

# The Cognitive Abilities and Skills of Children who suffer from Attention Deficit and Hyperactivity Disorder (ADHD) in Kuwait state

Dr. Ali Mohammed Haidar Mohammed

Ministry of Education, Department of Educational Special School, Alwafaa School, Kuwait

## Abstract

The present study aims to identify the level of cognitive skills and abilities of children who suffer from the Attention Deficit and Hyperactivity Disorder (ADHD) and the differences in the level of cognitive skills and abilities according to the age group and the level of academic achievement. To achieve the objective of the study, a questionnaire consisting of (26) cognitive abilities or skills was designed; after confirming the validity and reliability of the questionnaire, the researcher distributed it to a sample of teachers to answer the sample of (63) children who suffer from the ADHD from the perspective of their teachers in the classroom. After data collection and the statistical processes through the arithmetic means, standard deviations, and 2- way ANOVA, the results showed a low level of cognitive skills and abilities for the children with the ADHD and the absence of differences in the level of those skills and abilities depending on the different variables of age group and academic achievement.

**Keywords:** children with attention deficit and hyperactivity disorder (ADHD), cognitive skills and abilities.

## 1. Introduction:

The social skills of the child contribute to organizing the circumstances and behaviors in a unified set of actions directed towards achieving goals that are culturally, socially and personally acceptable; the social skills such as the cognitive skills and abilities form the basis of social sufficiency behaviors (Hassan, 2009: 70).

Suliman (2011: 26) states that it is necessary to determine the behaviors and activities for developing the child as well as the potential that is appropriate for certain age group. This knowledge is used in conjunction with the understanding of the patterns of the children growth, their interests and expertise in order to design a developmentally appropriate learning environment taking into account all the factors that affect the promotion of their cognitive abilities and skills.

The integrated educational experiences presented to the children include a set of concepts, skills, attitudes, and values that match the level of the child's development; such experiences aim to develop the child's personality in a balanced and integrated way in all the different aspects of growth; the concepts are one of the important experiences for the child shaping the foundation of his mental and cognitive development (Mohammadi, 2011: 20).

Most educators believe it is essential to learn the cognitive abilities and skills for every child who should be provided for progress and success; many of them consider that developing the ability of each child regarding these cognitive skills is their first goal. When formulating their educational goals, they express their hopes and expectations in the preparations for their children's development so that they are able to deal effectively with the complex problems of life now and in the future; the child begins to acquire his social skills from the family through his interaction with his parents and those around him and when he moves to kindergarten, such skills are reflected in the way of his interaction with his peers (Owais 2000: 30).

### 2.1. Study Problem and Questions:

The problem of the current study is detecting the level of the abilities, knowledge and skills of children diagnosed with the Attention Deficit Hyperactivity Disorder (ADHD) and identifying their abilities in adapting to others, where the researcher noticed that this group of children need special educational programs and care in order to address the negative aspects of these characteristics; this contributes to the preparation and organization of the educational programs in line with their different abilities and skills in order to develop the creative skills and varied abilities, the level of academic performance, and their ability in the social adaptation.

It should be noted that the current educational programs and the traditional ways followed do not commensurate with the abilities of this category; sometimes, they represent an obstacle in developing their creative skills and diverse abilities leading to their suffering from the poor adjustment, or their inability for the educational and social adjustment; this increases their problems and difficulties in the educational process learning. Accordingly, the study problem is highlighted through answering the following questions:

First question: What is the level of the cognitive abilities and skills of the children with the attention deficit hyperactivity disorder (ADHD) from the perspective of teachers?

Second question: Do the cognitive abilities and skills of children with the attention deficit hyperactivity disorder (ADHD) from the perspective of teachers differ according to the age group and level of educational achievement?

## 2.2. Study Objectives:

This study aims to identify the following:

- The level of the cognitive abilities and skills of children with the attention deficit hyperactivity disorder from the perspective of teachers.
- The differences in the level of the cognitive abilities and skills of children with the attention deficit hyperactivity disorder (ADHD) from the perspective of teachers according to the age group and level of educational achievement.

