

# 4 (5) September, 2019

ISSN 2641-9823

# ***GLOBAL ACADEMICS***

*International Journal of Advance Researches*

*Quarterly Issue # 4 (5):*

*Ensuring Healthy Conditions for the  
Development of Schoolchildren: Problems and  
Solutions*

*[www.i-journal.org](http://www.i-journal.org)*

# *GLOBAL ACADEMICS*

*International Journal of Advance Researches*

*The Journal has been added to the Library of Congress electronic resource database.  
Control No.: 2019201864.*

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*A healthy society is formed at school age in a variety of ways. This fact underlines the priority importance of ensuring healthy conditions for the development of schoolchildren.*

*The journal is dedicated to elaborate on this particular topic in this issue. The authors of the articles raise the most important problems of creating healthy conditions for schoolchildren and offer various ways to solve the problems.*

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**CREATING AN ENABLING LEARNING ENVIRONMENT IN THE CONDITIONS OF  
INTENSIFICATION OF EDUCATIONAL ACTIVITIES**

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**Abstract.**

This article reports on outcomes of an Ukrainian school-based program of medical and psychological support above academically capable students in the modern school. Findings contribute to evidence for the effectiveness of interventions for academically capable students. The program incorporates universal and targeted components for children ages six to ten years, during their first four years of schooling. A mixed methods research design entailed pre- and post-intervention measures of child development and of parenting practices for 90 families who completed the targeted intervention. In addition, qualitative data were gathered in parent and care interviews. Significant improvements on outcome measures were supported by qualitative findings. Improved scores were maintained by 85 percent of children at the two year follow-up. This early evaluation research indicates positive impacts from program for many of the families participating in the targeted

intervention. A partnership between health and education is fundamental to the program model. The school context for program delivery was found to support engagement with families who would not otherwise access services. The program of medical and psychological support above academically capable students includes next stages: diagnostic (for identification of academically capable students and definition of individual characteristics), informational (enhancement of psychological competence of educational process participants), preparatory for each student, with recommendations for parents and teachers) developing (aimed at harmonious development of students).

**Keywords:** prevention, educational environment, academically capable students, medical and psychological support.

At the present stage of society's development, there is an urgent need for citizens able to adequately perceive change and productively innovate: in people who have non-standard thinking, they bring new meaning to social, cultural life, industrial activity, are able to set and solve promising tasks of the future - that is, in extraordinary creative personalities.

Therefore, the problem of providing the educational needs of students with different academic abilities, the ability to strenuous learning activities in the conditions of its intensification is needed for further solution.

## **LITERATURE REVIEW**

The progress of mankind is impossible without the program to preserve the nation's intellectual gene pool. Considerable research conducted over three decades has documented the impact of teacher practices that highlight differences in children's relative abilities on children's achievement, motivation, and self-views (Ames, 1992; Brophy, 1983; Kuklinski & Weinstein, 2001; Mac Iver, 1987; Rosenthal & Jacobson, 1968; Urdan & Midgley, 2003; Weinstein, Marshall, Sharp, & Botkin, 1987). This body of evidence is drawn from research on teacher expectancy effects (Jussim & Harber, 2005), classroom goal structure (Urdan & Midgley, 2003), classroom task structures (Simpson & Rosenholtz, 1986), and teacher frame of reference (Marsh & Craven, 2002). The literature from these separate but overlapping traditions has identified teacher practices that are associated with the self-fulfilling prophecy effect (Rosenthal & Jacobson, 1968) and with students' academic motivation and perceived competence (Dweck & Leggett, 1988; Lüdtke, Köller, Marsh, & Trautwein, 2005; Urdan, Midgley, & Anderman, 1998). Therefore, the problem of the quality of education, the creation of

individual-oriented education for children with high levels of intelligence is relevant at this stage of society.

The prolonged impact of destructive factors in combination with other adverse factors initially causes functional disorders and then leads to the formation of persistent pathology ([Dweck & Leggett, 1988](#); [Elliott & Dweck, 1988](#); [Urdan & Midgley, 2003](#); Danylenko, 2017; Serdyuk, 2018).

In many countries of the world are intensively developing and implementing educational programs aimed at teaching academically capable children, which is consistent with the concept of meritocratic education, which aims to create favorable conditions for social and psychological adaptation of the individual in the environment, to realize its potential for development, its full potential society (Shcherbakova, 2013). Effective meritocratic education requires the timely identification of academically capable children, whose leading traits are high levels of intellectual development, creativity and sustainable motivation for learning. An important prognostic feature of students' academic achievement is the ability to engage in intensive learning activities, a high level of thinking and memory development.

## **THE INTERVENTION**

The New Ukrainian School Concept incorporates 11 key competencies that underpin the formation of a successful, educated citizen of Ukraine, because it is known that only an educated person can truly be a free and equal member of a society of high culture and equal opportunity. A graduate of a new school is a person who is holistic, comprehensively developed, capable of critical thinking, a patriot with an active attitude, acting in accordance with moral and ethical principles and capable of making responsible decisions, an innovator, able to change the world, develop the economy, compete in the labor market, to learn throughout life.

Ukraine has chosen the European Development Vector, and on the recommendations of the Council of Europe (Intergovernmental Liaison Body of 25 European States) it has been decided to: provide legislative support for the special educational needs of gifted children; to develop research on identification of gifted children, to investigate the nature of success and causes of poor school success of gifted children; to provide all teachers with information on gifted children and trainings on interaction with them; to create special conditions for gifted children in the regular school system (inclusive education); take measures to eliminate the negative effects of singling out children as gifted or capable; encourage discussion and research among psychologists, sociologists, and teachers on the

topic of a relatively vague concept of giftedness (Kovalenko 2013; Frimen 2011).

All public school systems in Western Europe operate in accordance with the recommendations of the Salamankin Ordinance, which defines the right of children to education that is appropriate to their abilities and interests.

The emergence of new forms and methods of teaching, characterized by qualitative and quantitative intensification of the educational load, increasing the emotional stress of students led to the search for effective and timely measures to improve working capacity, prevention of child fatigue (Yelizarova, 2018). The modern reorganization of the activities of general secondary education institutions (HSE) is associated with the timely prevention of risk factors and the promotion of factors that have a positive impact on the health of students. There is a need for an adequate correlation of "negative" and "positive" factors, which is solved through the formation of a system of information and analytical activity as the main tool for managing the HLS and based on the students' health forecast (Danylenko, 2017; Kovalenko, 2013).

Forecasting problems are closely related to the tasks of diagnosis and management, which is expressed in the logical transition: diagnostics - forecasting - management, and the need to return to previously solved problems during system development (Bywater, 2012; Foster, Olchowski, Webster-Stratton, 2007; Serdyuk, 2018). The pedagogical information in the HLS is divided into several blocks: quality of knowledge and quality of teaching; level of education and educational work; work with teaching staff; working with parents and the public; organizational issues of creating conditions for education; management of the educational process; material-technical base; up-to-date information on students and teachers, etc. ([Ladd, Birch, & Buhs, 1999](#)). And the main chain in such a system, which should provide feedback, is information about the health of students, the nature of the processes of their adaptation to the factors of the educational environment, which is today especially dynamic (Bailey, 2017). At the same time, the dynamic of the pupil - educational environment system causes the need for stable information flows that characterize the development of their relationship.

Of particular importance is the assessment of systemic changes to provide a supportive educational environment for academically capable students, which involves a series of steps to create a coherent system of work to simultaneously shape the health and learning competences of students in modern school.

The transition from object-oriented to subject-oriented prevention measures implies much greater attention to the psychological and psychophysiological properties of the individual, his / her



active response to environmental factors, which is especially important in childhood when an irreplaceable and practically unique (after family) organ, which is capable of influencing health is an educational institution. High pace and rhythm of life, modernization of the educational process, information overloads put high demands on the student body. The prolonged impact of destructive factors in combination with other adverse factors initially causes functional disorders and then leads to the formation of persistent pathology ([Dweck & Leggett, 1988](#); [Elliott & Dweck, 1988](#); [Urdan & Midgley, 2003](#); Danylenko, 2017; Serdyuk, 2018).

There is a need for measures to step up work with academically capable students, to create the conditions for effective cooperation of parents and educators in identifying and developing this category of children. The upbringing of such children should be organized in such a way that the available incomes are realized to the fullest extent possible. It is determined that the most significant problems in the development of academically capable students are low physical activity compared to their peers, since these children are prone to intellectual pursuits. Hence the inability to participate in team sports games. Academically capable children may not always be able to perceive another person's point of view, especially if they are intellectually weaker. They are characterized by problems in constructive communication with both adults and peers. Therefore, in the development of the educational process, it is necessary to rely on the formation of certain personal characteristics and the creation of an environment of communication and learning that ensures the mental and social well-being of children and contributes to the realization of their abilities.

The identification of academically capable children should begin at the elementary school on the basis of observation, learning of psychological characteristics, language, memory, logical thinking. Working with academically capable students, their search, identification, development, and psychological support is one of the most important aspects of innovative education (Kovalenko, 2013). The program of medical and psychological support of children studying under the scientific-pedagogical project "Intellect of Ukraine" is aimed at solving the problems of social necessity: increasing the number of academically capable children identified in time; improving the system of working with academically capable students; ensuring the development of students' potential abilities; expansion of the base of cognitive interests and intellectual skills; creation of favorable educational conditions for children in the project " Intelligence of Ukraine".

The program aims to ensure the planned, medical and psychological support, systematic process of education of academically capable children, the formation of health-saving competence in all

subjects of the educational process.

The conceptual justification of the program is:

1. The need to create in the educational establishment favorable for the educational activities of academically capable students of the school environment.
2. Creating a system of work to study the interests, abilities, intellectual level of students, their development, judging by individual characteristics.
3. Implementation of a differentiated approach to students, which makes it possible to intensify the learning process for the most capable children.
4. Ensuring students' readiness to solve non-trivial tasks (participation in competitions, competitions, etc.).
5. The need for special professional training of teachers to work with academically capable children.

The program structure includes - theoretical foundations, analysis; goal setting; organizational activity (carrying out diagnostics, carrying out the program, thematic classes for students, parents, teachers); control and correction. The implementation of the program should take several stages.

## **METHOD**

A pre- and posttest design used standardized measures of child development and parenting practices. In addition, qualitative data were gathered from in-depth interviews with parents/cares. The combination of findings from standardized measures and qualitative data was adopted as a strategy to enhance the strength of findings in a context in which randomization and a control group were not practical. The research design, measures, and methods were approved in advance by the relevant human research ethics committees in the Academy of Medical Sciences of Ukraine.

## **SAMPLE**

A sample of 90 families participated in the evaluation research. These families were drawn from 3 classes taking part in the program during the evaluation period. These classes are located in one school in the city. Collectively, there were 90 children, from these children, 87 families completed the screening questionnaires and also agreed to participate in the evaluation research, knowing that they may or may not be selected by the targeted intervention. Participation in the research by respondents included provision of demographic data, completion of baseline questionnaires on parenting practices, and consent for the research team to access screening and development assessment data and

to conduct follow-up interviews and questionnaires.

### **IDENTIFYING ACADEMICALLY CAPABLE CHILDREN**

The most promising step in identifying a child's academic ability to further its harmonious development is the preschool age. Children are characterized by uneven growth and development of different body systems. The ontogeny of a child is influenced by a complex of biological, psychological, social and microsocial factors. Therefore, children of the same chronological age can have significant individual differences in the level of functional readiness for school. Functionally "immature" children do not cope with the learning load ([Dweck & Leggett, 1988](#); [Nicholls, 1984](#); [Urdan & Midgley, 2003](#); [Urdan et al., 1998](#)). Some of them carry out the school program, but at the cost of excessive stress, which causes overwork and further deterioration of health. Children's readiness for school is judged by medical and psychological criteria and is regarded as "school maturity".

