of Khuzestan province (Table 1). In examining descriptive information to answer the hypothesis of the study it is also observed that the mean score of general knowledge about ADHD in fathers' group is 5.55 with the standard deviation 2.58. The mean knowledge of symptoms and how to diagnose ADHD in fathers' group has been (M=4.01, SD=1.61) and the mean knowledge of the treatment of ADHD in fathers' group has been (M=3.79, SD=2.10).

The results also indicate that the general knowledge of ADHD in mothers' group is 5.96 with the standard deviation 2.3. The mean knowledge of symptoms and how to diagnose ADHD in mothers' group has been (M=4.10, SD=1.41).

The mean knowledge of the treatment of ADHD in mothers' group has been (M=4.12, SD=1.69) (Table 2). For a

comparison between the mean general knowledge of ADHD in fathers and mothers the Independent Sample T-test is used (Table 3).

Test results show that the level of general knowledge of ADHD in mothers (M = 5.96, SD = 2.30) is significantly higher than that of the fathers' (M = 5.55, SD=2.58). Of course the t-test results for independent samples indicates the lack of significant difference between the mean knowledge of groups about the symptoms and how to diagnose ADHD in fathers and mothers.

This test also indicates significant difference between the mean knowledge about the treatment of ADHD in two groups of fathers and mothers (T = 2.289-, p-value=0.022). Test results indicate that the mean knowledge about the treatment of ADHD in mothers (M = 4.12, SD = 1.69) is significantly more than the fathers (M = 3.79, SD = 2.1).

Then this test indicates that the mean general knowledge of ADHD in mothers (M = 5.96, SD = 2.30) is significantly higher than the mean general knowledge of ADHD in fathers (M = 5.55, SD = 2.58).

Chi-square test results on fathers' knowledge of ADHD and the residence location indicate no significant relationship between fathers' knowledge of ADHD (including general knowledge of the disease, knowledge about the symptoms and how to diagnose the disorder, knowledge of treatment and total knowledge) and residence location (P> 0.05) and this result has not been significant for mothers group.

Chi-square test results on fathers' knowledge of ADHD and the level of education indicate a significant relationship between fathers and mothers' knowledge of

ADHD (including general knowledge of the disease, knowledge about the symptoms and how to diagnose the disorder, knowledge of treatment and total knowledge) and the level of education ( $P < 0.001$ ) (Table 4).

Chi-square test results on mother's knowledge of ADHD and the level of education indicate a significant relationship between fathers and mothers' knowledge of ADHD (including general knowledge of the disease, knowledge about the symptoms and how to diagnose the disorder, knowledge of treatment and total knowledge) and the level of education ( $P < 0.001$ ) (Table 5).

Spearman correlation coefficient on the relationship between age and knowledge of mothers indicate that there is no relationship between mothers' age variable and general knowledge of the disease, knowledge about the symptoms and how to diagnose the disorder, knowledge of treatment and total knowledge ( $p > 0.05$ ) and this result has not been significant in the case of fathers.

Mental health and study on the children's adaptation help their growth and development in adulthood and lack of attention to childhood growth conditions causes irreversible damages to the mental health of the community (Smalley *et al.*). Attention deficit-hyperactivity disorder (ADHD) is among the most common psychiatric disorders in children and adolescents and it is a behavior pattern that appears in the adulthood as well (Disruptive behaviors in multiplex families with attention deficit/hyperactivity disorder, 2000). There is great evidence based on the fact that ADHD is a family (hereditary) disorder in which the central nervous system, metabolism and mental processing structures in the person are different from normal people (Disruptive behaviors in multiplex families with attention deficit/

hyperactivity disorder, 2000; Sadock *et al.*, 2000). In addition determining pathological patterns of family members could accelerate and improve the quality of diagnosis for early research, effective interventions and the treatment of this disorder.

In the etiology and persistence of ADHD, the systemic theories are mostly focused on the role of family system with a broad social context (Pineda *et al.*, 2003). Family problems, high stress and low support, parental psychopathology, such as depression, aggression or alcohol abuse, marital maladjustment, intrusive parenting and authoritarian parent-child interactions are related to ADHD (Hartung *et al.*, 2002). Studies have shown that among different factors that affect healthy personality development of children and adolescents, interaction of parents and children is the most important and most fundamental factor (Dupaul *et al.*, 2006). Different studies have shown that multiple behavioral aspects of a stable medical condition such as ADHD could lead to mother's depression, anxiety and feelings of limited role of parents, lack of competence in parenting and poor emotional relationship between the child and parents (Barkly *et al.*, 2001). The expressed factors indicate the importance of the family of these patients and their knowledge about their child's condition and obviously being familiar with different factors affecting parental knowledge of the disease could be effective in the promotion of parental education and better treatment of children.

