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Original Article

Evaluate the Ability of Autistic Children to Use Expressive Language and Receptive Language

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Abstract:

Introduction

In early typical language development, children understand words before they are able to use them in speech. Children with autism spectrum disorders (ASD) generally show impairments in both the comprehension and the production of language. However, the relative degree of delay or impairment in each of these sub-domains may also be atypical and remains less well-understood.

Materials and Methods

This study was a causal-comparative with 30 children (15 girls and 15 boys) with ASD and 30 normal children (15 girls and 15 boys) of 3 kindergartens of Mashhad, and children were elected with random sampling. Kindergartens were selected of areas (1, 4, 6) of Mashhad, Iran. Data analysis was done using SPSS 16 and t-student test.

Results

Results of t- tests showed significant differences between the two groups, autistic and normal children in the expressive language skill, cognitive and received language skill ($P<0.05$). There is a big difference between the mean scores of Newsha test in subjects with autism compared to standard scores.

Conclusion

According to the findings of the present study, the language disorder in children with autism compared to normal children is significantly higher.

Key words: ASD, Autism Spectrum Disorder, Expressive Language, Receptive Language, Speech.

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Introduction

Autism is a lifelong developmental disability that affects how a person communicates with, and relates to, other people. It also affects how they make sense of the world around them. It is a spectrum condition, which means that, while all people with autism share certain difficulties, their condition will affect them in different ways. Some people with autism are able to live relatively independent lives but others may have accompanying learning disabilities and need a lifetime of specialist support. People with autism may also experience over- or under-sensitivity to sounds, touch, tastes, smells, light or colors. It is a spectrum condition, which means that, while all people with autism share certain difficulties, their condition will affect them in different ways. Some people with autism are able to live relatively independent lives but others may have accompanying learning disabilities and need a lifetime of specialist support. People with autism may also experience over- or under-sensitivity to sounds, touch, tastes, smells, light or colors.

Asperger syndrome is a form of autism, people with Asperger syndrome are often of average or above average intelligence. They have fewer problems with speech but may still have difficulties with understanding and processing language (1-3).

Types of ASDs

There are three different types of ASDs:

-Autistic Disorder (also called "classic" autism).

This is what most people think of when hearing the word "autism." People with autistic disorder usually have significant language delays, social and communication challenges, and unusual behaviors and interests. Many people with autistic disorder also have intellectual disability.

-Asperger Syndrome

People with Asperger syndrome usually have some milder symptoms of autistic disorder. They might have social challenges and unusual behaviors and interests. However, they typically do not have problems with language or intellectual disability.

Pervasive developmental disorder – not otherwise specified

(PDD-NOS; also called "atypical autism") People who meet some of the criteria for autistic disorder or Asperger syndrome, but not all, may be diagnosed with PDD-NOS. People with PDD-NOS usually have fewer and milder symptoms than those with autistic disorder. The symptoms might Cause only social and communication challenges.

ASDs begin before the age of 3 and last throughout a person's life, although symptoms may improve over time. Some children with an ASD show hints of future problems within the first few months of life. In others, symptoms might not show up until 24 months or later. Some children with an ASD seem to develop normally until around 18 to 24 months of age and then they stop gaining new skills, or they lose the skills they once had (1-3).

Epidemiology

ASD occurs more often in boys than girls, with a 4:1 male-to-female ratio (4). The reported prevalence rates of autism and its related disorders have been increasing worldwide over the past decades, from approximately 4 per 10 000 to 6 per 1000 children (5-9). The reasons for this increase include wider public awareness of these disorders, broadening of the diagnostic concepts, reclassifications of disorders and improved detection (4,10). The possibility that the increase in the reported cases is a result of unidentified risk factor(s) cannot be

ruled out, and therefore more research is needed to address this.

Presentation

50% of parents (and more) have cause for concern by 12-18 months of age. Speech delay is a common first concern. Other common concerns include:

- Lack of, or inconsistent use of eye contact.
- Lack of social smile, imitation, response to name.
- Lack of interest in others.
- Lack of emotional expression.
- Few directed vocalisations.
- Absence of joint attention skills (pointing to "show," following a point, monitoring others' gaze, and referencing objects or events).
- Few requesting behaviours.
- Few social gestures (such as waving, clapping, nodding, and shaking head).
- Pretend play is also reduced in many children.

Regression (losing skills that have been acquired) is seen in approximately 25% of children. The skills may be in language, play or social skills (11).

