

# Teachers as partners in the diagnosis of attention deficit/hyperactivity disorder among kindergarten children

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Received 21 June 2015

Accepted 23 July 2016

Middle East Current Psychiatry  
2016, 23:175–178

## Background

Attention deficit/hyperactivity disorder (ADHD) is a public health concern affecting about 7% of the school-age population.

## Aim

The present study aimed at screening for ADHD among kindergarten children as a part of early detection in school settings.

## Participants and methods

A total of 153 children were assessed by their teachers (56.9% boys and 43.1% girls) and 133 (86.9%) children by their parents using the teacher/parent ADHD screening scales (kindergarten versions). Further assessments – both parent and teacher assessments – were carried out for positive cases (18 children) using the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV) criteria for ADHD and the Stanford–Binet Intelligence Scale 4th ed.

## Results

Twelve (10 boys and two girls) preschool children fulfilled the DSM-IV criteria for the diagnosis of ADHD (five KG I and seven KG II children); 2 cases were diagnosed with mild mental retardation and two cases belonged to borderline intelligence quotient (IQ) category. Overall, 6–10 ADHD cases were having more than two functional problems (reading, understanding, expressive language, mathematical abilities).

## Conclusion

Overall, 7.8% of the children included in the present research were ADHD cases. An early diagnosis is a priority in kindergarten stage for better management and follow-up.

## Keywords:

ADHD, parent/teacher assessment, preschoolers

Middle East Curr Psychiatry 23:175–178  
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2090-5408

## Introduction

Attention deficit/hyperactivity disorder (ADHD) is considered the most common neurobehavioral disorder in children. The number of boys with ADHD exceed girls with a male to female ratio of 3:1 [1].

Previously conducted population surveys, using the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV), suggest that ADHD occurs in most cultures in about 5% of children and about 2.5% of adults. Many parents first observe excessive motor activity when the child is a toddler, but it is difficult to distinguish symptoms from highly variable normative behaviors before age 4. In preschool children, the main manifestation is hyperactivity. Inattention becomes more prominent during elementary school [2].

Early diagnosis of common behaviors experienced in relation to ADHD is usually accompanied by reduction in oppositional and aggressive behaviors; reduction in hyperactive-impulsive behaviors; improvement in parent-child interaction and family function; and better preschool and school functioning. Problems in such behaviors represent some of the core disabilities experienced by children with ADHD and their families and may lead to

later problems in cognitive, social, and emotional development [3].

The aim of the present research was to screen for ADHD among kindergarten children as part of early detection and management in school settings.

## Participants and methods

### Participants selection

The present research was conducted in the Faculty of Education, Helwan University, which is a field training school of kindergarten teachers. Preresearch consent was obtained from the school administration.

### Inclusion criteria

All kindergarten children of Abou-Bakr Al-Sedek experimental school were subjected to the assessment (six classes: three KG I and three KG II) (academic year: 2012–2013) by their teachers and parents after obtaining their legal consent. Following data were obtained:

- (1) Number of schools = 1.
- (2) Number of teachers = 6.

**Table 1** Number and percentages of children assessed

Assessment	Participants [n (%)]	Males		Females	
		n (%)	Positive (%)	n (%)	Positive (%)
Assessment 1	153 (100)	87 (56.9)	19 (12.4)	66 (43.1)	7 (4.5)
Assessment 2	133 (86.9)	73 (54.8)	16 (12.0)	60 (45.1)	4 (2.6)
Assessment 3	17 (11.1)	Total= 73	14 (19.1)	Total =60	3 (5.0)
	Total= 133				
Assessment 4	18 (11.8)	14 (16.0)	10 (11.4)	4 (6.06)	2 (3.03)
	Total= 153	Total=87/133		Total=66/133	

Assessment 1 =teacher’s rating (includes all children in kindergarten stage).  
 Assessment 2=parent’s rating (includes parents who completed their assessment).  
 Assessment 3=positive cases in assessments 1 and 2.  
 Assessment 4=clinical assessment for all positive cases according to the teachers whose parents accepted to complete the clinical assessment.

