

Assessment of psychological and speech development in early childhood

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Abstract. The article discusses and describes in detail topical problems of psychological and speech development of young children. The relevance of this issue is associated with an increase in the number of children with problems in the development of speech already in the first years of life. A brief overview of studies on the formation of functional systems and higher cortical functions in ontogenesis, as well as applied aspects of assessing the psychological and speech development of young children is presented. The authors of the article conducted an experimental study, the results of which showed a visible lag behind the age normative indicators of psychomotor and speech development in children of the test group. Qualitative and quantitative analysis of the obtained data showed that the pathogenetic basis of the existing disorders was delayed maturation of brain structures and functions against the background of chronic maternal diseases, unfavorable course of pregnancy, general somatic weakening and neurological status.

1 A problem statement

Modern methods of diagnosing deviations in the development of children make it possible to determine their presence at an early age. It is known that early age is the period of formation of functional systems and the formation of higher cortical functions. The functions of the cerebral cortex, according to the studies of L.S. Vygotsky, A.V. Zaporozhets, S.L. Rubinsteyn, D.B. Elkonin and others, develop as a result of the interaction of the child with the environment [1-3]. This is most intense in the early years of life. In the first three years of life the functional basis of mental development is formed and perfected: gnostic abilities, visually-efficient and visually-shaped thinking, memory, attention, etc. [4-7].

Early diagnosis of psychomotor and speech development is therefore of particular importance. The insufficiency of motor, mental, speech and emotional development that is detected at an early age adversely affects the further development of the child, leading to difficulties in reading and writing.

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1.1 The objective of the work

The special scientific literature contains criteria for assessing the speech development of children which allow determining the lag or non-formation of anatomical and physiological prerequisites for the development of speech activity at an early age [8-11]. The most significant include the following:

- understanding and nature of sequence of stages of mastery of impressive speech;
- pre-speech vocal reactions (age and stages of vocalization, the nature of the lobe, the volume and quality of consonant sounds, features of the syllable structure of the word, prosody, etc.);
- combination of gestures and words; Verbal acts of approval and requests (in separate words; two-word statements);
- time of active speech appearance (volume of dictionary, syntax, motivation of speech by action or situation);
- mastering the phonetic system of speech (differentiation of phonemes by acoustic and articulatory features; nature of phonetic transformations).

Assessment of the level of psychomotor and speech development of the child is a significant component of corrective and pedagogical work, necessary for adequate selection of the strategy and tactics of training.

2 Results of the research

Experimental work was carried out with us with young children aged 2 years 7 months to 2 years 11 months. The ascertaining experiment was conducted to study the initial speech state of the children of the test group.

To achieve this goal, we have formulated specific objectives:

1. Choose a set of special game tasks aimed at studying psychomotor and speech development of young children (three years).
2. Create pedagogical conditions and carry out diagnostic measures to assess the psychomotor and speech development of the children of the tested group.
3. Analyse the data obtained, evaluate them qualitatively and quantitatively, and draw up a remedial and pedagogical plan to eliminate the violations detected.

We collected the necessary qualitative and quantitative data using specially selected methods, taking into account the age and preliminary data obtained during the monitoring of the children of the tested group. In our work, we took an active stance and created the conditions necessary for studying and evaluating the psychomotor and speech functions of the children under study.

Diagnostic study was conducted according to a predetermined plan in game form and included assessment of perception, memory, active attention functions, gnosis, speech functions, thinking. We have differentiated the task of studying the initial state of intelligence into two groups: verbal and non-verbal. The first included speech activity of the child, the second included diagnosis of the speech function of the children of the tested group at the level of speech comprehension.

The qualitative and quantitative evaluation of the data obtained was based on normative scales of early childhood development (1-3 years) developed by N.M. Aksarina, S.M. Krivina, K.L. Pechra. In studying speech functions we relied on patterns of development of children's speech described by N.S. Zhukova, E.M. Mastjukov, T.B. Filichev.

The ascertaining experiment was conducted on the basis of early childhood diagnostic methods developed by E.A. Strebeleva, N.V. Serebyakova and Y.F. Garkusha.

