LANGUAGE PROFILE IN CONDUCT DISORDER CHILDREN AGED BETWEEN 7 TO 12 YEARS OLD

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ABSTRACT:

Background: *Conduct disorder (CD) is a prevalent psychiatric disorder characterized by a pattern of disruptive behavior that appears before 18 years of age. It includes aggressive tendencies, violence, antisocial behavior, impulsivity, deception, violating the rights of others, destruction of property, and theft. Language and communication are important in the acquisition of social interaction and behavioral skills, Some studies have found that behavioral problems are associated with later language difficulties children with elevated levels of conduct-related problems are at increased risk of poorer subsequent language acquisition, Most previous studies were a focus in behavioral problems and lacks to examine language in those conduct children.*

Aim of the work: *Assessment of language profile in conduct disorder children.*

Subject and Methods: *This study was an observational cross-sectional study. It was carried out at the Unit of Phoniatrics, Otorhinolaryngology Department, Faculty of Medicine at Ain Shams University Hospitals, and Benha University Hospitals and private clinics. The study included 30 children aged (7-12) years old. Children were assessed by study tests: 1-Stanford Binet [fifth edition], 2- REAL Scale, 3-Articulation test.*

Results: *36.7% of the study group showed a delay in sentence repetition, 30%in both expressive language and total language score.*

Conclusion: *CD children not only suffer from behavioral problems but also language delay in different language attitudes for further management and hence better prognosis.*

Keywords: *Language Profile, Conduct Disorder, REAL Scale, Externalizing behavioral problems.*

INTRODUCTION:

Conduct disorder (CD) is one of the externalizing behavior problems, which are the most common psychiatric diagnosis reported for children[(1)], and this is one of the most frequent reasons for referral to child and adolescent mental health services in Western countries[(2)].

Conduct disorder (CD) is a prevalent psychiatric disorder characterized by a pattern of disruptive behavior that appears before 18 years of age. It includes aggressive tendencies, violence, antisocial behavior, impulsivity, deception, violating the rights of others, destruction of property, and theft[(3)]. Their prevalence rate varies between 5 and 10% of children aged 8–16[(1)] and is approximately twice as common in males as in females.

The Language contains 3 domains: Form (Syntax-Morphology and phonology), Content (semantics or meaning), and Use of language (pragmatics)[4]. Language is the ability to communicate with other people. Communication is used to establish relationships with others[5].

Language and communication are important in the acquisition of social interaction and behavioral skills that are critical in developing relationships[6].

A growing body of research points to an association between behavioral and language development and several studies have reported a substantial degree of overlap between language impairments and behavioral problems. Children with language impairments frequently experience behavioral problems, and conversely, many children with behavioral problems show language impairments[7].

Some studies have found that behavioral problems are associated with later language difficulties[8], and studies that have simultaneously examined both directions of effect have typically found stronger associations from language to later externalizing behavior problems than the reverse[9].

Children with poorer language ability (especially vocabulary) may be more likely to be rejected by their peers for several reasons. First, they may have difficulty labeling and communicating their emotions which leads to difficulties in emotion regulation. Second, they may have difficulty recognizing and understanding others' emotions leading to difficulties interpreting social interactions[10].

A vast amount of research has linked conduct problems with a deficit in verbal abilities across many different types of samples and using many different methodologies[11]**.** Deficits in verbal skills have been associated with difficulties in engaging in private speech (i.e. self-verbalization), which is necessary for regulating, organizing, and inhibiting behavior[12].

Most previous studies were focused on behavioral problems and lacked to examine language in those conducted on children, but Studies suggest that children with elevated levels of conduct-related problems are at increased risk of poorer subsequent language acquisition[13].

AIM OF WORK:

Assessment of language profile in conduct disorder children in the age range 7-12 years.

PATIENTS AND METHODS:

This study is an observational cross-sectional study. It was carried out at the Unit of Phoniatrics, Otorhinolaryngology Department, Faculty of Medicine at Ain Shams University Hospitals, and Benha University Hospitals and private clinics. The study started in March 2020 and ended in March 2022. A convenient sample of 30 children with conduct disorder The Sample of children was selected upon the following inclusion and exclusion criteria.

