

Pragmatic Language Difficulties in Children with Attention-Deficit/ Hyperactivity Disorder

Original
Article

Maha H Boshnaq, Eman AF Abdalla and Sabah M Hassan

Department of Phoniatrics at Ain Shams University Hospitals

ABSTRACT

Background: In Arabic-speaking communities, evaluating pragmatic language development has only recently gained attention. The Egyptian Arabic Pragmatic Language Test (EAPLT) is a newly introduced tool designed to assess this area. While language impairments are commonly associated with Attention Deficit Hyperactivity Disorder (ADHD), particularly in young children, no prior research has utilized the EAPLT to examine pragmatic language abilities in this population.

Aim of the Work: This study aimed to evaluate the pragmatic language skills of children diagnosed with ADHD using the EAPLT.

Methods: A case-control design was employed. The study included 50 children diagnosed with ADHD, aged 4 to 8 years, selected randomly. A control group of 50 typically developing children, matched by age and gender, was selected using systematic random sampling from various schools in Cairo. Collected data included demographic variables (age, sex), cognitive and language development indicators (IQ, mental age), and language abilities assessed by the Modified Preschool Language Scale – Fourth Edition (PLS-4), which measured both receptive and expressive language ages. Pragmatic language abilities were evaluated using EAPLT, including skill age range, percentile ranks, as well as acquired and delayed skills.

Results: The findings revealed that children with ADHD exhibited significant delays in overall language development compared to their peers. Specifically, 50% of the ADHD group showed delayed receptive language, while 56% had delayed expressive language. Assessment of pragmatic language showed marked deficits across nearly all areas when compared to the control group. Notably, conversational skills were significantly impaired in the ADHD group.

Conclusion: The study demonstrates that children with ADHD tend to have delayed development in general language abilities, particularly in pragmatic and conversational aspects, despite having similar chronological age and IQ levels as their typically developing peers.

Key Words: ADHD, Arabic-Speaking Children, EAPLT, Language Delay, Pragmatic Language.

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Corresponding Author: Maha H Boshnaq, Lecturer Doctor of Phoniatrics at Ain Shams University Hospitals.,
Tel.: +201098069034, **E-mail:** m_boshnaq@yahoo.com

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INTRODUCTION

Children who possess the ability to use language for emotional regulation and appropriate social behaviour tend to build stronger peer connections and are more likely to establish lasting friendships^[1]. Research increasingly supports a link between language development and behavioural functioning, with multiple studies highlighting a considerable overlap between language deficits and behavioural disorders. It is often observed that children with difficulties in language also present with behavioural challenges, and similarly, those with behavioural issues frequently exhibit language delays or impairments^[2].

Although the link between language impairments and behavioral issues is well documented in academic

research, it is still often overlooked in clinical practice. Evidence indicates that language difficulties are frequently underdiagnosed in children with psychiatric conditions^[3]. Among these conditions, Attention-Deficit/Hyperactivity Disorder (ADHD) stands out as the most frequently diagnosed psychiatric disorder in childhood, with global prevalence rates estimated between 2% and 7%. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), ADHD is marked by ongoing patterns of inattention, hyperactivity, and impulsivity that disrupt functioning in academic, social, and work-related environments.

Although language impairment is not among the core diagnostic features of ADHD, many affected children show notable difficulties in both structural and pragmatic aspects of language. For example, impulsivity may lead to frequent

interruptions, difficulty waiting for conversational turns, and excessive talking behaviours that suggest a disruption in pragmatic communication [4]. Children with ADHD have been found to engage in more rigid or repetitive conversation patterns, struggle to maintain appropriate conversational flow, and face greater challenges in forming social bonds compared to typically developing peers.⁵ Consequently, social interaction issues are widespread in this population. One study examining peer relationships in clinically diagnosed children aged 7 to 9 found that over half were socially rejected, while fewer than 1% were classified as popular [5].

The Egyptian Arabic Pragmatic Language Test (EAPLT) is a newly developed, culturally appropriate tool designed to assess pragmatic communication skills in Egyptian Arabic-speaking children aged 2 to 12 years [6]. While instruments such as the Children's Communication Checklist (CCC-1 and CCC-2) have commonly been used in previous research, EAPLT has not yet been applied to assess pragmatic abilities in children with ADHD. Using this test may provide valuable insights and assist in creating more targeted intervention strategies for children with ADHD who struggle with pragmatic aspects of communication.

AIM OF THE WORK

This study aimed to evaluate the pragmatic language skills of children diagnosed with ADHD using the EAPLT.

ETHICS APPROVAL

The study protocol had been approved by the Ain Shams Institute's Ethical Committee of Human Research. (FMASU MS130/2019)

PATIENTS AND METHODS

Study design: Case control study.

