

Study of the Ability to Learn in Children with Congenital Anomalies in the Development of Internal Organs and Systems of the Body

Sotskaya Gulnara Mizhatovna*

Medical Psychologist, Head of the Sector of Psychological Diagnostics and Rehabilitation, Federal State Budgetary Institution, Federal Bureau of Medical and Social Expertise of the Ministry of Labor of Russia, Moscow, Russia

***Corresponding Author:** Sotskaya Gulnara Mizhatovna, Medical Psychologist, Head of the Sector of Psychological Diagnostics and Rehabilitation, Federal State Budgetary Institution, Federal Bureau of Medical and Social Expertise of the Ministry of Labor of Russia, Moscow, Russia.

Received: May 26, 2019; **Published:** July 12, 2019

Abstract

The article presents the data of a comprehensive clinical and psychological study of mental activity of children of primary school age with congenital anomalies of the cardiovascular system and urinary system. The aim of the study is to study the ability to learn in children with congenital malformations and to develop basic organizational models of their psychological, medical and pedagogical support.

The presented results of the study allowed to determine the main structure of mental activity disorders in the studied contingent, as well as the levels of mental activity disorders and their impact on the ability to learn. The main criteria determining the psychological component of rehabilitation potential, the level of learning and the prognosis of learning of children with congenital malformations were identified.

The obtained data allowed to develop and propose five main organizational models of psychological, medical and pedagogical support of children with congenital anomalies of the cardiovascular system and urinary system.

Keywords: *Congenital Anomalies of Development; Learning Level; Psychological Potential; Learning Prognosis; Learning Ability; Psychological; Medical and Pedagogical Support*

Introduction

In psychology, the central indicator of the normal psychosocial development of a child is his ability to perform leading activities in accordance with the biological age [8,9,23]. Such a leading, integrative form of life activities in children of school age is learning, on which depends not only the development of other activities, but also the acquisition of social experience and adaptation in society.

Of particular interest are features of mental development and learning capacity of children with congenital anomalies of development, which according to the statistical reporting in Russia from 2009 to 2014, held the first rank place in the structure of causes of primary and secondary disabilities in children, in 2015 and 2017 - ranking third place, behind mental disorders and diseases of the nervous system. Among congenital anomalies (malformations), deformities and chromosomal disorders in children, leading to disability, the leading place is occupied by congenital anomalies of the cardiovascular system [14-19].

Analytical review of scientific publications on the problem of teaching children with disabilities has allowed considering various theoretical concepts and approaches to solving this issue [12].

Analysis of previously conducted research works allows determining the main tendency of formation of the psyche in children with chronic somatic diseases, which boils down to the fact that chronic somatic pathology does not pass without a trace for the formation of brain structures of a child's brain and causes specific mental disorders of cerebral genesis [1,2,5,6,11,12,22]. In addition, a chronic somatic disease creates for the child a special deficiency situation of development, which is characterized by restrictions on activity and independence in the ways of self-expression, which causes a delay in the development of the cognitive sphere and personality.

At the same time, scientific research on various aspects of education and forms of education, the use of corrective measures in children with congenital developmental abnormalities was not enough. In this regard, the issue of training and accompaniment of such children is not fully disclosed and requires further study of the factors that make it possible to predict the ability to learn and develop the basic organizational models of their psychological, medical and pedagogical support.

All of the above determined the relevance and necessity of this study and determined its purpose.

The scientific research was approved at the meeting of the Committee on ethics of scientific research of the Federal state budgetary institution "Federal Bureau of medical and social expertise" of the Ministry of labor of Russia (Protocol No 2 of January 17, 2017).

Purpose of Research

To study the ability to learn in children with congenital malformations of internal organs and systems of the body and to develop ways to improve their rehabilitation potential.

The Procedure of the Study

Experimental psychological research of children was conducted in the Federal State Budgetary Institution "Federal Bureau of Medical and Social Expertise" of the Ministry of Labor of the Russian Federation in the period 2014-2016 in the framework of the provision of medical and social expertise, designed to establish the structure and degree of disability and rehabilitation potential of the citizen. Experimental psychological research consisted of three stages [13]:

- **Stage I:** Study of medical and social characteristics of children;
- **Stage II:** Conducting a psychological diagnostics study of the child with the fixation of the results in the Protocol and parallel written testing of the legal representative of the modified questionnaire of Leonid Shmishek, designed to study trends in the formation of personal traits of the child from the point of view of the parent;
- **Stage III:** Processing the results of the study by computer program Statistica 10, analysis and interpretation of the data.

Characteristics of the experiment participants

The study involved 103 children of primary school age of health aged 7 to 11 years (9+2 years) with various congenital anomalies of the cardiovascular system (57 people) and urine-excretory system (46 people).

In the course of the study were studied medical and social characteristics involved in the study. The General characteristics of the children of both groups is that the majority of children are boys (70%), with an average age of 9 years, living in urban areas and being brought up in full families, enrolled in the basic General education programmer of primary General education, in an educational organization, in the General regime and with satisfactory school performance. However, parents of these children estimated their condition as corresponding to the status "Child-invalid" and continued to achieve its establishment at the level of Federal Bureau of medical and social examination of the Ministry of labor of Russia.

Expert diagnostics, carried out in the Federal Bureau of Medical and Social Expertise of the Ministry of Labor of Russia, allowed some of these children to establish disability and assess the limitations of certain types of vital activity as corresponding to the status of "Child-invalid" (37,8%). Another part of the children was not recognized as disabled (62,2%). Analysis of the results showed that among the examined children there are children with various consequences of congenital anomalies of the internal organs and body systems.

