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Study of Social and Language Skills in Children with Autism Spectrum Disorder

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Abstract

One of the main obstacles to full communication and socialization is the impairment of the communication sphere in children with autism spectrum disorder. Competent diagnostics will help to identify at what level of development of social and speech skills the child is and in the future to develop goals and objectives for correctional work. This article discusses the problem of diagnosing the formation of speech and social skills in children with autism spectrum disorder, describes the results of a diagnostic study, based on the analysis of the results, formulates conclusions about the level of development of speech and social skills. Analysis of the data obtained showed that the survey participants were insufficiently developed in all categories of skills acquired through VB-MAPP. The least developed were the skills of naming objects, expressing requests, social skills. Based on these results, it can be concluded that children with autism spectrum disorder experience the greatest difficulties in social contacts, such as difficulties in making requests, interacting with people and in the absence of reactions to speech addressed to them. In this regard, difficulties occur in the development of speech skills. The survey showed that all participants in the experiment need an intensive program of correctional work, including work on the development of communication skills, speech understanding; training in cooperation, social and play skills. The research results can be used in the development of individual correctional and pedagogical work on the development of communication skills in preschoolers with autism spectrum disorders.

Keywords: autism spectrum disorder, preschool age, socialization, communication, speech development, VB-MAPP.

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Introduction

The problem of autism spectrum disorder (ASD) has been relevant in the world for several decades, but it has become especially pronounced in recent years when there is an increase in the number of children with ASD. According to the Ministry of Health of the Russian Federation, the prevalence of ASD in Russia (as well as in the world) is about 1% of the child population (Antipova & Miticheva, 2019). An increase in interest in this problem and a convergence of positions of researchers from different countries on the terminology, classification and prevalence of these disorders in children, which was largely facilitated by the creation of international and other classifications of mental illnesses, were noted. The need for medical and social care among children with ASD is significantly higher than among the rest of the population (Lapshina, 2019). Analysis of literary sources revealed insufficient knowledge of the characteristics of social and communication skills in children with autism spectrum disorder (Akhmetzyanova & Artemieva, 2020; Belyaeva, 2020).

Purpose and objectives of the study

The purpose of the study is to identify the level of formation of speech and social skills in children with autism spectrum disorders.

Literature review

Autism Spectrum Disorder (ASD) is a spectrum of psychological characteristics describing a wide range of abnormal behavior and difficulties in social interaction and communication, as well as severely limited interests and frequently repeated behavioral acts.

The onset of the disease occurs in the first three years of life. In some cases, developmental disorders are observed from birth (Kanner's syndrome). In another variant, against the background of normal development at the age of 1 to 3 years, a total regression may develop with loss of contact with others, impaired emotional response, loss of speech and self-service skills. Often in the literature be found a metaphor that a person with autistic disorder lives as if under a dome, cut off from the outside world, and very few people are ready to "let" it into the dome (Mukayetova-Ladinska, Simashkova, Mukayetova, Ivanov, & Boksha, 2018; Schmidt, 2017).

The clinical picture of early childhood autism is highly heterogeneous. Cognitive development ranges from severe mental retardation to advanced development.

In general, this disease is characterized by a very uneven profile of the development of mental functions, which includes the strengthening of some abilities against the background of a gross decrease in others (Haebig, Jiménez, Cox, & Hills, 2020).

Children with autism tend to show pronounced pathological specificity in the development of sensory perception. At an early age, at first glance, their sensory development occurs ahead of time - often such children develop independent actions early, and the accuracy of their implementation is quite high. Such a child can jump between chairs without missing or falling to the floor, which gives the impression of a high level of sensory development (Mamokhina, 2017).

The anticipatory selection of individual sensory impressions is combined with a delay in the development of ideas about the everyday environment, their fragmentation, insufficient development of a detailed, objectively and functionally organized picture of the world, attitudes towards things in accordance with their function (Nason, 2016). The child's attention is often attracted not by a thing, but by a part of it, sensory attractive or giving the opportunity to make a spectacular impression (a wheel that can be turned). And, if normally children begin to evaluate the value, recognize sensory properties, determine the shape, the number of objects in the process of their use in everyday life, in the context of their purpose, the benefits of surrounding things, then with autism, individual "pure" sensory impressions become valuable for the child, they stand out early and become attractive (Lapshina, 2019).

