

*Full Length Research Paper*

# Levels of depression in parents of children with attention deficit hyperactivity disorder in Jordan

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This study aimed to identify levels of depression in parents of children diagnosed with attention deficit/hyperactivity disorder compared to control group, and whether these levels of depression will differ according to age, sex, educational attainment, and years of marriage in Jordanian population. The sample consisted of 152 participants divided for two groups, ADHD group consisted of 76 parents of ADHD children and comparison group consisted of 76 parents of match non-ADHD children. Beck Depression Inventory, and an inventory for demographic variables developed by the researcher was used for the purposes of this study. Results revealed that parents of children with ADHD exhibit significant higher levels of depression compared to parents in control group, these levels of depression differ significantly in parents of ADHD children according to age as older group of parents showed higher levels of depression. And according to sex as mothers showed higher levels of depression compared to fathers. And according to years of marriage as participants who were married for more than 20 years exhibit higher levels of depression. But the results showed no significant differences in levels of depression according to educational attainment. Based on the results of the study, implications and recommendations were offered to parents and special educators working with ADHD children.

**Key words:** Attention deficit/hyperactivity disorder, depression, demographic variables.

## INTRODUCTION

During their development, children may exhibit some behavioral and/or emotional disorders that affect the child's ability to adopt with demands of the developmental stage he/she is passing. Attention deficit hyperactivity disorder-ADHD is considered of the most common disorders in childhood that affect major aspects of the child's life in home and school, these effects extend to include parents, teachers, and significant others in the context the child lives.

Being a member of a family before being labeled as ADHD child, ensure the crucial role of the family, and parents particularly, to help children with ADHD to deal with the negative psychological consequences of this disorder. This is in one hand, on the other hand; it says that the negative psychological consequences of ADHD symptoms may extend to include parents and caregivers

of ADHD child. Therefore, an imperative need rose to investigate the consequences of raising ADHA child in parents and caregivers.

### Attention Deficit/Hyperactivity Disorder

Attention deficit hyperactivity disorder-ADHD is neuro-behavioral disorder that affects children during their development. ADHD is characterized by inadequate levels of attention combined with hyperactivity and impulsivity, which result a variety of maladaptive behaviors that considered inappropriate to the child's age (Rappley, 2005). (Gerberding, Sinder, & Popovic, 2005) estimated prevalence of ADHD between (2-18%) with an average of (10%) to be the most common behavioral and/or emotional disorder in school age children. The

prevalence of ADHD is affected by many factors, (Gerberding, Sinder, & Popovic, 2005) define these factors as: (1) gender as males exhibit ADHD symptoms (2-3) times more than females. (2) Age as symptoms exceed till the age of (13-14) years old. (3) Demographic variables as ADHD is a common disorder in lower social and economical classes of society. And (4) disagreement within practitioners in clinical practices of diagnosing this disorder.

The revised 4<sup>th</sup> edition of Diagnostic and Statistical Manual of Mental disorders (DSM-4R) described three major categories of symptoms indicating the diagnoses of ADHD, these categories include: (1) inattention which include child's inability of paying attention and/or still focused in situations where being attentive is expected from the child, (2) hyperactivity which represent the main pillar of ADHD diagnoses, and the main reason that make parents and caregivers seek help for the child when hyper-activeness confused everyone around the child, and (3) impulsivity which is associated with hastiness. These symptoms should be explicit in two situations at least (school and home), and early before the age of seven so the child may be diagnosed with ADHD, (APA, 1994).

### **Diagnosing Attention Deficit/Hyperactivity Disorder**

ADHD is diagnosed by two main approaches which include according to (American Academy of Child and Adolescent Psychiatry, 2007): (1) medical diagnoses which include EEG, MRI, and biochemical abnormalities tests, and (2) rating scales. These rating scales are widely used in both home and school situations, it include a group of items represent a set of behaviors that are perceived by parents and teachers as troubled behaviors and cause disturbance to others around the child. Examples of such rating scales are Conners' Parent and Teacher Rating Scales (Conners, 1998), which are the most accepted instruments of diagnosing ADHD. (Kashdan, Jacob, Pelham, Lang, Hoza, Blumenthal, & Gnagy, 2004) suggested that the estimation of ADHD symptoms in children would be affected by emotions of the parents and caregivers as respondents to the rating scales.

In most cases, ADHD is combined with other disturbances, (McDonnell, 2003; Brown, 2000) refer to some examples of these combined disorders as oppositional-defiant disorders, depression, conduct disorders, low self esteem, and pervasive developmental disorders.

