

# Knowledge and Attitude of Parents of Children With Attention Deficit Hyperactivity Disorder Towards the Illness

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## Abstract

**Background:** The knowledge and attitude of parents about attention deficit hyperactivity disorder (ADHD) is a public health issue in which management and rehabilitation approaches may be influenced.

**Objectives:** The current study aimed to evaluate the knowledge and attitude of the parents of children with ADHD towards this disorder in Tabriz, Iran.

**Materials and Methods:** The current cross-sectional study evaluated 295 parents of children and adolescents with ADHD referred to psychiatric clinics of Tabriz University of Medical Sciences. The subjects were diagnosed based on Kiddie schedule for affective disorders and schizophrenia for school-aged children (K-SADS) and recruited according to a convenience sampling method in the first five months of 2014. The parents' knowledge and attitude towards ADHD was studied by a researcher-made questionnaire.

**Results:** The overall knowledge of parents was 66% in which 76.72% were aware of related signs and symptoms and 43.38% were able to identify the aberrations. Meanwhile, 44.62% of the parents knew the etiology and 54.75% had information about treatment strategies. In addition, 33.55%, 37.91%, 25.52% were aware of ADHD consequences, diagnosis and prevalence dimensions, respectively. Moreover, 82.72% of the parents had a positive attitude towards ADHD. A positive correlation was found between parents' attitude towards ADHD and their overall knowledge (identification, etiology, treatment, consequences and prevalence dimensions), ranging from 0.12 to 0.36 ( $P < 0.50$ ). Age, gender, and place of residence did not have a correlation with parents' knowledge and attitude towards ADHD. Parent's education level only had a positive correlation with the knowledge of symptoms, with a value of 0.19 ( $P < 0.01$ ). Parents with a higher overall knowledge, knowledge of ADHD symptoms, and prevalence rates accepted combination therapy ( $P < 0.05$ ).

**Conclusions:** While the overall knowledge of parents regarding ADHD was favorable, they were mostly unable to identify the aberrations in children with ADHD. These results may help practitioners address pitfalls in parent management training programs.

**Keywords:** Attention Deficit Hyperactivity Disorder, Attitude, Knowledge, Parent Management Training

## 1. Background

Attention deficit hyperactivity disorder (ADHD) is one of the most common psychiatric disorders among children and adolescents; the symptoms are hyperactivity, attention-deficit and impulsiveness. ADHD co-occurs with some other disorders and the patients go through many problems at home, school and social environments (1, 2). Based on a literature review, the prevalence of ADHD was 6.8% among children and adolescents (3). The overall prevalence is 9.7% among elementary school students of Tabriz, North-west of Iran, with a higher rate among the children of illiterate parents (4). The etiology, however, is

not discovered yet (5).

The variety of symptoms, consequences, high prevalence and various treatments of ADHD necessitate the parents to have an extensive knowledge of and a positive attitude towards ADHD. It makes them cope with patients' conditions and accomplish the treatment process in children with ADHD (6). As a result, destigmatization may occur and they get the equal educational and social opportunities as the ordinary people. Mainly, one of the most important aspects of managing ADHD is the existence of general desirable knowledge and attitude of parents about the condition (7). In this regard, a study showed that both parents attribute attention deficit signs to internal causes.

Mothers, compared to fathers, attributed both children attention deficit and impulsivity symptoms to global and stable causes. Fathers reported more negative reactions to ADHD symptoms with internal causes. They believed more in psychological factors and the necessity of treatment for ADHD. In addition, it is declared that children's gender does not influence parents' beliefs and attributions (8).

In a study conducted in Canada, parents found behavior therapy and stimulant drugs as primarily beneficial in the management of ADHD. Nearly half of the families compiled with medications. Parents had precise knowledge and beliefs about ADHD. They observed ADHD symptoms mainly as internal, stable and pervasive. Parents who believed in different treatments and the ones who believed in experimental supportive therapy tended to relate ADHD symptoms to internal factors and labeling them as relatively enduring and pervasive (9). A study that aimed to compare mothers' attitude, discovered that the mothers of children with ADHD or oppositional defiant disorder (ODD) tended to attribute their children's defiance, attention-deficit and impulsiveness to stable and global factors. To identify the causes of children's failure in laboratory assignments, mothers of children with ADHD/ODD, compared to those who had healthy children or children with only ADHD, more tended to report negative attributive factors of children (10).