Speech features in autistic disorders are manifestations of qualitative disorders of communication and socialization. The general stereotyped behavior and activity of people with autism are reflected in such speech phenomena as echolalia and verbal rituals. Thus, in speech with ASD, you can see the manifestations of the entire autistic triad. The development of speech in children with autism is most often delayed, and the pattern of this delay has both similarities with the delay in speech development in children without autism, and specific features that are noticeable even at the pre-linguistic level. In some cases, during the development of speech, a specific regression of speech skills can be noted, often accompanied by a general regression in the development of the child (Belyaeva, 2020). Among the features of expressive speech in autism spectrum disorders, it is customary to distinguish echolalia, verbal rituals, the use of neologisms and idiosyncratic speech, the misuse of personal pronouns and verb endings. The speech of people with autistic disorders can be unusual in its paralinguistic components: intonation, tempo, rhythm and loudness.

Special signs of mental development of children with ASD that affect their speech activity:

1. The surrounding world is perceived from the point of view of a subjective order, there are stable dominants among various cognitive external stimuli;

2. Availability of own signaling system with the outside world;

3. Peripheral vision is used to obtain data from the interlocutor;

4. Actively upholding clarity, not disturbed by the usual order of action, established rules;

5. A high degree of memorization without any structure or order of memorization

6. A high role of visual orientation through the drawn objects;

7. Good ear for music;

8. Attraction by unusual phenomena;

9. The ability to feel and be aware of oneself in space and navigate in it.

The study of the signs accompanying ASD allows making the correct diagnosis and developing the necessary assistance program. Thus, autism can only be understood in dynamics, in development, in the context of a socio-psychological perspective. Every act of human development, including an autistic person, occurs in the interaction of needs and communication and always in a socio-cultural environment (Haebig et al., 2020; Lotfizadeh, Kazemi, & Pompa-Craven, 2018).

Methodology

The VB-MAPP program for assessing the speech and social interaction of children with autism was used as empirical methods, within which were assessed such speech skills as mand (request), tact (name), interverbal behavior (answering questions), interverbal behavior (filling in the gaps, finishing phrases), echo reactions (repetition), listener behavior; and skills related to speech: visual perception, play, social, motor imitation, spontaneous vocal behavior, intraverbal behavior, group behavior, linguistics, social skills, reading, writing, mathematics.

The Verbal Behavior Milestones Assessment and Placement Program – "VB-MAPP" was developed by Mark Sundberg in 2008 (Sundberg, 2008) and began to be actively used in ABA practice.

The tests allow to determine:

1. Priority objectives of the program;

2. Difficulty level of mastering the required skill;

3. Difficulties that complicate the learning process (echolalia, generalization difficulties, etc.);

4. The most suitable form of alternative communication;

5. What specific teaching methods are best for the child (self-directed learning, casual learning);

6. The most suitable type of learning environment (1: 1 lessons at home, in a small group, integration in a large group).

The VB-MAPP method consists of the following components:

1. Assessment of development stages. It represents 3 levels of development which include 170 definitions of speech and learning skills; determines the level of development of existing speech skills.

2. Assessment of learning barriers. The following behavioral elements are assessed: problematic behavior, control of stimuli, poor motivation, dependence on rewards and cues, sensory impairments, hyperactive behavior, and others. 24 common language barriers for children with autism and other developmental disabilities are being tested.

3. Assessment of transitions. It contains 18 samples. The progress of the child is assessed, and the dynamics of the acquisition of skills for learning in the natural environment is determined.

4. Analysis of assignments and monitoring of skills. It consists of 16 grouped parts and contains about 900 individual skills. At this stage, specific acquired competencies are determined, which allow to track in more detail the evolution in the acquisition of specific competence and draw up a repertoire of competencies.

5. Recommendations for the preparation of an individual curriculum.

This study presents the results of the assessment of the stages since these results are the most important for the construction of speech therapy work.

Results are interpreted using a three-level developmental sequence. The assessment was based on 3 levels, 16 skill categories and 170 tests.