## 2.3. Study Importance:

The cognitive abilities and skills are considered one of the educational issues that receive the care and attention of the modern educational systems that the goal of the educational process is no longer limited with acquiring the students with knowledge and facts but it expanded to develop their abilities for the sound positive thinking. Education is now based on the principle of teaching students how to learn and think, and introducing an educational intermediary to the world of the child that contributes in the formation and development of his character in the sensory, motor, social, emotional, mental and cognitive aspects; it leads to qualitative changes in the composition of the Child and it is a starting point to the educational activity that will prevail in the child in the next phase. Through the various cognitive skills and abilities, the outside world discovers the elements and stimulus of his environment, learns his roles and understands the roles of others, identify the culture, language, values and morals of his society, and become able to distinguish the surrounding properties and their relations with the functions and their importance, and what enriches his mentality with different knowledge about the world around. So, the importance of the study is detecting the level of cognitive abilities and skills of children who suffer from the attention deficit hyperactivity disorder (ADHD).

## 2.4. Study Hypothesis:

The main hypothesis: There are differences in the level of the cognitive abilities and skills of children with the attention deficit hyperactivity disorder (ADHD) according to the different age group and level of educational achievement.

## 2.5. Terminology Definition

**Cognitive abilities and skills:** they include the skills related with the mental processes and cognitive activity such as the skills of speculation, inquiring, classification, searching, exploration, holding things, playing, movement and the ability to infer; such skills play an important role in shaping the child's personality, trends, inclinations and experiences (Mohammed 2012: 14)

**Hyperactivity:** the inability to focus attention and control hastiness and rashness, especially under pressure or fatigue, which affects the performance of daily duties entrusted to them.

**Attention deficit:** the inability of the child to focus his attention for a period of time during exercising activities accompanied with an instability and excessive movement without calm or comfort, making him rush into doing things without prior thinking and this is reflected in the degrees the child gets on the scale of the attention difficulties.

## 3. Previous Studies:

The researcher has reviewed the theoretical framework and the previous studies related to the subject of the study, and he was able to get a set of previous relevant studies which he ordered from the newest to the oldest.

Bin Hafiz (2014) was entitled with "designing a therapeutic meta-cognitive program for the children with the ADHD; the study provided a design for the therapeutic program for the children with the ADHD according to therapeutic "meta-cognitive" knowledge that is based on the skills of the self-organization: planning, controlling and evaluation during and after performing these tasks. This study treated the clear imbalance at the level of the executive functions on the cortex anterior cerebral level. The researcher used the experimental approach through designing the research by one individual in addition to the pre and post tests as well as 16 therapy sessions where the client was trained on the meta therapeutic approach from the direct explanation, self-questioning, self-controlling, internal dialogue, thinking out loud, and modeling and

reinforcement. The therapeutic program designed to treat the ADHD was successful regarding the status of the approved study, by the treatment of the three dimensions from attention deficit, hyperactivity, and impulsivity.

Al-Bataineh & others (2011) was entitled "The level of the social skills among the ordinary children and the children with learning disabilities in Jordan," This study aimed at examining the level of the social skills for both ordinary students and students with learning disabilities and whether that level was different depending on the variable of sex, age group or the interaction between them. (278) male and female students participated in the study, including 181 male and female ordinary students and (97) students with learning difficulties, who were chosen from schools that contain sections for learning resources at the Directorate of Education for Irbid the second. For the purpose of data collection, a modified form of the social skills scale for the students with learning disabilities showed a moderate level of social skills with a preference for the ordinary students; the results indicated the presence of statistically significant differences in the level of the social skills among both groups of students for the benefit of the ordinary students for the tool in general, and on its sub-dimensions, and that the female ordinary students possessed more social skills than the rest of the participating students especially in the skills related to the dimensions of "showing appropriate work habits" and "following the rules and laws of the school" and finally the results indicated that ordinary students of the younger age group of (7-9 years) , and the older age group of (above 12 years) had more social skills than the middle age group of (above 9-12 years), particularly in the dimension of the interaction with others.