### **Causes of Attention Deficit/Hyperactivity Disorder**

Despite the presence of many explanations as causes of ADHD, these explanations still controversial, most of the research in this field did not give a definitive explanation of the causes of ADHD (Brown, 2000). (Barkley, 2000) on

the other hand, referred to many potential reasons that cause ADHD mentioned in his literature review, these reasons include minimal brain damage due to acquired head trauma or dysfunctional damage, dysfunction in brain neurotransmitters, low activity in specific parts in brain, these causes may be result of genetic and/or environmental factors. Other possible causes of ADHD may include:

1. Neurological causes: dysfunction in chemical exchange systems in the frontal lobe of the brain, specifically Dopamine and Norepinephrine, it was estimated that (5-10%) of ADHD cases where caused by brain injury (Rappley, 2005). In this regard, (Lensch, 2000) referred earlier to this assumption as children with ADHD showed improvements in their disturbed behavior due to medications acting through chemical balancing in human brain. (Gerberding, Sinder, & Popovic, 2005) add low levels of activity in specific parts in brain as a possible cause of ADHD.

2. Genetic causes: The heredity of ADHD appeared in results of many researches, (Biederman, Faraone, Keenan, Knee, 1990) proposed that ADHD is genetically inherited. Support to the heredity of ADHD came from researches of ADHD in twins, the results of (Gillis, Gilger, Pennington, & DeFries, 1992) study indicated that if one of an identical twins showed ADHD, the other twin is at risk of (80-90%) to have ADHD, and (32%) for non-identical twins. In both cases, either identical or non-identical, the prevalence of ADHD in twins is (6-10) times over the agreed (3-5%) prevalence of ADHD.

3. Physiological causes: children with ADHD are more vulnerable to risk factors that caused by brain damage, birth anoxia or Thyroxine hormone disorders, (Fisher, 1998).

4. Psychological causes: these set of possible causes still hypothetical with no scientific support, it include parenting styles, excessive discipline versus toleration, over criticism, divorce and familial problems, mood disorders, and unintended positive reinforcement to hyperactivity (Cunningham, Bennes, & Siegel, 1998; Kaplan, Crawford, Fisher, & Dewey, 1998).

5. Environmental causes: (Braun, Khan, Froehlich, Auinger, & Lanphear, 2006) referred to a set of risk factors in the environment that may cause ADHD, these factors include lead poisoning and smoking during the pregnancy. (Ernst, Moolchan, & Robinson, 2001) indicated that exposing fetus to nicotine from smoking affects the development of the nervous system of the child, smoking mothers have children with ADHD (2-4%) more than non-smoking mothers. Other studies such as (Knopik, Sparrow, Madden, Bucholz, Hudziak, & Reich, 2005; Mike, Biederman, Faraone, Sayer, & Kleinman, 1999) indicated such results for mothers abusing drugs and alcohol.

6. Primitive Reflex Reactions: a modern trend in explaining the occurrence of ADHD and other behavioral disorders in children, in which the disturbances in

primitive reflexes and inability to inhibit these reflexes will cause coordination problems that may develop later to behavioral and academic challenges. (Goddard, 2002) described these reflexes as (1) primitive movements controlled by the brainstem which is a primitive part of the brain, (2) extinguishing these reflexes may occurs when they turn to voluntary movements controlled by the cortex, which is a more sophisticated and developed part of the brain, and (3) these reflexes may be manifest again if the child failed to extinguish it, and at this point, the presence of such reflexes is considered as an indicator of immaturity in the nervous system, and negatively affects performing sequential movements, motor control, sensory perception and coordination, these behaviors considered as indicators of the presence of ADHD.

### **Treatment of Attention Deficit/Hyperactivity Disorder**

In his review, (Arnold, 2004) indicated two approaches of interventions that showed positive results for treating disruptive behaviors related to ADHD, and the combination of both approaches will give the best results in raising ADHD child, these approaches are: (1) Medical intervention by using medications such as Ritalin (methylphenidate) which is the preferred choice for physicians as treatment for ADHD children. (2) Psycho-behavioral intervention which considered as an important component of ADHD treatment (Lensch, 2000). And (3) Multi-modal treatment: in which the medical and psycho-behavioral interventions are used as the best treatment for ADHD (Fowler, 2001). The effectiveness of multi-modal treatment of ADHD was indicated in many researches (DuPaul, & Weyandt, 2006; Clark, 2005; Farley, 2005; Gerberding, Sinder, & Popovic, 2005).

### **Psychological Effects of Attention Deficit/Hyperactivity Disorder**

An early results by (Harrison, & Sofronoff, 2002) indicated that (80%) of the individuals with ADHD exhibit negative psychological effects in adolescent and (65%) in adulthood as a result of having ADHD, these effects include low self esteem, depression, and limited relationships with peers. In this regard (American Academy of Child and Adolescent Psychiatry, 2007) indicated that the inappropriate behaviors of ADHD in home and school would lead the child to conflicts with parents, teachers and peers. (25-40%) of ADHD children would exhibit antisocial personality disorders, and oppositional defiant disorders (Bagwell, Molina, Pelham, & Hoza, 2001), and conduct disorders (Barkley, & Murphy, 2000). Longitude studies of (Fischer, Barkley, Smallish, & Fletcher, 2002; Treuting & Hinshaw, 2001; Biederman, Faraone, Milberger, Guite, Mike, & Chen, 1996) indicated that children with ADHD showed high levels of anxiety and depression compared to control

groups. (Bagwell, Molina, Kashdan, Pelham, & Hoza, 2006; Hodgens, Cole, & Blodizae, 2000) summarize these findings as children with ADHD are susceptible to comprehensive challenges in social and academic skills that make this child faces rejection from others and loneliness, and this will lead to high levels of depression and other negative psychological consequences.