Thus, in children with congenital anomalies of the development of the cardiovascular system, the consequences are more pronounced than in children with congenital anomalies of the development of the urine-excretory system. This was manifested in the fact that more than half of the children with congenital anomalies of the cardiovascular system were set the status of "Child-invalid" (54%) to children, and only 15% of children were recognized as disabled by children with congenital anomalies of the urine-excretory system. Also, children with congenital anomalies of the development of the cardiovascular system are given harder learning than children with congenital anomalies of the urine-excretory system. They are trained not only in the basic general education program of elementary general education, but also in adapted programs for children with mental retardation and for children with mental deficiency due to oligophrenia, while children with congenital anomalies of the urine-excretory system are trained only in the basic general education program of general primary education.

Method of Research

- 1) Clinical and psychological methods: the method of clinical conversation, the method of observation, the method of clinical and psychological experiment.
- 2) Psychological diagnostic methods (questionnaires, questionnaires).
- 3) Documentary method (protocols of medical and social examination, individual program of rehabilitation or habilitation of a disabled child).
- 4) The method of statistical processing of computer programs (correlation analysis by Spearman, factor analysis, cluster analysis, Kruskal-Wallis criterion, Mann-Whitney criterion, X-square criterion).

The study used a statistical method to calculate the sample size. We used the following values: power of the criteria, significance level of 0,05, the values of the normal distribution, clinically significant group difference in the mean values, standard deviation, delta effect.

For the study of mental activity by the method of clinical and psychological experiment, standardized psychodiagnostic methods were used:

- 1) For the study of the energy component of the activity: the method of "Pieron-Ruzer" (from 7 to 8 years), the method of "Schulte's Tables" (from 9 years of age);
- 2) For the study of the cognitive component of the activity: Luria's "10 words" technique, the "Remember 9 figures" technique, the "4th superfluous" technique, the "Simple analogies" technique, the "Sequence of Events" technique, the "Understanding the hidden meaning of metaphors, sayings" technique, the "Understanding the meaning of the story" technique, the "Subtraction the same number" method, the "Successive subtraction" methodology.
- 3) For the study of the emotional-personal component of the activity - self-assessment by Dembo-Rubinstein, Eysenck personality questionnaire (children's version), Schmishek questionnaire (for parents), a questionnaire to determine school motivation.

Results and Discussion

The empirical study revealed similarities in the state of mental activity and differences in the form of "weak links" in one and the other pathology. Thus, the structure of mental disorders in children with congenital anomalies of the cardiovascular system and urine-excretory system are similar and characterized by:

- The predominance of violations of the dynamic component of mental activity, manifested by difficulties in orientation in tasks, slowed down workability, inertia, slowness of the overall rate of mental processes and exhaustion;
- Secondary changes in the cognitive component of mental activity in the form of modal and nonspecific disturbances of attentive and memory which are manifested by fluctuations, exhaustion, delayed formation of voluntary attention, memory braking, and lag in the development of the operational component of verbal-logical thinking;

- The lag in the formation of the emotional-personal component of mental activity, which is manifested in most children by emotional-affective instability, unformed school motivation, the predominance of inadequate and unstable self-esteem, and the formation of anxious personality traits.

However, the degree of severity of these disorders in children of two pathologies is unequal. Comparative analysis of psychological characteristics showed that children with congenital abnormalities of the cardiovascular system have more significant violations of the energetic component of mental activity and modal-nonspecific disorders of attention and memory. These children are more tired, slow, have more pronounced violations of attention and memory. The state of their mental activity can have a negative impact on the implementation of their leading activities - learning.

So, comparing the three groups of children in terms of academic performance, we identified the parameters that significantly affect the learning ability of children with congenital developmental anomalies:

- Neurodynamic component of mental workability ($p = 0,0003$);
- The formation of the attention function ($p < 0,0001$);
- The formation of verbal-logical thinking ($p < 0,0001$);
- The formation of school motivation ($p < 0,0001$).

The dependence of the emotional-personal sphere on performance, namely emotional stability of children ($p = 0,0265$), their self-esteem on the parameters "Mind" ($p = 0,0009$) and "Happiness" ($p < 0,0001$) and manifestations cyclothymic character traits ($p = 0,0164$).

To analyze the results obtained, the Spearman correlation analysis method was used, which shows an inverse correlation between school performance and the state of cognitive functions and a direct correlation between school achievement and emotional-personal sphere. That is, the lower the school performance of children with congenital developmental anomalies, the more pronounced their mental health disorders, lack of attention and unformed operational thinking, and in the emotional-personal sphere - the higher the school performance, the higher the level of formation of school motivation, more noticeable are the cyclothymic traits.

Thus, it can be argued that school performance in children with congenital anomalies in the development of internal organs and systems of the body is closely related to such indicators of mental activity as the energy component, attention function, formation of the operational level of thinking, level of formation of school motivation. It can be assumed that violations of the above parameters of mental activity not only create difficulties in mastering the school curriculum, but also contribute to the formation in the child of a subjective feeling of general distress in the learning situation, which we see in the formation of cyclothymic character traits and a decrease in children's self-esteem according to the "Mind" parameters, "Happiness".