This research was carried out at the Phoniatrics unit, ENT Department of Ain Shams University Hospital and Ain Shams Specialized Hospital. The study period extended from April 2019 to November 2020. The participants were divided into two groups: Group I (Control Group): This group consisted of typically developing children aged between 4 and 8 years. The inclusion criteria for this group were as follows: no current or prior diagnosis of any developmental disorder, no history of hearing loss, no record of language delay and no behavioural issues reported or observed. Group II (ADHD Group): Children in this group were also between 4 and 8 years of age. They met the following inclusion and exclusion criteria:

Inclusion Criteria: A confirmed diagnosis of ADHD made by the Psychiatry Department at Ain Shams University Hospital, based on DSM-5 criteria and supported by the

Conners' Rating Scale for ADHD assessment [7]. Cognitive assessment using the Stanford–Binet Intelligence Scales, 5th Edition, with an IQ score of 70 or higher [8].

Exclusion criteria: Children with coexisting conditions such as autism spectrum disorder (ASD), intellectual disability, depression, schizophrenia, epilepsy, hearing impairment, or other psychiatric or neurological disorders were excluded.

Sampling Method: Control group participants were selected through systematic random sampling from various school classrooms in Cairo. Children with ADHD were selected through convenience sampling among those attending the Phoniatrics outpatient clinic at Ain Shams University Hospital, with diagnosis verification from the Psychiatry Department.

Study Procedures and Tools: Initial Diagnostic Procedure:

1. **Parent Interview:** Information was gathered through interviews with parents, focusing on: Personal details: name, gender, age, birth order, and school level. Presenting complaint, including onset, progression, and duration. Developmental history: prenatal, perinatal, and postnatal details. Family history of developmental conditions. Milestone development timeline. Early childhood illnesses: including head injuries or seizures. Parent's perception of the child's cognitive, social, and academic abilities. Previous or ongoing speech/language therapy.
2. **Clinical Examination:** General physical examination to rule out signs of syndromic features. Visual inspection of the oral and vocal tract structures.

Diagnostic Assessments: Cognitive Functioning: Evaluated using the Stanford–Binet Intelligence Scale, 5th Edition, providing IQ and mental age estimates [8]. Language Skills: Assessed using the Arabic version of the Modified Preschool Language Scale – 4th Edition (PLS-4) [9]. Pragmatic Language: Evaluated through the Egyptian Arabic Pragmatic Language Test (EAPLT) [6].

DATA ANALYSIS:

All collected data were coded, entered, and analysed using SPSS version 23. The analysis approach was selected based on the type and distribution of data: Student's t-test: To compare means between the two groups. Chi-square test: For comparing qualitative variables. Fisher's exact test: Applied when the expected frequency in more than 20% of cells was less than 5. ANOVA test: Used to evaluate differences in means among more than two groups. Post Hoc test: Conducted for pairwise comparisons when ANOVA showed significant results.

RESULTS

(Table 1) describes the demographic data distribution of the participated children found that the mean age of the

normal children participated in this study was 5.9 ± 1.4 years, with males representing 72% of them. The mean age of the ADHD children participated in this study were 5.7 ± 1.3 years, with males representing 84% of them.

Table 1: Describes the demographic data distribution of the participated children.

		Normal		ADHD		Test of sig.		
		N	%	N	%	value	p value	sig.
Age group	4-6	29	58.0%	33	66.0%	X2 =0.68	0.410	NS
	6-8	21	42.0%	17	34.0%			
sex	Male	36	72.0%	42	84.0%	X2 =2.1	0.148	NS
	Female	14	28.0%	8	16.0%			

(Table 2) shows the mean age, IQ and mental age of normal and ADHD groups with no significant difference between the two groups. Both groups were further divided

by age into 4-6 years old and 6-8 years old, 58% of normal group was in the 4-6 group and 66% of ADHD group was in this group.

Table 2: Comparison between age, IQ and mental age.

		Normal		ADHD		t test		
		Mean	SD	Mean	SD	T	p value	sig.
Age		5.9	1.4	5.7	1.3	1.04	0.300	NS
IQ		88	11	89	8	-0.48	0.634	NS
Mental age		5.49	1.43	5.11	1.41	1.34	0.185	NS

(Table 3) shows receptive and expressive language age and Score of EAPLT, found that there is a significant

difference between the 2 groups in language age and all EAPLT scores except for understanding sarcasm.

Table 3: PLS-4 and EAPLT Scores.