Abu Rizk (2011) was entitled with " The distinctive personal traits of the people with learning difficulties and their relationship to attention and some variables". This study aimed to identify the students with learning difficulties in terms of their personal characteristics and the symptoms of attention deficit from the perspective of the teacher as well as their symptoms of attention deficit. The study intentional sample consisted of (127) male and female students and the study found that there are statistically significant differences in the personality traits among the students with learning difficulties due to (male, female) the students order among his siblings, father's education, father's career, and the economic level of the family. There were no significant statistical differences in the symptoms of attention deficit from the perspective of the teacher of the students with learning difficulties due to the student's order among his siblings.

As for the views of the observer, the results showed that there were no statistically significant differences in the symptoms of attention deficit from the perspective of the observer of students with learning difficulties due to the student's order among his siblings, father's education, and father's career. There were statistically significant differences in the symptoms of attention deficit from the perspective of the teacher with learning difficulties due to gender and there were statistically significant differences between the symptoms of attention deficit from the perspective of the teacher and the symptoms of attention deficit from the perspective of the observer of students with learning difficulties.

Mohammadi (2011) is entitled with "The effectiveness of two training programs in modifying the behavior of hyperactivity combined with the attention deficit and adjusting the difficulty of writing ". This study aimed to design two training programs to modify the behavior of the ADHD and the difficulty of writing after being applied on the students of the fourth grade. The study adopted the experimental method that is appropriate to the study and (40) students were chosen to measure the effectiveness of the training program to modify the behavior of hyperactivity and attention deficit divided on two groups: control and experimental in addition to another sample which consisted of twenty students divided on the previous groups and which were measured to figure out the effectiveness of the training program to modify the difficulty of writing. The study found that the two programs were effective in modifying the hyperactivity combined with attention deficit and adjusting the difficulty of writing for the students of the fourth grade in Burqala. There were statistically significant differences between the results of the control group and the experimental group in regards with the hyperactivity and the attention deficit for the benefit of the experimental sample and there were also significant differences between the results of the control sample and the results of the experimental sample in regards to the difficulty of writing for the benefit of the experimental sample.

#### **4. Methodology:**

The researcher used the descriptive and analytical approach to identify the cognitive skills and abilities for the children who suffer from the Attention Deficit and Hyperactivity Disorder (ADHD) due to its suitability for this study.

##### **4.1. Population and Sample:**

The study population consisted of all the children in the Kuwait state whose ages range from (4-12 years) where (63) children classified with the Attention Deficit and Hyperactivity Disorder (ADHD) were chosen from the study population in the intentional way according to the opinions of the teachers.

#### 4.2. The study sample

The study sample consisted of (63) children suffering from the ADHD; table (1) shows the distribution of the study sample according to the variables of the age group and the level of achievement.

**Table 1: The Distribution of the study sample according age group and the level of achievement variables**

Variables	Categories	Frequency	Percent
Age group	4-6 years	19	30.2
	7-9 years	18	28.6
	10-12 years	26	41.3
	Total	63	100.0
The level of achievement	high (85% or more)	16	25.4
	average (70% - 84%)	33	52.4
	Low (less than 70%)	14	22.2
	Total	63	100.0

Table (1) shows the following:

- According to the variable of the age group, it is evident that the children aged between (10-12 years) are the most frequent, which amounted to (26) by (41.3%) while those aged between (7-9 years) are the least frequent, which amounted to (18) by (28.6%).
- As for the variable of the level of achievement, it is noted that the children whose performance average ranges between (70% - 84%) are the most frequent, which amounted to 33 by (52.4%), while those whose level of achievement is low (less than 70%) are the least frequent amounting to 14 by (22.2%).

#### 4.3. The study tool (questionnaire):

This study is based on the (questionnaire) which has been designed in the light of the objectives and questions of the study as well as the previous relevant studies to measure the variables and dimensions that achieve the objectives of this study. The tool consisted of (26) cognitive or behavioral abilities or skills which have been designed according to the quintet (Likert) scale and also been confirmed.

