

## Common Childhood Psychiatric Disorders with Prevalence of Attention Deficit Hyperactive Disorder (ADHD)

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## Abstract

**Background:** ADHD is an early onset, highly prevalent neurobehavioral disorder, with genetic, environmental and biological etiologies that persist into adolescence and adulthood in a sizeable majority of afflicted children and adolescents. It is characterized by inattention, hyperactivity and impulsivity across the life cycle and is associated with considerable morbidity and disability.

**Objective:** To study the most prevalent psychiatric disorders affecting children and adolescents during 5 years from 2008 to 2012 attending special needs center, and to estimate the prevalence of ADHD cases among psychiatric disorders.

**Methodology:** Retrospective study {phase one}. Prospective study {phase two}. Group (A): 25 newly diagnosed cases of ADHD receiving behavioral therapy and stimulant medication (methylphenidate capsules with a total dose of 1mg/kg/day in the form of long acting capsules. The total dose was between (20- 60) mg. Group (B): 25 cases of ADHD receiving behavioral therapy and non stimulant medications (atomoxetine capsules with a total dose of 1mg/ kg/ day). All children in this study were subjected to: Full history taking and thorough clinical examination. IQ level Stanford-Binet Intelligence Scales V (SB 5). Conners Rating Scales Conners Parent Rating Scale-Revised- Long Version (CPRS-R: L). A written consent were obtained from the special needs center to use the recorded data. Secrecy and privacy of patient's data.

**Results:** The Prevalence rate of ADHD with total number of 10800 children was 10.2%. Methylphenidate (Group A) is more effective than atomoxetine (Group B) as regard hyperactivity ( $P= 0.025$ ), impulsivity ( $P=0.002$ ) and learning disability ( $P= 0.018$ ). There are positive correlations between hyperactivity versus learning disability and anxiety versus psychosomatic disorder. there was no significant statistical difference between both groups as regard total IQ and different IQ items.

**Conclusion:** Atomoxetine [non stimulant] is effective in management of ADHD symptoms especially inattention. But its efficacy in management of impulsivity and hyperactivity is less than stimulant drug [methylphenidate].

**Keywords:** Psychiatric, Children, Risk factors, Prevalence, ADHD, Atomoxetine, Methylphenidate.

## دراسة للأمراض النفسية الشائعة واضطراب فرط الحركة ونقص الانتباه

## للأطفال المتردد بين على مركز الأطفال ذوي الاحتياجات الخاصة والعيادات الخارجية لمعهد الدراسات العليا للطفولة

**مقدمة:** اضطراب فرط الحركة ونقص الانتباه هو أحد أكثر الأمراض شيوعاً في الأطفال، وعلى الرغم من هذا لا تزال بعض المعلومات الأساسية بشأن هذا المرض غير معلومة مثل مدى انتشار المرض ومدى درجه تأثر هذه الانتشار بالعوامل المختلفة مثل العنصر، الجنس، السن والحالة الاقتصادية واحد أسباب هذه الحالة هو صعوبة تشخيص هذا المرض مما يؤدي إلى صعوبة تحديد تعريف من الناحية الوبائية للمرض.

**الهدف:** تهدف هذه الدراسة إلى دراسة الجوانب المختلفة لعلم الأوبئة واضطراب فرط الحركة ونقص الانتباه، وتوفير مزيد من المعلومات حول انتشار هذا الاضطراب، ومدى انتشار اضطراب فرط الحركة ونقص الانتباه في الأطفال (4- 12) سنة، وأى تدخلات دوائية في علاج الذين يعانون من اضطراب فرط الحركة ونقص الانتباه.