### **Raising a Child with Attention Deficit/Hyperactivity Disorder**

Raising children is a continues process that has a lot of demands on parents, it put a lot of daily challenges for them, and also has restrictions toward the system of living used to be practiced by parents before having the child. Raising an ADHD child has additional challenges due to the disturbed behaviors of this child, (Harrison, & Sofronoff, 2002) suggested that children with ADHD can have adverse effects on parents' mental health.

The disruptive behaviors of this child would affects parents in many ways, parents may found themselves incapable to deal with these inappropriate and maladaptive behaviors of the child. (Kashdan, Jacob, Pelham, Lang, Hoza, Blumenthal, & Gnagy, 2004) indicated that raising child with ADHD may exacerbate parenting inadequacies and social difficulties, and those parents rate their family environments as less supportive and more stressful, and perceived their coping abilities to be lower than parent of non-ADHD children. (Wells, Epstein, Hinshaw, Conners, Klaric, Abikoff, 2000) indicated that inadequate parenting behaviors may not only result from parents' own symptoms of distress, but also from the characteristics of their ADHD children. This conclusion was supported with findings of studies indicated that the quality of parents-child relationship and parenting styles improved when children with ADHD were treated with medication, or with any other kind of intervention.

The signs of negative psychological effects of raising an ADHD child might reflect itself into parenting behaviors, particularly in situations where parents are forced to confront ADHD children who are non-compliant, argumentative and defiant. Those parents are experiencing feelings of losing control and inefficiency to raise the child; this might increase levels of depression in those parents.

Therefore, parental behaviors would exacerbate the symptoms of ADHD in child, and the parents' reactions to child's disruptive behaviors would produce additional complications in parent-child relationships and family environment. (Kashdan, Jacob, Pelham, Lang, Hoza, Blumenthal, & Gnagy, 2004) indicated that depressive symptoms are greater in parents of children with disruptive behavior disorders in comparison to parents of non-disturbed children.

### **Depression in Parents of Children with Attention Deficit/Hyperactivity Disorder.**

Depression is considered to be a common illness worldwide, according to (WHO, 1996), depression is a long-lasting emotional response that is different from usual mood changes that happened as a response to challenges in everyday life, and therefore it may become a serious health condition. Depression can cause the

affected individual to suffer greatly and function poorly at work, at school and in the family, it is estimated that more than 350 million individuals are affected with this disorder.

Depression results from a complex interaction of social, psychological and biological factors, these factors are included in the following theoretical models of causes of depression (Ramsden, 2013, p 271-276):

1. Social model: an interaction between psychological factors with environmental conditions that may lead to depression when an individual failed to adapt with situational demands in daily living situations. In this case, levels of depression would be higher when an individual experience feelings of helplessness and hopelessness, and losses self-esteem when expectations are not fulfilled.
2. Behavioral model: individuals exhibit depression as a direct result of not being able to obtain sufficient satisfaction from their environment for actions and behaviors. This could be as a consequences of a variety of factors, such as inadequate social skills, or living in an unfavorable environment, challenges in raising children, having disabled children, and lack of social support.
3. Cognitive model: depressed individuals tend to display abnormal patterns of thinking, these include low self-esteem, excessive self-criticism, frequent self-commands and exaggerated concepts of responsibility.

**According to (Zeng, North, & Kent, 2012), depression is affected by many factors such as:**

1. Gender: females tend to have higher levels of depression more than males. It is estimated that one of every four women and one out of every 10 men experience some type of depression during their lifetime. Within family, and due to family functions and expected roles of each of the parents, mothers tend to have higher levels of depression compared to fathers.
2. Age: the average age of onset for depression is the mid of twenties, most individuals experience their first high levels of depression between the ages of 20 and 40. It is expected that chances of developing depression symptoms would increased by age.
3. Personality: some individuals may be more at risk of having depression because of their personality, particularly if they are perfectionists, sensitive to personal criticism, have low self-esteem, or feeling to loss control on the progress of their life. Depression among older persons can be associated with the cumulative effects of life events, e.g., marital difficulties
4. Educational attainment: higher educated individuals tend to have higher levels of depression, this may be explained as they have higher standards for living, and more sophisticated perspectives in perceiving the world around them. Levels of education were found to have negative correlations with depression; lower educational levels were associated with higher levels of depression

## REVIEW OF LITERATURE

The aim of the following part is to introduce a review of major factors affect depression as it came in the literature related to the goal of the current study.