#### 4.4. Reliability:

To confirm the reliability of the tool, it was applied twice in two weeks on an exploratory sample of 12 children suffering from the Attention Deficit and Hyper hyperactivity (ADHD), and then the correlation coefficient between the two applications was calculated to reach (0.88) in addition to applying the Cronbach's alpha equivalent on the original sample data which was (0.91); this indicates a high degree of reliability for the purposes of the application of the study.

#### 4.5. Validity:

To confirm the validity of the study tool, it was presented to (6) experienced arbitrators with expertise who are teachers in the Kuwait universities to judge the suitability of the language formulation, and the relation between the item and the scale, as well as deletions or additions, and amendments, based on the consensus of the majority of the arbitrators. The questionnaire was edited according to their comments and suggestions; the researcher merged four of the items of the questionnaire with other items that it consisted of (26) cognitive abilities or skills. Attached is the questionnaire in its final form.

#### 4.6. Scale:

The questionnaire in its final form consists of (26) items where the researcher used a quintet Likert scale to measure the views of the study sample members: Strongly Agree (5), agree (4), neutral (3), disagree (2), strongly disagree (1) by putting (√) in front of the answer, which reflect the degree of their consent. To judge the arithmetic means, the following classification was adopted as follows: less than 2.33 low, 2.34-3.66 medium, 3.67- 5.00 high.

#### 4.7. Study Procedures:

1. Examining the theoretical literature and the previous studies related to the subject of the study and preparing the study tool.
2. Identifying the study population and sample and distributing the study tool to the members of the sample (teachers) in order to answer the questions related to the children with the ADHD, collect and audit them.
3. Computerizing data, processing it and conducting the appropriate statistical analyzes on them.

#### 4.8. Statistical treatment:

To answer the study questions, the following statistical methods through the (SPSS) were used, where the frequencies and percentages for the variables of the children (age group, and level of academic achievement) were calculated in addition to the arithmetic means and standard deviations for the answers of the study sample with regards to the items of the study tool and the 2 - way ANOVA to detect the differences depending on the variables of age group and the level of achievement.

#### 5. Results and discussions

This section includes a presentation and discussion of the results of the study, which aimed to identify the cognitive abilities and skills of children suffering from the ADHD in Kuwait state, and the results will be displayed depending on the study questions and the main hypothesis.

The first question: What is the level of the cognitive abilities and skills of the children with the ADHD from the perspective of the female teachers?

To answer this question, the arithmetic means and standard deviations for all the items of the measuring tool of the cognitive abilities and skills of the children with the ADHD; Table 2 illustrates this.

**Table (2): Means and standard deviations for items of the scale "cognitive skills and abilities," and total them (n = 63).**

Number	Item	Mean	Standard deviation	Rank	Degree
1	ability to solve problems	1.60	0.99	26	Low
2	simple rhythmic response through the movement with music	1.87	1.02	23	Low
3	self-expression	1.73	1.02	24	Low
4	friendships	2.25	1.29	10	Low
5	dealing with others and communicating with them effectively	2.11	1.18	13	Low
6	linking the acquired information with the previous one	2.48	1.23	2	medium
7	the ability to create and innovate	2.29	1.28	6	Low
8	imagination and thinking	2.41	1.27	3	medium
9	The ability to infer	1.95	1.21	20	Low
10	tactual perception	2.29	1.34	6	Low
11	Controlling, adjusting and amending the performance to perform the required tasks in the end	2.27	1.29	8	Low
12	gradual transition from simple to more complex skills	2.25	1.24	9	Low
13	following the school regulations and laws	2.22	1.26	11	Low
14	Character Recognition	2.06	1.20	16	Low
15	color recognition	2.40	1.40	4	medium
16	numbers recognition	2.52	1.41	1	medium
17	Shapes recognition	2.21	1.35	12	Low
18	recognizing the necessary requirements to perform a particular task	2.11	1.15	13	Low
19	interacting with others effectively	1.98	1.17	19	Low
20	planning and participating in activities within the school	1.94	0.86	21	Low
21	inferring meanings	2.35	1.22	5	medium
22	group thinking	1.73	1.00	24	Low
23	group discussion and expressing opinions	2.00	1.12	18	Low
24	linking between things efficiently	2.08	1.17	15	Low
25	answering questions clearly	2.05	1.30	17	Low
26	determining the appropriate vacuum for some geometric shapes	1.89	1.18	22	Low
The overall average "cognitive skills and abilities"		2.12	0.82	-	Low