**تصميم الدراسة:** اضطراب فرط الحركة ونقص الانتباه من العيادة الخارجية لكلية الدراسات العليا للطفولة- جامعه عين شمس. اجراء مقابلة مع الأطفال المصابون باضطراب فرط الحركة بالإضافة إلى اجراء اختبار الذكاء، تم التشخيص على أساس شروط الدليل التشخيصي والأحصائي للأمراض النفسية الأمريكي في طبعته الرابعة DSM-IV، وإجراء مقابلة مع الأطفال المصابون باضطراب فرط الحركة ونقص الانتباه ودوهم بالإضافة إلى اجراء اختبار الذكاء ومقارنته النتائج. وجرت هذه الدراسة في العيادة الخارجية لكلية الدراسات العليا للطفولة- جامعه عين شمس. تم التشخيص في العيادة الخارجية على أساس شروط الدليل التشخيصي والأحصائي للأمراض النفسية الأمريكي في طبعته الرابعة DSM-IV لاضطراب فرط الحركة ونقص الانتباه" ومن طبق عليهم شروط التشخيص حيث خضعت جميع الحالات للفحوصات الآتية مقابلة الطفل وعمل فحص طبي شامل، وعمل اختبار ذكاء لجميع الأطفال، ومعايير الاشتمال: السن من 4 إلى 12، وإن يعاني الطفل بشكل أساسي من اضطراب فرط الحركة ونقص الانتباه على أساس الدليل التشخيصي والأحصائي للأمراض النفسية الأمريكي في طبعته الرابعة.

**النتائج:** كان إجمالي العينة من مجموعة الدراسات 10800 مريض التي كان من بينها عدد من الآتي تم فحصين. وبلغ عدد الحالات التي تم تشخيصها 1101 من العينة الكلية 10800 مما يؤدي إلى معدل انتشار 10.2%، وبلغ متوسط معدل الذكاء من الحالات التي تم تشخيصها 97.3.

**Introduction:**

ADHD is a disorder that manifests in childhood with symptoms of hyperactivity, impulsivity, and/ or inattention. This disorder affects cognitive, academic, behavioral, emotional, and social functioning. The prevalence of ADHD in children varies from 2 to 18 percent depending upon the diagnostic criteria and the population studied. The prevalence rate in school-age children is estimated to be between 8 and 10 percent, making it one of the most common disorders of childhood (Poyle et al., 2011).

ADHD is an early onset, highly prevalent neurobehavioral disorder, with genetic, environmental and biological etiologies that persist into adolescence and adulthood in a sizeable majority of afflicted children and adolescents of both sexes (Nijmeiger et al., 2008). It is characterized by behavioral symptoms of inattention, hyperactivity and impulsivity across the life cycle and is associated with considerable morbidity and disability (Spencer et al., 2007).

**Objective:**

The aim of the present study is to study the most prevalent psychiatric disorders affecting children and adolescents during 5 years from 2008 to 2012 attending special needs center and estimate the prevalence of ADHD cases among psychiatric disorders and Comparison of two lines of management of ADHD.

**Methodology:**

Retrospective study (phase one), Prospective study (phase two).

The present study is a clinical trial randomized study that was conducted on 50 patients who were following up at the outpatient clinics of center of special needs, Faculty of Postgraduate Childhood Studies, Ain Shams University. By the standardized psychiatric evaluation they were diagnosed as ADHD according to DSM V.

The studied children were divided into two main groups:

- ✧ Group (A): newly diagnosed cases of ADHD receiving behavioral therapy and stimulant medication (methylphenidate capsules with a total dose of 1mg/ kg/ day in the form of long acting capsules. The total dose was between (20- 60) mg.
- ✧ Group (B): cases of ADHD receiving behavioral therapy and non stimulant medications (atomoxetine capsules with a total dose of 1mg/ kg/ day).

All children in this study were subjected to:

1. Full history taking and Thorough clinical examination.
2. IQ level Stanford-Binet Intelligence Scales V (SB 5).
3. Conners Rating Scales Conners Parent Rating Scale-Revised- Long Version (CPRS-R: L) to assess the severity of symptoms of ADHD as reported by parents (El Sheikh et al., 2003).

**Statistical Methods:**

Data was collected, tabulated and statistically analyzed using SPSS r package version 12.0. (SPSS, 2011).

**Ethical Aspects:**

A written consent were obtained from the special needs center to use

the recorded data. Secrecy and privacy of patient's data.

**Results:**

Table (1) shows that ADHD is prevalent among Egyptian children and its prevalence rate is 10.2% among studied population.

Table (1) The prevalence of the most common psychiatric disorders in studied cases.

Diagnosis	Percentage%	No Of Cases
F80(Specific developmental disorders of speech and language	23.5	2538
G80 Infantile Cerebral Palsy	17.3	1873
F90 Adhd	10.2	1101
F81 Specific developmental disorders of scholastic skills.	8	871
R62 Delayed Milestone In Childhood	4.9	533
R45.6 Violent Behavior	4.85	524
Q90 Down Syndrome	3.6	390
G93.0 Other disorders of brain	3.2	350
R41.83 Borderline intellectual functioning	3.1	345
F84.9 Pervasive developmental disorder, unspecified	3	326

Table (2) shows that there were significant statistical difference between both groups as regard hyperactivity, impulsivity and learning disability. This means that methylphenidate is more effective than atomoxetine as regard these items.