A- Inclusion criteria:

1. Children's age ranged from 7 to 12 years.
2. Received a diagnosis of Conduct disorder from the Psychiatric department in El- Demerdash Teaching Hospital, Benha University Hospital, and Psychiatric Private Clinics.
3. An intelligence quotient (IQ) ≥85 according to Stanford-Binet 5th edition.

B- Exclusion criteria

- Children with any other comorbidity such as ASD, MR, depression, hearing impairment, and schizophrenia.

All the Children in the study were subjected to the protocol of assessment of language disorders which is applied in the Phoniatric unit, at Ain Shams University Hospital. It includes the following items:

I. Elementary Diagnostic Procedures:

A. Patient parent interview:

- Personal history: Name, sex, age, order of birth, handedness, and his /her school year.
- Complaint and analysis of symptoms: Onset, course, and duration.
- Search for etiological factors: prenatal, natal, and post-natal.
- Family history: Father's and mother's job, degree of mother's education, parental consanguinity, and similar condition in the family.
- Development of the milestones.
- Diseases of early childhood: History of head trauma and convulsions.
- Family's subjective impression of mental and social abilities, scholastic achievement, Hearing, chewing &swallowing, and motor system.
- Previous habilitation: Number of a session at compliance and response.

B. Language assessment:

- Observation: Patient's response to the examiner, eye contact, and ability to imitate.
- Receptive language: Obey simple commands and can recognize family members, body parts, fruits, vegetables, animals, transportation, colors, furniture, and general tools.
- Expressive language: Maximum number of words in a sentence, number of single words uttered, semantic and syntactic rules (verb tenses, prepositions, spatial indicators, time indicators, pronouns, adjectives, negation, passive verbs, sex inflection, conjunctions, articles, singular, and plural).

C. A general and neurological examination.

D. Vocal tract examination.

II. Clinical Diagnostic Aids:

Formal testing:

1. Language assessment by The REAL scale (Receptive Expressive Arabic Language scale)[14].

I. Receptive subtests include:

- **Receptive Vocabulary (RV):** evaluate the child's receptive vocabulary.
- **Sentence Comprehension (SC):** evaluates the child's ability to understand sentences having various grammatical structures.
- **Understanding Oral Instructions (UOI):** evaluates the child's ability to follow orally- presented instructions.
- **Comprehending Orally Presented Paragraphs (COPP):** evaluated the child's ability to understand the information presented in spoken paragraphs.

II. Expressive subtests include:

- **Expressive Vocabulary (EV):** evaluates the child's expressive vocabulary.
- **Forming Sentences 1 (FSI**): for ages below 7 years old, evaluate the child's ability to formulate sentences.
- **Forming Sentences 2 (FS2).**
- **Sentence Repetition (SR):** evaluates the child's ability to recall and reproduce

sentences of varying length and syntactic complexity.

- **Morpho-syntax (MS):** evaluates the child's knowledge of grammatical rules in a sentence-completion task.

III. Subtests having receptive as well as expressive components include:

- **Verbal Categorization 1 (VCI) and verbal categorization 2(VC2):** evaluate the child's ability to understand functional and/or conceptual Relationships between words that are presented and named by the assessor.

1. **Arabic articulatory test for speech assessment [15].**
2. **Stanford-Binet Intelligence Scale 5th (edition):** to provide the intelligence quotient (IQ) and assess working memory [16].

Ethical Considerations: An informed consent was given written to all the children's parents involved in the study.

Statistical analysis of the data

The data collected were coded, processed, and analyzed with SPSS version 27 for Windows®. Descriptive data were generated for all variables. The mean age of children in the study was 8.90 ± 1.22 years. The studied group was 22 boys and 8 girls.

RESULTS:

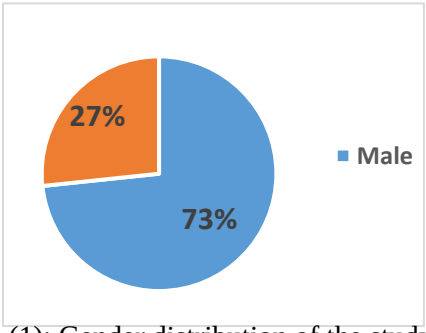

Diagram (1): Gender distribution of the study group

Table (1): Number of cases in each IQ category and their percentage:

Low average (80-89)	9	30%
Average (90-109)	15	50%
High average (110-119)	6	20%

The mean & ±SD total IQ score in the conduct group was 97.13 ± 9.30. Also working memory mean ± SD was 93.43 ± 8.45.