To investigate the relationship between having an ADHD child and depression and their effect on family function, (Kashdan, Jacob, Pelham, Lang, Hoza, Blumenthal, & Gnagy, 2004) conducted a study on parental anxiety and depression as predictors of 3 measures of family functioning for parents of children with ADHD using a self-report battery completed by 45 mother-father pairs to estimate the contributions of parental and child symptoms on family functioning. Results indicated that parental anxiety and depression was negatively associated with parental warmth and positive involvement, intrusiveness and negative discipline, and social distress as family function components. In the other hand the results indicated that sex moderated the effects of parental anxiety and depression as mothers did greater anxiety and depression lead to less effective family function.

And to know whether depression is differ according to age, (Hybels, Landerman, & Blazer, 2012) conducted a study aimed to compare symptoms of depression in middle-aged (<60) and older (60+) patients, and to determine if the symptom profiles of depression would differed according to age. The sample consisted of (664) patients diagnosed with major depression whom were screened using the Center for Epidemiologic Studies—Depression scale and sections of the Diagnostic Interview Schedule. The results showed that older patients were less likely to report enjoying life, feeling as good as others, feeling worthless, which indicated according to the researchers higher levels of depression and more sophisticated profile of depression symptoms compared to middle-aged patients.

And as depression may differ according to gender, (Connery, & Davidson, 2006) conducted study to examine attitudes towards depression in the general public with an interest in age and gender differences in these attitudes. The sample consisted of (322) non-acutely ill medical outpatients completed a short vignette style questionnaire assessing attitudes to depression. Fifty-four percent of the sample were female and 41% over 65 years of age. The results indicated significant differences in attitudes to depression among younger and older adults toward the older, and among males and females toward the females.

An overview of the previous review shows that depression is affected by many factors such as having a disturbed child in the family, age and gender. The current study investigated additional possible factors such as educational attainment of the parents and years of marriage to see whether such factors may



interact with having an (ADHD) to affect levels of depression the parents may have.

### Overview of the Study Goals

Children with ADHD exhibit many forms of maladaptive behaviors, these behaviors and its consequences put numerous stressors in the family of this child, and exclusively the parents who struggle to raise a child with disruptive behaviors that considered as unacceptable to others around the child. Inefficiency of raising this child, the absence of adequate answers of the big question "what to do?", feelings of embarrassing of the disruptive child behavior outcomes, losing control to administrate the socialization of the child, and many other negative consequences of being a father/mother of an ADHD child would result psychological effects of the parents of ADHD children, depression is one of these psychological effects.

### Significance of the Study

The importance of the current study emerges from its attempt to figure out the consequences of raising an ADHD child, these consequences that may manifest itself in high levels of depression in parents of children with ADHD, despite these psychological effects might not be clear for parents, as the symptoms of depression may be attributed to daily living stressors. But for the purpose of the current study, it was hypothesized that even if the personal characteristics of individuals prevent symptoms of depression from being obvious, raising an ADHD child would exacerbate the probability of developing high levels depression, and will be clear in the behavior of the parents of ADHD children.

### Study Objectives

This study aimed to identifying the psychological effects of raising children with attention deficit hyperactivity disorder as perceived by their parents. Specifically, the objectives of this study aim to define levels of depression in parents of children with ADHD, in order to identify these levels of depression in parents of ADHD children; this study implemented depression scale to answer the following questions:

1. Are there significant high levels of depression in parents of children with ADHD compared to parents of non-ADHD children?
2. Are levels of depression in parents of ADHD children differ according to age?
3. Are levels of depression in parents of ADHD children differ according to sex?
4. Are levels of depression in parents of ADHD children differ according to educational attainment?
5. Are levels of depression in parents of ADHD children differ according to years of marriage?

### Definition of Terms

**Attention deficit hyperactivity disorder:** A neuro-behavioral developmental disorder characterized by inappropriate low levels of attention, and high levels of hyperactivity and impulsivity that manifested as a group of maladaptive behaviors that considered as unacceptable from others around the child.

**Depression:** A group of sad feelings that can have negative effects on individual's believes, thoughts, behaviors, and life well-being. When individual is depressed, he/she might feels anxious, helpless, sadness, fatigue and unable to control his/her life. For the purpose of the current study, high levels of depression might be considered as a normal reaction to daily life stressors and not necessarily for clinical purposes.

### Limitations of the Study

The small size of the sample may not be representative of the population of all parents of children with ADHD. Therefore, the results may not be generalized to all parents of children with ADHD or other behavioral and/or emotional disorders. However, the sample size in this study was similar to sample sizes reported in other studies (Arnold, 2004; Biederman, Faraone, Milberger, Guite, Mike, & Chen, 1996), and adequate for the purpose of the current study.