	Normal		ADHD		t test			
	Mean	SD	Mean	SD	t	p value	sig.	
receptive language age	5.9	1.3	5.3	1.4	2.43	0.017	S	
expressive language age	5.84	1.31	5.17	1.5	2.30	0.024	S	
Non-verbal aspect	8.3	1.4	5.8	2.4	6.58	<0.001	S	
Para-linguistic aspect	8.9	1.0	6.3	2.3	7.58	<0.001	S	
Understanding Inference From situation	4.3	1.0	2.9	1.9	4.48	<0.001	S	
Understanding Idioms	3.9	1.2	1.8	1.5	7.55	<0.001	S	
Understanding Sarcasm	2.2	.9	1.9	1.4	1.44	0.153	NS	
Story telling	28.6	4.0	13.3	9.5	10.49	<0.001	S	
Story telling from pictures	14.3	2.1	8.7	5.9	6.31	<0.001	S	
What	4.8	.4	3.5	1.6	5.74	<0.001	S	
Who	4.7	.5	2.5	1.5	10.05	<0.001	S	
Where	4.6	.5	2.4	1.7	8.28	<0.001	S	
Why	4.3	1.0	2.3	1.8	6.74	<0.001	S	
When	4.0	1.2	1.9	1.6	6.95	<0.001	S	
Pragmatic function (WHAT TO SAY IF)	5.1	1.2	3.5	1.8	5.03	<0.001	S	
Pragmatic factors (What do you feel if)	4.5	.7	3.4	1.8	4.21	<0.001	S	
Manners	9.2	1.2	7.3	3.3	3.83	<0.001	S	
Total	112.	13.6	70.3	33.	8.16	<0.001	S	
	3		7					

(Table 4) shows that the comparison between the groups regarding the conversational part of EAPLT. There

were statistically significant differences between the two groups regarding all aspect of conversation skills.

Table 4: The comparison between the study groups regarding the conversational skills of EAPLT.

		Normal		ADHD		t test		
		Mean Min.	SD	Mean Min.	SD	T	p value	sig.
conversation time		4.2	.5	2.5	.9	11.87	<0.001	S
		N	%	N	%	Test of sig.		
1-attention	Bad	0	0.0%	22	44.0%	X2 =68.33	<0.0	01 S
	Fair	4	8.0%	23	46.0%			
	Good	46	92.0%	5	10.0%			
2-topic introduction	Didn't Happen	1	2.0%	28	56%	Fisher exact test	<0.0	01 S
	Happened	49	98.0%	22	44%			
	0	1	2.0%	28	56.0%	Fisher exact test	<0.0	01 S
number	1	18	36.0%	21	42.0%			
	2	24	48.0%	1	2.0%			
	3	7	14.0%	0	0.0%			
3-topic change	Didn't Happen	7	14.0%	31	62.0%	Fisher exact test	<0.0	01 S
	Happened	43	86.0%	19	38.0%			
	.0	7	14.0%	29	59.2%	Fisher exact test	<0.0	01 S
number	1.0	34	68.0%	19	38.8%			
	2.0	7	14.0%	1	2.0%			
	3.0	2	4.0%	0	0.0%			
4-turn taking								
i-number of turns	<3	0	0.0%	32	64.0%	X2 =65.62	<0.0	01 S
	3	6	12.0%	13	26.0%			
	>3	44	88.0%	5	10.0%			
ii-gap	no	5	10.0%	33	66.0%	X2 =36.76	<0.0	01 S
	1sec	24	48.0%	14	28.0%			
	<1 sec	21	42.0%	3	6.0%			
iii-overlap	didn't happen	0	0.0%	32	64.0%	X2 =73.75	<0.0	01 S
	Happened inappropriately	5	10.0%	15	30.0%			
	Happened appropriately	45	90.0%	3	6.0%			
5-clarification request								
i-ask for it	Didn't Happen	0	0.0%	33	66.0%	X2 =85.26	<0.0	01 S
	Happened inappropriately	2	4.0%	15	30.0%			
	Happened appropriately	48	96.0%	2	4.0%			
ii-respond to it	Didn't Happen	0	0.0%	28	56.0%	X2 =81.47	<0.0	01 S
	Happened inappropriately	2	4.0%	19	38.0%			
	Happened appropriately	48	96.0%	3	6.0%			
6-self repair	Didn't Happen	0	0.0%	29	58.0%	X2 =88.68	<0.0	01 S
	Happened inappropriately	0	0.0%	18	36.0%			
	Happened appropriately	50	100.0%	3	6.0%			
7-conversational break down	Didn't Happen	39	78.0%	25	51.0%	X2 =7.88	0.00	5 S
	Happened	11	22.0%	24	49.0%			
8-ending conversation	Didn't Happen	5	10.0%	39	78.0%	X2 =46.92	<0.0	01 S
	Happened	45	90.0%	11	22.0%			

(Table 5) showed the comparison between ADHD and normal groups in 4 to 6 years age group. There were statistically significant differences between the two groups

as regards receptive ($p=0.034$) and expressive ($p=0.022$) language ages and all the EPALT scores ($p<0.001$), except for understanding sarcasm ($p=0.053$).

Table 5: Comparison between ADHD and normal groups in 4 to 6 years age group.