The obtained data of factor and cluster analysis when comparing children with congenital malformations in accordance with their academic performance, allowed identifying four levels of mental functioning, which have different effects on learning:

- Zero or normal level of mental functioning;
- The first level of mental functioning disorders - functional, marked with a lag in the development of a separate cognitive functions (memory function);
- The second level of mental functioning disorders - component, determines the lag in the development of a separate component of mental activity (emotional and personal);

- The third level of mental functioning disorders - total, is a complex failure of all mental activity, including cognitive, neurodynamic and motivational components.

Zero or normal level of mental functioning was identified in the most numerous group (38%) which consists of children with a high level of learning, high psychological potential and a favorable psychological prognosis for further education. All components of mental activity are characterized by a high level of age formation, at the same time, the study revealed in half of the children in this group insufficient resistance to long-term intellectual stress, which objectively manifests itself in asthenic conditions.

The first level of mental functioning disorders (functional) was detected in the second group of children with congenital anomalies of internal organs and systems of the body (14%). They revealed a partial lag in the development of individual cognitive functions (memory function), which indicates a high possibility of compensatory effects of other components of mental activity and determines the average psychological rehabilitation potential of children, the average level of learning and a relatively favorable prognosis for further education. However, the uneven development of the psyche can mean that these children have non-pathological deviations of mental development in the form of “irregularity of mental development” [8]. Into unfavorable conditions, which will not take into account the peculiarities of their development, they may have a “failure of adaptation” and mental development will be already disturbed.

The second level of mental functioning disorders was revealed in the group of children (27%). Impaired functioning of mental activity is characterized by a lag in the development of emotional and personal component and is defined as “somatogenic infantilism” [5]. The cognitive component of children is formed in accordance with age norms, which determines their average psychological potential, the average level of learning and a relatively favorable Outlook for further education.

The third level of mental functioning disorders, manifested by the complex insufficiency of all components of mental activity (cognitive, energy and motivational), has the strongest impact on learning in children with congenital anomalies of internal organs and body systems. Underdevelopment of cognitive-motivational component of mental activity of children with congenital anomalies of cardiovascular and urinary systems allowed determining their low psychological rehabilitation potential, low level of learning and questionable or uncertain prognosis of learning in the future. Such children in the sample were 21%.

The criteria for assessing the psychological potential, level of learning, prognosis of learning in children with congenital anomalies of the internal systems of the body, depending on their level of mental functioning disorders are presented in table 1.

Parameters evaluated	Normal level of mental functioning	Levels of mental functioning disorders		
		Functional level of mental disorders	Component level of mental disorders	Total level of mental disorders
The level of learning ability	High	Average	Average	Low
Psychological potential	High	Average	Average	Low
Prognosis for further study	Favorable	Relatively favorable	Relatively favorable	Doubtful

Table 1: Criteria for assessing the level of learning, psychological potential, learning forecast, depending on the level of mental functioning disorders in children with congenital anomalies of the cardiovascular and urinary systems.

The study of the influence of various levels of mental functioning disorders on the ability to learn in the children studied allowed us to develop and propose five basic organizational models of their psychological, medical and educational support, taking into account clinical and functional features, psychological potential and level of learning.

Model №1: Is a model of psycho-medico-pedagogical accompaniment of children with congenital malformations with minor, but persistent violations of the cardiovascular system and urinary system with normal mental functioning (there may be minor functional changes range from 0 up to 10%), high mental capacity and a high level of learning ability that cannot serve as a basis for determining the status of “Child-invalid” (Figure 1). The proportion of children with minor disabilities is quite substantial and 37.8% is studied.

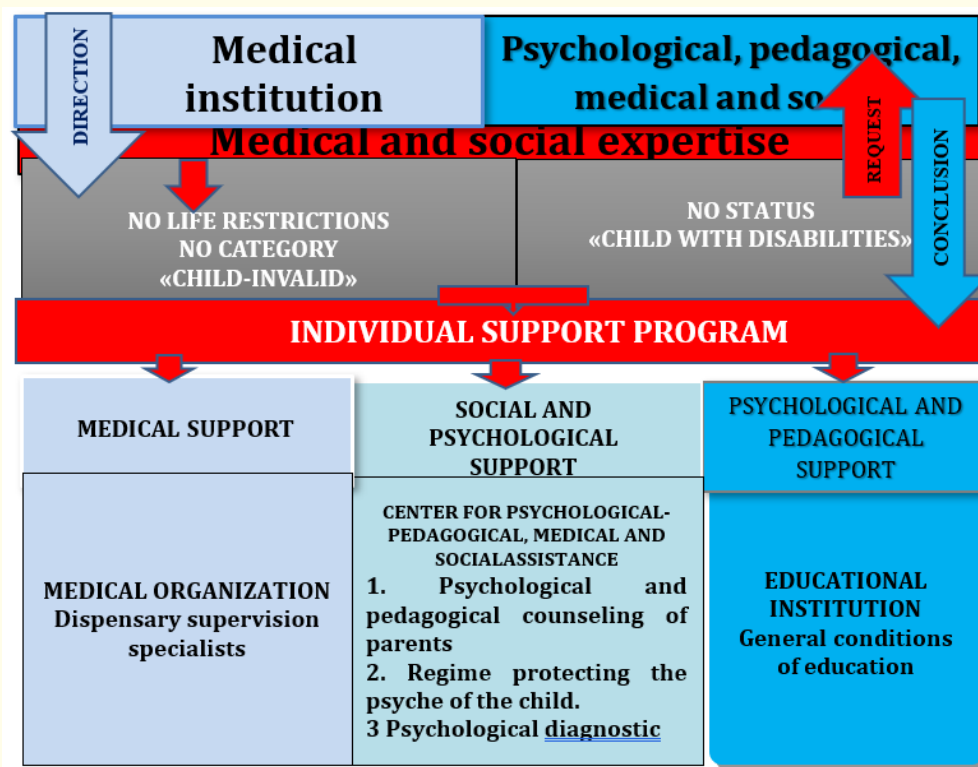


Figure 1: Model 1.