Medical criteria reflect the functional readiness of the child's body to systematic educational activities (physical development, resistance, neurodynamic properties). Functional readiness to enter school is in accordance with the degree of development of the basic life support systems of the body and neuro-psychic functions by the task of schooling, ie the readiness of the organism to the school-related load.

The medical criteria for school readiness are: the level of biological maturity; level and harmony of physical development; health status at the time of examination (presence or absence of chronic diseases); the level of nonspecific resistance of the organism in terms of morbidity during the year; state of mental health.

Psychological readiness to enter school is based on an assessment of the child's language development and thinking (memory, thinking, perception, imagination) and psychosocial maturity. The prerequisite for highly effective educational activity of academically capable children in primary school is to assess their "school maturity" by a set of psychological methods.

Creating conditions for optimal development of academically capable children within the framework of the pedagogical project "Intelligent of Ukraine".

Considering that the purpose of the New Ukrainian school (NUS) is to educate the innovator and the citizen, who is able to make responsible decisions and adhere to human rights, the scientific-pedagogical project (SPP) "Intelligent of Ukraine" is aimed at: realization of STEM education;

formation of emotional intelligence and positive thinking, taking into account the "illness" of the mental code; creating the preconditions for all, without exception, students in the project classes to take a high step in the social mobility stage; implementation of humanistic approach in education. Instead of memorizing facts and definitions, students should acquire competencies such as a dynamic combination of knowledge, skills, skills, ways of thinking, attitudes, values, and other personal attributes, which in a primary school determines a person's ability to successfully socialize and pursue further learning activities. That is, a nucleus of knowledge is formed, on which the ability to use this knowledge, values and skills that will be needed by the graduates of the Ukrainian school in professional and private life will be imposed.

## **MEASURES**

On the basis of the conducted researches the key medical and psychological problems of educational activity of pupils in elementary school were identified

STAGE 1 - "Psychological readiness for school"

STAGE 2 - Adaptation to School (1st grade)

STAGE 3 - Entering Assessment (Grades 2)

STAGE 4 - "Forming the Basis for Social Competence" (Grades 3)

STAGE 5 - "The first exam" (4 classes)

At each stage, certain tasks are solved, which are realized through the diagnosis of the condition, analysis, and correction of the situation.

The medical component is aimed at identifying significant changes in the health status and risk factors that may affect him / her that are related to students' life activities. In order to prevent student health disorders and organize interaction with parents in all elementary school grades, health and risk factors should be evaluated in the same manner over time (Table):

Table 1

Assessment of health risk factors for elementary school students

| Holding time | Assessment methods                                 | Who conducts                                    | Form of research   |
|--------------|--|---|--|
| August 29    | Assessment of the classroom environment            | Teacher   | Checklist of the quality of the premises                     |
| November     | Student health screening.                          | Teacher at parent meeting                       | Questionnaire of parents                                     |
| January      | Assessment of the students' day mode               | Parents during the week                         | Structured student assessment card                           |
| April        | Assessment of prenatal changes in students' health | Teacher at the lesson and at the parent meeting | Questionnaires for the teacher, for parents, for the student |

The psychological component of support is provided with students, teachers and parents. Working with children at the first stage is aimed at psychological readiness for school.

Successful solving of problems of development of the personality of academically capable and gifted children, increase of efficiency of their education are largely determined by how well the level of psychological readiness of children to school education is taken into account. In this sense, the problem of pre-school students' readiness to study in primary school under the conditions of meritocratic education is of particular importance.

Interviewing a child entering 1st grade involves performing a program of diagnostic tasks to determine the level of overall development of the child, his / her psychological readiness to study in an innovative educational program. The necessary and sufficient level of actual development of the child should be such that the training program falls within the "zone of immediate development" of the child. Children who have not reached a certain level of development of the psyche, it is not desirable to study for an innovative educational program, because it does not fall into their "zone of immediate development". And children who have scored "low level" are considered psychologically unprepared for schooling because they are at risk of failure and school maladaptation.

Before enrolling a child in school, a comprehensive health assessment and medical assessment of school readiness should be conducted. The basis for determining the functional readiness of children 5-7 years of age for schooling is based on psychophysiological criteria, selected on the basis of the study of the level of development of functions, which are closely related to the state of health, efficiency and success.

Working with children in Stage 2 focuses on adapting them to school. Starting school is one of

the most difficult and responsible moments in a child's life. It's not just new living conditions - it's new contacts, new relationships, new responsibilities. The whole life of a child changes: everything is subordinate to education, school, school affairs and care. This is a very busy period, since from the first days the school requires the maximum mobilization of intellectual and physical abilities of the student.

Adverse trends in the health of modern schoolchildren (rising morbidity, declining numbers of perfectly healthy children, and expanding the risk group) require finding effective methods of managing health and the risk factors that affect it, even at the beginning of school.

The process of adaptation to school consists of many, closely interrelated, aspects: social, pedagogical, physiological, psychological, etc. A special place is given to the physiological and psychological adaptation of the child. Therefore, the success of the adaptation process is largely determined by the child's state of health. Generally, an indicator of maladaptation at school is changes in children's behavior. It can be excessive arousal and even aggressiveness, and can be, on the contrary, inhibition, depression. There may also be a feeling (especially in adverse situations) of feeling afraid of not wanting to go to school.

During the period of "primary adaptation" the main work of the teaching staff, psychologist, public health specialist, parents of first-graders is directed to quick habituation of children to school, adaptation to it as a medium of their development and life.

On the basis of the research, a correction and development program "Journey to the Land of Knowledge" was developed, aimed at activating and stimulating cognitive activity, developing emotional and volitional and motivational sphere, acquiring communication skills and cooperation skills.

The program consists of two modules. Module One: Pre-school pre-school education, which involves group work and takes place twice a week for five months. The main objective of the second module is to support the process of adapting children to primary school. This module consists of two components: development-supportive and corrective-developmental. The development and support component is aimed at supporting the adaptive capacity of academically capable students studying in meritocratic education, carried out in group form, conducted once a week for two months after the start of study. But the correction and development component aimed at increasing adaptive capacity, has individual and group forms of work and is performed 1-2 times a week for two months with children at risk of school maladaptation.

In stage 3, work with children is aimed at harmonious introduction of assessment. Introducing assessment is a serious test for most children who come to second grade. Children must become accustomed to the new requirements, to the expectations of their parents, to the new attitude of classmates, ie to adapt to the new school life. The importance of this period of entry into an unusual life situation for children is manifested in the fact that the well-being of its course depends not only on the success of learning activities, but also the comfort of staying at school, the health of the child, her attitude to school and study.

Assessment of academic achievement strongly absorbs the behavior of the younger student. Psychological characteristics such as anxiety, emotional comfort, self-esteem, motivation to achieve, creativity, relationships with others are closely related to the pedagogical assessment of the child.

Anxiety (school) - can occur, both at the mate and the excellent student. They may have a fear of not meeting the expectations of others (parents, teachers).

In self-esteem, younger students attach particular importance to their intellectual abilities. Psychologists have shown that children who have formed an adequately high self-esteem of their personality, are successful and easily achieve higher results than children with low self-esteem.

The motivation for achievement is the desire of the child to perform the work at a high level of quality wherever there is an opportunity to show their skills and abilities. When starting school, every child sees himself / herself as an excellent student, but if the child is confronted with an impartial assessment, after a while he or she may be able to "lower their hands". And then, as a result, such a child does not need to achieve the goal.

When working with capable children, when evaluating their learning activities, adults should be especially careful and considerate so as not to suppress their non-standard thinking.

Assessment is a significant influence on the relationship of children with others. Estimates can affect the authority of a younger student among peers. Estimates can serve both to increase and to decrease authority.

We have developed a program that contributes to the favorable course of social and psychological adaptation of second-graders to the introduction of assessment.

The program is built to perform the following tasks:

1. Formation of a positive attitude towards the school, before the introduction of assessment;
2. Familiarizing the student with the new rules of school life, facilitating the acceptance of the requirements of the teacher and the rhythm of educational activity, mastering the rules of behavior

during the lesson and break;

3. Development of emotional-volitional sphere, promoting formation of arbitrariness and self-regulation of behavior, removal of fears and emotional tension;

4. Development of cognitive mental processes, stimulation of cognitive activity of students;

5. Development of children social and communication skills necessary for establishing interpersonal relationships with peers and appropriate relationships with teachers and parents.

Working with children in stage 4 aims to build the foundations of social competence. Training the younger generation, able to live and work in the new socio-economic and political conditions, requires that teaching staff pay greater attention to the problems of fostering and building the foundations of social competence.

Social competence is a multifaceted characteristic of personality, which indicates the quality of functioning of the individual in society, encompasses both social motives, knowledge, skills necessary for successful interaction with the social environment, as well as the well-being and self-perception of the individual in a changing society.

It is determined that the younger school age is the first period of systematic involvement of the child in public life. It is during this period that the foundations of social competence in younger students are formed, which is based on such personal formations as motivation to achieve, arbitrariness, positive attitude towards oneself, high self-esteem, ability to constructive behavior in difficult situations.

Educational, developmental and educational goals of forming the bases of social competence in academically capable children in the conditions of the institution of general secondary education are planned gradual gradual formation of students' ability to: make decisions about themselves; to block unpleasant feelings and insecurity; know how to reach the goal in the most effective way; to understand correctly, the expectations and demands of other people, to consider their rights; Understand how to deal with individual circumstances and your own requirements, taking into account individual circumstances and time; be aware that social competence implies respect for the rights and responsibilities of others.

Ways of forming the bases of social competence in academically capable elementary students are a system of suggested classes using specific types of work, methods and techniques, filled with purposeful motivated active activity of students together with parents and teachers; introduction of correction and development work.



The purpose of the program we have developed is to form the basis of social competence in academically capable students of the lower classes.

Tasks that are implemented through the proposed program:

1. Formation of a positive model of behavior in real life.
2. To learn to reflect their own actions, to understand the causes of their own anxiety;
3. Development of emotional-volitional sphere, promoting the formation of arbitrariness and self-regulation of behavior;
4. Update the need for rules of conduct at school, teach children how to deal with problematic situations .;
5. Development of children 's social and communication skills necessary to establish interpersonal relationships with peers and appropriate relationships with educators and parents.

In the 5th stage of working with children, the focus is on preparation for the first exam, which is often accompanied by anxiety.

Anxiety - an individual psychological feature, which is to increase a person's tendency to experience anxiety, anxiety in various anxiety situations.

Thus, in the 4th grade students there is a high level of pre-exam anxiety during the STA. The exam is not only a test of theoretical knowledge, but also a significant emotional test, a kind of stress. That is why psychological preparation for testing is essential.

## **ANALYSIS**

Demographic data from initial questionnaires were analyzed using descriptive statistics. Chi-square tests compared the characteristics of children and families who participated in the targeted intervention with those screened children who did not. Monte Carlo test was used when chi-square assumptions were not met. Differences in paired scores (post score – pre score) for the intervention group were then analyzed to identify any significant changes from preintervention to postintervention. One-sample t test was used for normally distributed data, and the nonparametric Mann-Whitney test was used for skewed distributions. The standard mean difference was calculated from the post–pre mean difference. For the sample of parents/carers in the targeted intervention, child development scores.

## RESULTS

The 90 children participating in the targeted intervention ranged in age from six to ten years. Demographic variables included age and gender of child; age, education, and employment of parent/carer; primary care arrangement; number of children in family; and aboriginality. The analysis of post-baseline-paired scores offered a more refined scrutiny of shifts in scores than can be derived from band frequencies.

In school practice, given the need to protect the mental and physical health of students, anxious children should be in the area of constant attention by teachers, the school psychologist and the public health professional.