Little knowledge about human normal development, illnesses and social deviant behaviors lead to misconceptions and might impact the sources of knowledge acquisition especially among adolescents. Therefore, children and adolescents may get information from sources other than their parents or teachers in which plenty of aberrant data may put them at the risk of social rejection (11). Parents' knowledge predicted their adherence to pharmacotherapy or family interventions enthusiastically (6). High prevalence of ADHD and the need for parents' basic knowledge regarding ADHD in families in education highlights the necessity of studying parents' knowledge and attitude. On the other hand, previous studies (6, 8-10) mostly focused on teachers, while there are a few studies that investigated the knowledge and attitude of parents.

## 2. Objectives

The current study aimed to determine the knowledge and attitude of the parents of children and adolescents with ADHD in Tabriz, Iran.

## 3. Materials and Methods

This descriptive cross-sectional study investigated 295 parents of children and adolescents under 18 with ADHD,

among the patients visiting psychiatric clinics affiliated to Tabriz University of Medical Sciences. They were diagnosed using K-SADS diagnostic semi-structured interview. The convenience sampling method was employed in the first five months of 2014. Having diagnosed the children with ADHD, their parents' knowledge and attitude were evaluated through a researcher-made questionnaire evaluating parents' knowledge and attitude regarding ADHD (ADHD-KAQ).

### 3.1. Inclusion Criteria

Patients' inclusion criteria were recent diagnosis of ADHD, no previous treatment and aged between 3 to 18 years old. While, parents' criteria included their consent for participation in the study, aged under 60 with at least primary school education.

### 3.2. Instruments

A demographic questionnaire was used to gather the personal and social information of children and their parents administered as an interview. It included questions regarding age, gender, children's educational attainments, parents' academic levels, financial status and place of residence. Parents were also asked about their reactions to children's attention-deficit and hyperactivity symptoms. Moreover, their main resources to seek for knowledge regarding ADHD were also inquired.

### 3.3. Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS)

K-SADS is a semi-structural diagnostic interview designed based on DSM-III-R and DSM-IV and filled out by psychiatrists through an interview with the parents and children. K-SADS can well detect psychiatric disorders including ADHD in children and is scored on a 4-point Likert scale from 0 to 3, while 0 demonstrates lack of necessary information, 1 shows the presence of symptoms, 2 and 3 declare threshold criteria.

The reliability of the Persian version of K-SADS diagnostic interview was claimed to be 0.81 based on test-retest method and 0.69 based on inter-rater reliability (12).

### 3.4. ADHD Knowledge and Attitude Questionnaire

In order to measure parents' knowledge and attitude towards ADHD, items were designed based on authentic scientific psychiatric resources (1). Moreover, items used in previous studies (6, 8-10, 13) to inquire about parents' knowledge and attitude were also exploited. ADHD knowledge and attitude questionnaire (ADHD-KAQ) comprised of seven sub-scales, including attitude (7 items), knowledge of ADHD symptoms (11 items), identification of the

aberrant conditions (three items), etiology (five items), treatments (five items), consequences (nine items), diagnosis (four items), prevalence (two items) and overall knowledge (39 items). Questions were four-item multiple-choice which the one and four were “I totally disagree” and “I totally agree, respectively.” A new questionnaire was exploited to consider important dimensions of ADHD based on DSM-IV diagnostic criteria and also to evaluate parents’ knowledge and attitude towards ADHD required for its treatment. Before administering the questionnaire, the content validity was confirmed by a psychologist and nine psychiatrists. Using Cronbach’s alpha coefficient the reliability of ADHD-KAQ questionnaire for every sub-scale varied from 0.69 to 0.82, with the overall reliability of 0.84.