Pragmatic Language and Autism

All children on the autistic spectrum will have deficits in pragmatic language to some degree. Pragmatic language refers to the social use of language. The ability to use the language skills you have to interact with the world around you. These deficits may be subtle to an outside observer but can be profound to a child experiencing them. Social skills deficits are very complex and they are usually mistreated and misunderstood. They are also a very emotional issue to all involved.

Receptive Language Disorder

Definition

Speech is the verbal production of language, whereas language is the conceptual processing of communication. Language includes receptive language (understanding) and expressive language (the ability to convey information, feelings, thoughts, and ideas).

There are several different types of communication disorders, including the following:

- Expressive language disorder: Expressive language disorder identifies developmental delays and difficulties in the ability to - produce speech.
- Mixed receptive-expressive language disorder:

Mixed receptive-expressive language disorder identifies developmental delays and difficulties in the ability to understand, spoken language and produce speech. In a language disorder a child has the inability to understand and/or use words in context, both verbally and nonverbally. Some characteristics of language disorders include improper use of words and their meanings, inability to express ideas, inappropriate grammatical patterns, reduced vocabulary and inability to follow directions. One or a combination of these characteristics may occur in children who are affected by language learning disabilities or developmental language delay. Children may hear or see a word but not be able to understand its meaning. They may have trouble getting others to understand what they are trying to communicate.

Description

When a child has receptive language disorder, he or she exhibits significant deficits in the level of development of

comprehension of language. These deficits affect how the child functions socially or academically.

Children with receptive language problems can have great difficulty understanding what is said to them. Most children with a receptive language disorder will also have an expressive language disorder (difficulty using language to express ideas).

Children with a receptive language disorder can have difficulty with any of the following:

- Understanding what gestures mean;
- Following directions;
- Understanding questions;
- Identifying objects and pictures;
- Taking turns when talking with others;
- Understanding the order of words in a sentence;
- Understanding plurals and verb tenses;
- Understanding age-appropriate vocabulary and knowledge about objects and sequence of events;
- Knowledge of the goals or functions of language (e.g. to obtain a desired object, tell a story, ask questions, comment);
- Knowledge of how to use language to achieve goals (e.g. appropriately using language to get a desired object,);
- Carrying out cooperative conversations (e.g. perspective-taking and turn-taking) (12-14).

Prevalence and prognosis

The reported prevalence of language delay in children two to seven years of age ranges from 2.3 to 19 percent (15-19). Severe speech and language disorders in young children can negatively affect later educational achievement, even after intensive intervention (20). Several studies have shown that children with speech and language problems at two and a half to five years of age have increased difficulty reading in the elementary school years (21-23). Children in whom speech and language impairments persist past five and a half Years of age have an increased incidence of attention and social difficulties (24). Children with specific speech and language impairments at seven and a half to 13 years of age have been shown to have impaired writing skills, with marked deficits in spelling and punctuation compared with children without speech and language impairments (25). The likelihood of persistent difficulties for young children with speech and language problems appears to be directly related to the range of language functions that are impaired, with the best prognosis for children who have a developmental speech delay (26).

Diagnosing this disorder

Speech language pathologists diagnose this disorder. When children exhibit language skills below what is expected for their age, developmental disorders are often suspected by the child's parent, pediatrician or teacher. The child is then referred to the speech-language pathologist who will conduct a full diagnostic evaluation of the child's receptive and expressive language skills, using standardized tests and informal measures. The speech-language pathologist will also evaluate other measures of communication to rule out other issues. The child's vision and hearing must be screened prior to testing

as well to achieve valid test results. Children exposed to multiple languages should be screened in all languages and tested in their primary language. This multilingual assessment framework is referred to as a "difference vs. disorder" approach. Assessment data is obtained in all languages of exposure. Any noted errors or differences in communication skills are then analyzed and assigned to three main categories: 1- Errors appropriate for the child's age (developmental errors); 2- Errors attributed to the interaction between the two languages spoken (cross-linguistic influence); and 3- A typical errors.

Receptive language disorder is diagnosed when an individual does not demonstrate the ability to comprehend age appropriate vocabulary, follow instructions or understand foundational communication skills such as turn-taking and perspective-taking during conversation. Careful diagnosis is important to distinguish receptive language disorder from other communication disorders and other diagnoses such as intellectual disability, autism and/or other physical and developmental problems which may first manifest as language problems (27, 29).

Treatment

Individuals benefit from a regular schedule of speech therapy with a speech-language pathologist. Parent and teacher involvement in the use of strategies learned in therapy provides maximum benefit. Treatment for a receptive language disorder is tailored to each child's needs (27-29).