Because anxiety is an emotion most often experienced before an exam, it is important for highly anxious students to learn how to manage it, and this correction program can be used.

The program is designed to reduce students' levels of school anxiety to a normal state with outcome control and a positive effect fixation.

The following tasks are performed when executing this program:

1. Reduction of anxiety and stiffness of students.
2. Formation of the students' belief in their strengths and capabilities.
3. Empowering students, developing the necessary knowledge, skills and abilities to increase the effectiveness of school activities and reduce school anxiety.
4. Formation of adequate self-esteem in students.
5. Formation of understanding of the mobilizing role of a certain level of anxiety in solving problems and difficult life situations.
6. Developing the ability to control anxiety levels.

Working with parents is a very important place. In addition to teaching, the school plays a very important role in the education and development of the child's personality. But the most important and influential factor in this complex and long-lasting process is family education. The situation in the family, which parents and others consider positively, may be accepted by the child as the opposite. Family problems involve a whole host of problems in other areas of life: schooling, peer relationships, adult behavior, and even health problems. Therefore, the work of a psychologist with the family is very important and necessary

1. Psychological support of the family of an academically capable child

Teachers, school psychologists, social educators and public health professionals work closely

together in this area.

The purpose of the psychologist's work with parents of academically capable children is to teach parents effective interaction with their child.

This work is aimed at:

- empowerment of an academically capable child;
- improving the reflection of their relationship with an academically capable child;
- developing new skills for interaction with the child;
- Establishing and developing relationships of cooperation and partnership of parents with the child.

In general, working with parents is aimed at teaching them to understand and accept their child, to see him as he is.

## 2. Information environment.

A special cycle for the parents of the class was developed with the general theme: "My child is the eighth wonder of the world".

Forms of meetings are very diverse: round tables, conferences, workshops, creative piggy bank and more.

Parents are offered tests, questionnaires, to discuss different situations. Here parents share their experiences of raising children.

## 3. Joint practical activities of an academically capable child and his or her parents

During the school year, parents and children organize joint projects of various subjects, make presentations of their projects on thematic weeks.

For the development of creative and cognitive activity of children, parents help children participate in various creative and educational competitions of different levels.

One of the performance criteria is the satisfaction of students, parents, teachers with the vital activity of academically capable children in school.

## 4. Support and encouragement of parents at school level

The work of parents is supported and encouraged. At the end of the year, there is a joint celebration of children and their parents, where parents receive letters and letters of thanks for their cooperation.

The purpose of work of a psychologist with teachers is the formation of a positive emotional state, the prevention of emotional burnout, learning the skills of self-regulation and relaxation, the

formation of teachers' emotional-positive attitude to students.

Self-development is characterized by the desire to develop, the presence of personality traits that contribute to self-development, and the ability to realize themselves in their professional activities.

Based on the assertion of a continuum of giftedness (any child is creative to one degree or another) and from the current situation in educational institutions, we believe that every child has the right to develop their abilities. Diagnosis and education of teachers of such psychological complex as subjectivity will help to solve these problems.

Being innovative is an important component of pedagogical competence, its development will promote the professional and personal growth of teachers, as well as the development of creativity in students and, as a consequence, their demand in the modern labor market.

According to the model of burnout syndrome proposed by US researchers K. Maslach and S. Jackson, "professional burnout" is interpreted as a syndrome of emotional exhaustion, depersonalization and reduction of personal achievement.

Emotional exhaustion is seen as a major component of "professional burnout" and is characterized by a lowered emotional background, indifference or emotional satiety.

Depersonalization is manifested in the deformation of relationships with other people. In some cases, it may be an increase in dependence on other people, in others it may be an increase in negativism, cynicism of feelings and feelings towards other people (students, colleagues, subordinates, etc.).

Reduction of personal achievements is either a tendency to negatively evaluate themselves, their professional achievements and success, negativity about their dignity and capabilities, or leveling their personal dignity, limiting their abilities, responsibilities towards others, etc.

The proposed program of work with educators aims to attach importance and personal value to professional success, to the formation of positive thinking, and includes the following tasks: nurturing self-confidence; raising self-esteem, reducing anxiety, prioritizing goals and objectives.

There should be a medical component at each stage of support of academically capable students. At the stage of assessment of the readiness of children to study at school, the result of a medical examination of a preschooler is a conclusion about the functional readiness for systematic educational activity on the basis of the following criteria:

- 1) health assessment;
- 2) determination of the biological age of the child;

### 3) assessment of the level of development of school-relevant functions

Children who have persistent abnormalities in health are assigned a set of medical, wellness and corrective measures.

While attending primary school, medical support is aimed at monitoring the health and physical development of children and identifying the risk factors for health deterioration in a timely manner.

Health monitoring is conducted on the basis of a screening assessment of the state of health and the day-to-day mode of the parents as a result of a parent's annual parental survey in November. Screening assessment allows you to: identify students who have a high likelihood of developing a chronic disease and need medical advice; identify students who are at high risk of poor health due to the irrational pattern of the day; create a somatic profile of the training team, identifying priority risk factors for the same type of disabilities of students; to update the need for parents to care for the health of children and to identify preventative measures for a particular training team. To identify signs of overweight among students, it is desirable to use weekly monitoring of the functional status of the child by the parents. Persistence of signs of fatigue is the basis for carrying out medical and preventive measures - adjusting the daily regime, the volume of training load and the nature of nutrition.

Dynamic assessment of pupils' physical development reveals signs of a mismatch between the educational environment and the biological needs of the child.

An assessment of the quality of life associated with their health reveals the level of psychological, social and physical well-being of each student, the association of marked traits between children, their parents and the teacher in a particular educational team.

## **CONCLUSION**

Thus, the developed program of medical and psychological support is in line with the strategy of development of the new Ukrainian school and is aimed at solving the problems of adaptation of young children of school age in the educational establishment. The implementation of the program in the practical activity of general secondary education institutions has helped to increase the level of readiness of children to school; development of self-control and self-education skills; high level of well-being in children; increasing the level of motivation for achievement and learning. During the work of children the vocabulary was expanded, the communicative abilities were acquired, and a positive emotional attitude to the classes was formed. It should be noted that the work carried out

helped to reduce the number of maladapted students. Positive models of behavior in real life were formed, ideas, memory, attention, perception, speech, thinking were activated and the necessity of observing the rules of behavior at school was actualized, children learned methods of solving problem situations. The role of the school setting for the delivery of program was recognized by parents and valued in a number of ways. The easy accessibility and familiar environment of the school added to the appeal of the program. Having a targeted intervention program as part of a wider, universal information and education campaign in the school reassured, prepared, and engaged families for the targeted group program. Some families would not otherwise have sought out assistance, and others saw it as a privileged opportunity: The group program was experienced as an engaging activity rather than a remedial program, and it supported parents to feel more comfortable in the school environment. Some benefits of the school-based delivery are illustrated in the following parent comments.

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**THE ROLE OF SCHOOL MEDICINE IN THE FORMATION OF HEALTH-  
PRESERVING EDUCATIONAL ENVIRONMENT AS THE MAIN FACTOR AFFECTING  
THE HEALTH OF MODERN SCHOOLCHILDREN**

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**Abstract.**

Due to the negative tendency towards an impressive deterioration in children's and adolescents' health, this problem becomes global in the public domain and becomes the most relevant category, given the importance of the individual and social capital of health. One of the ways of solving it is considered by the author in an organic combination of the educational and health process, creation of the inner-school environment which is safe for the schoolchildren's health. And a significant role in this process is given to school medicine.

Referring to the domestic experience of the functioning of this medical industry, the author highlighted its role in the formation of healthcare-saving educational environment. An example of one of the educational institutions that cooperates with medical institutions is showing the real possibility for school medical staff to significantly reduce the negative impact of school environment factors on the health of schoolchildren under the conditions of the medical service submission to the Institute of Education. The author focuses on the implementation by the medical service of such important functions as monitoring the compliance of the participants in the educational process with the principles of healthcare conservation and promotion of a healthy lifestyle.

At the same time, attention is focused on the possible risks associated with the quality of the medical service, which is linearly dependent on the competence of healthcare professionals, their awareness of the physiology and pathology of childhood.

The author draws attention to the urgent need to change the strategy of training and upgrading the skills of school medical staff, in particular with the involvement of leading scientific medical institutions.

**Key words:** capital of health, school medicine, risks of the educational environment, health-saving activity, health-saving educational environment.

**Introduction.** In the conditions of modern economic reality, the attention of scientists V. Ilyinsky, P. Khovit, M. Goklani, V. Radaiev, B. Palov in particular is actualized to consider health in the context of the theory of human capital as an integral component of it. Greeting capital (capital of health) is given to a person from birth, but it needs to be constantly maintained and augmented. It is clear that health at the level of education determines the ability of a person to fully fulfill the basic social and economic functions (when it comes to the schooling – mastering of competencies), its active participation in the process of achieving not only their own well-being, but also the competitiveness of the national economy.

Unfortunately, the catastrophic deterioration in the health of Ukrainian schoolchildren relates primarily to the risk-generating nature of education, that is, with the specifics of the educational environment [1]. This prompts the Institute of Education to more actively implement a system of scientific and practical measures to preserve and strengthen the health of schoolchildren, to form a health preserving environment. It should be noted that it is education itself as "the space where the values of society are assimilated" that was considered by E. Durkheim, the founder of the sociology of education, given that it is precisely this institute for a long time acts as the basis of the system of purposeful influence on the younger generation [4]. By the way, as the researchers point out, the impact on the health of schoolchildren of the in-school environment in elementary school is about 13%, increasing by the end of study almost 2 times.

**Goal.** Determine the role of school medicine in reducing the risk-generating nature of the school environment.

**Materials and methods.** Analysis of domestic experience in the development of school medicine and its functional capabilities to influence the formation of health preservation medium.

**Results.** An appeal to scientific sources shows that the work of many scientists, in particular O. Antonova, V. Bazarny, B. Berezhna, M. Gryniova, V. Yefimova, T. Yefimova, G. Danilenko, V. Ilchenko, T. Merkulova, N. Miller and others is devoted to the problem of formation of healthcare-saving educational environment. The riskiness of the internal environment was studied by M. Bezrukykh, O. Vasiliev, L. Garmash, L. Gladkikh, S. Grombakh, I. Dubrovina, S. Yefimova, A. Kocherga, N. Kotsur, S. Maksymenko, L. Tovkun and others. However, scientists have almost ignored the role of school medicine in creating and maintaining a health-safe educational environment, in particular in the context of the reform of the medical sector.

For many decades, school medical staff were part of a children's polyclinic. Their work was

organized in accordance with the Regulations on the pediatrician of pediatric department for the organization of medical care for children in educational institutions and consisted in the implementation of immunization, sanitary-epidemiological surveillance, early detection of diseases (mandatory medical prophylactic examinations), prevention of developmental risk factors diseases, food control and nutrition for children, physical education lessons, as well as educational work among pedagogical staff, parents, students on the formation of a healthy lifestyle, the prevention of injuries and diseases [8].

It should be noted that a multi-faceted mission - educational, preventive, sanitary-hygienic control, was relied on the school physicians since the nineteenth century. In order to carry out this work, a school doctor, in addition to professional training, was supposed to provide a communicative interaction between parents and teachers, the pedagogical staff and the education management bodies for the observance of sanitary and hygiene requirements [2].

In the last decades, taking into account the workload of medical staff (the school nurse) (1 wage-rate for 800 students) and the school doctor (1 wage-rate for 2500 pupils), the preventive function and sanitary-hygiene control remained predominant in their activity. One of the proofs of this is the result of research on the duration of the components of the main activities of school nurses in the town of Sumy, where the average hourly rate of 11.47 minutes was spent on the sanitary-educational work with the students and 9.77 minutes – with the parents [5, p.63] . Therefore, it is not surprising that according to a study conducted by specialists from the Institute for children and adolescents health care of the NAMS of Ukraine among adolescents aged 15-17 in one of the districts of Kharkiv only 17% of them noted that they received important information from school medical personnel about a healthy lifestyle, with less than 8% of adolescents - information about bad habits [9].