	Normal (4-6)		ADHD (4-6)		t test		
	Mean	SD	Mean	SD	t	p value	sig.
age	5.0	.8	4.9	.8	0.37	0.715	NS
IQ	87	10	87	7	-0.10	0.918	NS
Mental age	4.58	1.07	4.29	.83	1.20	0.235	NS
receptive language age	5.1	1.1	4.5	1.1	2.16	0.034	S
expressive language age	5.01	1.08	4.32	1.22	2.35	0.022	S
Non-verbal aspect	8.1	1.4	5.8	2.5	4.57	<0.001	S
Para-linguistic aspect	8.7	1.1	5.8	2.2	6.62	<0.001	S
Understanding Inference From situation	4.1	1.2	2.2	1.9	4.97	<0.001	S
Understanding Idioms	3.6	1.3	1.3	1.3	6.92	<0.001	S
Understanding Sarcasm	2.0	1.0	1.4	1.4	1.97	0.053	NS
Story telling	27.4	4.5	9.2	7.8	11.43	<0.001	S
Story telling from pictures	13.9	2.3	6.4	4.7	8.16	<0.001	S
What	4.8	.4	3.2	1.7	5.38	<0.001	S
Who	4.6	.5	2.1	1.5	8.96	<0.001	S
Where	4.4	.6	1.8	1.7	8.24	<0.001	S
Why	4.1	1.1	1.8	1.8	6.20	<0.001	S
When	3.7	1.4	1.2	1.5	6.63	<0.001	S
Pragmatic function (WHAT TO SAY IF)	4.9	1.3	3.0	1.9	4.73	<0.001	S
Pragmatic factors (What do you feel if)	4.4	.8	2.8	1.9	4.45	<0.001	S
Manners	9.0	1.3	6.2	3.5	4.22	<0.001	S
Total	108.7	14.7	57.2	32.1	8.29	<0.001	S

(Figure 1) showed the comparison between the ADHD and normal groups in 4 to 6 years age group regarding the conversational skills, there were statistically significant

differences between the two groups regarding all aspect of conversation skills ($p<0.001$) except for conversational break down ($p=0.306$).

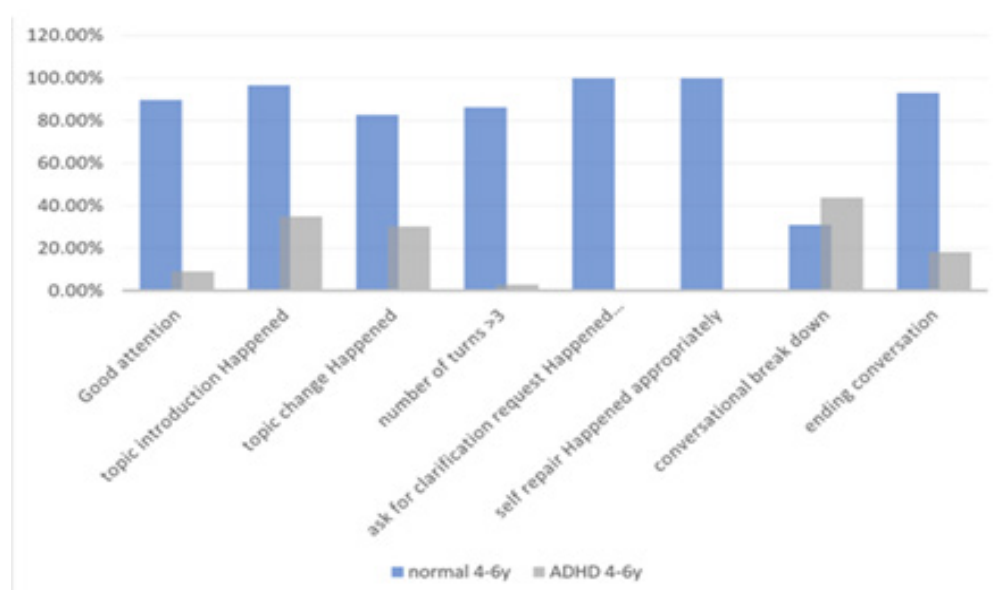


Fig 1: Conversation Skills In Normal and ADHD Aged 4 to 6 Years.

(Table 6) showed that in the 6 to 8 years group normal group consist of 21 child 61% of them were males. ADHD group consist of 17 child 94% were males, with statistically

significant difference between the two groups in gender distribution.

Table 6: Demographic data distribution.

		Normal (6-8)		ADHD (6-8)		Test of sig.		
		N	%	N	%	value	<i>p value</i>	sig.
sex	Male	13	61.9%	16	94.1%	Fisher exact test	0.026	S
	Female	8	38.1%	1	5.9%			

(Table 7) showed that there were statistically significant differences between the 6 to 8 years groups as regards all the EPALT scores, except for understanding sarcasm,

understanding inference from situation, storytelling from pictures, Pragmatic factors (What do you feel if) and manners.