Materials and Methods

This study was a causal-comparative with 30 children in ages 2 to 8 years old (15 girls and 15 boys) with ASD, who were reffered to Rehabilitation Center of Noor Hedayat Mashhad, Iran and 30 normal children in ages 2 to 8 years old (15 girls and 15 boys) of 3 kindergartens of Mashhad, and children were elected with random sampling. Kindergartens were selected of areas (1, 4, 6) of Mashhad. Data analysis was done using SPSS16 and t-student test. Tests used in this study was Childhood autism rating scale (CARS) and Newsha test.

The diagnosis was made by a child psychiatrist based on DSM-IV-TR criteria and using Autism diagnostic interview-revised (ADIR) and Autism diagnostic Observation Schedule (ADOS). All children were trained rehabilitation center. In this research, Autism rating scale, Childhood autism rating scale was (CARS) used to assess the severity of symptoms in children. The CARS is a behavior rating scale that is utilized to assess symptoms of autistic disorder. In addition, it is able to differentiate children with autistic disorder from other developmental delays. It is conducted as an observation which can be completed during a testing session or in classrooms. However, some items can be answered from parent report or from reports of history. The CARS contains 15 items that are utilized to compare the behavior of the child being assessed to the behavior of typically developing children. The 15 items include: (1) Relating to people, (2) Imitation, (3) Emotional response, (4) Body use, (5) Object use, (6) Adaptation to change, (7) Visual response, (8) Listening response, (9) Taste, smell, and touch response and use, (10) Fear or nervousness, (11) Verbal communication, (12) Nonverbal communication, (13) Activity level, (14) Level and consistency of intellectual response, and (15) General impressions. Each item is rated on a Likert scale as follows: 1 (within normal limits for a child that age), 2 (mildly abnormal), 3

(moderately abnormal), and 4 (severely abnormal). Midpoints between these values can also be utilized (e.g., 2.5). A total score is computed from the sum of the 15 items. Those with a total score of 30 or above fall within the autistic range (yields an agreement rate of 87%). Psychometric studies on the CARS yield promising results with an internal consistency of α = .94, interrater reliability average of .71 (good agreement), and coefficient kappa of .64 for test retest reliability. In regards to validity, there was high criterion related validity, r = .84 (Schopler et al., 1988). This scale (CARS) can be completed by a clinician or teacher or parent, based on subjective observations of the child's behavior. Each of the fifteen criteria listed above is rated with a 7-point score. Lower scores indicate less severity of Autism. Total CARS score indicates total score of severity about autism spectrum disorders (ASD) (27-31).

After reviewing the CARS scors, to collect samples of children's speech and evaluation of them through Newsha test. The Newsha test that assess the development of language skills, motor and social skills of child at age thirteen measures from birth. This test is currently one of the valid scale for measuring growth in persian children and is a clear criteria for evaluating children's growth. By performing this test, we can judge about various aspects of child ‘s growth.

According to this subject that this test is a norm-reference test, by executing it on Persian language children with developmental delay can be charted child's progress in his treatment program. In this study in order to use Newsha test, the three subtests: evaluation of expressive language, receptive language and cognitive in children with autism is used.

Each developmental skills in the age range 16 to 18 months (level 6);

Age range of 19 to 24 months (level 7);

Age range of 25 to 30 months (level 8);

Age range of 31 to 36 months (level 9);

Age range of 37 to 42 months (level 10);

Age range of 43 to 48 months (level 11);

Age range of 49 to 60 months (level 12) and Age range of 61 months and higher (level 13) examined.

To better understand the problems of each of the subjects, first was conducted (CARS) test, then the disorder in each of the language skills was detected with use subtests of expressive language, receptive language and cognitive’s Newsha.

Results

To obtain the amount of impairment the subjects in each group, was performed to determine the mean, variance , standard deviation and t-test. In this study, 30 autistic children and 30 normal children were participated. (Tables.1,2) shown the mean, standard deviation and other statistical calculations relating to the understanding and use of research subjects of receptive language skills and expressive language in normal children and autistic children. (Figures 1, 2 and 3) shown different the standard scores of normal children and scores of autistic children. Figures showed scores of autistic children is lower than the normal children.