– Given the fact that the dissertation was involved in the study, it was possible to conduct a single-faced dispersion analysis to determine the degree of influence of institutions on various types of health factors of adolescents. Studies conducted have shown that an educational institution is able to significantly influence their behavioral practices, in particular smoking of students regardless of age (8.8%,  $F = 7.1$   $p < 0.001$ ), significantly more on fifteen-year-olds, and they are predominantly students of the 9th grade (13.0%  $F = 6.38$   $p < 0.001$ ) than on seventeen-year-old students of the 11th grade (8.7%  $F = 3.25$   $p = 0.014$ ). However, the information received from school health workers about the harmfulness of smoking almost does not change their attitude to this habit (1.0%  $F = 4.0$   $p = 0.046$ ) .

–It is worth noting that this is due to staff shortages and the lack of communicative skills in most of the medical staff. So, in Kharkiv, a quarter of school nurses are at the age of 60 years and older, what impedes the establishment of communication with adolescents. Along with this there are vacancies. The fact of insufficient financing of the medical sector, which contributed to the destruction of school medicine, can not be ignored

Unfortunately, this picture has deteriorated considerably (general government funding is not envisaged) as a result of the primary health care reform carried out in 2018. At the same time, the school medical service changed its subordination from the health system to the education system.

In our view, the subordination of school medicine specialists to the management of the school promotes the more effective involvement of health workers in health-care activities.

Thus, the job instruction of a school physician and a nurse within the framework of legally defined functions of school medicine can be detailed about the tasks taking into account the specifics of the institution and the identified risks of the school environment.

In this direction, there is a certain experience of Kharkiv Gymnasium № 14, which for decades has been working closely with the Institute for children and adolescents health care of the NAMS of Ukraine (ICAHC NAMSU). The institution developed a comprehensive target model of the implementation of the program on the creation of a health preserving environment, which is actively involved with school medical staff.

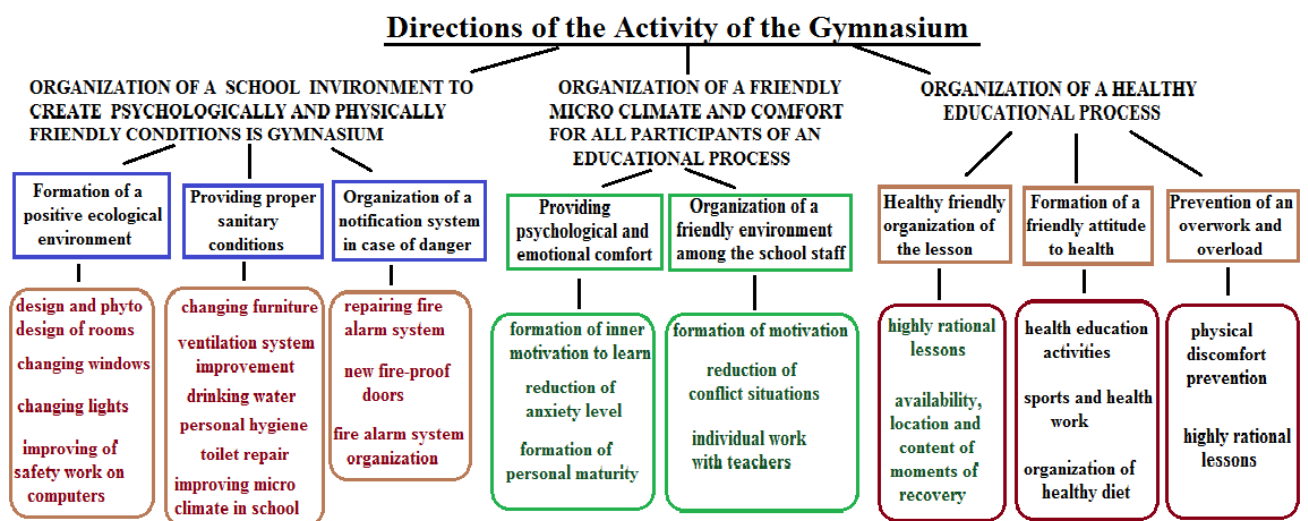


Fig.1 Complex-target model of the implementation of the program to create a health-saving environment

The school health service determines the risks based on the results of studies on factors affecting the school environment on the health of schoolchildren, medical examinations by specialists of the institute, questioning of students, parents and educators. On the basis of these, the administration of the gymnasium, together with medical staff, specifies the tasks for the implementation of both control and educational activities among schoolchildren and teachers.

Thus, with the support of the Institute for children and adolescents health care of the NAMS of Ukraine, the school medical service carries out monitoring research on sanitary and hygienic factors of the environmental impact on children's health, the impact of tobacco use, alcohol and drug addiction, monitoring the observance of the principles of health preservation in the construction of educational classes (analysis of the lesson from the standpoint of the healthcare principles), monitoring physical fitness, physical condition and harmonious development of schoolchildren etc. According to the results of the survey by school medical staff, the parents of 1st grade pupils regarding compliance with the diet in the family the time of eating at the educational institution by first-graders was adjusted, taking into account the recommendations for diversifying the menu and organizing dietary meals. The recommendations of the school medical service are taken into account when changing the design and phytodesign. The result of the joint analysis of the methodical and medical services of the gymnasium of teaching methods in the 5th grade and the study of the dosage of school load was the introduction of technology "flipped learning", which significantly unloads students at home and diversify the forms of activities in the classroom. The practice of controlling the in keeping with the principles of preservation of health at physical education lessons and other disciplines by the school physician is initiated. Medical staff accompany the implementation of the scientific and pedagogical project "Learn in motion", to which the gymnasium was involved two years ago. In addition, educational work includes issues that concern teenagers, in particular, the impact of clothing on the state of health of students, overcooling on sexual health, peculiarities of nutrition during classes in gyms, harmfulness of diets in the protruding period etc. The school physician, in cooperation with public organizations, promotes a healthy lifestyle among schoolchildren of different age groups.

Therefore, according to the parents' survey on the quality of the work of the school medical service, it is determined that 85% «are satisfied with her work in full».

At the same time, it should be noted that in conditions when school medicine is completely losing contact with medical institutions, issues concerning increasing the competences of school

medical workers and updating their knowledge on physiology and pathology of childhood are becoming relevant. It is worth mentioning that the European Bureau and the European Union of School and University Medicine and Health have developed the Concept of Quality Standards for School Health Services and Competencies for School Health Specialists (2014), according to which the medical officer of the school is at the same time a communicator, an organizer of interdepartmental cooperation, organizer of information and explanatory work on health issues, scientist (self-improvement and analysis of scientific information), specialist (acting in accordance with international and state regulatory acts). Therefore, in view of this, specialists in school medicine must have profound knowledge in the field of medicine (knowledge about the physiology of growth and development of the child, factors affecting his health), in the field of psychology (motivation of persuasion, communication), in the field of administration (management or administrative management), which only contributes to their impact on the formation of a health-preserving environment [6]. The risk of unskilled help or recommendation can have harmful consequences for the health of the participants in the educational process. We believe that a strategy for the training and upgrading of school health care workers needs to be changed. And while at the state level this issue is not solved, scientific medical institutions should take on the role of scientific and medical support for the activities of school medical services, as is done in Kharkiv on the initiative of the ICAHC of the Academy of Medical Sciences of Ukraine.

**Conclusions.** School medicine can significantly affect the formation of a healthcare-saving environment, in the presence of, first of all, the necessary professional competences, organization of systematic cooperation with teachers and parents of students, coordination of its activities with scientific medical institutions. The school medical service can not only track, but also encourage participants in the educational process to adhere to the hygienic principles of preserving the health of schoolchildren, identified by leading domestic hygienists and physiologists [3, p.113-115].

Educational activities among different age groups of schoolchildren, as well as among teachers and parents about factors affecting their health, monitoring the health of schoolchildren and factors of the internal environment, and further action to reduce the risk-generativeness of the educational environment will promote not only preservation but also support and build-up health capital.

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**APPROACHES TO DIAGNOSTICS OF CONSEQUENCES OF HOME VIOLENCE  
ABOUT CHILDREN**

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**Abstract.**

Violence is learned behavior that is effective. The concepts of “violence” or “child abuse” (English - child abuse) and “neglect” (English - neglect) are new enough for professionals working with children in Ukraine. Teachers, doctors, psychologists, social workers have faced cases of child abuse, but at the state level this problem has simply been hushed up.

The lack of reliable data on the effects of child abuse hinders the proper response to this problem in many countries, including Ukraine. Therefore, developing effective methods for identifying the effects of domestic violence and putting them into practice for professionals in the field of psychosocial interventions is an urgent task.

**Key words:** child abuse, definitions, risk factors for child abuse, symptoms and consequences of child abuse child abuse, definitions, risk factors for child abuse, symptoms and consequences of child abuse.

In Ukraine, the Law of Ukraine “On Preventing and Protecting Domestic Violence” is in force, which regulates the procedure for protecting the rights and interests of persons affected by sexual,



physical, psychological and economic violence [1, 2, 3].

A child is considered to be a victim of domestic violence if she has suffered domestic violence in any form or witnessed (witnessed) such violence.

The Law of Ukraine “On Prevention and Countering Domestic Violence” defines four forms of violence: physical abuse, sexual abuse, emotional (psychological) abuse, neglect (abandonment, homelessness) [4,5,6,7,8].

Physical abuse of a child is defined as actions on the part of the educator that actually cause physical harm or may cause it. Sexual abuse occurs when the caregiver uses the child for sexual satisfaction.

Emotional violence is the parent’s or caregiver inability to provide a child-friendly, welcoming atmosphere. These are chronic, ongoing, prolonged and pervasive forms of behavior in which a child is humiliated, insulted, ridiculed, restricts his movements, threatens and intimidates, uses discrimination, rejection and other non-physical forms of hostile treatment, thereby adversely affecting the child’s emotional health and development. Emotional violence also includes constant lying, deceiving the child, constant failure to fulfill his promises on the part of the parents (as a result of which he loses confidence in the adult), and in addition, making demands on the child that do not correspond to his age capabilities. The deprivation of parental love in infancy and adolescence, on the one hand, contributes to the development of insatiable emotional hunger, and on the other, inexorably distorts the emerging "image of the I" of the child. Bowlby (1979), a well-known researcher of the phenomenon of maternal deprivation, introduces the term “pathogenic parenting” and identifies the following types of inadequate parenting: 1) absence of a parent or separation of a child from a parent (when placed in a hospital, orphanage); 2) the lack of an adequate response to the search for care and affection, the rejection of the child; 3) threats to leave the child, used as a disciplinary measure (the parent threatens to deprive the child of his love, leave the family, commit suicide, etc.); 4) the parent provoking feelings of guilt or experiencing their own "bad" in the child.

The following features of the parent-child interaction in emotional abuse are also highlighted. From the side of the parent: dominance; affectiveness; unpredictability; inconsistency; inadequacy; rejection.

On the part of the child: subordination; insensibility rigidity; irresponsibility; uncertainty; helplessness; self-abasement.