Table (2) shows that the arithmetic means ranged between (2.52-1.73), where item (16), "numbers recognition", came in the first rank with an arithmetic mean of (2.52) with a medium degree, item (6), "linking the acquired information with the previous one" came in the second rank with an arithmetic mean of (2.48) by an average degree and item (1), "the ability to solve problems", came in the last rank with an arithmetic mean of (1.60) with a low degree and the arithmetic mean of the field of the "cognitive abilities and skills" as a whole (2.12) with a low degree.

This shows the low level of the cognitive abilities and skills of the children with the ADHD since this group of children lack the sequential focus and thinking and they are characterized with hastiness, speed of movement, and inability to abide by the rules of the others. These results are consistent with Bataineh and Al-Jarrah (2011) which showed that ordinary students have more social skills than the students with the ADHD, especially in the skills related to the dimensions of showing good career habits and following the rules and laws of the school. Hafeez (2014) confirmed that the students with the ADHD lack the skills of self-regulation: planning, controlling and evaluation as a result of a number of reasons relating to the composition of the Child. Second question: Do the cognitive abilities and skills of the children suffering from the ADHD differ from the perspective of the female teachers depending on the age group and the level of the academic achievement?

The study hypothesis test: there are differences in the level of the cognitive abilities and skills for the children with the ADHD according to the age group and the level of the academic achievement.

To test this hypothesis, 2-way-ANOVA was used to detect the differences in the level of the cognitive abilities and skills of the children with the ADHD according to the different age group and the level of the educational achievement. The tables below illustrate this.

**Table 3: Means and standard deviations of the level of the cognitive abilities and skills of the children with the ADHD according to the age group and the level of the educational achievement**

Variables	Category	Number	Mean	Standard deviation
Age group	4-6 years	19	1.77	0.48
	7-9 years	18	2.39	0.90
	10-12 years	26	2.18	0.90
Level of achievement	Total	16	2.30	0.94
	high (85% or more)	33	2.11	0.82
	medium (70% - 84%)	14	1.93	0.68

Table (3) shows the existence of external differences between the mean answers of the study sample in the level of the cognitive abilities and skills of the children with the ADHD according to the age group and the level of academic achievement. To find out the statistical significance of those differences, 2-way -ANOVA was applied at the general level of the cognitive abilities and skills of the children with the ADHD; table 4 illustrates this.

**Table 4: The Results of the (2-way-ANOVA) to detect the differences in the general level of the cognitive abilities and skills of the children with the ADHD according to the different age group and the level of the educational achievement**

Variable	Sum of Squares	Degrees of Freedom	Mean Square	"F" value	P.
Age	3.814	2	1.907	2.966	0.059
level of achievement	1.114	2	0.557	0.866	0.426
Error	37.292	58	0.643		
Corrected total	42.117	62			

Table (4) shows that there were no statistically significant differences at the level of significance ( $\alpha \leq 0.05$ ) in the level of the cognitive abilities and skills of the children with the ADHD according to the different age group and the level of the educational achievement, where the "F" value did not reach to the level of the statistical significance of ( $\alpha \leq 0.05$ ). Accordingly, the levels of the cognitive skills and abilities of children with the ADHD do not differ depending on the level of achievement and the age group since the general characteristics of these children are similar that they are characterized with weak qualities and skills in the adaptation and thinking. These results are consistent with all the results of the previous studies that Bataineh et al. (2011) indicated that the ordinary students from the age groups of (7-9 years) and (above 12 years) have more social skills than the age group of (above 9-12 years) and most notably in the dimension of interacting with others. Furthermore, Rizk (2011) showed that there are statistically significant differences between the

symptoms of the attention deficit from the perspective of the teacher and the symptoms of the attention deficit from the perspective of the students' observer.