Analysis of children's medical and psychological and pedagogical documentation, with a view to a thorough examination of their upbringing and the characteristics of their

psychophysical development, revealed that they had perinatal pathologies: the mother's illnesses were observed in 62,5% of those surveyed, and the remaining 32.5% of those who were pregnant were not registered at the antenatal clinic.

In addition, all of the children of the test group suffered from a lack of psychomotor and speech development. We have identified the following features of ontogenesis: rapid childbirth (12.5 per cent), maternal toxemia in the seventh month of pregnancy (12.5 per cent), early childhood diseases ARI, SARS (50 per cent), and delayed speech development (25 per cent). In the speech exam, all subjects showed an unsteady pronunciation. In all children of the tested group there is an underdevelopment of general, small and articular motor (it was difficult for children to jump on one leg, catch a ball, put their fingers in a ring in turn, perform a sample «fist, rib, palm»). An analysis of the medical and psychological records of the children of the tested group showed that all children had developmental pathologies in the prenatal and early post-natal periods.

The neuro-mental indicators were reflected in the maps according to criteria developed by G.V. Pantyukhina, K.L. Pechora, E.L. Frucht.

In researching the psychomotor development of the children of the tested group, we relied on the variant of early childhood diagnostics developed by E.A. Strebeleva on the basis of the theoretical and methodological approach of the school L.A. Wenger.

In studying the degree of formation of speech, special methods (Y.F. Garkusha, N.V. Serebryakova) were used to examine both impressionable and expressive speech.

In the second phase of the validation experiment, we conducted an in-depth study of the psychomotor development of the children of the group being tested. The survey was conducted on diagnostic tasks. Each of the tasks was evaluated on a four-point scale (from 1 to 4 points). In the course of the survey we evaluated the following indicators of psychomotor development: acceptance of the task; understanding of the conditions for completing the task; how to perform (the «sample" method or practical example); learning in the process of examination; interest in cognitive tasks, to productive activities; treatment of the results of their activities.

According with these indicators and the scores of all test children, we have divided the scores into four groups.

The first group (10-12 points) children who showed no interest in toys, were not included in the play with the teacher, did not solve cognitive tasks, did not function adequately during the training. Qualitative analysis of the indicators of this group reveals a lack of cognitive development.

The second group (13-23 points) included children who reacted emotionally to the toys, but could not organize an independent game; they were included in the game with the adult, performing only some procedural actions with the toys. In the process of independent execution of practical tasks, they were mostly chaotic; in the course of the training acted adequately, but after the training did not move to practical orientation (the method of «sampling»). They do not have separate prerequisites for productive activities (interest, instruments, visual motor coordination, etc.).

The third group (24-33 points) were children who were interested in playing with toys, were included in a game with adults, and could perform subject-playing activities on their own. During the execution of the tasks, they used mainly the method of sorting out variants, but after learning to move to practical orientation (the method of «sampling»). The children of this group had an interest in productive activities (design, drawing) and could not complete the task on their own, but after training they were able to complete the task.

The fourth group (34-40) were children who had an interest in playing with toys, and organized the game themselves. When performing tasks, children used practical guidance (the «sample» method). They had an interest in productive activities and were able to carry

out the proposed tasks on their own. Children in this group have shown an adequate level of mental development.

On the basis of the data, we have prepared a profile of psychomotor development of children of the tested group.

The graph (fig. 1) shows that the children of the test group were the most successful in completing tasks 1, 2 and 9. This confirms our conclusions that early remedial work aimed at the development of the child from the first days of life is beneficial for psychomotor development, and speech development.