Children who experience emotional abuse generally do not receive any positive responses or

reinforcements from their parents or guardians. Everything good that the child does is usually ignored by adults, and any negative aspects of the child's behavior are emphasized in every way, accompanied by insults and harsh punishments. As a result, the child's emotions develop one-sidedly, self-esteem is underestimated, the child is not able to understand his feelings, the feelings of others and cannot develop an adequate emotional response. Any communication with parents is accompanied by emotional stress, fear, excitement. Psychological violence can also include frequent conflicts in the family that occur in front of children, involving the child in a situation of divorce or division of property. Any violence leads to a sense of expectation of danger or anxiety. Children and adolescents who have experienced violence, feel pain, fear, powerlessness, fear and confusion, embarrassment and shame, they often blame themselves for what happened, feel like accomplices or perpetrators [8,9]. Many, on the contrary, feel the mother's guilt, since they could not trust her out of fear. At heart, some children recognize that this is not their fault, but most still believe that the abuse of them is conditioned by their behavior, their character or their position in the family. Therefore, they are constantly forced to hide and keep silence, which, in turn, exacerbates the consequences of violence.

Lack of care is the inability of the parent to ensure the development of the child - where he is obliged to do this - in the following aspects (one or more): health, education, emotional development, nutrition, shelter and safe living conditions. Lack of care, therefore, differs from living in poverty: it can only occur if the family or the caregiver has some means available [6,10].

#### Symptoms, diagnosis and consequences of child neglect

##### External indicators and behavioral reactions:

1. A very thin or very fat child. Due to improper, inappropriate nutrition, the child either does not gain weight or, on the contrary, looks very fat. Can quickly gain weight while in the hospital.
2. A very pale, anemic baby. Parents do not ensure that the child receives all the vitamins and the products necessary for his development.
3. The baby is "looking for food" with its lips. The mother forgets to feed or does not want to feed the baby; or gives him food inappropriate to age.
4. Eat greedily when offered.
5. Diaper rash in infants, constantly dirty baby. The baby does not change the diaper, do not wash it, do not fulfill basic hygiene requirements.

6. The child is not dressed for the weather. In cold weather, the child walks without warm clothes and shoes.

Symptoms, diagnosis and consequences of child neglect

Behavioral and emotional reactions:

- The child does not seek parental initiation. Knowing that parents are only annoyed when a child seeks their attention, he stops asking for their help and tries to contact them as little as possible.
- Non-affectionate child. The child models the behavior of parents who never show tender feelings towards him (do not stroke him on the head, do not pick him up, do not kiss).
- Tries to attract the attention of any adult, hangs on him. With pleasure leaves with strangers.
- A child experiencing a feeling of loneliness. Unhappy child. A child is often locked alone at home.

Neglect of maintaining and restoring a child's health:

1. The child is not shown to the doctor when it is required for health reasons, do not treat him.
2. Refuse the necessary procedures, vaccinations, prescriptions of doctors.
3. Do not conduct examinations of the child.
4. Do not call an ambulance when necessary.

Neglect of education by the child:

External indicators and behavioral reactions:

1. Delay in mental development and speech.
2. The child skips school or is often late.
3. The child skips school due to the fact that he looked after other children.
4. A child may have a "school neurosis" due to fear of school and a lack of parental assistance.
5. Always unfulfilled homework.
6. Parents do not attend school and are not interested in their child's performance.

Reasons for child abuse. There are many theories that attempt to explain child abuse by their

parents or other adults. Their main essence boils down to the fact that violence, as a rule, is the result of a complex of various causes, but the degree of their influence in various forms of violence is different. There is also the concept of psychological risk factors or risk groups for children and parents for the occurrence of violence. It is known that 85% of parents of children under 12 years of age use physical punishment, but only 8 out of 10% of them consider them an effective method of education, and 65% would prefer to raise children in some other way, but do not know how [4,11].

Parent risk factors include:

Parents or other adults who themselves were victims of childhood violence. The so-called family baton of cruelty. It is transmitted from one generation to another and is the "standard" of family relations. There is an unconscious need to transfer to another humiliation to which they themselves were once subjected;

- the need to give way out of suppressed feelings;
- the need to possess and have at its disposal a living object for manipulation;
- transfer of their own childhood experience, due to the need to idealize their childhood and their own parents through the dogmatic application of parental educational methods to their own child;
- revenge for the pain that the parent once experienced.

Of all children who have experienced violence in such families, 10% die, while the rest develop physical and mental abnormalities.

Of all children who have experienced violence in such families, 10% die, while the rest develop physical and mental abnormalities.

The majority of orphans and children without parental care were subjected to various types of violence in their families [11,12].

- Parents or other adults with mental health problems (psychopathy, depression, schizophrenia, epilepsy, mental retardation);
- adults who abuse alcohol and drugs;
- adults with economic and social difficulties (poverty factor);
- "too young" mothers (up to 16 years old);
- families with a difficult psychological climate, dysfunctional families;
- The difficult, tense situation in the family, the unfulfilled expectations of women from marriage, etc. can negatively affect attitudes toward the child and ways of interacting with him;
- families with adopted children, especially if they have their own children: this takes into

account the fact that there are many motives for establishing guardianship, for example, receiving material subsidies. With other motives for adopting a child, it often turns out that the features and behavior of the adopted child do not meet expectations. Such a family, as a rule, is not a favorable environment for the development of the child, and violence may be committed against him by foster parents.

- In families where particularly harsh punishments are applied, family roles are generally poorly distributed. All power is either concentrated in one of the parents, or a chaotic distribution of roles is noted.

- adults who participated in hostilities, PTSD;
- moved families;
- homeless;
- low educational level of parents [11,12,13,14].

The risk group for children includes: 1) infants and young children, characterized by anxiety and irritability, which often leads to frustration of mothers and the manifestation of physical abuse on their part; according to statistics, most cases of physical abuse of children occurred in the first two years of life; 2) children with physical and mental disabilities; in a number of parents, children with visible physical abnormalities, mental retardation, or other pronounced defects cause a reaction of rejection, irritation, and even aggression; there are statistics that show that the percentage of abuse in the population of mentally retarded children ranges from 20% to 40%;

3) children with hyperactive and impulsive behavior, which often annoys and tires parents and quite often pushes them towards the physical punishment of the child, however, it should be noted that the poor behavior of children in some cases is already the result of their abuse;

- 4) Children with impaired sex determination [15,16].

Deviations caused by violence.

Children who have experienced shame and humiliation in the family will usually behave in the same way with their own children. The reasons for this lie in the fact that they simply do not have any other experience of communication between children and adults. The feelings with which the child comes into the adult world will be limited; such people are not capable of tenderness, love and empathy.

Usually they have difficulty understanding other people, they are vicious, distrustful and unhappy. The realization that "he is bad, stupid, clumsy" poisons their lives. Self-esteem and self-esteem are extremely low.

Modeling adult behavior that has accompanied him all his life, such a person will create the same intolerable environment around him.

The disorder has a number of symptoms that can be observed in a child who has survived a separate traumatic event, a series of related traumatic events or chronic stress - chronic beating or sexual harassment:

1. Replaying a traumatic event, manifested by a post-traumatic game with the introduction of some aspects of violence;

2. A decrease in the reaction or developmental disorder that appears after a traumatic event. This may manifest as:

- increased social exclusion;
- temporary loss of previously acquired skills;
- reduced interest in the game compared to the level of interest before the traumatic event.

3. Symptoms of increased arousal:

- nightly fears - the child wakes up screaming, breathing and palpitations are rapid, sweating. Appear in the first third of the night and last from 1 to 5 minutes;
- refuses to go to sleep;
- decrease in concentration;
- hyper vigilance;
- reacts to everything with exaggerated fear.

4. Symptoms not previously manifested (fear or aggression):

- aggression towards peers, adults and animals;
- separation of fears into parts;
- fear of the dark;
- other new fears;
- pessimism or behavior that provokes insult;
- sexual and aggressive behavior that is not appropriate for age;
- other non-verbal reactions experienced during the trauma of violence (somatic symptoms, pain);

- the child may not be able to initiate social relations, or his behavior will manifest dual or contradictory social reactions, for example, excessive vigilance;

- the child can also show the ability to social relations inappropriate to age, - for example, be too sociable with strangers;

- psychosomatic complaints, such as headache, abdominal pain; He says that he is "bad", stabbing in the heart, etc. [3,8,9].

Over the past years, Ukraine has seen an increase in domestic violence. So, according to the data of La Strada Ukraina organization, in 2016 about 32 thousand calls-messages about domestic violence were received on the "hot line". This indicator is 14 times higher than the previous year [17.18].

In the countries of the former Soviet Union, no mass epidemiological studies have been conducted. According to some data, among patients of psycho-neurological dispensaries, about 46% of children had a history of physical abuse and about 3% of children were sexually abused [8.17].

**Own experience.** A study was conducted using the psycho-diagnostic complex, in which 307 children from 3 regions of Ukraine took part: 110 children of the criterion group (criterion carriers are those who were actually victims of domestic violence) and 197 children of the control (regulatory) group whose parents provided informed consent to participate in the study of them and their children. The sample of children ranged in age from 6 to 13 years, including 143 girls and 164 boys.

We set out to develop a comprehensive model for the diagnosis of the effects of domestic violence, which would include all types of diagnostics: interviewing in case-transfer and face-to-face interviews, questionnaires, projective approaches, the use of personal questionnaires.

The semi-structured interview included a compulsory list of questions aimed at identifying possible cases of violence and lack of care, signs of emotional problems, impaired behavior and attention, preneurotic problems (mainly in the form of sleep and fear disorders), vegetative dysfunction and somatic problems, as well as the level of psycho-emotional response in children, as well as the typical situations of their occurrence, family and interpersonal context, the identification of which is an important task and competence of psychologists and social servants and psychosocial support for children affected by domestic violence. The quantitative and qualitative analysis that was conducted confirmed the diagnostic value of the proposed interview.

The testing complex of the diagnostic complex included projective techniques "Kinetic drawing of the family" and "Unfinished sentences" in the modifications of Zhuravel, Kachemirovskaya,

Yasenovskaya (2010), which are traditionally used to detect cases of violence against children of preschool and primary school age. The results obtained confirmed the diagnostic value and the prospects of using these techniques to identify problem areas in the family environment of children, as well as the specifics of internal experiences (fears, helplessness) and interpersonal interactions with family members that reflect traumatization of the child as a result of domestic abuse.

For the global assessment of the psyche and the separation of its damaged aspects, the method of "Pediatric Symptom Checklist", PSC and Y-PSC versions of pediatric Symptom Checklist, widely used and successfully used in the world with 1988 for screening of psychosocial problems.

This 35-item screening technique (questionnaire) for identifying psychosocial dysfunction in children is designed to facilitate recognition of their cognitive, emotional, and behavioral problems in order to start appropriate interventions as early as possible. The construct (concept) of "psychosocial functioning" reflects a person's ability to perform daily activities and engage in relationships with others in a way that satisfies him and others and meets the requirements of the society in which the individual lives (Mehta, Mittal & Swami, 2014). Problems that arise in psychosocial functioning are called "psychosocial dysfunction" or "psychosocial morbidity". PSC Questionnaire items cover the child's psychosocial development features from five major areas of daily life for school-aged children: emotional mood, play, school, friends and family relationships.

Critical PSC scores indicate that the child already has certain psychosocial disorders that require more detailed analysis and attention from the psychological and medical profiles. The results obtained confirmed the diagnostic value of the proposed research methods for the conclusion about the psychological state of the child and the impact of domestic violence on his psyche.

The use of a psychodiagnostic complex can be a valuable experience for psychologists, social workers, psychiatrists and other specialists involved in the psychosocial support of child victims of domestic violence, as well as allow early diagnosis of the effects of domestic violence in children and can be used to formulate evidence-based evidence domestic violence.

Thus, at present there is a deep understanding and analysis of possible risk factors for domestic violence, the development of modern and adequate to the existing social conditions clinical and psychological tools for the psychological diagnosis of mental trauma of children affected by domestic violence, increasing the competence of professionals involved in helping children and families will allow to successfully implement timely and effective interventions of an organizational and socio-



psychological nature.