### 3.5. Statistical Analyses

Data were analyzed by SPSS version 17 and the variables were described using descriptive statistics, such as mean, deviation, frequency and percentage. In order to study the relationship between the variables, multivariate analysis of variance (MANOVA), Tukey’s post hoc test, the Pearson correlation coefficient, the Spearman rank-order correlation, independent T-test, Kruskal-Wallis test, and correlation coefficient were used. The P value was considered less than 0.05.

## 4. Results

The subjects included 70 females (23.7%) and 225 males (76.3%) with ADHD. Their mean age was  $7.71 \pm 0.69$  years, with the minimum age being three and the maximum being 17. A number of 146 fathers (49.5%) and 149 mothers (50.5%) participated in the study. Their mean age was  $35.97 \pm 6.28$  years, ranged from 20 to 57 years. Demographic data is illustrated in [Table 1](#).

For a better understanding of parents’ knowledge and attitude, their answers were combined in two forms: “A little false/totally false” and “A little true/totally true” ([Table 2](#)) shows the rate of the knowledge and attitude of the parents of children and adolescents with ADHD considering symptoms, identification, etiology, treatment, consequences, diagnosis and prevalence. Parents showed 72.76% level of knowledge in the field of signs and symptoms. Furthermore, 38.43% could identify aberrant conditions, 62.44%, 75/54% and 55.33% knew about etiology, treatment, and the ADHD consequences, respectively. Knowledge of diagnosis and prevalence were 93.37% and 52.25%, respectively. The highest levels of knowledge were in diagnosis, etiology and symptoms dimensions, but the lowest levels were in the dimensions of identification, prevalence, and

consequences. Overall, 64% of the parents showed an appropriate knowledge about ADHD, while 72.82% had a positive attitude towards ADHD.

By adding up the scores of each sub-scale, the corresponding score of each sub-scale was calculated. Using the Pearson correlation coefficient, the correlation between the attitude of the parents of children and adolescents with ADHD and their overall knowledge (and identification, etiology, treatment, consequences, and prevalence) was estimated to be positive and ranging from 0.12 to 0.36 ( $P < 0.05$ ). As shown in ([however, however, there was no significant statistical relationship between parents’ attitude and their knowledge in the diagnosis dimension.](#)

Multivariate analysis of variance (MANOVA), independent T-test and Kruskal-Wallis test showed no correlation between age, gender and the place of residence of the parents and their knowledge and attitude towards ADHD. Parents’ academic level only correlated positively and significantly with having a knowledge of ADHD symptoms, with a value of 0.19 ( $P < 0.01$ ). On the other hand, there was no significant correlation between attitude and the other dimensions of knowledge towards ADHD.

The results of MANOVA showed no significant statistical difference between the three treatment groups (pharmacotherapy, behavior therapy and combination therapy) in knowledge and attitude towards ADHD (identification, etiology, treatments, consequences and diagnosis). ([Table 3](#)) shows that the overall knowledge, the knowledge of symptoms, and prevalence of ADHD were significantly higher in parents who had selected combination therapy ( $P < 0.05$ ).

According to parents’ self-reports, the reactions to the attention-deficit symptoms, in the order of frequency, were shouting and screaming in 62 parents (31.2%), giving advice in 80 parents (27.1%), warning in 64 parents (21.7%), physical punishment in 40 parents (15.6%) and restriction of watching TV in four parents (1.4%). On the other hand, most reactions to hyperactivity symptoms, in the order of frequency, were shouting and screaming in 96 parents (32.5%), giving advice in 73 parents (24.7%), warning in 54 parents (18.3%), physical punishment in 46 parents (13.6%) and restriction of watching TV in 26 parents (8.8%).

Parents’ tolerance of hyperactivity were reported to be high/very high in 150 parents (50.9%), average in 100 parents (33.9%), and no/little in 45 parents (15.3%). On the other hand, their self-evaluation of their tolerance of children’s attention-deficit were reported to be high/very high in 188 people (63.8%), average in 80 people (27.1%), and no/little in 27 parents (9.2%).