Table 7: Comparison between ADHD and normal groups in 6 to 8 years age group.

		Normal (6-8)		ADHD (6-8)		t test		
		Mean	SD	Mean	SD	t	<i>p value</i>	sig.
age		7.3	.5	7.2	.4	0.77	0.445	NS
IQ		89	11	92	10	-0.80	0.429	NS
Mental age		6.74	.72	6.70	.79	0.17	0.863	NS
receptive language age		7.0	.5	6.7	.5	1.89	0.067	NS
expressive language age		6.98	.49	6.82	.49	0.96	0.344	NS
Non-verbal aspect		8.6	1.2	5.8	2.1	4.83	<0.001	S
Para-linguistic aspect		9.3	.8	7.1	2.2	3.79	0.001	S
Understanding inference		4.6	.7	4.4	.9	0.64	0.528	NS
Understanding Idioms		4.3	1.0	2.8	1.4	3.77	0.001	S
Understanding Sarcasm		2.5	.7	2.8	.8	-1.18	0.247	NS
Story telling		30.2	2.4	21.3	7.3	4.86	<0.001	S
Story telling from pictures		15.0	1.6	13.3	5.5	1.21	0.242	NS
What		4.9	.4	4.2	.9	2.67	0.015	S
Who		4.8	.4	3.3	1.0	5.95	<0.001	S
Where		4.8	.4	3.6	1.2	3.93	0.001	S
Why		4.5	.7	3.4	1.2	3.38	0.002	S
When		4.3	.8	3.3	1.0	3.60	0.001	S
Pragmatic function (WHAT TO SAY IF)		5.2	.9	4.6	.9	2.12	0.041	S
Pragmatic factors (What do you feel if)		4.8	.5	4.6	.6	0.92	0.361	NS
Manners		9.6	1.0	9.5	.9	0.14	0.891	NS
Total		117.3	10.3	95.9	19.5	4.10	<0.001	S

(Table 8) showed that the comparison between the ADHD and normal groups in 6 to 8 years age group regarding the conversational skills: There were statistically

significant differences between the two groups regarding all aspect of conversation skills ($p < 0.001$) except for topic change ($p = 0.051$).

Table 8: Comparison between conversation skills in ADHD and normal groups in 6 to 8 years age group.

		Normal (6-8)		ADHD (6-8)		t test		
		N	%	N	%	value	p value	sig.
conversation time		4.2	.5	2.9	1.0	5.10	<0.001	S
		Mean	SD	Mean	SD	Test of sig.		
1-attention	Bad	0	0.0%	4	23.5 %	Fisher exact test	<0.001	S
	Fair	1	4.8%	11	64.7 %			
	Good	20	95.2 %	2	11.8 %			
2-topic introduction	Didn't Happen	0	0.0%	5	29.4 %	Fisher exact test	0.012	S
	Happened	21	100.0 %	12	70.6 %			
	0	0	0.0%	5	29.4 %			
N	1.0	4	19.0 %	12	70.6 %	Fisher exact test	<0.001	S
	2.0	11	52.4 %	0	0.0 %			
	3.0	6	28.6 %	0	0.0 %			
3-topic change	Didn't Happen	2	9.5%	6	41.2 %	Fisher exact test	0.051	N
	Happened	19	90.5 %	10	58.8 %			
	.0	2	9.5%	6	37.5 %			
N	1.0	12	57.1 %	10	62.5 %	Fisher exact test	0.030	S
	2.0	5	23.8 %	0	0.0 %			
	3.0	2	9.5%	0	0.0 %			
4-turn taking								
i-no. of turns	<3	0	0.0%	9	52.9 %	Fisher exact test	<0.001	S
	3	2	9.5%	4	23.5 %			
	>3	19	90.5 %	4	23.5 %			
ii-gap	no	1	4.8%	9	52.9 %	Fisher exact test	0.001	S
	>1 sec	9	42.9 %	6	35.3 %			
	<1 sec	11	52.4 %	2	11.8 %			
iii-overlap	Didn't Happen	0	0.0%	9	52.9 %	Fisher exact test	<0.001	S
	Happened inappropriately	2	9.5%	6	35.3 %			
	Happened appropriately	19	90.5 %	2	11.8 %			
5clarification request								
i-ask for it	Didn't Happen	0	0.0%	10	58.8 %	Fisher exact test	<0.001	S
	Happened inappropriately	2	9.5%	5	29.4 %			
	Happened appropriately	19	90.5 %	2	11.8 %			
ii-respond to it	Didn't Happen	0	0.0%	8	47.1 %	Fisher exact test	<0.001	S
	Happened inappropriately	2	9.5%	6	35.3 %			
	Happened appropriately	19	90.5 %	3	17.6 %			
6-self repair	Didn't Happen	0	0.0%	7	41.2 %	Fisher exact test	<0.001	S
	Happened inappropriately	0	0.0%	7	41.2 %			
	Happened appropriately	21	100.0 %	3	17.6 %			
7conversational break down	Didn't Happen	19	90.5 %	7	41.2 %	X2 =10.5 68	0.001	S
	Happened	2	9.5%	10	58.8 %			
8-ending conversation	Didn't Happen	3	14.3 %	12	70.6 %	X2 =12.4 65	<0.001	S
	Happened	18	85.7 %	5	29.4 %			

(Figure 2) showed that the ADHD group is also divided into the three subtypes of the disorder hyperactive 18%,

inattentive 14% and combines 68%.