Research on the "VB-MAPP" program was carried out in a complex manner since for correctional work it is necessary to take into account not only the level of basic speech skills but also non-verbal higher mental functions. The main principle of working with children with autism spectrum disorder is the individualization of correctional and developmental work; it is necessary to determine the level of formation of basic speech skills in each child according to the sample.

A qualitative analysis of the data obtained was carried out. The diagnosis involved 8 children with ASD in the age range from 4 to 7 years.

A study to identify the level of development of communication skills among preschoolers with autism spectrum disorder was carried out on the basis of the "Kindergarten No. 63 of the combined type" of the Vakhitovsky district of Kazan and the "Kindergarten No. 165 of the combined type" of the Novo-Savinovsky district of Kazan.

Parental consent was obtained for the examination of children.

Results

Table 1. The results of the formation of social and speech skills in children with ASD

No.	MAND	TACT	Listener behavior	Visual perception and pattern matching	Independent game	Social behavior and social play	Motor imitation	ECHO - skills	Spontaneous vocal behavior	Distinguishing by functions	Intraverbal skills	Group behavior	Linguistics	Writing	Reading	Mathematics
1	1,5	2	7	6	4	2	6,5	7,5	1	1,5	1	6	2	1,5	1	0
2	0	0	0,5	1	0	0	0	0	0,5	0	0	1	0	0	0	0
3	0	0	3	2	0,5	0,5	3,5	0	0,5	0,5	0	2	1	0	0	0
4	1	0	2	3,5	1	2,5	2,5	0	1	1	0	3,5	1	0	0	0
5	1	0,5	4	4,5	1	1	4	4,5	2	1	0	2	1	0	0	0
6	0	0	2	3,5	0,5	0,5	2,5	0	1	0,5	1	1	1	1	0,5	0
7	3,5	6,5	6	3,5	1	0,5	4	7,5	3	0,5	1	0	4,5	0	1	1,5
8	0	0	0	1	1,5	1	0	0	0,5	0	0	0,5	0	0	0	0

Qualitative research has shown that four children (50%) do not have the skill to make a request. Three children (37.5%) can demonstrate 2 different requests with the help of gestures, while they need prompts. Requests are addressed to adults, peers are not being requested. One child (12.5%) makes requests in the presence of a mother to familiar adults with a prompt and in a familiar environment.

At the time of the examination, he made 6 requests, without echo, without imitation in various situations.

In the study of tact skills, it was revealed that in six children (75%), the tact skill was not formed. The naming of motivational objects and objects of everyday life is not available to them. One child (12.5%) names 4 motivational objects, but the child's speech is echolal, most often he only repeats the name of the object. One child (12.5%) names about 25 items. When picking up familiar objects, he generalizes tact-reactions. In the child's speech, there are 25 2-component reactions (noun + verb).

Assessment of the listener's behavior skill showed in two children (25%) the absence of reactions to their name, to the speaker's voice, lack of visual contact with the speaker. Two participants (25%) turn and pay attention to the speaker's voice, react to their own name, and look at the speaker. Two children (25%) are also able to respond to the desired stimuli, can show two motor actions according to the instruction (raise your hands, hands to the sides). The other two children (25%) distinguish or choose an object from four, perform five specific motor actions according to instructions.

Visual perception and pattern matching skills were present in all survey participants but were developed at different developmental levels. Three children (37.5%) were able to follow a moving stimulus with their eyes for two seconds, to take objects with tweezers, but not always on the first attempt. Four participants (50%) can focus and examine the toy for 30 seconds. One child (12.5%) showed the ability to match 10 identical objects, sort objects by color and shape for five different colors and shapes according to a given model.

The skill of independent play turned out to be completely undeveloped in one child (12.5%). Two children (25%) are able to manipulate and examine objects for 30 seconds during 30 minutes of observation. Four participants (50%) manipulated the object for 1 minute. One child (12.5%) was able to study subjects and play in an unfamiliar environment, independently play outdoor games without prompting and encouragement from adults.