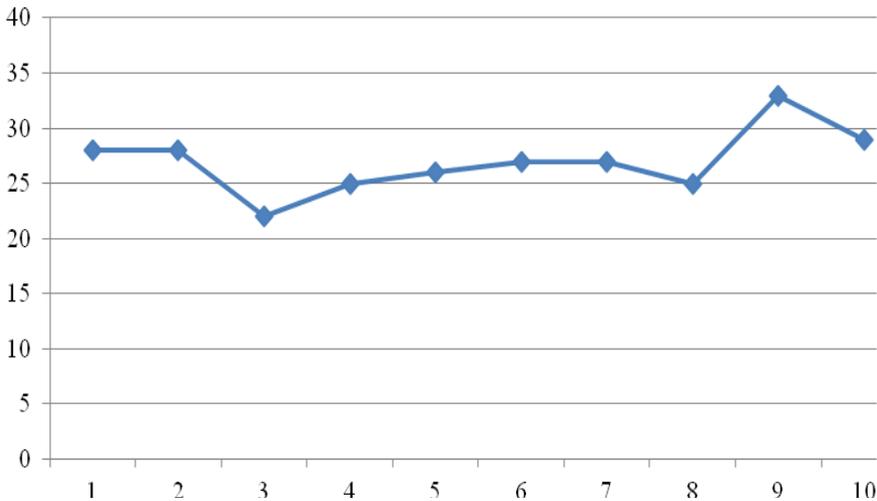


Fig. 1. Psychomotor profile of test group children (ascertaining experiment), %.

On the basis of the data obtained, we constructed a diagram (fig. 2) in which we reflected the psychomotor development of the children of the test group and their distribution to the «Development Groups».

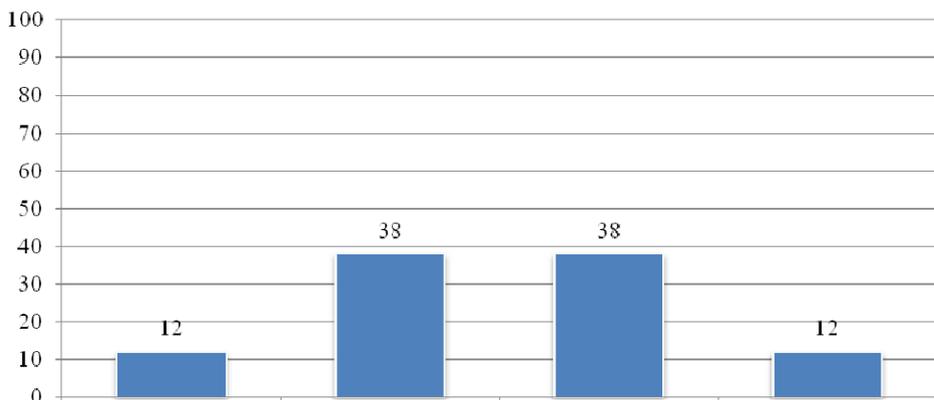


Fig. 2. Summary indicators of psychomotor development of children of the tested group (confirming experiment), %.

This approach to estimating the speech sphere of early children allowed to determine not only the «current» level of development, but also the potential, that is «zone of near development». The study served as the basis for an individual programme of speech

therapy in the case of early developmental disorders. In the figure 3 shows the speech profile of the test group children based on the results of Block 1 tasks.



Fig. 3. Development profile of impressionable speech of test group children (ascertaining experiment), %.

The figure 4 presents summary indicators of the induced speech of the children of the tested group based on the results of the Block 1 tasks.

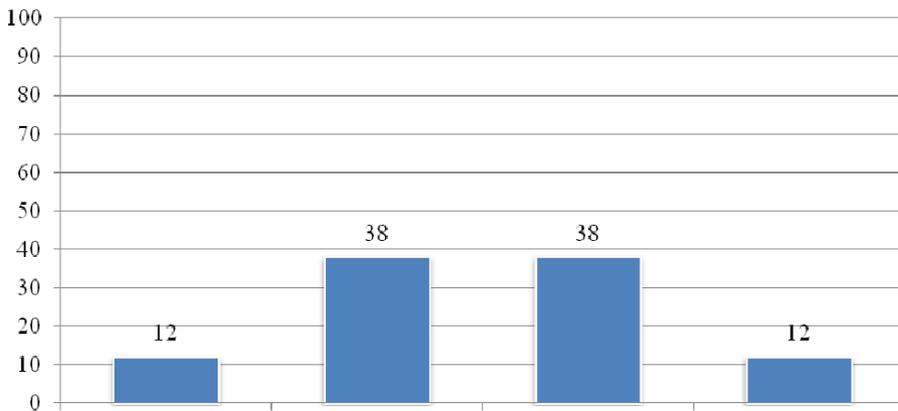


Fig. 4. Summary indicators of impressivity children of the tested group (the confirming experiment), %.