- (3) Number of coteachers = 12.
- (4) Number of preschool students = 153.

**Exclusion criteria**

All children were assessed by their teachers and only 133 were assessed by their parents without any legal considerations (i.e. delayed parental response).

**Tools**

- (1) Teacher ADHD screen checklist (kindergarten version).
- (2) Parent ADHD screen checklist (kindergarten version). Both the screening tools mentioned above were drafted by the researcher. They were reviewed professionally before their use. The screening tools comprised two parts (10 items each; total= 20 items). Part I comprised 10 items assessing common ADHD symptoms in kindergarten children. Part II comprised 10 items assessing the symptoms of differential diagnosis of ADHD according to the DSM-IV. Positive cases had to be positive in part I and negative in part II. According to the teacher ADHD screen checklist (kindergarten version), children with a score of more than or equal to 5 in part I and less than or equal to 5 in part II were considered as positive and were subjected to further clinical investigation. According to the parent ADHD screen checklist (kindergarten version), children with a score of more than or equal to 6 in part I and less than or equal to 5 in part II were considered as positive and were subjected to further clinical investigation. Validity and reliability of teacher/parent ADHD screen checklists (kindergarten version) were assessed. The present scale was considerably highly valid for the age group under investigation (most of the items had a validity score >0.5). When the reliability was calculated using commonality ( $h^2$ ), the scale was highly to moderately reliable for this age group (commonalties of each item above 0.4).
- (3) Clinical assessment using semi structured interview sheet and psychiatric assessment using DSM-IV criteria, which were used to diagnose ADHD [4], as well as visual, auditory, and sensorimotor problems. Positive cases according to teachers’ rating alone and

**Table 2** Attention deficit/hyperactivity disorder participants according to sex, school grade, *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. subtype, and intelligence quotient

Cases	Sex		Class		DSM-IV subtype	IQ
	Male	Female	KG I	KG II		
1	✓		✓		3	94
2	✓		✓		3	98
3	✓			✓	3	91
4	✓			✓	1	96
5	✓		✓		1	101
6	✓			✓	1	98
7	✓			✓	2	77
8	✓			✓	3	96
9	✓			✓	2	95
10	✓		✓		3	95
11		✓		✓	1	62
12		✓	✓		1	88

DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed.; IQ, intelligence quotient.

- according to those of both teachers and parents were subjected to clinical assessment.
- (4) Stanford–Binet Intelligence Scale, 4th ed. [5]: it was used for positive clinical cases only.

Functional assessment was conducted by both teachers and parents: they were asked to judge the child behavior on a three-point scale (average/below average/above average); the below average cases were either mildly or moderately or severely impaired.

All steps of the assessment were carried out by the researchers with help of a clinical psychologist for IQ assessment.

**Procedures**

Teachers and parents were asked to assess children for ADHD using the teacher/parent ADHD screen checklist (kindergarten version) and the parent ADHD screen checklist (kindergarten version), respectively. Kindergarten children diagnosed as disruptive according to both teachers and parents and teachers alone were subjected to clinical interview and assessment. Clinically significant cases were subjected to assessment for mental abilities using the Stanford–Binet Intelligence Scale, 4th ed.

**Table 3 Academic abilities of attention deficit/hyperactivity disorder cases**

Abilities	Number of ADHD participants (total= 12 participants)					
	Below average		Average ability		Above average	
	Teacher rating	Mother rating	Teacher rating	Mother rating	Teacher rating	Mother rating
Reading	10	7	–	3	2	2
Math	10	7	–	3	2	2
Understanding	10	8	–	3	2	1
Expressive language	9	6	1	5	2	1

ADHD, attention deficit/hyperactivity disorder.