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**DIFFERENT DIFFICULT CIRCUMSTANCES AND PHYSICAL DEVELOPMENT OF  
A CHILD**

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**Abstract.**

It was determined the dependence between the nature of physical development, gender and age at the time of the beginning of the armed conflict (April 2014). The group of the risk for the formation of violations of physical development are schoolchildren who experienced the negative influence of armed conflict at a young age and at the beginning of puberty. The overweight prevailed in the structure of violations.

**Key words:** children, adolescents, physical development, military conflicts.

The physical development of the child is integral an indicator that reflects not only her somatic and mental health but also her social and economic conditions of life. To the most influential factors that affect health children are referred to as military conflicts. Negative the impact of military conflicts on the health of civilians, especially the most vulnerable part of them - children, is a proven fact and is actively discussed by sociologists, psychologists and doctors. Realities today there is an increase in the number of hot spots and armed conflict, which entails a decline socio-economic development of countries, the appearance of a significant number of people affected by the conflict zone and the displaced.

The process of displacement is accompanied by a deterioration in the psychological, mental and physical condition of the various layer's immigrants. In the context of migration under the influence of unfavorable factors and the lack of medical care women and children are more vulnerable to the risk of violations in health status [1]. It is proved that a person in a combat zone always affects somatic and psychological health, reduces social adaptation of the individual [2]. Increasing experience with the evaluation of the consequences of military action, their influence and health effects. The influence of forced migration on the occurrence of neurotic and mental disorders of apatico-depressive reactions, hypertension and other cardiovascular diseases, due to stress in adults. Also recorded the growth of gastric ulcer and 12 duodenal ulcers, cholecystitis, colitis, bronchial asthma [1]. Among internally displaced persons (Moldova, Tajikistan) of the diseases identified growth infectious and parasitic diseases, the rate which increased 2.6 times due to intestinal infections and tuberculosis [3].

However, most publications refer to adults as the most active contributor's events experienced. Few sources indicate that postponed events of a military conflict can have negative consequences for the further life of the child. Even short-term excessive psycho-emotional stress can further contribute to imbalance at the metabolic or organ level [4]. Kids that trapped in an area of armed conflict, as a rule, experience prolonged psycho-emotional stress, action which has a negative effect on health, identifies negative trends in the subsequent stages of ontogeny [5].

Even though the baby is from one hand is better adapted to short-term stress exposure, on the other hand, any adverse the impact tends to cumulate and is necessarily implemented in the future to reduce health [6]. It draws attention to the one-sided approach to this problem of international humanities and medicals organizations [7]. It is stated that the main consequences of a potentially traumatic event may be: stress (immediately after such events) that does not cause conditions

requiring medical intervention. However, in a small number may be problems and disorders of the psyche, among which – significant symptoms of acute stress disorder, post-traumatic stress disorder and prolonged unhappy response [2].

The deterioration of somatic and mental health as a result of being in a conflict zone has, unfortunately, become a pressing issue for the child population of Ukraine. Scientists Lugansk State Medical University studied the state of the autonomic nervous system in young children with post-traumatic stress disorder [8, 9]. It is established that among children with post-traumatic stress syndrome, the proportion of frequently ill children is 2.3 times, higher disease duration and more often there was a development of somatic pathology. In the structure of somatic pathology in children undergoing stress fighting, the first place was somatoform dysfunctions of the autonomic nervous system, which are recorded in 100% of cases [10].

It was also proved that during the evacuation of the victims at safe areas in many of the victims of the armed conflict there is a complex emotional and cognitive processing of the situation, evaluation of their own experiences and feelings. During this period, along with nonspecific neurotic reactions and conditions, patho-characterological changes, post-traumatic and socio-stress disorders develop. In children older age, during the period of forced migration, increases frequency of acute and exacerbation of chronic somatic diseases, psychoneurological disorders [11, 12].

Thus, the vast majority of studies indicates poor mental health, increased incidence of infectious pathology, impaired quality of life. In this case, the impact of modern military conflicts on the physical and sexual development of children who were in the area of combat and internally displaced, virtually unexplored. The relevance of the chosen research direction due to the fact that physical development is an integral indicator of health and reflects the relationship of the organism with the environment [13, 14].

Indicators of physical development can serve as a reliable criterion for determining the readiness of an organism to educational, industrial and sports activities. Along with other indicators of physical health the development serves as a reliable marker of adverse effects on the child's body of harmful environmental factors. Based on the above assessment and analysis of dynamics of physical development of children from the zone of military conflict may serve as an indicator of changes in health status is influenced by exogenous factors, be the result of prolonged reaction the impact of potentially traumatic events [13, 14]. It has caused the direction of this study on the determination of age-related peculiarities of physical development of school-age children affected by military action

and armed conflict, namely: gender, age and level of sexual development at the beginning the armed conflict in Eastern Ukraine.

**The purpose of the study** is to assess the physical development of children and adolescents affected by armed conflict in eastern Ukraine.

## **MATERIALS AND METHODS.**

There were 179 girls under observation and 128 boys 6-18 years of age who were affected by military action and armed conflict in eastern Ukraine and sought medical help in Government Institution "Institute for the Protection of Children's Health and teenagers of the National Academy of Medical Sciences of Ukraine" during 2014-2018. Physical development (PD) of students was evaluated by comparing the main anthropometric ones indicators (height and body weight) with age standards in accordance with the Protocols for the provision of medical assistance to children in the specialty "Pediatric endocrinology" [15]. In addition, the mass index was calculated of body (BMI) with evaluation of data on percentile tables of the Protocols of medical care for children for majoring in Pediatric Endocrinology (2006), body weight deficiency (WD) was diagnosed if the indicator BMI was below 5 percentile and overweight -patients with BMI above 85 percentiles. The level and nature of sexual development (SD) was assessed by the degree of development of the genital organs and the sequence of their formation, taking into account age standards [16-21]. Individual analysis of the nature of PD was conducted with regard to the sex, age and level of SR of the surveyed. Mathematical processing of survey results teenagers conducted using software packages «SPSS Statistics 17.0», "Excel". Critical level significance when testing statistical hypotheses was assumed to be  $p < 0.05$ .

## **RESULTS AND DISCUSSION.**

At the initial request for medical help in the State Institution "IOSPP NAMN" conducted an individual analysis of anthropometric indicators of children and adolescents affected by hostilities and armed conflict in eastern Ukraine. Installed, that harmonious PD had 59,0% of the surveyed. IN 41.0% were diagnosed with the formation of disharmony PD, which was more commonly reported in boys (46.0%) than in girls (37.3%,  $p < 0.05$ ). The highest percentage of children with disharmonious PD was among children 7 and 12-13 years - 56,2% and 47,8-48,1% respectively. Ages 8-9 the

frequency of disharmonious FG was the lowest for years (17.6-15.4%). Among teenagers 10-11 years, 14-18 years the percentage of those surveyed with disharmonious PD ranged from 21.9% to 35.7%. The relationship between the level of SD and the nature of PD is determined. Harmonious PD at the time of the initial examination in the State Institution "IOSPP NAMN" more often had young children without signs of puberty (28.0%) and adolescents during puberty (35.0%). Among the surveyed with disharmony PDs were dominated by adolescents whose SD level was responsible early puberty (35.0%,  $p < 0.05$ ). In the group of children 6-10 years with disharmonious PD were dominated by girls to 8 years (15.4% vs. 1.7% in boys,  $p < 0.01$ ) and boys with SD with corresponding prepubescent rate (12.1% against 6.2% in girls,  $p < 0.05$ ). Among older teens with disharmonious PD, the percentage of boys and girls with SD level corresponding to early puberty (34.5% against 35.4%), puberty itself (29.3% against 32.3%) and late puberty (10.3% vs. 10.8%) was definitely no different.

Most often disharmonious FD was due to excessive body mass (BM) was 23.0 %. High growth had 10.0% of patients. Lack of BM and low growth were determined with the same frequency (7.0 per cent). Excess BM (25.4 %) and high growth (11,1 %) a few more often defined at children, against 21.3% and 9.2% in respectively in girls. Thus, disharmonious PD in children of both sexes were most likely due to excess BM that 2.7 percent of surveyed combined with high growth. Considering literature data about the importance of age in a period when there was a negative impact on the state the health of the child, an analysis was conducted of the nature.

FRENCH schoolchildren who have suffered from armed conflict, taking into account the age and level of sexual development at the time of the official beginning of the antiterrorist operations (ATO – April 2014). Found that among children who at the beginning of the ATO was 6 years old, most often diagnosed disharmonious FD (66.7 percent). Disharmonious frequency PD among children 7-8, 14 and 16 17 years was significantly lower and totaled 30.4-23.5 per cent, 25,0 % and 28,0-25,0 %, respectively.

The analysis of disharmonious frequency PD of the girls and children with different levels of SD at the time of the outbreak of hostilities has allowed to establish that the greatest the percentage of boys with disharmonious FD was later among adolescents with SD level, which answered prepubertal (57,1% versus 37.9% in girls,  $p < 0.05$ ). Frequency children with disharmonious FD in the other groups did not differ significantly and ranged from 40.0 % in childhood to a 43.9-42.3% in early and actually pubertat. Among the girls was slightly higher percentage of examinees with a disharmonious



FD in the group with SR level respective early puberty (44,2 %). The least the number of girls with disharmonious FD is defined among the older girls SR level appropriate actually of puberty (to 29.3 %).

Analyzing the nature of PD in children and adolescents, taking into account the level of SD at the beginning of ATO, it is established that in younger children are significantly more likely to have low growth than older teens (12.9%) and rarely - excessive BM (16.1%). Among adolescents with SD who responded to early puberty in 2014, they were more likely to report excessive BM (35.1%) and high growth (14.0%) than in other groups. Among the lowest percentage of them was adolescents with low growth (1.8%). Older students with a level SDs corresponding to early, proper and late pubertal had disharmonious PD, mainly due to excessive BM (21.6%, 20.3%, and 25.0%, respectively). The largest percentage of adolescents with BM deficiency was among the surveyed group with SD level, which responded to 2014 to early puberty (10.7%). In other adolescent groups, BM deficiency was identified slightly less frequently. Significant gender differences were also identified in structure of PD disorders in groups with different levels of SD at the moment the ATO begins. In the group of surveyed in which in 2014, there were no signs of SD and age was lower 9 years, harmonic PD in boys and girls was determined with almost the same frequency (60.0% and 56.3 % respectively). However, the character of disharmonious PD depended on gender: boys were twice as likely to be underweight (13.3% vs. 6.3% in girls,  $p < 0.05$ ), and girls as overweight (21.9% vs. 13.3% in boys,  $p < 0.05$ ). Girls had a higher incidence of BM (9.4% versus 6.6% in boys,  $p < 0.1$ ) and high height (12.5% vs. 10.0% in boys,  $p < 0.1$ ). It should be noted that all girls are tall had excessive BM, of which: 9.4% were obese.

In the group of adolescents, who were 9-11 years old in 2014, harmonic PD was significantly more frequently determined in girls during the examination at the State Institute of Public Health of the National Academy of Medical Sciences. 62.1% versus 42.9% in boys ( $p < 0.05$ ). Boys have a higher height than girls (17.9%) and 10.4%, respectively,  $p < 0.05$ ) and excessive BM (42.9% and 27.6%, respectively,  $p < 0.05$ ). The combination of high growth with excessive BM was diagnosed in 10.8% of boys and 6.9% of girls. There is almost no shortage of BM were more often determined among girls (6.9%) than 3.6% boys ( $p < 0.05$ ). Low growth is only diagnosed 3.6% of guys. Boys and girls who have a level of ATO at the beginning SD corresponded to early puberty, frequency of harmonic PD (56.1% and 55.8%, respectively), excessive BM (21.9% and 23.0% respectively), high (9.8% and 9.6%, respectively) respectively) and low growth (7.3% and 5.8% respectively) were not

significantly different. However, boys were twice as likely to be deficient in BM (14.6% against 7.7% in girls,  $p < 0.05$ ) and a combination of high growth with excessive BM (7.2% vs. 1.9% in girls).