Children of this group after a timely and full amount of high-tech medical care have, as a rule, insignificant, although persistent residual functional violations that do not allow them to be assessed as disabled.

In children with minor but persistent disorders of the cardiovascular system and urinary tract, the conclusion of the psychological, medical and pedagogical commission confirms the normative mental development of the child, which does not require the definition of special educational conditions of education. It is recommended to study on the basic general education program of primary general education, in the general mode and full-time education.

The proposed model defines and recommends the development of a program of support for children who are not recognized as disabled with the inclusion of a set of measures for the prevention of disability. We offer to name this program, for example, an individual program of support of the child.

The program for the prevention of disability for execution should be addressed to institutions of different departmental affiliation and may take the form of an individual program for accompanying a child who is not invaled, but who has a congenital pathology of development and who is subject to follow-up.

For example, in order to prevent possible for violation of compensation conditions of the body, the child is recommended to continue further clinical observation of specialized specialists in institutions providing medical and preventive care in the so-called departments of medical prevention of diseases.

These recommendations should also be addressed to parents. They are recommended to carry out protective measures in relation to the child in the form of the introduction and maintenance of the regime protecting the psyche of the child.

They are also offered psychological assistance in the form of psychological counseling, aimed at correcting the parental attitude and attitudes to the disease of their child, structuring and introduction of the mental protection regime in the daily life of the child, which can be carried out on the basis of centers of the psychological, pedagogical, medical and social assistance, created by the executive authorities of the Russian Federation.

Model №2: Model of psychological, medical and pedagogical support children with congenital developmental anomalies with minor impairments functions of cardiovascular system and urinary excretory system, concomitant minor disturbances of mental functions (ranging from 10% to 30%), satisfactory psychological potential and an average level of learning ability (Figure 2). The share of such children in this study was 14,6%.



Figure 2: Model №2.

Children of this group, as well as the previous one, have, as a rule, persistent, insignificant functional disorders from the cardiovascular and urinary-excretory systems. In the course of a psychological examination, they reveal unilateral (partial) lag indicators in the formation of separate function or immaturity of the emotional-personal sphere (violations in the range of 10% to 30%) that do not lead to a restriction of life in the category of learning but require psycho-correctional help.

During the examination in the process of medical and social expertise, the children of this group are not recognized as disabled due to the persistent but minor functional impairments that do not lead to limitations in any of the categories of life activity, including training.

The psycho-medical and pedagogical commission, as a rule, defines such children as “a child with disabilities” in connection with the existing physical and mental development defects and the need for psychological, medical and pedagogical support. In accordance with this child, instruction is recommended on the basic general education program, in full-time and in the regular mode of instruction provided that the psycho-corrective measures of the existing developmental disorders are carried out. On the basis of Article 42 of the federal law “Education Law in the Russian Federation” psychological, medical and pedagogical assistance to a child can be provided:

- In an educational institution under the supervision of psychological, medical and pedagogical councils established on the basis of an educational institution, and the main purpose of which is a comprehensive, dynamic diagnostic and correctional support for children from the so-called “risk group”;
- In the centers of psychological, pedagogical, medical and social assistance, operating and created by the executive authorities of the subjects of the Russian federation [21].

Also, as in the first model in Model №2, measures are proposed for the prevention of disability in the form of developing an individual program for accompanying a child who is not disabled, which makes recommendations for implementation in organizations of different departmental affiliations:

- For healthcare institutions introduces a need in the clinical supervision of specialized professionals in institutions, providing curative and preventive care;
- For the centers of psychological, medical, pedagogical and social assistance-it is a psychological correction of deficient higher mental functions, psychological and pedagogical counseling of parents or other legal representatives of the child;
- For educational organizations-is the identification of deviations in the development and dynamic monitoring throughout the training in the educational organization; providing the necessary corrective-developmental assistance; prevention of mental and physiological overload.

Model № 3: A model of psycho-medico-pedagogical accompaniment of children with a stable moderate violation of the functions of the cardiovascular system and urine-excretory system, concomitant moderate disturbances in the functioning of psychic activities (ranging from 40% to 60%), low psychological potential and low level of learning (Figure 3). The proportion of such children in this study is 21,4%. These children are characterized by:

- The presence of persistent moderate disturbances of the cardiovascular system-heart disease and large blood vessels, which lead to chronic heart failure Stage IIA and moderate haemodynamic violations, functional class II, III;
- The presence of persistent moderate violations of the urogenital sphere, characterized by chronic kidney disease 3b stage, chronic renal failure two stages [20].