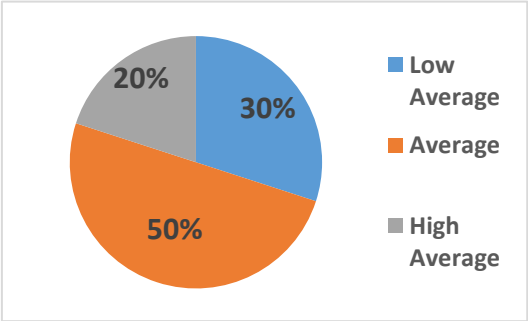

Diagram (2): Percentage of IQ category in the study group

Regarding the articulation test, done on all the subjects, only 1 case was affected in the form of substitution /r/ sound by /j/ sound (gliding).

Table (2): Mean and Standard Deviation of the different subtests of the REAL scale among the study group

Receptive vocabulary score(10±3)®	10.53 ± 2.75
Sentence comprehension score(10±3)®	9.13 ± 2.52
Understanding oral instructions score(10±3)®	8.77 ± 1.98
Verbal categorization receptive 1 score(10±3)®	9.40 ± 2.09
Verbal categorization receptive 2 scores (10±3)®	9.67 ± 1.47
Comprehending orally presented paragraph score(10±3)®	8.73 ± 1.62
Receptive language score(100±15)®	98.23 ± 15.61
Expressive vocabulary score(10±3)®	9.90 ± 1.77
Morpho-Syntax score (10±3)®	9.57 ± 2.03
Verbal categorization expressive 1(10±3)®	8.40 ± 2.14
Verbal categorization expressive 2(10±3)®	8.93 ± 1.57
Sentence repetition(10±3)®	7.07 ± 1.17
Forming sentence (FS2) (10±3)®	8.57 ± 1.63
Expressive language score(100±15)®	91.07 ± 8.40
Total language score(100±15)®	92.13 ± 9.49

® Normal Average of Real Scale Test

Table (3): Differentiating children whether they are delayed or not in language according to the average score in each subtest of the REAL Scale:

Receptive vocabulary score		
Delayed	4	13.3 %
Normal	26	86.7 %
Sentence comprehension score		
Delayed	5	16.7 %
Normal	25	83.3 %
Understanding oral instructions score		
Delayed	4	13.3 %
Normal	26	86.7 %
Verbal categorization receptive 1 score		
Delayed	4	13.3 %
Normal	26	86.7 %
Verbal categorization receptive 2 score		
Delayed	0	0 %
Normal	30	100 %
Comprehending orally presented paragraph score		
Delayed	4	13.3 %
Normal	26	86.7 %
Receptive language score		
Delayed	6	20 %
Normal	24	80 %
Expressive vocabulary score		
Delayed	0	0 %
Normal	30	100 %
Morpho-Syntax score		
Delayed	2	6.7 %
Normal	28	93.3 %
Verbal categorization expressive 1		
Delayed	5	16.7 %

Normal	25	83.3 %
Verbal categorization expressive 2		
Delayed	0	0 %
Normal	30	100 %
Sentence repetition		
Delayed	11	36.7 %
Normal	19	63.3%
Forming sentence2		
Delayed	2	6.7 %
Normal	28	93.3 %
Expressive language score		
Delayed	9	30 %
Normal	21	70 %
Total language score		
Delayed	9	30 %
Normal	21	70 %

As shown in table (3), the greatest deficiency (most affected parameters) was seen in Sentence repetition with 11 cases, followed by expressive language score and total language score were 9 cases in each, with 6 cases in Receptive language score, and 5 cases in each of vocabulary score and Verbal categorization expressive 1 and 4 cases in each of sentence comprehension score, Understanding oral instructions score, Verbal categorization receptive 1 score and Comprehending orally presented paragraph score, and 2 cases in each of Morpho-Syntax score and Forming sentence.