The results show that the children of the group successfully completed the exercises aimed at determining the formation of impressionable speech. They understood the language and acted as an adult.

On the basis of the data obtained, we constructed a diagram showing the development profile of the expressive speech of the group of tested children (Fig. 6).

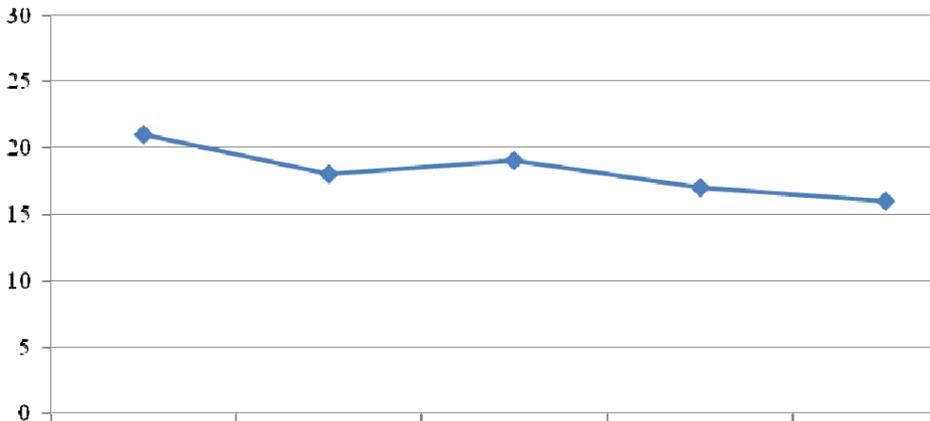


Fig. 5. Expressive speech development profile of the tested group (acknowledging experiment), %.

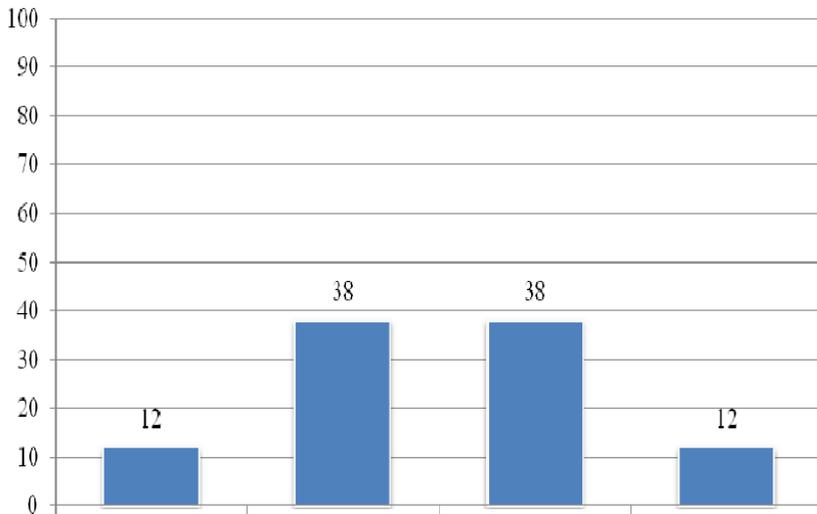


Fig. 6. Summary expressive speech indicators children of the tested group (the confirming experiment), %.

Analyzing the results of the diagrams in Fig. 4 and 6, we found that the children of the group being tested had uneven development of active and passive speech. Children understood well the speech of the experimenter addressed to them, but rarely used words or used «autonomous» children's words like «av-av», «am-am» etc. The prevalence of such words testifies to the delay of speech development.

The results of the validation experiment showed that the majority of children in the test group lag behind the standard indicators of psychomotor and speech development. The under-development of all components of speech in all subjects is accompanied by emotional and voluntary immaturity, weak regulation of arbitrary activities, lack of attention functions.

Thus, the children of the group under test showed an apparent lack of age-specific standards for psychomotor and speech development. The pathogenic basis of the existing disorders is the delayed maturation of brain structures and functions in the context of chronic maternal diseases, unfavourable pregnancy, general somatic weakness and neurological status. It follows that the children of the test group need to gradually develop

the psychomotor and speech spheres through the organization of timely speech therapy in the case of early forms of disorders.