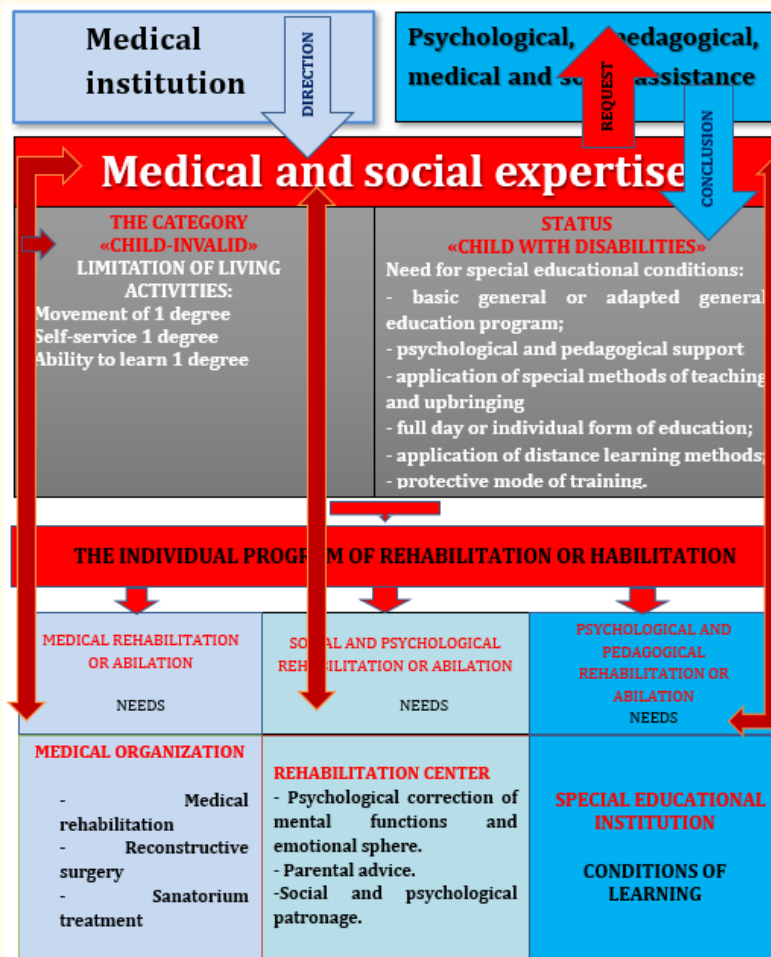


Figure 3: Model №3.

These children, despite previous medical rehabilitation measures, determine the status of “child-invalid” for a period of 1 year and restrictions of life activity in the categories of “movement” 1 degree or “self-service” 1 degree, as well as “Ability to learn” 1 degree.

The restriction of movement of 1 degree means that children are able to move independently, but with longer on time, fractional performance and reduction of distance.

With the restriction of self-service of the 1st degree for children, it is typical to service oneself with a longer time, fractional performance and a reduction in the volume of operations.

Psychological expert-rehabilitation diagnostics reveals in children of this group moderate disorders of mental functioning (in the range from 40% to 60%) of cerebral-organic genesis in the form of severe astenization, total underdevelopment of cognitive and motivational-personal components of mental activity, low level of mastery of operational methods of knowledge development.

It allows defining at them low psychological rehabilitation potential and low level of learning ability.

Determination of the degree of restriction of life in the category “ability to learn” and formation of measures on psychological and pedagogical rehabilitation is carried out taking into account the received clinical-functional data, conclusion psycho-medico-pedagogical commission and medical recommendations of the institutions providing treatment and preventive care.

The “ability to learn” category 1 degree implies the ability to study and receive education within the federal educational standards in educational organizations with the creation of special conditions education (if necessary). The necessity of special conditions of training is determined taking into account the conclusion of psycho-medico-pedagogical commissions.

Based on the results of the expert examination, the legal representative of the child is given a document of the established model on recognizing the child as an invalid and an individual rehabilitation or habilitation program is being formed. This program is a binding document for all executive authorities. However, for legal representatives of a disabled child, it is not mandatory.

The section of measures of psychological and pedagogical rehabilitation and habilitation of a disabled child is formed according to data provided by the psychological-medical-pedagogical commission. The Psychological-Medical and Pedagogical Commission defines the child as a “Child with disabilities” and recommends special educational conditions depending on the structure of the disturbances of psychophysical development.

As a rule, with the restriction of the ability to learn 1 degree, the psychological-medical-pedagogical commission recommends the following special educational conditions:

- Training on basic general education program of elementary basic educational or training on the adapted basic educational program - Option 7.1 or 7.2 of the federal State educational standard of the initial general education for children with disabilities;
- Full day or individual form of education (determined taking into account the state of health of the child, as well as the wishes of parents and their consent);
- The recommended mode of training is established based on the current state of the child and medical recommendations, and can be presented in the form of a shortened school-day or the introduction of an additional day off;
- Psychological and pedagogical support of the educational process;
- The form of education-in the educational institution in combination with the use of remote technologies, due to the existing limitations of life in the categories “movement” and “self-service” [7].

Thus, the leading role of the specialists of the psycho-medico-pedagogical Commission in determining the basic parameters of education for children with the status of “disabled child” and restrictions in training is obvious. At the same time specialists of medico-social examination, including psychologist, in filling the individual program of rehabilitation and habilitation of child-invalid only formally reflect in this document opinion and conclusion of specialist’s psychological-medical-pedagogical commission on necessity of special conditions of education of the child.