No delay was seen in the following items Verbal categorization receptive 2 score, Expressive vocabulary score, and Verbal categorization expressive 2 scores.

A Pearson correlation analysis was conducted to assess the strength between IQ and language tests among children.

Table (4): Correlation between total IQ and the language test among the cases:

Receptive vocabulary score	0.354	0.055
Sentence comprehension score	0.136	٠.497
Understanding oral instructions score	0.210	0.266
Verbal categorization receptive 1 score	0.169	0.372
Verbal categorization receptive 2 score	0.097	0.611
Comprehending orally presented paragraph score	0.431	0.017*
Receptive language score	0.149	0.433
Expressive vocabulary score	0.242	0.198
Morpho-Syntax score	0.308	0.097
Verbal categorization expressive 1	0.129	0.498
Verbal categorization expressive 2	0.311	0.094
Sentence repetition	0.107	0.575
Forming sentence (FS2)	0.224	0.234
Expressive language score	0.183	0.334
Total language score	0.218	0.247

r: Pearson's correlation **: Statistically significant (p< 0.05)*

Table (4) shows that there was a statistically significant moderate positive correlation between total IQ score and comprehending orally presented paragraph score (r= 0.431, p=0.017). Other correlations didn't show a statistically significant value.

DISCUSSION:

Conduct problems have been associated with poor language development; however, the direction of this association in early childhood remains unclear Girard et al. [17].

The current study was conducted for the assessment of language profiles in conduct disorder children.

Among cases of this study, conduct males represented 73% while females represented 27%. The male to female ratio was around 3:1 and this ratio was in agreement with the study done by Seleem et al.[3] who found that in childhood, the conduct was very common in males in comparison with females, with a male to female (M/F) ratio of about 1.9–2.7:1.

This was also by Fairchild et al. [18] who displayed that boys were 2 times more commonly affected with conduct in comparison with girls.

50% of cases were of average IQ (Table 1), this disagreed with the results of Lazaratou et al. [12] showed significantly lower scores on the performance and total IQ concerning the scores of the participants of the control which is consistent with previous studies demonstrating the association of lower IQ with an increased risk for the development of conduct problems.

Regarding language assessment, we used the REAL Scale test to assess the language abilities of our studied group aged from 7 to 12 years old as it is suitable for this age. PLS4 test assesses language abilities in children from the age of two months to 7 years and 7 months and the Modified Arabic Language test assesses language abilities in children from the age of 2 to 8 years.

Through sub-tests of the REAL Scale, we could establish different aspects of language including receptive and expressive vocabulary, morphosyntax, sentence comprehension, sentence repetition, understanding of oral instructions, verbal categorization, and forming sentences and specify the defects.

In table (3) we observed the most affected parameter was sentence repetition, it may be either due to the complexity of the task or deficit in the phonological short-term memory (phonological loop of working memory) as those children suffer from a problem in executive functions represented in their poor working memory function.

Working memory can be defined as a brain system that provides processing mechanisms in the form of temporary storage and manipulation of information. That information may be necessary for complex tasks such as language comprehension, learning, and reasoning, so impairment in the working memory is highly related to language impairment Saad et al.[19].

Urazán et al.[20] examined cognitive and executive functions in conduct disorders (CD) and found that participants with CD had significantly lower scores in construction abilities, perceptual abilities (tactile, visual, and auditory), differences in verbal memory, differences in visual memory, language (repetition, expression, and understanding), meta-linguistic abilities, spatial abilities, visual and auditory attention, conceptual abilities, verbal and graphic fluency, and cognitive flexibility

We found children with conduct disorder showed more delay in expressive language scores than receptive language scores. In agreement with previous study found that the associations between conduct problems and expressive language abilities are impacted through direct effects of external factors such as parenting behaviors, children's nonverbal cognition, and hyperactivity/inattention; particularly in the case of conduct problems and to a lesser extent expressive language, children at age 3 and 5 years Girard et al.[17]. Children engaged in early displays of conduct problems may thus experience a reduced language-rich environment as parent's focus on reducing negative behaviors at the potential expense of language development Conversely, children with delayed or

impaired language acquisition may lack the ability to express themselves through verbal outlets, potentially resulting in elevated frustration and engagement in conduct related behaviors as an alternative form of communication, While direct associations between conduct problems and language have been found, the emergence of either conduct problems or poor expressive language in the late toddler years may also be dependent on other factors such as parenting behaviors and child characteristics Girard et al[17].