All of the above points to the need for a global overhaul of the system of logo-paediatric care for early and pre-school children with HIA in general and for the training of logo-paediatric personnel for pre-school education in particular. It should be borne in mind that not all young children with special educational needs can be included in general education organizations, but all must receive the necessary comprehensive psychological and pedagogical assistance. Consequently, special education must maintain its position in pre-school education in parallel with inclusive education. This will help to ensure that most children with HIA can receive a quality education and be adapted to their environment. Of course, the early start of psychological and pedagogical correction, including speech therapy, is necessary for specialists with qualified defects. A speech therapy teacher with only first-language skills should be replaced by a speech therapist capable of providing speech support to various categories of children with HIA in early and early childhood.

References

1. E.V. Zhulina, *System of early assistance to children with a delay in speech development*, 143 (2018)
2. E.V. Larkina, O.V. Haletskaya., T.N. Dmitriyeva, *Clinical-neuropsychological characteristic of speech disorders in pre-school children*, Medical almanac, **6(30)** (2013)
3. L.A. Rodina, *Peculiarities of psychological and speech development of young children*, Psychological-pedagogical support of educational process: problems, prospects, technologies, 321-323 (2020)
4. N.V. Makarova, *Theoretical basis of early diagnosis of disorders in psycho-verbal development of children*, Gaznik of the Taganrog Institute named after A.P. Chekhov, **2** (2012)
5. E.V. Ezhovkina, *Psychological and pedagogic support of children with health limitations*, International Education Studies, **4(8)** (2015)
6. Y.E. Sotnikova, *Study of verbal means of communication in early childhood*, International Journal of Humanities and Natural Sciences, **2** (2020)
7. S.V. Smyslova, *Study of the mental and speech development of young children with the delay of speech development*, Open World: Combining efforts: Materials IV of the All-Russian Scientific and Practical Conference, 312-314 (2018)
8. N.Y. Grigorenko, *Specificity of speech development of children of early and pre-school age with limited health*, Pedagogical education in Russia, **2** (2017)
9. Y.A. Pokrovskaya, *Modern understanding of the term «Delay of speech development» in the native speech speech therapy*, Specific language disorders in children: issues of diagnosis and correction-developing influence, **6** (2018)
10. S.A. Shatrova, *Problems of communication and speech development of young children and their solution in educational space of kindergarten*, Concept, **2** (2019).
11. N.S. Razinkova, I.G. Khmelevskaya, T.A. Minenkova, E.V. Matvienko, N.D. Krivdina, A.V. Seryozhkina, *Modern aspects of diagnosis of speech developmental disorder in children*, **4(72)** (2019)
12. I.B. Agayeva, L.V. Vyazemskay, *Comparative study of the language of young children with normative and delayed speech development*, Problems of modern pedagogical education, **60-4** (2018)

13. L.B. Astakhova, *Organizational forms of logo-paediatric assistance to children with special needs in pre-school education*, Pedagogical education in Russia, **4** (2018)
14. N.V. Filippova, *Disorders of speech development in children and psycholinguistic approaches to their study*, Russian Journal of Psychiatry, **61** (2016)
15. Volzhankina N.V., Zhulin E.V., *Research on language retardation in young children*, Problems of modern pedagogical education, **64-2** (2019)
16. L.A. Gmyrya, N.A. Oteva, O.L. Priktetkova, *Diagnostics of psycho-verbal development of young children*, Gazette of Shadrin State Pedagogical University, **2(46)** (2020)
17. O.G. Prikhodko, *Peculiarities of speech development of children of the first years of life of various nosological groups*, Special education, **4(52)** (2018)
18. N.V. Makarova, *Theoretical basis of early diagnosis of disorders in psycho-verbal development of children*, Gaznik of the Taganrog Institute named after A.P. Chekhov, **2** (2012)
19. E.A. Strebeleva, G.A. Mishina, *Psihologo-pedagogicheskaja diagnostika narushenij razvitija detej rannego i doshkolnogo vozrasta*, Psychological and pedagogical diagnostics of developmental disorders of children of early and preschool age, 144 (2010)
20. R. Valeeva, E. Khakimova, *Study of Educational Psychologists' Emotional Competence Development*, Review of European Studies, 100-108 (2015)