For the effective implementation of the individual program of rehabilitation and habilitation of a disabled child, as well as to monitor its implementation and timely correction, it is necessary to establish feedback from the performers of rehabilitation measures to the service of medical and social expertise in the form of the formation of detailed reports on the implementation or non-fulfillment of assigned to the execution of rehabilitation and habilitation measures, describing the dynamics of psychophysical development and educational status of “Child-invalid”, and more.

Model №4: Is a model of psychological, medical and pedagogical support for children with congenital developmental anomalies with persistent, moderate cardiovascular and urinary system impairment, minor malformations of the functioning of mental activity (ranging from 10% to 30%), average psychological potential and an average level of learning ability (Figure 4). The share of such children in this study is 26,2%.

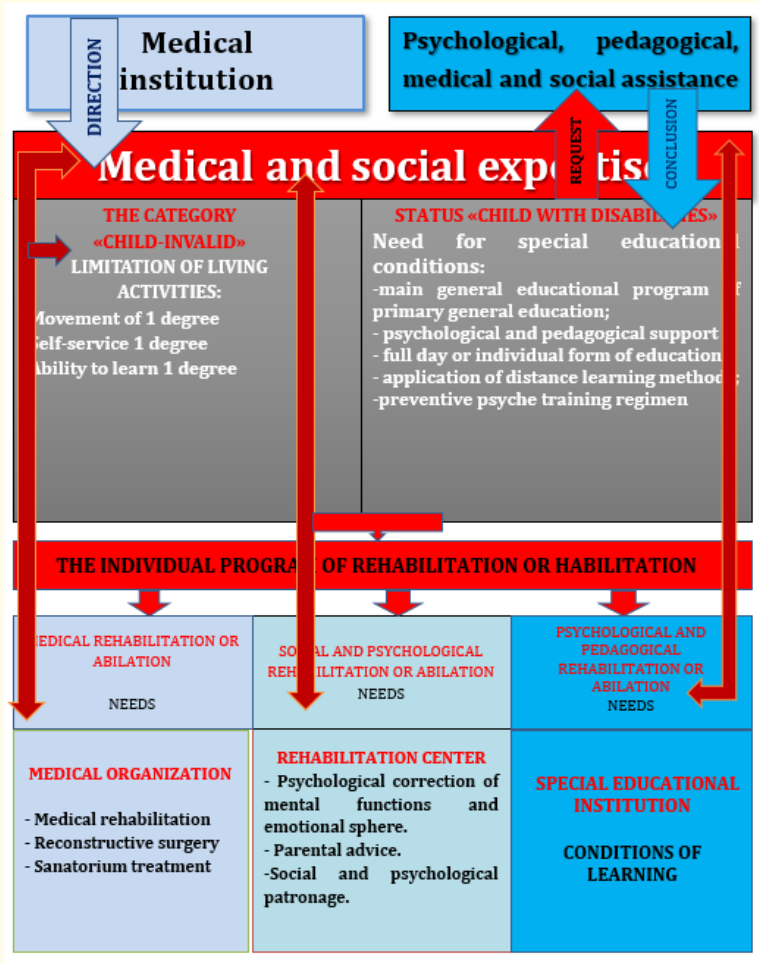


Figure 4: Model № 4.

The difference between the model of psychological, medical and pedagogical support of children of this category from the previous one is that the available moderate violations of the functions of the cardiovascular system and urination may lead to a restriction of the ability to complete the 1st degree for medical reasons, and not as a result of a violation of mental development.

Special educational conditions for teaching children of this group are necessary due to the existing limitations of the ability to move and self-service because of the need for longer time, fractional performance and a reduction in the volume of household operations and distance.

Children of this group have slight violations of mental functioning in the form of one-sided (partial) indicators of lag in the formation of individual cognitive functions or immaturity of the emotional-personal sphere. They do not have a significant impact on the ability to learn, but at the same time, requires psychological and pedagogical support to compensate for functional weaknesses and prevent possible school disadaptation. In this connection, the children of this group need not only medical rehabilitation or habilitation measures, but also social, psychological and psychological-pedagogical rehabilitation or habilitation activities.

Activities on psychological and pedagogical rehabilitation or habilitation are formed both with the conclusion of the psychological, medical and psychological commission, and taking into account the existing limitations in the categories of movement and self-care, as well as medical recommendations of organizations providing medical care and include the following parameters:

- Training in the basic educational program of primary general education;
- The form of getting an education in an educational institution in combination with the use of distance technologies; full day or individual form of education in view of the limitations of life activity in the categories "movement" 1 degree and "self-service" 1 degree;
- The recommended training regimen is established based on the current state of the child and medical recommendations, and can be presented in the form of a shortened school-day or an additional day off;
- The psychological and pedagogical support of the educational process.

Measures for social and psychological rehabilitation are formed depending on the data of psychological examination and can be aimed at psychological correction (formation, development, restoration) of cognitive and intellectual functions and emotional and personal sphere; psychological counseling of parents of a disabled child on the issues of psychophysical development of the child in conditions of disease and disability, on the issues of psycho-correction, on issues of child-parent and inter-child relations, and other; social and psychological patronage.

Model № 5: Is a model of psychological, medical and pedagogical support for children with persistent severe cardiovascular and urinary system disorders, concomitant moderate mental disorders (ranging from 40% to 60%), low psychological potential and low learning ability (Figure 5).