As can be seen in the results, in this study, 708 parents of ADHD patients are studied that half of the sample size are fathers and the other half is mothers. The mean age of fathers is  $34.4 \pm 8.14$  years and the mean age of mothers is  $31.8 \pm 7.16$  years. Most of the subjects in this study (43.6%) had high-level education and only 8.8% of them had education below diploma. Also, 88.6% of

the subjects under study live in the capital of the province and the rest lived in other cities of the province. The mean level of general knowledge about ADHD in the group of mothers (M = 5.96, SD = 2.30) is significantly higher than the group of fathers. (M = 5.55, SD = 2.58) Also the mean level of knowledge about ADHD in the group of mothers (M = 4.12, SD = 1.69) is significantly higher than fathers (M = 3.79, SD = 2.1). However the results of t-test for independent samples indicates the lack of significant difference between the mean level of knowledge about symptoms and how to diagnose ADHD in the group of fathers and mothers. Mean level of knowledge about ADHD treatment in the group of mothers (M = 4.12, SD = 1.69) is significantly more than fathers (M = 3.79, SD = 2.1). The results also indicate that there is a significant relationship between parents' knowledge and education (P <0.001) but there is no significant relationship between age and residence location.

The above results show that mothers' knowledge of ADHD is more than fathers and this increased knowledge of mothers applies in the disease details such as how to treat it. Of course, as noted before, parents' knowledge has been associated with their education and it is hoped that by increasing the levels of education, parents' general knowledge about children's disease such as ADHD is increased but the education of parents on this disease should be considered particularly. Of course, parental general knowledge of the disease is within a relative level and perhaps this level of familiarity is due to their children who have developed this disorder and there had been no such information before and the same thing is observed in the rest of the world. For example a study conducted by Mcleod *et al.*, (2007) titled "general knowledge, beliefs and preferences about treatment of ADHD" is done in Indiana University.

**Table.1** The frequency and frequency percentage of individual and demographic features

Features	Subgroups		Frequency	Frequency %
Gender	Male	Fathers	354	50
	Female	Mothers	354	50
Education	Under high school diploma	Fathers	33	9.3
		Mothers	29	8.2
	Diploma	Fathers	169	47.7
		Mothers	140	39.5
	Associate's degree	Fathers	72	20.3
		Mothers	69	19.5
	Bachelor and masters' degree	Fathers	80	22.6
		Mothers	116	32.7
PhD	Fathers	0	0	
	Mothers	0	0	
Location of residence	Ahvaz	Fathers	300	84.7
		Mothers	327	92.4
	Other cities	Fathers	54	15.3
		Mothers	27	7.6



**Table.2** Mean, standard deviation, minimum and maximum knowledge among fathers and mothers

Level of knowledge	Relationship	Number of items	F	Mean score	SD	Min	Max
Knowledge of ADHD	Fathers	15	354	5.55	2.58	0	12
	Mothers	15	354	5.96	2.30	0	11
Knowledge of symptoms and diagnosis of ADHD	Fathers	9	354	4.01	1.61	0	8
	Mothers	9	354	4.10	1.41	0	8
Knowledge of the treatment of ADHD	Fathers	12	354	3.79	2.10	0	9
	Mothers	12	354	4.12	1.69	0	9
Total score of knowledge	Fathers	36	354	13.35	5.47	0	25
	Mothers	36	354	14.19	4.61	0	25

**Table.3** Mean level of knowledge test on ADHD among fathers and mothers

Type of knowledge	Relationship	F	M	SD	Mean test	
					T stat	p-value
General level of knowledge	Fathers	354	5.55	2.58	-2.260	0.024
	Mothers	354	5.96	2.30		
Knowledge of symptoms and diagnosis	Fathers	354	4.01	1.41	-0.843	0.40
	Mothers	354	4.10	1.61		
Knowledge of the treatment of ADHD	Fathers	354	3.79	2.1	-2.289	0.022
	Mothers	354	4.12	1.69		
Knowledge of the treatment of ADHD	Fathers	354	13.35	5.47	-2.206	0.028
	Mothers	354	14.19	4.61		

**Table.4** Frequency distribution of father’s knowledge of ADHD in terms of education

		Education				Total	P-value
		Under high school diploma	Diploma	Associate’s degree	Bachelor and masters’ degree		
	Feature	F (%)	F (%)	F (%)	F (%)	F (%)	
General level of knowledge	-	33 (11.4%)	149 (51.4%)	64 (22.1%)	44 (15.2%)	290 (100.0%)	<0/001
	+	0 (0.0%)	20 (31.3%)	8 (12.5%)	36 (56.3%)	64 (100.0%)	
Knowledge of symptoms and diagnosis	-	23 (11.3%)	121 (59.6%)	40 (19.7%)	19 (9.4%)	203 (100.0%)	<0/001
	+	10 (6.6%)	48 (31.8%)	32 (21.2%)	61 (40.4%)	151 (100.0%)	
Knowledge of the treatment of ADHD	-	33 (11.9%)	138 (49.8%)	51 (18.4%)	55 (19.9%)	277 (100.0%)	<0/001
	+	0 (0.0%)	31 (40.3%)	21 (27.3%)	25 (32.5%)	77 (100.0%)	
Total score of knowledge	-	33 (11.5%)	150 (52.4%)	58 (20.3%)	45 (15.7%)	286 (100.0%)	<0/001
	+	0 (0.0%)	19 (27.9%)	14 (20.6%)	35 (51.5%)	68 (100.0%)	