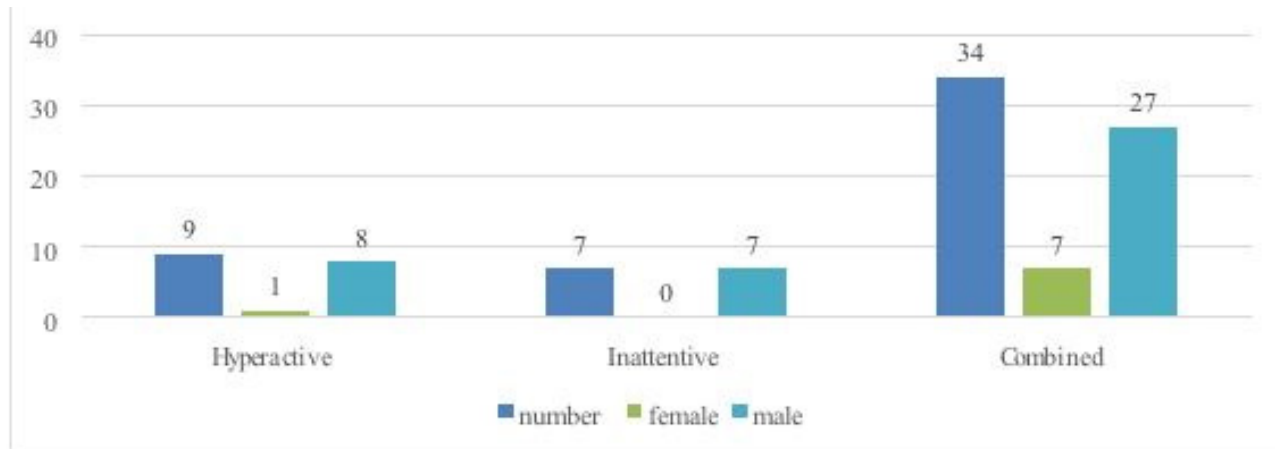


Fig. 2: Demographic Distribution of ADHD Group.

10 (Figure 3) showed that no significant difference between the 3 subtypes regarding EAPLT scores under 5th

percentile ($p=0.333$).