## 6. Conclusions and recommendations

Depending on the results that have been reached, below are the conclusions of the study:

- Children who suffer from the ADHD are characterized with weak different cognitive abilities and skills, especially regarding the methods of logical thinking and the skills of communication and adaptation to the others.
- There is a general weakness in the academic achievement level of this group of children, as a result of an inability to concentrate or think in an organized way.
- These characteristics will continue to appear until the age of 15 years if they are not treated or mitigated for the children.
- There is a similarity in most of the cognitive features, abilities and skills of the children with the ADHD regardless of their age group or level of academic achievement.

## 7. Recommendations

In light of the results and conclusions of the study, the following recommendations can be set:

- Studying the phenomenon of the ADHD for children since their first preliminary classes to try to set the appropriate educational and therapeutic programs so as these phenomena do not affect the level of his acquisition of various skills and knowledge, and accordingly do not affect the level of his academic performance.
- Preparing social programs to be available to teachers which are directed to the children who suffer from the ADHD to address the problems of the social interaction and interacting with the others or facilitate the task of the teacher in mitigating their negative implications.
- Conducting further studies on the characteristics of these students, and trying to understand these phenomena from a physiological or psychological perspective.
- Organizing training and educational workshops for the families of children who suffer from the ADHD on the way of treating them and solving their problems in adapting with the social surroundings.
- Conducting further studies on the quality and quantity of the programs provided for the children in different age groups to ensure their effectiveness in mitigating the negative consequences of the phenomena of hyperactivity and attention deficit.
- Organizing specialized committees in psychology and childhood to hold educational seminars on the ways and methods of parental issues and the appropriate treatment of educators in schools to reduce the period of the extension of these phenomena to adolescence.

## 8. References:

- Abu Hatab, Fuad. (1983). Codifying Successive Matrixes on the Saudi Environment, the Western Region, *publications of the Educational and Psychological Research Center*, Mecca, Saudi Arabia.
- Abu Rizq, Mohammed Mustafa. (2011). *The distinctive Personal Features for the People with Learning Difficulties and their Relationship with Attention and Some Variables*, master thesis, the Islamic University, Gaza
- Bataineh, Osama, al-Miqdad, Qais and Al-Jarrah, Abdel Nasser. (2011). The Level of the Social Skills of Normal Children and Children with Learning Disabilities in Jordan, *Jordan Journal of Science in Educational Sciences*, Vol.7, no. 3, 2011,253-270.
- Bin Hafeez, Mufeeda. (2014). *A Meta-Cognitive Therapeutic Program for the Children with the Attention Deficit Hyperactivity Disorder (ADHD)*, an Experimental Study Based on One-Examiner Test, Hadj Lakhdar University of Batna, Algeria.
- Hassan, Abdel-Hamid. (2009). A Comparative Study Between the Children with Learning Disabilities and Normal Children in Social Skills, *Umm Al-Qura University Journal for Educational and Psychological Sciences*, Volume 1, Issue 1, no 1, 70-112.
- Mohammadi, Fawzia. (2011). *The Effectiveness of Two Training Programs in Modifying the Behavior of the Attention Deficit Hyperactivity Disorder (ADHD) and Adjusting the Difficulty of Writing Disorder*, PhD thesis, University of Cassidy, Wargla, Algeria.
- Mohammed, Dalia Mohamed Hammam (2012). *The Effectiveness of a Program Based on the Project in Developing Some Skills Beyond the Meta-knowledge Skills of the Kindergarten Children*, PhD thesis, University of Cairo.
- Owais, Razan Sami. (2000). The Effectiveness of Playing on Acquiring Some of the Physical Skills by the Kindergarten Children, *Damascus University Journal*, Volume 12, no 1,2000.
- Suleiman, Ferial. (2011). Some of the Social Skills of Kindergarten Children and their Relationship with Evaluating Parents, a Field Study for a Sample of Kindergarten Children Aged 4-5 Years in the Province of Damascus, *Damascus University Journal*, Volume 27, appendix 2001.