**Table.5** Frequency distribution of Mother’s knowledge of ADHD in terms of education

		Education				Total	P-value
		Under high school diploma	Diploma	Associate’s degree	Bachelor and masters’ degree		
	Feature	F (%)	F (%)	F (%)	F (%)	F (%)	
General level of knowledge	-	27 (10.8%)	122 (49.0%)	51 (20.5%)	49 (19.7%)	249 (100.0%)	<0/001
	+	2 (1.9%)	18 (17.1%)	18 (17.1%)	67 (63.8%)	105 (100.0%)	
Knowledge of symptoms and diagnosis	-	27 (11.5%)	115 (49.1%)	56 (23.9%)	36 (15.4%)	234 (100.0%)	<0/001
	+	2 (1.7%)	25 (20.8%)	13 (10.8%)	80 (66.7%)	120 (100.0%)	
Knowledge of the treatment of ADHD	-	28 (10.2%)	124 (45.1%)	57 (20.7%)	66 (24%)	275 (100.0%)	<0/001
	+	1 (1.3%)	16 (20.3%)	12 (15.2%)	50 (63.2%)	79 (100.0%)	
Total score of knowledge	-	28 (10.7%)	122 (46.7%)	55 (21.1%)	56 (21.4%)	261 (100.0%)	<0/001
	+	1 (1.1%)	18 (19.4%)	14 (15.1%)	60 (64.5%)	93 (100.0%)	

This study aimed to understand the level of general knowledge about ADHD. In this study 1139 of population in a face to face interview are asked about whether they had heard of ADHD and their knowledge about ADHD. They concluded that about 64% of the respondents have heard of ADHD. Thus they concluded that people are not aware of ADHD and the media and educational efforts should seek to provide detailed information about ADHD (Midence *et al.*, 1999).

Of course the quality of education and methods of training the parents should be considered so that they are effective for example a study is conducted by Alonso Montoya *et al.*, (2013) titled “the assessment online information about ADHD and its treatment in Spain. The aim of this study is to analyze the quality of the Internet information in treating ADHD. In this study, 16 health professionals specialized in ADHD studied 35 parents of child patients. They concluded that the scores given to parents by the expert are low and the agreement between the analyses was weak and average that demands a great change in the ADHD and motivation for the treatment should be formed. The study suggests that due to the poor and middle agreements between the analyses of parents and experts everyone agreed that web-based information quality is generally poor in selecting ADHD treatment (McLeod *et al.*, 2007).

However, the present study provided favorable results on two results. First, it states that mothers are more knowledgeable to direct treatment which is very valuable due to her role in the family and children and second, it is indicated that fathers require more training to increase cooperation in treatment and understand their patient children. The present results are consistent with the results presented by other

researchers for example the qualitative cohort study of Susan Dosreis *et al.*, (2009) titled “the concept of ADHD and family and community action to treat children”. The purpose of this study is to examine parents’ primary knowledge of the treatment for ADHD regarding the decision to enter and continue treatment for their children. In this study 48 parents of children with newly diagnosed ADHD are selected. In this study 29% of parents believed that the medicine is required for the treatment of disease, and 20% believed that the drug treatment is not acceptable. Other than the groups who did not accept medication the rest of families accepted the medical treatment after a short period of diagnosis. More than 80% of patients and groups used medication for 6 months and they reduced to 64%-78% in 12 months and they concluded that the parents’ viewpoints should be enhanced similar to the present study. The thing that is important in the present study and other reviewed studies is to note ADHD patients’ parents need special education to become more familiar with the disease to witness more effective process of treatment. In fact due to the number and variety of problems of these children in various domains different treatment approaches are proposed due to the unique characteristics among which parents’ training is preferred other methods. In this type of treatment Child behavior modification program is implemented in natural home environment by parents who have the most interaction with him (Susan dosreis *et al.*, 2009). Being aware of parental knowledge with this disease will help the development of this type of treatment and knowledge of mothers’ ability to deal with the disease and children’s behavior control could be a reason for the therapeutic education of mothers. It should be noted that another advantage of parental training approach over the rest of methods is that it affects different aspects of parenting



aspects. Studies suggest that this type of treatment reduces parents' stress and increase their self-confidence; in parental training the whole family unit and its effect on children is focused (Westby *et al.*, 2004; Weinberg, 1999). It should be noted that due to the problems associated with ADHD, it is not possible for a treatment to cover all treatment requirements of the disorder. Therefore clinicians usually adopt several treatment strategies to consider different aspects of child's social and psychological problems (Sonuga-Barke *et al.*, 2002). It should be noted that since in this study the effect of location of residence on knowledge is studied fully and there is no significant correlation between the two variables and in another study the residence based on the city and village and the available facilities could be considered as an important variable in this study. Also since the present study has analyzed parents' knowledge about ADHD, it is proposed to compare the knowledge of physicians, parents and teachers. In this study parents' knowledge of ADHD as people who deal with children is addressed; it is suggested to measure the knowledge of single people in this regard.

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