## METHODOLOGY

### Participants

The participants of the current study consisted of two groups, 76 for each. The first group (named ADHD group) consisted of 76 fathers and/or mothers of 48 ADHD children aged 6-12 years old, those children were enrolled in public school systems and receiving behavioral-psychological remediation services in diurnal special education center, all the children were diagnosed as having ADHD symptoms using Conners' Parent and Teachers Rating Scale. In this group, both fathers and mothers of 28 children, only mothers of 16 children, and only fathers of 4 children agreed to cooperate with the researcher by responding to the instruments of the study. The second group (named comparison group) consisted of parents of 76 father and/or mothers of 53 matched children aged 6-12 years old enrolled in public schools, no information about any behavioral and/or emotional disorders for the children in this group was recorded. In the comparison group, both fathers and mothers of 23 children, only mothers of 23 children, and only fathers of 7 children responded to the scales.

**Table 1:** Demographics of the Participants' According to Sex, Age, Educational Attainment and Years of Marriage

Group	Sex	Age *					Educational Attainment **					Years of Marriage ***				
		1	2	3	4	Total	1	2	3	4	Total	1	2	3	4	Total
ADHD	Male	0	21	8	3	32	0	8	23	1	32	9	21	31	15	76
	Female	14	17	8	5	44	2	18	24	0	44					
	Total	14	38	16	8	76	2	26	47	1	76					
Comparison	Male	1	18	9	2	30	3	17	8	2	30	11	23	32	10	76
	Female	16	21	6	3	46	1	21	23	1	46					
	Total	17	39	15	5	76	4	38	31	3	76					
<b>Cumulative Total</b>		<b>31</b>	<b>77</b>	<b>31</b>	<b>13</b>	<b>152</b>	<b>6</b>	<b>64</b>	<b>78</b>	<b>4</b>	<b>152</b>	<b>20</b>	<b>44</b>	<b>63</b>	<b>25</b>	<b>152</b>

Key of table 1:

\* Age 1: 31-36, 2: 37-41, 3: 42-46, 4:47-51years

\*\* Educational Attainment 1: below high school, 2: high school to below bachelors, 3: bachelors, 4: above bachelors

\*\*\* Years of Marriage 1: less than 10, 2:10-15, 3:15-20, 4: more than 20 years

Table 1 shows the participants distribution according to sex, age, educational attainment and years of marriage.

The ADHD group consisted of 76 participants, 32 were males with a percent of 42% of the group aged 37-50 years with a mean of 42.12 and standard deviation of 3.54. The females in this group were 44 with a percent of 58% aged 31-48 years with a mean of 38.93 and standard deviation of 5.26. For academic attainment in the ADHD group, only 5% of the females have degrees less than high school, 25% of the males and 41% of the females have high school degree, 72% of the males and 54% of the females have bachelors, and only 3% of the males have degrees above bachelors. For years of marriage, 9 of the participants were married for less than 10 years with percent of 12%, 21 participants were married for 10-15 years with a percent of 28%, 31 participants were married for 15-20 years with a percent of 41%, and 15 participants were married for more than 20 years with a percent of 19%.

The comparison group consisted of 76 participants, 30 males with a percent of 40% of the group aged 33-51 years with a mean of 41.33 and standard deviation of 3.6. The females in this group were 46 with a percent of 60% aged 31-50 years with a mean of 41.33 and standard deviation of 4.12. For academic attainment in the comparison group, 10% of the males and 2% of the females have degrees less than high school, 56% of the males and 45% of the females have high school degree, 28% of the males and 50% of the females have bachelors, and 6% of the males and 3% of the females have degrees above bachelors. For years of marriage, 11 of the participants were married for less than 10 years with percent of 15%, 23 participants were married for 10-

15 years with a percent of 30%, 32 participants were married for 15-20 years with a percent of 42%, and 10 participants were married for more than 20 years with a percent of 13%.

The cumulative totals of the ADHD group shows that 14 participants (18%) aged 31-36 years, 38 participants (50%) aged 37-41, 16 participants (21%) aged 42-46, and 8 participants (11%) aged 47-51 years. Also these totals shows that 2 participants (3%) have below high school degrees, 26 participants (34%) have high school, 47 participants (62%) have bachelors, and 1 participant (1%) has above bachelors' degree.

The cumulative totals of the comparison group shows that 17 participants (22%) aged 31-36 years, 39 participants (51%) aged 37-41, 15 participants (20%) aged 42-46, and 5 participants (7%) aged 47-51 years. Also these totals show that 4 participants (5%) have below high school degrees, 38 participants (50%) have high school, 31 participants (41%) have bachelors, and 3 participants (4%) has above bachelors' degree.

The cumulative totals of the two groups participated in this study shows that 31 participants (20%) aged 31-36 years, 77 participants (51%) aged 37-41, 31 participants (20%) aged 42-46, and 13 participants (9%) aged 47-51 years. Also these totals show that 6 participants (4%) have below high school degree, 64 participants (42%) have high school, 78 participants (51%) have bachelors, and 4 participants (3%) has above bachelors' degree.