Harsh parenting has been implicated with elevated externalizing behavior problems, and to a lesser extent, with poorer language outcomes Del Vecchio et al[21].

Additionally, studies have found that parental warmth and positive parent-child interactions foster language growth Girard et al [17].

Regarding the understanding of oral instructions score, we found 4 cases, this item measures the receptive vocabulary of the child and also his auditory sequential memory in increasing complexity.

Redmond & Rice[22] argued that the behavior problems of language-impaired children reflect their adaptations to situations in which the communication demands exceed their linguistic resources.

Cohen et al. [23] demonstrated that children with Language impairment had deficits in social cognitive skills, including interpreting the feelings of others and social problem-solving. In addition to the social consequences of poor social cognition, compromised verbal reasoning skills, and limitations in perspective taking may also interfere with moral development.

Brownlie et al. [24] demonstrated a direct effect of childhood Language impairment on late adolescent delinquency symptoms in a longitudinal community sample. Boys diagnosed with LI at age 5 scored higher than controls on age 19 parent-rated delinquent behavior. This effect was distinct from verbal IQ; the association between LI and delinquency symptoms remained even when controlled for verbal IQ

Conclusion:

CD children not only suffer from behavioral problems but also language delay in different language aptitudes for further management and hence better prognosis.

Recommendations:

Early assessment of different language aptitudes in conduct disorders children will help in the early detection of their defects and hence further management that will lead to a better prognosis for their condition. Further assessment for memory issues in those children will be needed.

Conflict of interest:

The authors declare that they have no conflict of interest.

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التقييم اللغوي لأطفال اضطراب السلوك الذين تتراوح أعمارهم بين ٧ إلى ١٢ سنة

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المقدمه : اضطراب السلوك هو اضطراب نفسي سائد يتميز بنمط من السلوك التخريبي الذي يظهر قبل سن ١٨ عامًا. وتشمل النزعات العدوانية والعنف والسلوك المعادي للمجتمع والاندفاع والخداع وانتهاك حقوق الآخرين وتدمير الممتلكات والسرقة. اللغة والتواصل مهمان في اكتساب التفاعل الاجتماعي والمهارات السلوكية ، وقد وجدت بعض الدراسات أن المشاكل السلوكية مرتبطة بصعوبات لغوية لاحقة الأطفال الذين يعانون من مستويات مرتفعة من المشكلات المتعلقة بالسلوك يكونون أكثر عرضة لخطر اكتساب اللغة اللاحق الأكثر فقراً ، معظم السابق الدراسات كانت تركز على المشكلات السلوكية وتفتقر إلى فحص اللغة لدى هؤلاء الأطفال.

الهدف من العمل :التقييم اللغوي للاطفال الذين يعانون من الاضطرابات السلوكيه.

الحالات وطرق البحث: كانت هذه الدراسة عبارة عن دراسة مقطعية قائمة على الملاحظة. تم إجراؤها في وحدة التخاطب ، قسم الأنف والأذن والحنجرة ، كلية الطب بمستشفيات جامعة عين شمس ، ومستشفيات جامعة بنها والعيادات الخاص

١- ستانفورد بينيه [الإصدار الخامس] ، ٢- اختبار لغه ، ٣- اختبار نطق.

النتائج: أظهرت ٣٦,٧٪ من مجموعة الدراسة تأخيراً في تكرار الجملة ، و ٣٠٪ في كل من اللغة التعبيرية ودرجة اللغة الكلية.

الخلاصة: أطفال الاضطرابات السلوكيه لا يعانون فقط من مشاكل سلوكية ولكن أيضًا من تأخر اللغة في المواقف اللغوية المختلفة لمزيد من الإدارة وبالتالي تحسين التشخيص.