According to the parents’ self-reports, the sources of knowledge acquisition, in the order of frequency, were reported to be the family and friends in 160 parents (52.4%),

**Table 1.** Demographic Characteristics of the Parents Under Study<sup>a</sup>

	Parents (n=295)
<b>Age, y</b>	
20 - 30	56 (19)
31 - 40	173 (58.6)
41 and older	66 (22.4)
<b>Number of children</b>	
One	128 (46.8)
Two	121 (41)
More	36 (12.2)
<b>Educational level</b>	
Low-literate	95 (32.2)
Guidance/high school	18 (6.1)
Diploma	117 (39.7)
Academic	65 (22)
<b>Place of residence</b>	
Capital city	177 (60)
Small towns	99 (33.6)
Villages	19 (6.4)
<b>Therapeutic preference</b>	
Pharmacotherapy	118 (40)
Behavior therapy	74 (25.1)
Combination therapy	103 (34.9)

<sup>a</sup>Values are expressed as No. (%).

**Table 2.** Pearson Correlation Coefficient Between Knowledge and Attitude of Parents of Children With ADHD<sup>a</sup>

Variables	1	2	3	4	5	6	7	8	A little False/Totally False	A little True/Totally True
Attitude	1								72.82	27.17
Overall knowledge	0.36	1							34	66
Symptom knowledge	0.12	0.74	1						27.23	72.76
Identification	0.28	0.27	-0.03	1					61.56	38.43
Etiology	0.24	0.53	0.28	0.14	1				37.56	62.44
Treatment	0.18	0.47	0.17	0.19	0.27	1			24.46	75.54
Consequence	0.28	0.74	0.39	0.05	0.24	0.14	1		44.66	55.33
Diagnosis	0.10	0.41	0.14	-0.01	0.06	0.36	0.24	1	8.62	91.37
Prevalence	0.32	0.41	0.07	0.23	0.14	0.14	0.32	0.13	47.75	52.25

<sup>a</sup>ADHD, attention deficit hyperactivity disorder.

radio and TV programs in 105 (35.6%), reading books in 76 (25.8%), the Internet in 37 (12.5%), newspapers and magazines in 20 (6.8%), training courses and academic education in 15 people (5.1%).

## 5. Discussion

The current study showed that the overall knowledge of the parents was 66%. Their highest levels of knowledge were in the fields of diagnosis (91.37%), treatments (74.54%), symptoms (72.76%), etiology 66.44% and consequences (55.33). According to parents' self-reports; 72.82%

**Table 3.** Relationship Between Demographic Characteristics, aADHD Knowledge and Attitude

Variables	Mean (SD)	Age	Gender	Level of Education	Place of Residence	Treatment
		F	t	$\rho$	$\chi^2$	F
Attitude	12.74 (3.64)	0.89	0.1	-0.06	1.05	0.44
Symptom knowledge	33.34 (6.26)	3.26	1.46	0.19 <sup>b</sup>	0.36	4.33 <sup>a</sup>
Identification	6.33 (2.36)	2.07	0.28	-0.11	0.92	1.73
Etiology	12.58 (2.68)	0.71	1.37	-0.01	0.42	2.45
Treatment	15.26 (2.18)	1.28	0.95	0.07	1.79	1.06
Consequence	22.49 (5.07)	2.64	1.02	0.05	4.50	3
Diagnosis	13.79 (2.12)	0.09	1.3	0.08	2.51	0.30
Prevalence	4.54 (1.72)	0.38	0.83	-0.01	3.63	3.15 <sup>a</sup>
Overall knowledge	108.36 (13.14)	1.01	1.91	0.10	0.44	4.16 <sup>a</sup>

Abbreviations: ADHD, attention deficit hyperactivity disorder; F, F score in multivariate analysis of variance; t, independent T-test;  $\rho$ , the Spearman rho correlation coefficient;  $\chi^2$ , Chi-square in Kruskal-Wallis test.