Table (2) Conners Distribution among studied cases

Conners	group	N	Mean	SD	SE	T Test	P Value
Conduct Disorders	Group 1	25	51.32	6.053	1.211	-.498	0.621
	Group 2	25	52.36	8.504	1.701		
Conners Learning Disability	Group 1	25	51.04	5.200	1.040	-2.45	0.018*
	Group 2	25	54.48	4.709	.942		
Coners Psychosomatic	Group 1	25	41.84	3.363	.673	-.661	0.512
	Group 2	25	42.72	5.748	1.150		
Conners Impulsiveness	Group 1	25	49.68	6.774	1.355	-3.28	0.002*
	Group 2	25	55.32	5.266	1.053		
Conners Anxiety	Group 1	25	49.48	7.332	1.466	.551	0.584
	Group 2	25	48.20	9.014	1.803		
Conners Hyperactivity	Group 1	25	50.96	4.247	.849	-2.31	0.025*
	Group 2	25	53.56	3.675	.735		

There are positive correlations between hyperactivity versus learning disability and anxiety versus psychosomatic disorder.

**Discussion:**

The prevalence of ADHD in the studied population including 10,800 children was 10.2%. The estimated prevalence of 10.2% is in accordance with reported prevalence of 2 to 14% among school-age children from other parts of the world (Scahill & Schwab-Stone, 2000). Similar rates were reported by Visser et al. (2007) among US youth aged 4 to 17 years (7.8%), by O'Leary et al. (1985) in Italy (7.6%), by Andres-Carrasco et al. (1995) in Spain (8.0%).

The prevalence of ADHD in a sample of primary school children was 8.7% in Nigeria, 9.4% in Qatar and 10.15% in Venezuela (Adewuyi & Famuyiwa, 2007; Bener et al., 2006). However, it was found to be higher than that of Kashani et al. (1989) of 2.9% among 4811 candidates aged 12 years old.

The ADHD prevalence rate was 3.3% reported by Breton et al. (1999) on a (6- 14). Guilherme et al. (2007) studied meta analysis of 171756 subjects from all world regions were included resulting in the ADHD

worldwide-pooled prevalence of 5.29%.

In this study the mean age of diagnosed cases was 9.45 years which is similar to that reported by Froehlich et.al. (2007). Similar results by Bauermeister et.al. (2007) among children aged 4 to 17 in a representative community sample (N= 1896) in Puerto Rico which resulted a mean age of diagnosed cases to be 10.5 years.

The mean IQ of the diagnosed cases of ADHD was within average namely 97.1 for phase (1) and 96.6. These results are similar to Kevin Antshel et.al. (2006) who concluded that ADHD children are within the province of normal IQ.

Stimulants are the line treatment for ADHD and include methylphenidate and amphetamines. (Pliszka, 2007). Both types of stimulants block the reuptake of DA and norepinephrine (NE) into the presynaptic neuron, and amphetamines also promote the release of DA and NE into the extraneuronal space. Atomoxetine, an FDA-approved, non-stimulant, second-line medication for ADHD, blocks the NE transporter, which also takes up DA in the prefrontal cortex (PFC), thus increasing concentrations of both DA and NE in the PFC. Other non-stimulant agents approved for ADHD include the alpha 2-adrenergic agonists, clonidine and guafacine, which mimic the effect of NE on alpha 2-adrenergic receptors in the PFC (Prince, 2008).

Our study revealed that Atomoxetine (non stimulant) is effective in management of ADHD symptoms especially inattention. But its efficacy in management of impulsivity and hyperactivity is less than stimulant drug (Methylphenidate).

**Conclusion:**

ADHD is a highly prevalent disorder in childhood in Egyptian population. The prevalence rate in a community based sample reaching 10.2%. The IQ of the ADHD affected subjects was within the normal range in both the community based sample and the clinic oriented sample. Atomoxetine (non stimulant) is effective in management of ADHD symptoms especially inattention. But its efficacy in management of impulsivity and hyperactivity is less than stimulant drug (Methylphenidate).

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