## INSTRUMENTS

In order to assess levels of depression of parents of children with ADHD from parents' point of view in

comparison to non-ADHD parents, the researcher implemented the following scales:

### **Beck Depression Inventory, 2<sup>nd</sup> version (Beck, Steer, & Brown, 1996)**

One of the most preferable scales of depression for both clinical and non-clinical settings, it is a 21-items self rating scale, used to identify the common symptoms of depression using 4-point Likert scale from 0 to 3. In the responding procedures, the respondent is asked to read each item carefully and check the degree in which he/she believes that this degree apply to him/her (total degree may range from 0 to 63). This inventory is considered as screening tool, which has to be furthered evaluated to confirm the diagnosis of depression for clinical purposes, the researcher used this inventory to screen levels of depression based on self-report for non-clinical purposes.

### **Checking the Validity and Reliability of the Instrument**

For the purpose of this study, the inventory was translated to Arabic language; the translation was first proofread by Arabic language specialist for accuracy and clarity of the expressions. In order to ensure the validity of the Arabic version of the instrument for the purpose of the current study, the researcher consulted a group of eight referees specialized in special education and psychology at several Jordanian universities as evaluators for content validity of the inventory; an average agreement of 80-85% within the evaluators was achieved for the translation. Internal consistency was calculated for the inventory, the individual correlations for each item with the total degree of the inventory ranged from 0.62 to 0.85, the average inter-item correlation was 0.78 (Cronbach's  $\alpha = 0.87$ ). These indicators of reliability and validity coefficients were considered as satisfactory for using the instrument for the purpose of the study.

### **Demographic Variables Inventory**

An inventory was developed by the research for the purpose of the current study, it consists of a group of questions indicating variables such as the age of respondent in years, his/her gender, his/her educational attainment, and number of years of marriage for participants.

### **Data Collection**

Data were collected from parents of children with ADHD disorder in ADHD group and from parents of non-ADHD group as comparison group. Parents in both groups were contacted by diurnal special education centers and schools administrations and informed about the study

purposes, and they were asked kindly to respond to the instruments of the study.

### **Procedures**

Participants in both groups received Beck Depression Inventory and the demographic variables inventory with a covering letter asking both parents to respond to the instruments of the study individually, and explaining the correct way of responding. The ADHD group received the instruments and the covering letter through the diurnal special education centers, the comparison group received the instruments and the covering letter through the schools. The cover letter for both groups also assured that their responses to the instruments will be kept confidential, and the information collected from this study would be used for scientific purposes only, and will not be used for any other purpose than scientific research reasons.

### **Statistical Analysis**

To examine the hypotheses of the current study and answer its questions, all responses on the instruments were coded, entered and analyzed using the Statistical Package for Social Sciences (SPSS). The data collected were analyzed and then expressed through means and standard deviations. The t-test for an independent sample and one-way analysis of variance (ANOVA) were used as the main statistical techniques in the study. Means and standard deviations for the scores of both groups was extracted for the Beck Depression Inventory and demographic variables inventory, the variance of these means was checked to compare these means according to the variables of the study.

## **RESULTS**

This study aimed to explore levels of depression in parents of children diagnosed with ADHD; it was hypothesized that those parents will exhibit high levels of depression compared to parents of non-ADHD children. It's also was hypothesized that levels of depression in parents of children with ADHD would differ according to age, sex, educational attainment, and years of marriage. In what follows, the researcher presents the results of the research questions set for this study.

### **Results of the First Research Question**

The first research question addressed levels of depression in parents of ADHD children compared to parents of non-ADHD children. As raw degrees, means and (standard deviations) for scores of parents of children with ADHD on Beck's Depression Inventory were for males 20.5 (2.12) and for females were 29.8 (1.82).

**Table 2:** Participants' Scores on Beck's Depression Inventory According to Group

Group	Mean	Standard Deviation	Standard Error	F	Mean Square
ADHD	2.973	0.711	0.081	237.502**	109.480
Comparison	1.276	0.644	0.073		

Note: (n=76/group)

**Table 3:** Participants' Scores in ADHD Group for Depression According to Age

Age Group (years)	N	Mean	Standard Deviation	Standard Error	F	Mean Square
1 (31-36)	14	3.214	0.425	0.113	3.054*	1.428
2 (37-41)	38	2.736	0.760	0.123		
3 (42-46)	16	3.187	0.750	0.187		
4 (47-51)	8	3.250	0.463	0.163		

Note: n=76

\* p &lt; 0.05%

**Table 4:** Participants' Scores in ADHD Group for Depression According to Sex

Sex	N	Mean	Standard Deviation	Standard Error	t
Male	32	2.437	0.619	0.110	5.434**
Female	44	3.363	0.486	0.073	

Note: n=76

\*\* p &lt; 0.01%

For parents in comparison group, means and (standard deviations) for scores on Beck's Depression Inventory were for males 12.13 (1.3) and for females were 16.74 (2.73). In order to answer this research question, raw scores of parents of the two groups (ADHD group and comparison group) on Beck's Depression Inventory were converted to degrees as follows (raw score) degree/description: (1-10) 0/normal, (11-16) 1/mild, (17-20) 2/borderline, (21-30) 3/moderate, (31-40) 4/severe, and (above 40) 5/extreme, means and standard deviations of these scores are shown in [Table 2](#).