<sup>a</sup> $p < 0.05$ .

<sup>b</sup> $p < 0.01$ .

of them had a positive attitude towards ADHD. These findings were in line with those of researchers in other countries (6, 9).

From a practical perspective, having an overall knowledge of 66% signifies an average and fairly appropriate level of knowledge among parents. It should be noted, however, that there was low level of knowledge among parents concerning identification, prevalence and ADHD consequences. It implies the importance of holding training programs for families (14).

Previous studies revealed significant ethnic differences regarding knowledge and sources of information about ADHD. Fewer African-American parents (69%) than white counterparts (95%) reported to have ever heard of ADHD. Among African-American parents 36% reported to know moderately or a lot about it, while 70% of white Americans reported this level of knowledge. African-American parents tended to attribute ADHD to excessive sugar in the diet than white Americans (59% compared to 30.0%). Finally, although both groups preferred to seek information from physicians, only 17.5% of African-American parents reported that they had received any information regarding ADHD from them, while this level is 29% among white Americans (15).

The levels of parents' knowledge about the causes of ADHD were significantly higher than their knowledge of the symptoms of ADHD, which was also significantly higher than their knowledge of treatments (16).

Understanding ADHD-related symptoms among African- American parents of children with ADHD appeared to differ significantly, compared to white American

parents of children with ADHD (17).

Since various studies show that the concepts of knowledge and attitude are highly affected by social and cultural conditions, the contradictory results of the study were not only affected by the population and the characteristics of participants, but may also be affected by the social environment and national and ethnic cultures.

Similar to other studies, it was shown that an increase in knowledge regarding ADHD leads to a positive attitude (13, 15, 18). Since attitude is comprised of emotional, cognitive and behavioral dimensions, a good knowledge improves the emotional, cognitive, and behavioral encounter with ADHD patients.

In contrast to previous studies, the current study revealed that age, gender, and the place of residence did not correlate with the knowledge and attitude towards ADHD (7). It appears that knowledge and attitude management approach could be managed irrespective of these characteristics.

The study showed that the level of overall knowledge, the knowledge of symptoms, and prevalence of ADHD was higher in parents who had selected combination therapy (pharmacotherapy and behavior therapy). It is shown that parents' academic levels increases the knowledge of ADHD symptoms (7). Higher level of education provides an opportunity to obtain scientific information about ADHD. On the other hand, having a high level of education facilitates learning about the criteria related to the disorder. It is implied that selecting combination therapy requires knowledge and the management of treatment process on the side of families. Therefore, parents with a higher level

of knowledge of ADHD can adapt to combination therapy more efficiently. Understanding the result of this issue can open the doors for further research to address the question of whether the parents who take different treatment attitude witness different effects on their children's improvement.

As with previous studies, the major source of acquiring information regarding ADHD were family, friends and TV programs (18).

The major reaction of the parents to children's attention-deficit and hyperactivity were shouting and screaming and giving advice. Moreover, most of the parents reported that they had a high tolerance of inattention and hyperactivity symptoms.

### 5.1. Conclusion

The current study showed that the overall correct knowledge of the parents was 66%. The highest levels of their knowledge were in diagnosis, treatments and symptoms dimensions of ADHD. Among parents, 72.82% were estimated to have a positive attitude. Establishment of structured and regular sessions of parent management programs would be efficacious in increasing the knowledge of parents and changing their attitude.

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### Footnotes

**Authors' Contribution:** Shahrokh-Amiri and Ali Reza Shafiee-Kandjani: study design; Shahrokh Amiri, Seyed Gholamreza Noorazar and Sina Rahmani Ivig: clinical data collection; Salman Abdi: statistical analysis and interpretation of data; Shahrokh Amiri and Ali Reza Shafiee-Kandjani: manuscript drafting; Ali Reza Shafiee-Kandjani: critical revision of the manuscript for important intellectual content. All authors have read and approved the final manuscript.

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