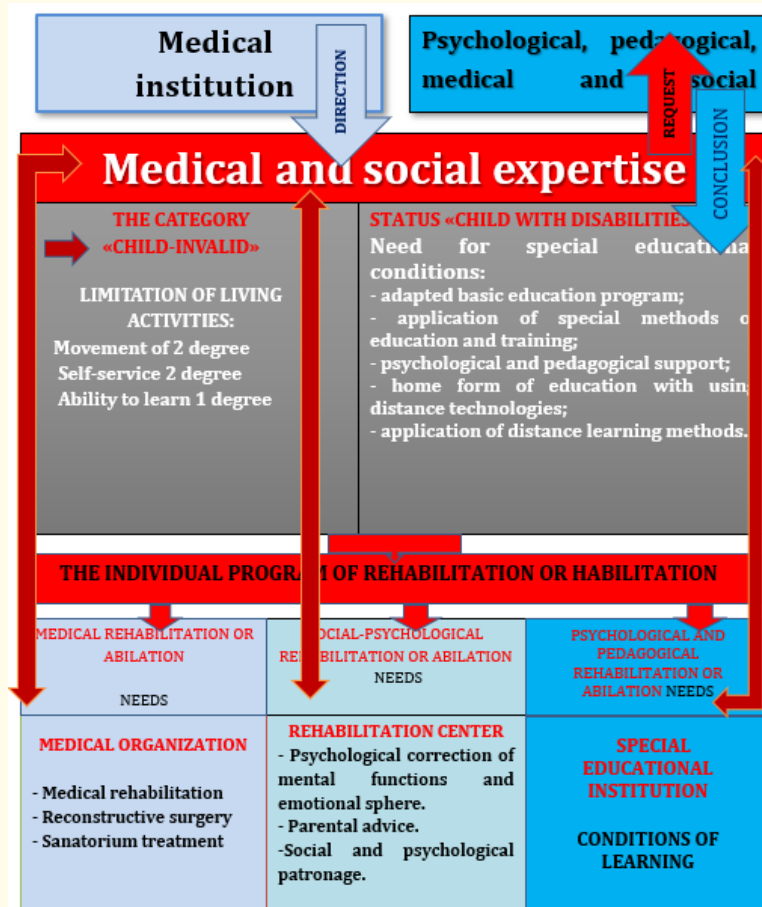


Figure 5: Model № 5.

This category of children is usually not a client of the Federal Bureau of Medical and Social Expertise, since the issue of their disability is resolved at the level of the primary bureaus of medical and social expertise.

Nevertheless, we propose a model for their medical-psychological-pedagogical support in order, above all, to realize their right to education.

The children of this group characterized by:

- The presence of persistent severe cardiovascular system disorders - heart defects and large vessels that lead to chronic heart failure of stage IIB and severe hemodynamic disorders, functional class III, IV;
- The presence of persistent severe disorders of the genitourinary functions, characterized by chronic kidney disease of stage 4, chronic renal failure of stage 3.

Expressed violations of the functions of cardiovascular and urinary systems, as a rule, lead to limitations of life activity in the categories of "Movement" 2 degree, "Self-service" 2 degree in the category of "Child-invalid" for 2 years (Order of the Ministry of labor and social protection of the Russian Federation of December 17, 2015 №1024n) [20].

Restriction of life activity in the category "Movement" of the 2nd degree means that children are able to move independently with regular partial assistance of other persons or using auxiliary technical means.

Restriction of life activity in the category of "Self-care" of the 2nd degree implies the need to service oneself with regular partial assistance of other persons or using auxiliary technical means.

Concomitant moderate violations of mental activity (in the range of 40 - 60%) cause the limitations of the ability to learn 1 degree, as in Model №3. Children are eligible for training with the use of special conditions in the basic general education program of primary general education or in adapted basic general education programs, Option 7.1 or 7.2, using home form of education and using distance technologies, as well as psychological and pedagogical support of the educational process.

Activities on social and psychological rehabilitation are formed depending on the obtained data of psychological expert-rehabilitation diagnosis, taking into account the mental and physiological state of the child and are aimed at correcting cognitive functions and emotional-personal sphere; mental and physiological counseling of parents on various issues; social and psychological patronage.

For this category of children the schemes of interaction between different organizations have been fully developed, we also propose to establish stable feedback between the institutions of all departments involved in the rehabilitation process, to improve the efficiency of the rehabilitation process, to correct rehabilitation programs and monitor their implementation.

Summary

- 1) The psychophysical consequences of congenital malformations in children undergoing medical rehabilitation whose parents applied to the Federal Bureau of medical and social expertise of the Ministry of labor of Russia for disability are different. They range from minor to pronounced. These children are not always recognized as "children-invalids". However, their mental development, even if it fits into age norms, requires careful attitude and support, especially in the process of systematic school education.
- 2) The statistical analysis compared three groups of children according to the criterion of academic performance and identified the parameters of mental activity, which significantly affect the learning of children with congenital anomalies of the internal systems of the body:

- i. Energetic component with its tempo characteristics and resistance to mental stress;
 - ii. The function of attention;
 - iii. Formation of the operational level of thinking, namely the formation of such operations as distraction-generalization of concepts, understanding the direct meaning of stories, understanding the figurative meaning of idioms, the establishment of cause-and-effect relationships;
 - iv. Level of formation of school motivation.
- 3) An inverse correlation between school performance and the state of cognitive functions and a direct correlation between school performance and the emotional-personal sphere were revealed. That is, the lower the school performance in children with congenital anomalies of the development of the internal systems of the body, the more pronounced they are impaired mental performance, attention deficit and unformed operational link thinking. In the emotional and personal sphere - the higher the school performance, the higher the level of formation of school motivation, more pronounced cyclothymic traits.
- 4) There are three levels of mental functioning disorders that affect the ability to learn from the studied contingent: functional, component and total. The least influence on the ability to learn have functional and component levels of disorders; the greatest influence on the ability to learn has a total level of mental functioning disorders.
- 5) The main criteria that determine the psychological component of the rehabilitation potential, the level of learning and the prediction of learning of children with congenital anomalies of development are highlighted.