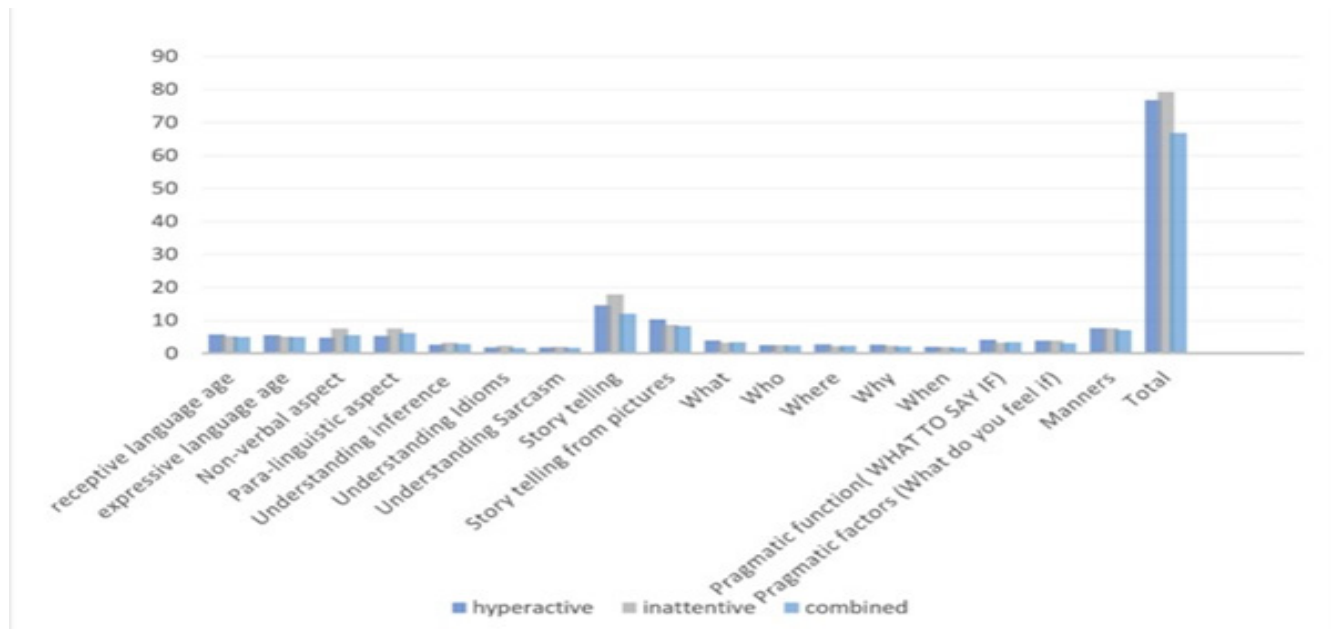


Fig. 3: Comparison Between The 3 Subtypes of ADHD.

DISCUSSION

This research aimed to evaluate language skills in children diagnosed with ADHD, with a specific focus on pragmatic language abilities. A total of 100 children aged 4 to 8 years were divided into two groups: a control group of typically developing children and a test group of children diagnosed with ADHD. Receptive and expressive language skills were assessed using the Preschool Language Scale – Fourth Edition (PLS-4), while pragmatic language abilities were evaluated using the Egyptian Arabic Pragmatic Language Test (EAPLT).

Within the ADHD group, males were more frequently represented than females. This gender distribution aligns with existing literature indicating a higher prevalence of ADHD in males. The male-to-female ratio in the current study closely mirrors that found in the research conducted by *El-Mogy et al.*^[7]

Children in the ADHD group demonstrated delays in both receptive and expressive language development, which corresponds with findings from *Bruce et al.*^[8], who reported that many children with ADHD struggle with language comprehension and communication. In terms of pragmatics, results from the EAPLT indicated notable

impairments. These outcomes are consistent with the findings of Bishop and Baird^[9], who observed pragmatic language difficulties in children with ADHD using the CCC, and with Geurts & Embrechts^[10], who found pragmatic deficits similar to those seen in children with autism spectrum disorder (ASD).

Nonverbal communication elements—such as eye contact, facial expressions, gestures, physical proximity, and body posture—as well as paralinguistic features like speech fluency, tone, and volume, were also compromised in the ADHD group. These observations align with the study by *Cadesky et al.*^[11], which demonstrated that children with ADHD had difficulty interpreting nonverbal social cues compared to their typically developing peers.

In narrative tasks such as storytelling from pictures, children with ADHD scored lower than their peers in identifying characters, objects, events, and sequencing. This supports the work of *Bruce et al.*^[8], who noted reduced verbal fluency and organization in children with ADHD during structured verbal activities. Additionally, the ADHD group underperformed in areas involving social norms and pragmatic behaviour, which is consistent with findings from Kim & Kaiser^[12]. Their study revealed deficits in sentence imitation, articulation, and conversational abilities in children with ADHD, as assessed by the TOLD-2.

The current study also examined various conversational skills, including topic initiation and maintenance, turn-taking, clarification, self-repair, and conversational breakdowns. Across all measures, children with ADHD showed weaker performance than the control group. This mirrors Kim & Kaiser's findings that children with ADHD exhibit a higher frequency of inappropriate pragmatic behaviours, such as interrupting, failing to respond, using vague language, and lacking cohesion during conversations.

Interestingly, older children (ages 6–8) in the ADHD group had receptive and expressive language skills closer to the control group and demonstrated improved understanding of social norms and WH-questions. However, these gains did not translate into enhanced conversational abilities. For instance, despite similar language scores, children with ADHD could only maintain conversations for about 2.9 minutes, whereas their typically developing peers sustained them for approximately 4.2 minutes. The ADHD group had more difficulty with topic shifts, turn-taking, clarification, and maintaining attention during dialogue.

Kim & Kaiser^[12], also highlighted that while children with ADHD may understand pragmatic rules, they struggle to apply them in spontaneous social contexts. Their performance on structured tests like the Test of Pragmatic Language (TOPL) may not reflect their real-world difficulties. This distinction between pragmatic knowledge and performance was similarly observed in the current study.

Although improvements were seen in understanding social norms in the older ADHD group, these did not significantly enhance conversational fluency. In this age range, 61% of the control group were male, compared to 94% in the ADHD group—a statistically significant gender difference. The greater number of females in the control group may have contributed to better language outcomes, as girls tend to develop language skills earlier than boys, as supported by Eckert & McConnell^[13].

No significant differences were observed among the three ADHD subtypes in PLS-4 and EAPLT scores, likely due to the limited sample size. Early identification and intervention for pragmatic language deficits in children with ADHD may reduce the risk of social exclusion. Further studies are needed to explore how improvements in pragmatic language impact social functioning.