**Table 4 Functional impairment as rated by both teachers and parents according to its severity**

Abilities	Degree of impairment [n (%)]					
	Teacher rating			Parents rating		
	Severe	Moderate	Mild	Severe	Moderate	Mild
Reading	2 (16.7)	4 (33.3)	4 (33.3)	1 (8.3)	2 (16.7)	4 (33.3)
Mathematics	1 (8.3)	5 (41.7)	4 (33.3)	1 (8.3)	2 (16.7)	34 (3.3)
Understanding	2 (16.7)	6 (50.0)	2 (16.7)	1 (8.3)	4 (33.3)	3 (25.0)
Expressive language	2 (16.7)	3 (25.0)	4 (33.3)	1 (8.3)	1 (8.3)	4 (33.3)
Making friends	3 (25.0)	6 (50.0)	1 (8.3)	2 (16.7)	4 (33.3)	0 (0)
Obedience	3 (25.0)	6 (50.0)	2 (16.7)	6 (50.0)	3 (25.0)	0 (0)
Keeping quiet	4 (33.3)	4 (33.3)	2 (16.7)	4 (33.3)	3 (25.0)	2 (16.7)
Ending tasks	4 (33.3)	5 (41.7)	3 (25.0)	4 (33.3)	2 (16.7)	2 (16.7)
Homework	1 (8.3)	7 (58.3)	3 (25.0)	3 (25.0)	6 (50.0)	1 (8.3)
Exposure to accidents	1 (8.3)	3 (25.0)	2 (16.7)	2 (16.7)	4 (33.3)	3 (25.0)

**Results**

A total of 153 preschool children were assessed by their teachers (the first step) using the teacher ADHD screen checklist (kindergarten version). Their parents were asked to carry out the same assessment using the parent ADHD screen checklist (kindergarten version). Only 133 parents (mother/father) agreed to carry out such an assessment. According to the teachers (assessment 1), out of 87 boys and 66 girls, 19 boys and seven girls were positive for ADHD (12.4 and 4.5%, respectively); and according to the parents, 16 boys and four girls were positive (12 and 2.6%, respectively) (assessment 2). Positive ADHD cases both in school and at home represented 19.1 and 5% of boys and girls, respectively (14 boys and three girls) (assessment 3).

Positive ADHD cases according to the teachers were clinically assessed (14 boys and four girls) (assessment 4). Only 10 boys and two girls were considered to be clinically significant ADHD cases (Table 1).

Twelve preschool children (five KG I and seven KG II; mean age: 5.58 years 6.66 months 14.08 days) fulfilled the DSM-IV criteria for ADHD of all its subtypes (10 boys and two girls). Ten of them belonged to the average IQ category, one to borderline, and two to mild mental retardation category according to the Stanford-Binet Intelligent scale, 4th ed. Five (three boys and two girls) cases were diagnosed as having ADD (type 1); two (two boys) cases were diagnosed as hyperactive/impulsive (type 2), and five (five boys) cases were diagnosed as combined ADHD (type 3); the majority of these were KG II students (seven KG II and five KG I children) (Table 2).

According to the teachers' ratings, most of the ADHD participants were below average in academic abilities in reading, mathematics, understanding, and expressive language. Two cases were rated above average according to both teachers' and mothers' ratings: one boy with mixed ADHD type and average mental abilities; and one girl with borderline mental ability and diagnosed as ADD (Table 3).

Functional impairment was assessed by both teachers and parents. According to teachers' ratings, severe functional impairment was obvious among 33.3% of the ADHD children in the form of inability of keeping quiet and completing school tasks; among 25% in making friends and obedience; among 16.7% in academic problems such as reading, understanding, and expressive language; and among 8.3% in mathematics, homework, and exposure to accidents. On the other hand, moderate impairment was found among 58.3% in homework; among 50% in understanding, making friends, and obedience; among 41.7% in mathematics and ability to complete school tasks; among 33.3% in reading and keeping quiet; and among 25% in expressive language and exposure to accidents.

According to parents' ratings, functional impairment was severe in being obedient (50%); keeping quiet and ending tasks (33.3%); homework (25%); making friends and exposure to accidents (16.7%); and in reading, mathematics, understanding, and expressive language (8.3%). In addition, moderate impairment was detected while doing homework (50%); understanding, making friends, and exposure to accidents (33.3%); obedience and keeping quiet (25%); and reading, mathematics, and completing tasks (16.7%).