Table.1: Statistical calculations in autistic children

Skills	Mean± SD	T	P. value	df
Receptive	4.67 (2.07)	-3.07	0.005	29
Expressive	1.67 (0.52)	0.93	0.93	29
Cognitive	1.33 (0.52)	-1.33	0.002	29

Table.2: Statistical calculations in normal children

Skills	Mean ± SD
Receptive	8.41 (3.73)
Expressive	6.36 (0.61)
Cognitive	8.75 (1.39)

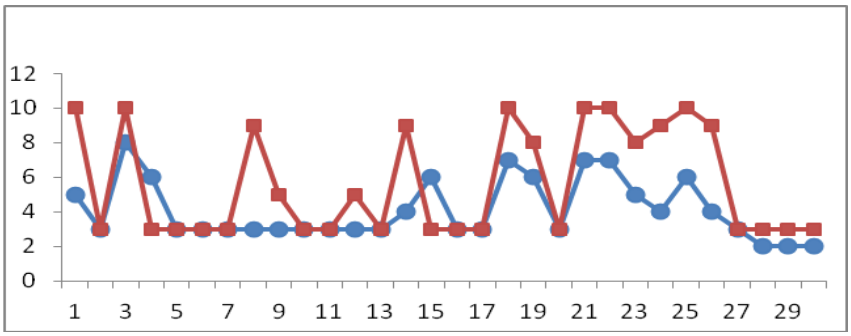

Figure.1: Comparison of expressive language between autistic children and normal children

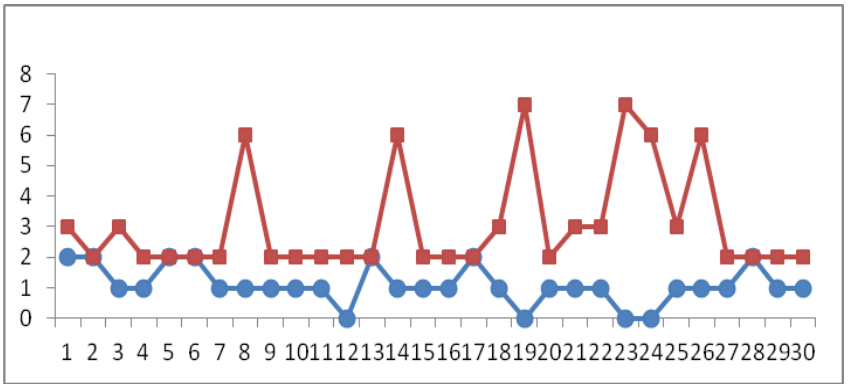

Figure.2: Comparison of receptive language between autistic children and normal children

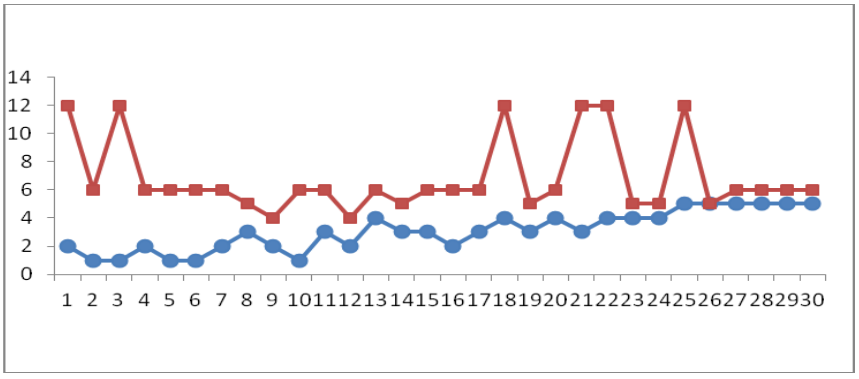

Figure.3: Comparison of cognition skill between autistic children and normal children

Discusion

Speech and language delay in children is associated with increased difficulty with reading, writing, attention, and socialization. Although physicians should be alert to parental concerns and to whether children are meeting expected developmental milestones, there currently is insufficient evidence to recommend for or against routine use of formal screening instruments in primary care to detect speech and language delay. In children not meeting the expected milestones for speech and language, a comprehensive developmental evaluation is essential, because a typical language development can be a secondary characteristic of other physical and developmental problems that may first manifest as language problems. Types of primary speech and language delay include developmental speech and language delay, expressive language disorder, and receptive language disorder. Secondary speech and language delays are attributable to another condition such as hearing loss, intellectual disability, autism spectrum disorder, physical speech problems, or selective autism. When speech and language delay is suspected, the primary care physician should discuss this concern with the parents and recommend referral to a speech-language pathologist and an audiologist. There is good evidence that speech-language therapy is helpful, particularly for children with expressive language disorder.

Conclusion

Children with autism have significant disturbance in understanding and use of receptive language and expressive language skills. The overall results of this study showed that the inability of autistic children the use of language skills has a significant defect.

Conflict of Interest

The authors declare that they have no competing interests.

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