Table 2 shows that scores mean of depression for parents of ADHD children was 2.973 with a standard deviation of 0.711, whereas scores mean of depression for parents in comparison group was 1.276 with a standard deviation of 0.644, these differences were significant at ( $p < 0.01$ ). These results revealed that parents of children diagnosed with ADHD have higher levels of depression compared to parents of non-ADHD children; the differences in levels of depression between the two groups were significantly valid.

### Results of the Second Research Question

The second research question investigates if levels of depression in parents of ADHD children differ according to age; means and standard deviations for levels of depression are shown in [Table 3](#).

Table 3 shows that the highest mean for parents of ADHD children score on Beck's Depression Inventory according to age was for the fourth group aged 47-51 years ( $M=3.250$ ,  $SD=0.463$ ,  $n=8$ ) followed by the first group aged 31-36 years ( $M=3.214$ ,  $SD=0.425$ ,  $n=14$ ). The results revealed that differences in levels of depression in parents of children with ADHD according to age were significant ( $p < 0.05$ ).

### Results of the Third Research Question

The third research question investigates if levels of depression in parents of ADHD children differ according to sex; means and standard deviations for levels of depression are shown in [Table 4](#).



**Table 5:** Participants' Scores in ADHD Group for Depression According to Educational Attainment

Educational Attainment Group (description)	N	Mean	Standard Deviation	Standard Error	F	Mean Square
1 (below high school)	2	3.000	0.000	0.000		
2 (high school to below bachelors)	26	2.807	0.800	0.157	0.717	0.367
3 (bachelors)	47	3.063	0.672	0.098		
4 (above bachelors)	1	3.000	.	.		

Note: n=76,  
\* p <0.05%

**Table 6:** Participants' Scores in ADHD Group for Depression According to Years of Marriage

Years of Marriage Group (description)	N	Mean	Standard Deviation	Standard Error	F	Mean Square
1 (less than 10 years)	9	2.000	0.707	0.235		
2 (10-15 years)	21	2.571	0.507	0.110	24.413**	6.379
3 (15-20 years)	31	3.258	0.444	0.079		
4 (more than 20 years)	15	3.533	0.516	0.133		

Note: n=76  
\*\* p <0.01%

Table 4 shows that the mean score on Beck's Depression Inventory for mothers of ADHD children was (M=3.363, SD=0.486, n=44) which is higher than the mean for fathers of ADHD children (M=2.437, SD=0.619, n=32). The results revealed that differences in levels of depression in parents of children with ADHD according to sex were significant at ( $p < 0.01$ ).

### Results of the Forth Research Question

The forth research question investigates if levels of depression in parents of ADHD children differ according to educational attainment; means and standard deviations for levels of depression are shown in Table 5.

Table 5 shows that the highest mean for parents of ADHD children score on Beck's Depression Inventory according to educational attainment was for the forth group whom has bachelors (BA degrees) (M=3.063, SD=0.672, n=47) followed by the first and forth groups whom have degrees less than high school for the first group (M=3.000, SD=0.000, n=2) and degrees above bachelors for the forth group (M=3.000, n=1), whereas the second group whom has degrees more than high school and less than bachelors (M=2.807, SD=0.800, n=26) has the lowest mean. Despite these virtual differences, these results were not significant ( $p=0.545$ ,  $\alpha < 0.05$ ) and there were no significant differences in levels of depression in parents of children with ADHD according to educational attainment.

### Results of the Fifth Research Question

The fifth research question investigates if levels of depression in parents of ADHD children differ according to years of marriage; means and standard deviations for levels of depression are shown in Table 6.

Table 6 shows that the highest mean for parents of ADHD children score on Beck's Depression Inventory according to years of marriage was for the forth group whom participants were married for more than 20 years (M=3.533, SD=0.516, n=15) followed by the third group whom participants were married for 15-20 years (M=3.258, SD=0.444, n=31). The results revealed that differences in levels of depression in parents of children with ADHD according to years of marriage were significant at ( $p < 0.01$ ).

### DISCUSSION

The current study aimed to investigate levels of depression in parents of children with attention deficit hyperactivity disorder in comparison to control group. The study also investigated weather levels of depression in parents of children with ADHD differ according to age, sex, educational attainment, and years of marriage.

In general, the results revealed that parents of children with ADHD have significantly higher levels of depression

compared to parents in control group, the mean score of depression as perceived by parents of children with ADHD was 2.97 compared to mean of 1.27 in controls using Beck's Depression Inventory. These results are consistent with results reviewed in the literature, (Kashdan, Jacob, Pelham, Lang, Hoza, Blumenthal, & Gnagy, 2004; Harrison, & Sofronoff, 2002) which indicated that raising a child with ADHD would have negative effects on parents' mental health, and that challenges facing those parents in raising ADHD child would exacerbate parenting inadequacies and social difficulties as those parents would have feelings of losing control on their own child's disruptive behavior (Cunningham, Bennes, & Siegel, 1998).