When studying the skills of social behavior and social play, it was found that one child (12.5%) did not have the skills to play together with other children or adults and to imitate the game. Five participants (62.5%) can show that they want physical interaction with adults (can come up and hug or pull on the hand, use the hand of an adult instead of a pointing gesture). Two children (25%) have eye contact as a form of mand reaction.

During the study of motor imitation skills in two participants (25%), these skills were not formed. Two children (25%) imitate 6 movements of gross motor skills with a verbal prompt "Do it this way".

Three participants (37.5%) can imitate 15 movements of any type, including gross motor skills with objects, fine motor skills. One child (12.5%) imitates 5 different three-component sequences of actions after "Do it this way".

Echo skills were not developed in 5 children (62.5%). One child (12.5%) showed a low level of formation, there was a recognizable reaction to some syllables, but there were incorrect or missing consonants. In 25% of cases, a recognizable reaction is noted, correctly pronounces two-syllable words, errors are encountered in three-syllable combinations.

An assessment of the skills of spontaneous vocal behavior showed that 6 children (75%) pronounce on average 2-5 sounds within 1 hour. Only 25% of participants spontaneously pronounce 10 different sounds within an hour.

Differentiation by functions, characteristics and categories was not formed in two children (25%). Five children (62.5%) choose sweets in a set of 5 items 5 times. One child (12,5%) chooses an object from a set when answering questions of the verb + noun format, including interrogative words "what", "on what", etc.

In the study of intraverbal skills, it was revealed that five children (67.5%) did not have the skill formed. Three participants (37.5%) answer the question "What is your name?", one child pronounces his own name by syllables only together with a speech therapist, putting his finger to his chin.

Two children (25%) have not developed group behavior skills. Four children (50%) can sit in the group without unwanted behavior and attempts to leave the group within 3 minutes. Two participants (25%) use the toilet and wash their hands after verbal prompts, respond to 2 instructions addressed to the group.

Two participants (25%) in the study showed an unformed linguistic skill. Four children (50%) understand at least 100 words as a listener. Articulation of one child (12.5%) when pronouncing names is understandable for familiar adults. One child (12.5%) can make logical stresses, change the rhythm of speech, intonation. The child's general active vocabulary is 200 words.

Writing skills were not developed in six children (75%). Two participants (25%) imitate movements with writing instruments, outline geometric shapes.

Five participants (62.5%) did not develop their reading skills. Three children (37.5%) demonstrated the ability to focus on a book that is read to them for 3 minutes.

Seven participants in the study (87.5%) did not have mathematics skills.

Only one child (12.5%) showed the ability to distinguish, as a listener, numbers from 1 to 3 in a set of 5 different numbers, to name numbers from 1 to 5.