Adams et al.^[14], emphasized that targeted pragmatic language therapy can lead to observable improvements in social adaptation and communication skills, even though the specific factors driving change in complex cases may be unclear. Their study highlighted the effectiveness of focused specialist intervention in conjunction with guidance provided to parents and educators.

CONCLUSION

In summary, children diagnosed with ADHD demonstrated notable difficulties in pragmatic language use and conversational abilities. The findings also indicated some progress in specific pragmatic and conversational skills among children in the older age group. However, no statistically significant differences were observed among the three ADHD subtypes.

RECOMMENDATION

Based on these results, it is recommended that the pragmatic component of language be thoroughly evaluated in all children diagnosed with ADHD and addressed through targeted intervention when necessary. Future research involving a larger sample size and a broader age range is encouraged to enhance the understanding and assessment of pragmatic language development in this population.

AVAILABILITY OF DATA AND MATERIAL

All data generated or analyzed during this study are included in this published article.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interests.

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AUTHORS' CONTRIBUTION

SH formulated the idea of the protocol and revised the written manuscript. MB shared in the design of the protocol and revision of the manuscript. MB and EA shared in analyzing the results. MB and EA collected and tabulated the data. MB is the corresponding author who contacted the journal. The authors read and approved the final manuscript and declare that this manuscript is original, has not been published before, and is not currently being considered for publication elsewhere. The corresponding author confirms that the manuscript has been read and approved for submission by all the named authors. The requirements for authorship as stated have been met and that each author believes that the manuscript represents honest work.

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صعوبات البلاغة لدى الأطفال المصابين باضطراب فرط الحركة وتشتت الانتباه

مها حسين بشناق، ايمان عبد الله فاضل عبد الله و صباح محمد حسن

قسم التخاطب، كلية الطب، جامعة عين شمس

المقدمة: في المجتمعات الناطقة باللغة العربية، لم يحظ تقييم تطور نمو البلاغة العربية بالاهتمام الكافي الا مؤخراً. و يعد اختبار تقييم تطور نمو البلاغة أداة حديثة تم تطويرها لتقييم هذا الجانب. و رغم أن اضطرابات اللغة تُعد شائعة لدى الأطفال المصابين باضطراب فرط الحركة وتشتت الانتباه خصوصاً في سن مبكرة، إلا أنه لم تجر أي دراسة سابقة استخدمت اختبار تطور نمو البلاغة العربية لتقييم تطور البلاغة في هذه الفئة.

الهدف من الدراسة: تهدف هذه الدراسة إلى تقييم نمو البلاغة في اللغة لدى الأطفال المشخصين باضطراب فرط الحركة وتشتت الانتباه باستخدام اختبار تقييم تطور نمو البلاغة العربية في الاطفال الطبيعيين.

الطرق: و قد شملت العينة خمسون طفلاً تتراوح أعمارهم بين ٤-٨ سنوات، تم تشخيصهم باضطراب فرط الحركة وتشتت الانتباه. كما تم اختيار مجموعة ضابطة من خمسين طفلاً من الأطفال النمطيين، متطابقة في العمر والجنس، باستخدام العينة العشوائية من عدة مدارس. شملت البيانات المجموعة المتغيرات الديموغرافية، مؤشرات النمو العقلي واللغوي (معدل الذكاء، العمر العقلي)، القدرات اللغوية التي تم تقييمها باستخدام النسخة المعدلة من مقياس اللغة لمرحلة ما قبل المدرسة لقياس أعمار اللغة الاستقبالية والتعبيرية. لتقييم المهارات المكتسبة والمتأخرة في نمو البلاغة، تم استخدام اختبار تقييم تطور نمو البلاغة العربية في الاطفال الطبيعيين.

النتائج: اظهرت النتائج ان الأطفال المصابين باضطراب فرط الحركة وتشتت الانتباه يعانون من تأخر ملحوظ في تطور اللغة بشكل عام مقارنة بأقرانهم حيث أظهر نصف المجموعة المصابة تأخرًا في اللغة الاستقبالية، بينما ظهر تأخر في اللغة التعبيرية لدى ٥٦٪ منهم. أظهر اختبار تقييم تطور نمو البلاغة العربية في الاطفال الطبيعيين وجود خلل واضح في معظم الجوانب مقارنة بالمجموعة الضابطة خاصة في مهارات المحادثة التي كانت متأثرة بشكل كبير لدى مجموعة الأطفال المصابين باضطراب فرط الحركة وتشتت الانتباه.

الاستنتاج: تُظهر الدراسة أن الأطفال المصابين باضطراب فرط الحركة وتشتت الانتباه يعانون من تأخر في تطور المهارات اللغوية بشكل عام، لا سيما في نمو البلاغة ومهارات التواصل، وذلك على الرغم من تماثلهم مع الأطفال النمطيين في العمر الزمني ومعدل الذكاء.