Low psychological rehabilitation potential, low level of learning can be determined with a total level of impaired mental functioning - lack of cognitive and motivational components of mental activity, which makes a doubtful or uncertain prediction of learnability in the future and requires the creation of special conditions for training and psychological, medical and pedagogical support.

The average psychological rehabilitation potential and the average level of learning is determined when there is a functional or component level of impaired mental functioning - a lack of formation of individual cognitive functions or emotional and personal immaturity. The prognosis for further study is relatively favorable, provided that the interdisciplinary psychological, medical and pedagogical support is provided.

High psychological potential, a high level of learning is determined by the normative level of formation of all components of mental activity, which leads to a favorable prognosis for further learning. However, the revealed low tolerance to long-term mental stress determines for these children the need for preventive measures, such as maintaining a regime at school and at home, and dynamic observation of specialists.

- 6) The proposed five models of psychological, medical and pedagogical support of children of primary school age with congenital anomalies of internal organs and body systems reveal the algorithm of support of children with disabilities due to congenital anomalies of the cardiovascular and urinary systems.

Models are formed taking into account the severity of clinical and functional disorders of the child, his level of learning and taking into account the psychological component of rehabilitation potential.

The models make it possible to implement measures for psychological, pedagogical and socio-psychological rehabilitation and habilitation not only for children with disabilities, but also allow to include in the process of psychological, medical and pedagogical support of children who are not recognized as disabled, which is important in the prevention of disability.

The proposed models are universal and can be used when accompanied by children with various pathologies.

Bibliography

1. Daniel J. "Brain maturation is delayed in infants with complex congenital heart defects". *Journal of Thoracic and Cardiovascular Surgery* 137.3 (2009): 529-537.
2. Fan XC., et al. "Cognitive function in congenital heart disease after cardiac surgery with extracorporeal circulation". *World Journal of Pediatrics* 6.3 (2010): 72-75.

3. Kopysheva EN and EV Pchelintseva. "Medical and psychological support of psychosomatic children in the rehabilitation system". *Azimuth of Scientific Research: Pedagogy and Psychology* 5 (2016): 189-192.
4. Kotomina EV. "Forming the model of an adaptive general education institution for children with chronic physical illnesses". Dissertation candidate of pedagogic sciences, Moscow (2004): 185.
5. Kovalev VV. "Mental disorders in heart diseases". Moscow (1974): 191 p. 55.
6. Lebedinsky VV. "Violations of mental development in childhood: a textbook for students of psychological faculties". Moscow (2003): 144.
7. Letter of the Ministry of Education and Science of Russia from 23.05.2016 № BK-1074/07 "On the improvement of the activity of psychological, medical and pedagogical commissions" (2016).
8. Levchenko IY and NA Kiseleva. "Psychological study of children with developmental disorders". Moscow (2008): 160.
9. Lubovsky VI. "Psychological problems of diagnosis of abnormal development of children". Moscow (1989): 104.
10. Mikadze YV. "Neuropsychology of childhood: Textbook". St. Petersburg (2008): 288.
11. Shillingford AJ. "Inattention, hyperactivity, and school performance in a population of school-age children with complex congenital heart disease". *Pediatrics* 121.4 (2008): 759-767.
12. Sotskaya GM. "Technology of experimental psychological examination of children in the implementation of medical and social expertise performance". *Medical Psychology in Russia: electron. science magazine* 3.38 (2016).
13. Sotskaya GM. "Influence of clinical and psychological characteristics of children with congenital abnormalities of the circulatory system on school performance". *New in psychological and pedagogical research. Theoretical and practical problems of psychology* 4.48 (2017).
14. The main indicators of primary disability of the child population in the Russian Federation in 2014. Statistical collection Moscow (2015): 273.
15. The main indicators of the repeated disability of the child population in the Russian Federation in 2014. Statistical collection Moscow (2015): 274.
16. The main indicators of primary disability of the child population in the Russian Federation in 2015. Statistical collection Moscow (2016): 370.
17. The main indicators of the repeated disability of the child population in the Russian Federation in 2015. Statistical collection Moscow (2016): 368.
18. The main indicators of primary disability of children in the Russian Federation in 2016. Statistical collection Moscow (2017): 240.
19. The main indicators of repeated disability of children in the Russian Federation in 2016. Statistical collection Moscow (2017): 238.
20. The Order of the Ministry of Labor of the Russian Federation of December 17, 2015, №1024n "Classifications and criteria used in the implementation of medical and social expertise of citizens by federal state institutions of medical and social expertise" (2015).
21. The Federal Law of 29.12.2012 N 273-FZ "On Education in the Russian Federation".

22. Tiganov AS. "Pathology of mental development". Moscow: Scientific Center of Mental Health (2008): 158.
23. Vygotsky LS. "Psychology of child development". Moscow (2005): 512.

Volume 8 Issue 8 August 2019

©All rights reserved by Sotskaya Gulnara Mizhatovna.