In 4.8% of boys and 1.9% of girls, low growth was combined with insufficient BM. Among adolescents who were 14-16 years old in 2014 and had a SD level corresponding to puberty, harmonious PD was significantly more commonly determined in girls 70.7% versus 50.7% in boys ( $p < 0.05$ ). Excessive BM was more frequently diagnosed in boys (26.9%) than in boy's girls (17.2%,  $p < 0.05$ ). Higher height was also slightly more common in boys (7.7% vs. 5.2% in girls,  $p < 0.1$ ). The percentage of boys and girls with insufficient BM (3.8% and 3.4% respectively) and low growth (7.7% and 6.9% respectively) was not significantly different. A combination of growth disorders and BM among older adolescents were identified in isolated cases. In the group of adolescents whose level of SR corresponded to late puberty at the beginning of the fighting (17-18 years), there were 3 girls and one guy. At the time of the examination, the girls had a harmonious PD and the boy had excessive BM and normal.

During the initial examination in the conditions of the clinic and the hospital of the State Institution "Institute for Protection of Children's and Teenagers' Health, NAMS", affected by the armed conflict in the east of Ukraine, it was found that 46.0% boys and 37.3% of girls had disharmonious PD, the frequency of which varied widely and depended on age and sexual development. It is proved that, irrespective of the sex of the surveyed, most often disharmonious PD was caused by excessive BM (23.0%) high growth (10.0%). It was also determined that among adolescents with disharmonious PD, the percentage of early adolescence-matched examinations with SD was significantly higher than among adolescents with harmonic PD (35.0%,  $p < 0.05$ ). The study determined the value of age and level of sexual development in the period when there was an active influence of the negative factors caused by the beginning of hostilities in eastern Ukraine, concerning violations of physical development of school children age. Found to be the most vulnerable group there are younger children (up to 7 years old) and teenagers 9-13 years. Gender differences were proved. According to the results obtained, the most frequent disorders of physical development are formed in boys, in which, level of sexual development at the beginning of armed conflict corresponded to the puberty, and in girls - during early puberty. It may be noted due to active neuro-immune-hormonal restructuring during puberty and vulnerability of the child during these ages. It is established that structure of disorders of physical development also depends on gender and level of sexual development on anti-terrorist operation. Yes, it was more commonly identified among

younger children low growth (12.9%) and BM deficit (10.7%); adolescents - excessive BM (20.3–25.0%). It is also proven that in prepubescent excessive BM (42.9%) in boys was diagnosed almost twice as often as in girls (27.6%).

### CONCLUSIONS.

This allows us to conclude that children younger teens and early teens who at this time were in the area of war and armed conflict in eastern Ukraine, are at risk for formation of physical development disorders and require dynamic observation and conduct timely preventive social and medical activities.

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**PSYCHOLOGICAL CHARACTERISTICS OF BOYS WITH DELAYED PUBERTY  
AND SYSTEM OF THEIR PSYCHOLOGICAL SUPPORT**

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**Abstract.**

The article presents a comprehensive system of psychological support for adolescents with puberty development delay. Stages of psychological support are presented in this research. The directions of work of the medical psychologist, which contain optimization of the psychoemotional state of adolescents with puberty development delay taking into account person peculiarities, and counseling their parents, are determined. The effectiveness of the proposed system of psychological support of this contingent of patients is shown.

**Key words:** boys, puberty development delay, psychological support.

The article presents a comprehensive system of psychological support for adolescents with puberty development delay. Stages of psychological support are presented in this research. The directions of work of the medical psychologist, which contain optimization of the psychoemotional state of adolescents with puberty development delay taking into account person peculiarities, and counseling their parents, are determined. The effectiveness of the proposed system of psychological support of this contingent of patients is shown.

The terms of own physical maturation are very important for a teenager. Some adolescents with delayed puberty (DP) mature later than mid-term. The most common clinical option for delayed sexual development is to combine it with growth retardation. The second most frequent occurrence is the variant when there is no pronounced deviation in the physical development of the body (with infantile and eunuch-like body types) with moderate delay of sexual development. The third, less common clinical option is delayed sexual development combined with overweight [1, 5].

This disease adversely affects not only the physical development and physique formation of boys, but is also accompanied by deviations in personality formation and leads to social maladaptation [2-4].

Therefore, the **purpose** of this work was to reveal the psychological aspects of delaying sexual development in adolescents and to identify ways of psychological assistance to this contingent of patients.

**Scope and Methods:** 85 boys with a DP at the age of 14–17 years were hospitalized and examined at the State Institution "Institute for the Health of Children and Adolescents of the National Academy of Medical Sciences". The comparison group consisted of 62 healthy boys of the appropriate age. Psychodiagnostic research was conducted through interviews and a series of psychological tests and projective techniques aimed at determining emotional state, self-esteem, personality traits, health and illness.

According to the results of psychodiagnostic examination it is possible to present a generalized psychological portrait of a teenager diagnosed with DP. A teenager with DP is estimably different from his normally developing peers in physique, he is physically weaker and worse at coordinating movements. Body size and motor coordination play an important role in an individual's social development, that is why such adolescents often have a negative self-perception and a negative self-concept. They are usually less attractive and unpopular with peers; nervous, constantly having feelings of self-inadequacy, neglect and dependence. Often, they get shy. Due to social neglect, some of these adolescents are locking themselves. There are cases when adolescents who have a DP try to compensate for their inadequacy by behaving aggressively and impudently with others, showing deviant and destructive behavior.

Most boys with DP find it difficult to tolerate their inferiority. There are three types of psychogenic reactions of adolescents to their disease. The first type is characterized by the desire to protect themselves as much as possible from communication with adults and peers. This type of

reaction is accompanied by a depressed mood with ideas of inferiority and self-humiliation. In the reactions of the second type teenagers try to hide their disease and show their health, strength, courage. They start smoking and drinking alcohol at an early age. Adolescents who have a third type of psychogenic reactions, try to show their constant employment with training, extracurricular activities, sports. They try to ignore the relation of the environment to their appearance, emphasizing its low importance to themselves.

There is a feeling of unpopularity and dissatisfaction in adolescents with DP, the presence of a low degree of ideal formation, low self-esteem, introversion, and increased anxiety. The behavioral problems of adolescents with DP, their social neglect, or manifestations of deviant behavior were manifested in those families where either there was the hyperopic by mother or was violation of impaired communication between family members.

While working with adolescents with DP, psychologists should use individual forms of work because open discussion of issues related to DP and maturation of a teenager in the group causes feelings of embarrassment, shame, and tension.

The program of psycho-correction classes included 8-10 meetings with the teenager, due to the length of stay of the teenager in the hospital. Classes were conducted daily, their duration was 40-50 minutes in the afternoon, after undergoing adolescent medical procedures. To work with boys with DP, there were used methods of art therapy (work with pictures), techniques of cognitive-behavioral and positive therapy, focused conversations and discussions.

The meeting and work with the parents took place twice during the course of the teenager's treatment. The first meeting took place immediately after the hospitalization of the teenager with DP to the hospital, the second - in the middle of the course of treatment. The duration of the meeting was 30-40 minutes. The techniques of explanatory therapy, counseling where used working with parents.



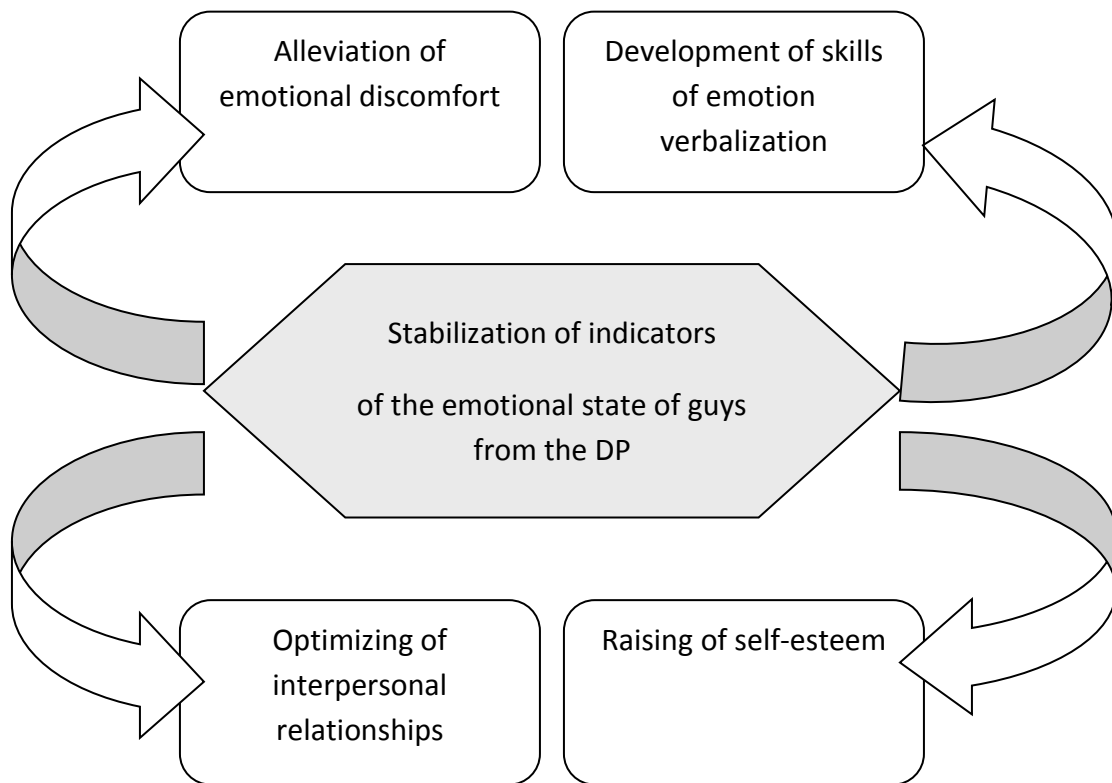


Fig. 1. The main tasks in optimizing psycho-emotional the state of teens.

Stabilization of indicators of emotional state contained the following directions of work (Fig. 1):

- development of emotion verbalization skills;
- alleviation of emotional discomfort caused by the presence of the disease (reduction of internal tension to reduce anxiety, frustration and aggressiveness);
- optimization of interpersonal relationships;
- raising of self-esteem.

a) Developing the skills of emotion verbalization.

The study found that adolescents with DP have difficulty identifying and describing their own emotions. Yes, almost five percent of boys with DP (19%) had difficulty naming their emotions, caused by DP. Therefore, during the programs of psychological support, the teenager with DP provided emotional support and provided a sense of psychological security, which facilitated the weakening of the mechanisms of his psychological protection, developed the ability to understand, recognize and name his emotions and emotional states, worked in the direction of modification of emotional modification teenager.

b) Alleviation of emotional discomfort caused by the presence of the disease (reduction of internal tension to reduce anxiety, frustration and aggression).

In the study, we found that emotional stress and discomfort in adolescents with DP were the result of two factors: being in a hospital for the first time or having a DP. In 65% of cases, both factors were combined. Therefore, psycho-correction work that has been associated with reducing the emotional discomfort of a sick teenager has two components: improving the adolescent's adaptation to the hospital and reducing internal stress that has arisen due to the presence of the disease.

Sick teenagers had classes that included learning relaxation skills to relieve mental stress and creating the conditions for responding to fear and aggression, and the teenager's attention was directed toward forming a positive image of their own future.

c) Optimization of interpersonal relationships.