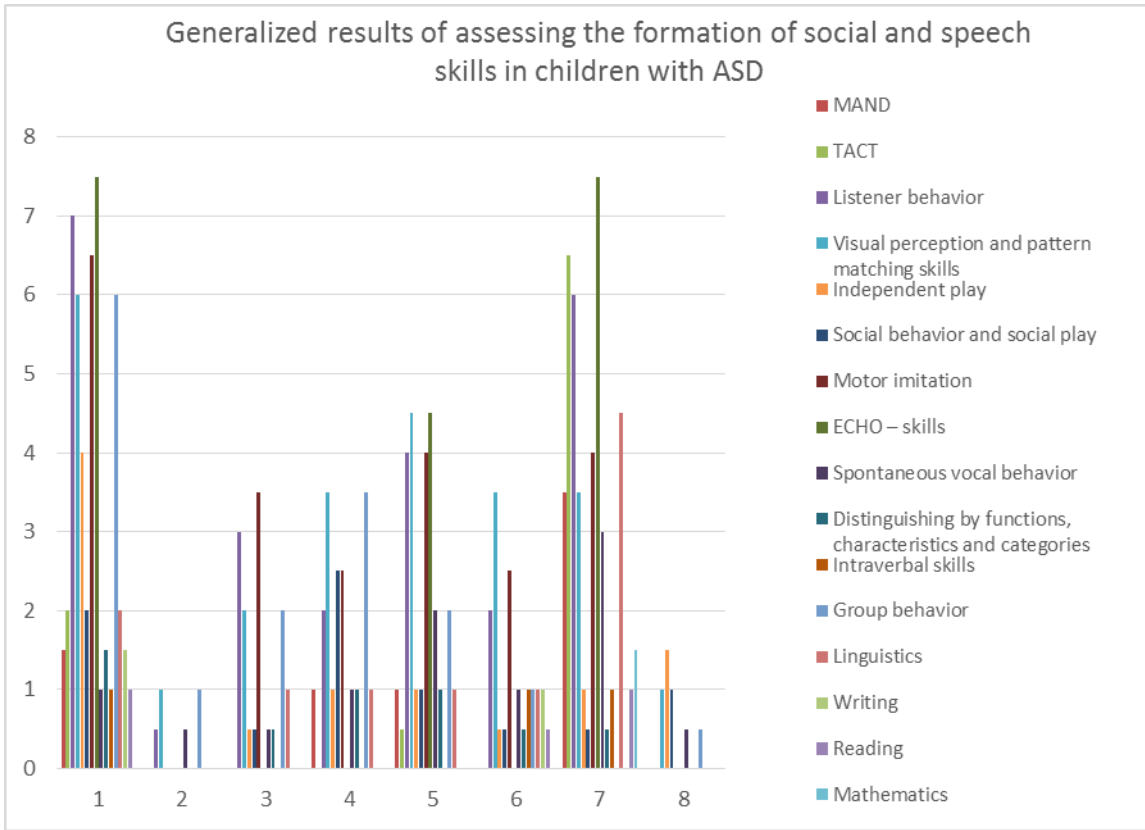

Figure 1. Generalized results of assessing the formation of social and speech skills in children with ASD

Mean values are often of no value in the preparation of correctional and developmental programs. Programs are individual in nature only when taking into account individual results, which often do not depend on the age or gender of the child with ASD, but only on the individual characteristics and complexity of the defect.

Discussion

Using speech for communication, considering the social context of the conversation, communicating solely for a social purpose is difficult for people with autism. The ability to understand speech is also limited in children with autism, and in many ways, these limitations are associated with the peculiarities of sensory perception in general.

Difficulties in filtering speech stimuli, hypo- and hypersensitivity to sensory stimuli in children with autism complicate the development of impressive speech. Understanding the characteristics and disorders of speech in children with autism spectrum disorders not only improves the ability to diagnose these disorders but also helps in the process of correction, teaching and interaction with children (Antipova & Miticheva, 2019).

Social communication disorders are reflected in behavior such as an inability to navigate in society, understanding and using social gestures, following the gaze, making eye contact, mimicking, and the ability to initiate and / or respond to joint attention. Extensive research has established that these early emerging social behaviors are important building blocks for the typical developmental trajectory. More specifically, these behaviors are critical for the initiation and maintenance of social relationships and the development of verbal language (Mamokhina, 2017).

Conclusion

Summarizing the results of the survey, it should be noted that children have different levels of development and formation of various skills. Most children do not correspond in speech development to normotypical children. Every child needs an intensive behavioral intervention program and the development of individualized speech development programs. The survey results allow us to identify the most and least formed skills inherent in all children from the sample. The most developed skills include listener behavior, imitation, visual perception. Thus, we can conclude that when mastering various skills, it is most easier for children to learn reflected repetition of words, repetition of various actions after other people, and learn the ability to manipulate various objects. The least developed skills include tact, social skills, naming objects. Based on these results, it can be concluded that children with ASD experience the greatest difficulties in social contacts, such as difficulties in making requests, interacting with people. In this regard, difficulties occur in the development of speech skills.

For practical activities, it is important that the development and substantiation of the main directions of correctional and pedagogical work on the development of communication skills in preschoolers with autism spectrum disorders on the basis of the data obtained will improve the skills of children with ASD and transfer them to a higher quality level. The results of the study will serve to select effective technologies in education and to build a comprehensive model for accompanying children with autism spectrum disorders.

Kindergarten teachers need specific individual results for each child with ASD separately to develop and implement an adapted basic educational program for preschool education for children with autism spectrum disorder, and active parents need to be involved in behavioral therapy programs to shape the speech behavior of children with ASD.

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Competing interests

The authors have declared that no competing interests exist.

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