Mild impairment as rated by both teachers and parents was mainly academic in 33.3% of the ADHD cases (in reading, mathematics, and expressive language). Teachers rated 25% of the ADHD cases as problematic in completing tasks and doing their homework with mild degree. Overall, 16.7% were having mild problems in understanding, obedience, keeping quiet, and exposure to accidents; and 8.3% had difficulties in making friends. On the other hand, parents rated 25% of their children as having mild problems in understanding and exposure to accidents; and 16.7% in keeping quiet and completing tasks. Only 8.3% (one child) had mild problems with homework (Table 4).

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## Discussion

Disruptive behavior problems are the most common reason for mental health referral of preschool children and these problems are often persistent and impairing [6,7]. ADHD screening is not delivered as a part of comprehensive medical assessment and examination by school health sector (Health Insurance Organization), which is conducted as a routine at the beginning of each educational stage.

As there is no single test to diagnose a child as having ADHD, a health professional needs to gather information about the child through his or her behavior and environment including the school, from child's home and school settings for stressful or disrupted environment, and also from the child's parents and teachers, coaches, babysitters, and other significant adults.

Teachers and parents are considered as the most easily approachable source of information and best observers for children behaviors. Much effort is lacking to get the best results as sources of information and referral.

The present research diagnosed 12 (10 boys and two girls) preschool children who fulfilled the DSM-IV criteria for the diagnosis of ADHD (five KG I and seven KG II). Two cases were diagnosed with mild mental retardation and one case had borderline IQ. They represented 7.8% of the total preschool children regularly attending school.

ADHD is more frequent among males than among females, with a male to female ratio of ~2:1 among children. Females are more likely to present primarily with the inattentive type of ADHD [2]. All female cases belong to the ADD type. Situational ADHD could explain the higher number of males in relation to females diagnosed as ADHD.

In the present study, 6–10 ADHD cases were having more than two functional problems (reading, understanding,

expressive language, and mathematical abilities). More than or equal to 25% of the ADHD cases were having severe functional impairment related to obedience, ending tasks, keeping quiet, making friends, and completing home assignments. Overall, 50% parents of the ADHD children showed poor parenting skills assessed as disobedience. According to DSM-IV, ADHD is associated with reduced school performance, unsatisfactory academic attainment, and social rejection. Family relationships may be characterized by discord and negative interactions. In addition, peer rejection and neglect is common [2].

Helping teachers and parents in developing their own skills related to understating normal preschool behaviors, and developing their observation, assessment as well as intervention skills is crucial.

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## Conclusion

Overall, 7.8% of the children included in the present research were ADHD cases. Early diagnosis is a priority in the kindergarten stage for better management and follow-up, and should be included as a part of comprehensive medical assessment and examination conducted by the school health sector (Health Insurance Organization) in all Egyptian schools.

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## Acknowledgements

### Conflicts of interest

There are no conflicts of interest.

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## References

- 1 Abdeldayem H, Selim O. Cognitive function and skills' performance of children with attention deficit disorder. *Int J Ch Neuropsychiatry* 2005; 2:119–126.
- 2 American Psychiatric Association. *Diagnostic and Statistical Manual for Mental Disorders*, 5th ed. Washington, DC: American Psychiatric Association; 1994.
- 3 Hazell P. Attention deficit hyperactivity disorder in preschool aged children. In: Kosky R, O'Hanlon A, Martin G, Davis C, editors. *Clinical approaches to early intervention in child and adolescent mental health Vol 1*. Adelaide: Australian Early Intervention Network for Mental Health in Young People; 2000.
- 4 American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. Washington, DC: American Psychiatric Association; 1994.
- 5 Melika L. *Stanford Binet Arabic version*, 4th ed. Cairo, Egypt: Al-Nahda Al-Arabia co.; 1998.
- 6 Campbell S. *Behavior problems in preschool children: clinical and developmental issues*, 2nd ed. New York, NY: Guilford Press; 2002.
- 7 Wakschlag L, Danis B. Assessment of disruptive behavior in young children: a clinical-developmental framework. In: DelCarmen- Wiggins R, Carter AS, editors. *Handbook of infant, toddler and preschool mental health assessment*. New York, NY: Oxford University Press; 2004. pp. 421–440.