Taking in consideration that parent of ADHD children perceives family context as less supportive and more stressful environments, these attitudes and beliefs from those parents would exacerbate levels of depression. On the other hand, and returning back to the theoretical background of Beck's Depression Inventory, which indicated that having high degree of depression in this inventory doesn't necessarily means that those parents are depressed individuals as much as it may be explained as those parents are more vulnerable to develop depression symptoms than others. This susceptibility to have depression symptoms will be duplicated in irritated situations such as, in this case, facing a disruptive behavior from an ADHD child (Wells, Epstein, Hinshaw, Conners, Klaric, Abikoff, 2000).

Levels of depression in parents of children with ADHD was significantly correlated with age of parents, results showed that the higher levels of depression was for oldest parents in participation. These results doesn't necessarily explain in definite and inevitable way high levels of depression in those older parents as causative result of being a parent of ADHD child, but it mostly says that the combination of daily living stressors and being force to face the sequences of disturbed behavior of child with ADHD may – subsequently – exacerbate the manifestation of depression symptoms in those parents (Leblane, 2004; Cunningham, Bennes, & Siegel, 1998). Interestingly, the second high levels of depression were for the youngest parents, differences in the means were less than 0.036, one may expect that those parents whom facing a child whom was recently diagnosed with ADHD are facing unfamiliar patterns of disturbed behaviors from their ADHD child, these troubled behavior were not of the familiar kind of behaviors an individual may expect for the child when he was born (Kashdan, Jacob, Pelham, Lang, Hoza, Blumenthal, & Gnagy, 2004; Leblane, 2004; Cunningham, Bennes, & Siegel, 1998).

Similar results appeared for levels of depression according to years of marriage, this can simply be understood as the longest parents were forced to face disruptive behaviors of their child, the highest levels of depression they might have (Zeng, North, & Kent, 2012). In this regard, a notable result showed that parents whom

were married for less than ten years exhibit the least level of depression. This result might appear to be discrepant with previous result in which the second high levels of depression were of the youngest group according to age. This virtual discrepancy might be understood if we know that there is no necessarily relation between age and years of marriage, i.e., young parents may have years of marriage that is much more than older parents who were married in late age.

As expected in the literature review (Zeng, North, & Kent, 2012), and as mothers of children with ADHD are – unlike fathers – in direct contact with their disturbed children all the day, levels of depression for mothers were higher than those for fathers. This is in one hand; on the other hand, it seems that levels of depression were not affected by educational attainment for parents. In other words, and despite of levels of education the parents may have, they are facing same challenges in dealing with a disturbed child with ADHD.

## CONCLUSION

Raising an ADHD child has numerous challenges due to the disturbed behavior of this child, (Harrison, & Sofronoff, 2002) suggested that children with ADHD can have adverse effects on parents' mental health.

The disruptive behaviors of this child would affects parents in many ways, parents may found themselves incapable to deal with these inappropriate maladaptive behaviors of the child. (Kashdan, Jacob, Pelham, Lang, Hoza, Blumenthal, & Gnagy, 2004) indicated that raising child with ADHD may exacerbate parenting social difficulties, and those parents perceive their family environments as less supportive and more stressful. Thus, (Wells, Epstein, Hinshaw, Conners, Klaric, Abikoff, 2000) indicated that inadequate parenting behaviors may not only result from parents' own symptoms of distress, but also from the characteristics of their ADHD children.

The signs of negative psychological effects of raising an ADHD child might carry over into parenting behaviors, particularly in situations where parents are forced to confront ADHD children who are non-compliant, argumentative and defiant. Those parents are experiencing feelings of losing control and inefficiency to raise the child; this will increase levels of depression in those parents.

Therefore, parental behaviors would exacerbate the symptoms of ADHD in child, and the parents' reactions to child's disruptive behaviors would produce additional complications in parent-child relationships and family environment. (Kashdan, Jacob, Pelham, Lang, Hoza, Blumenthal, & Gnagy, 2004) indicated that depressive symptoms are greater in parents of children with disruptive behavior disorders in comparison to parents of non-disturbed children.

## Implications for Future Research

As the results suggest that levels of depression in parents of ADHD children are higher than those in comparison group, it is not clear how these levels may affect functioning in those parents, therefore, an additional attention to the clinical symptoms of levels of depression is should be, specifically, toward understanding the way they may affect family functioning of those parents over time.

These results also have important educational implications. First, we need to ensure that behind any child with special need there is a family with special need, therefore, additional efforts should be directed toward parents of children with ADHD as they are forced to deal with the disruptive behavior of the child and its consequences. These efforts may include but not limited by family counseling, training programs, group sessions and peers support discussions. Second, teachers and educators of children with ADHD should empower parents with strategies to deal with disruptive behaviors of their child, i.e., parents should be part of any remedial intervention with ADHD child. Third, any positive improvements in the behavior of ADHD child must be amplified and shared with parents as an indicator that ADHD child is capable to change toward the best; this might have positive impact on the psychological well-being of the parents.

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