An analysis of interviewing ill adolescents found that almost 70% of boys with DP had low levels of social adaptation, that is why so much attention was given to optimize interpersonal relationships during work with patients in this contingent. Individual conversations and exercises were used to increase the adaptation of these guys in the family and in society. Cognitive-behavioral psychotherapy was used to develop adequate behavioral skills aimed at resolving interpersonal conflicts.

d) Raising the self-esteem of a teenager.

When analyzing the pictures of sick boys, it was found that more than half of the respondents (61%) had low self-esteem, so during the psychological support of the teenager with DP, assistance was provided in finding internal resources to restore and increase self-esteem. The work of the psychologist was aimed at forming an adequate image of "I am". The complex image of "I am" contains not only the perception of the teenager of his body, but also the awareness of the value of his own personality, so the work included the formation of a positive perception of the teenager of his own body and the search for the teenager of positive qualities of his own personality.

Organization of psychological support of adolescents with DP in the hospital consisted of four stages: preparatory, diagnostic, stage of formation and implementation of individual programs of psychological support and stage of evaluation of the effectiveness of the work.

Stage I. The preparatory phase included a meeting with a curator, an analysis of medical records (patient cards) and a primary meeting with a teenager.

During the meeting with the doctor and as a result of the medical records analysis, the necessary information was obtained about the teenager's medical history, his health status, attitude to

hospitalization and treatment procedures, the results of the doctor's observation regarding the characteristics of the teenager's behavior due to the delayed sexual development.

During the first meeting with a teenager, a psychologist, using a semi-structured interview, received information about the teenager's awareness of his health, the impact of the disease on various areas of his life.

Interviews determined:

- the presence / absence of difficulties in adolescence in the verbalization of their own thoughts about DP issues;
- the teenager's awareness of DP and the potential consequences of the DP;
- the need and ways of receiving information and psychological support;
- the presence of blocking parent-child communication on DP issues;
- the influence of social (school) environment on the teenager in the context of the presence of external manifestations of DP;
- peculiarities of emotional response of a teenager in the context of features of physical development;
- the presence of anosognosis beliefs about the DP in the adolescent;
- the teenager's attitude to treatment.

The primary tasks of the initial meeting with the teenager at this stage were to collect a psychological history, to establish contact and to form motivation to work together.

The preparatory phase ended with an analysis of the information received and the planning of further activities.

Stage II. The diagnostic phase included conducting a psycho-diagnostic study with the adolescent and his parents.

In the psychodiagnostic examination of a teenager with DP, which was conducted during the second meeting, the peculiarities of the teenager's emotional state.

The psychodiagnostic examination of parents at this stage determined the type of parental attitude to adolescent health with delayed sexual development. The analysis took into account the categories:

- discussing the topic of illness (DP) between parents and child
- experiencing disquietude, anxiety about the child's illness;

- the presence of anosognosis guidance about DP;
- the time of seeking medical help for the DP;
- knowledge of the effects of the DP;
- having anxious thoughts about the baby;
- parental activity aimed at saving the health of a teenager with DP;
- indicators on the scales of internality, anxiety, nosognosis.

The results obtained during the empirical study, which determined the peculiarities of the psychological status of boys with DP, were the basis for the creation of individual programs of psychological support at the next stage.

Stage III. Creation and implementation of individual programs of psychological support for boys with DP in the hospital, taking into account the parental attitude to the health of their children.

The development of individual programs of psychological support for adolescents with DP included two components, namely: correction of maladaptive types of attitude to the ill health of a sick teenager and optimization of his psycho-emotional state.

For correction was carried out:

- raising awareness of the DP;
- formation of an adequate attitude to the disease;
- formation of a responsibility for maintaining and maintaining one's health;
- formation of an active behavioral strategies towards preserving and promoting one's health.

Optimization of emotional sphere of sick adolescents was aimed at:

- development of emotion verbalization skills;
- alleviation of emotional discomfort caused by the presence of the disease (reduction of internal tension to reduce anxiety, frustration and aggressiveness);
- optimization of interpersonal relationships;
- raising self-esteem.

At the same stage, the parents of a sick teenager were counseled.

Parents who had a supportive type of parenting, were active, and interested in helping their child, were seen as partners in building the adolescent psychological care system. The parents were advised on the healthy lifestyle of the teenager, their support in adulthood, and puberty.

Working with parents who had a ignoring type of parenting was aimed at raising awareness of

DP and its possible consequences, at optimizing interpersonal relationships between parents and adolescents. If the parents lacked motivation to work with a psychologist, the issue of raising awareness of the delay and its consequences was addressed to the parents by the endocrinologist.

At the end of the psychological support, a final discussion was held with the teenager on the issues of gaining experience, expanding their understanding of their illness, and applying the acquired knowledge to life.

Stage IV. Evaluation of the effectiveness of the work was carried out on the basis of the evaluation of the dynamics of indicators that characterize the emotional state of the teenager. At the end of the last meeting with the teenager, before his discharge from the department, a second psychodiagnostic examination was conducted.

55 boys with DP participated in the corrective program and were treated in the endocrinological department of the Clinic of the State Institution "Institute for the Health of Children and Adolescents of the National Academy of Medical Sciences".

After completing the course of psychological correction, adolescents with DP had a positive dynamics. Most patients (90.63%) had a significant decrease in anxiety, frustration and aggressiveness ( $P < 0.05$ ) (Table 1).

Table 1.

Results of re-diagnostics of psycho-emotional states of adolescents with DP who were consulted  
by psychologists

| Indexes     | Level  | The first stage | The second stage | The reliability of the changes |
|-------------|--------|-----------------|------------------|--------------------------------|
| Anxiety     | low    | 60,0            | 64,5             | P <sub>G</sub> < 0,05          |
|             | middle | 24,4            | 33,3             |                                |
|             | high   | 15,6            | 2,2              |                                |
| Frustration | low    | 51,1            | 60,0             |                                |
|             | middle | 35,6            | 37,8             |                                |
|             | high   | 13,3            | 2,2              |                                |
| Aggression  | low    | 33,3            | 40,0             |                                |
|             | middle | 48,9            | 55,5             |                                |
|             | high   | 17,8            | 4,5              |                                |
| Rigidity    | low    | 37,8            | 46,7             | –                              |
|             | middle | 51,1            | 46,7             |                                |
|             | high   | 11,1            | 6,6              |                                |

Six months later a survey was conducted to determine the persistence of changes in adolescent social functioning. The questionnaire included questions that covered the adolescent's attitudes toward their illness (DP), the presence of an active positive strategy for maintaining their health, and changes in communication with other people. There was also examined the issue of providing parents emotional support for a sick teenager after his discharge from the hospital. The survey revealed that all boys (100%) had undergone a course of medication, 78.13% adhere to the diet prescribed by endocrinologist. 75.00% of the boys noted the positive consequences of cooperation with the psychologist, namely: 45.8% noted improvements in understanding of the disease and its consequences, 16.7% gained confidence in themselves, 37.5% of boys felt relief of their emotional state. Almost half (46.7%) of boys with DP after having received psychological support in the hospital admitted that there were positive changes in their relationships with their peers. Most of the boys (71.33%) admitted that they have emotional support by their parents in the situation of delayed puberty, they talk and reassure teenager. 18.2% of these guys had emotional support even before

working with a psychologist, and 53.13% said that their parents' attitudes had changed after visiting psychologist by parents.

Thus, the system of psychological support for adolescents with delayed puberty has shown its high efficiency, due to its complexity and individual approach.

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**VALUE OF MONITORING OF PHYSICAL DEVELOPMENT IN THE PRESENCE OF  
ARTERIAL HYPERTENSION**

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**Abstract.**

The article presents the study of the physical development results of adolescents with arterial hypertension, the significance of monitoring body mass indicators to identify adverse facts of progression and the formation of complications of the disease is determined.



**Key words:** arterial pressure, metabolic syndrome, physical development, adolescents.

**The purpose of the study** is to assess the connection of indicators of physical development in adolescents with hypertension, their relationship with biochemical and non-humoral indicators of homeostasis.

**Materials and methods.** 142 young men 13-18 years old were under the supervision, depending on the respectively BMI: 48 with normal body weight, 35 with overweight and 59 with I-II degree obesity. The control group included 21 young men with normal blood pressure and body weight. All adolescents underwent daily monitoring of blood pressure (BPM). The physical development of children was assessed using anthropometric parameters (height, body weight, waist and hips) and BMI calculation (kg/m<sup>2</sup>).

The state of carbohydrate metabolism (the level of fasting glycaemia in venous blood, the oral glucose tolerance test, the level of basal immune-reactive insulin, index HOMA-IR); the uric acid level, the blood lipid spectrum and structural and functional (including endothelial function) state of heart and kidneys were investigated in three groups of adolescents with arterial hypertension.

**Results.** Study established significant differences in groups with different body weights. In adolescents with hypertension an increase in body weight is combined with an increase in the frequency of increase in total cholesterol, triglycerides and their transport forms (LDL cholesterol and VLDL cholesterol), a decrease in HDL cholesterol and the formation of various dyslipoproteinaemia; an increase in the level of immune reactive insulin and the formation of insulin resistance. The presence of hyperuricaemia significantly worsened endothelium-dependent vasodilation in adolescents with hypertension and obesity and had an effect on renal function. In adolescents with overweight and obesity biventricular remodeling of the heart occurs, the formation of left diastolic dysfunction of the left ventricle myocardium were present.

**Conclusions.** In adolescents with arterial hypertension disharmonious physical development is an indicator of the formation of an aggressive course of the disease with the development of violations in the lipid spectrum of blood atherogenic orientation, carbohydrate metabolism, the presence of hyperuricemia, which promote the development of endothelial dysfunction and morphofunctional changes of target organs (heart and kidneys).

**Actuality.** It is known that the assessment of the physical development of the child population is an important criterion in a medical examination and important primarily for pediatricians, and

secondly for general practitioners and, of course, for educators. Each growth period is characterized by certain anatomical and physiological features, taking into account which it is necessary to solve the issues of organizing the daily regimen, care, upbringing, nutrition, organization of the educational process, measures for the prevention of diseases, as well as methods and forms of recovery associated with physical education and sports. In screening of anthropometric indicators height and body weight are evaluated most often, as well as their ratio in the form of a body mass index (BMI) [1-3].

At the same time, monitoring of physical development is carefully carried out in relation to healthy children. In the context of the development of chronic pathology, the issues of body growth in length and weight of patients often fade into the background after diagnostic and therapeutic tasks. However, the dynamics of physical development in children with already established chronic pathology reflects the degree of control over the disease and the need for correction of therapy [1-3].

One of the most socially significant diseases of humanity is arterial hypertension (AH). According to modern concepts, its formation in adolescents is heterogeneous in the development mechanisms, clinical, hemodynamic, and neurohumoral components [4-8]. In some of them, mainly in individuals with burdened heredity, AH is formed as an independent disease under the influence of activation of neurohumoral systems and changes in the ratio of central and peripheral hemodynamic units. In others, hypertension is the one of the components of metabolic syndrome. It is a complex of clinical and pathogenic interconnected multicomponent metabolic disturbances (lipid, carbohydrate, purine), mechanisms of regulation of endothelial function and hemodynamics, which is formed on the base of neuro-immune-endocrine dysfunctions in conditions of reduced tissue sensitivity to insulin (insulin resistance) (Litwin M et al., 2013; Ettihad D et al., 2016; Recommendations of the ESC 2018) [6, 9, 10]. The importance of the development of the hypertension is determined by the high risk of progression and the formation of complications, primarily atherosclerotic and thromboembolic due to various metabolic disorders and endothelial dysfunction [11-12]. Therefore, one of the tasks of medical support for young people with hypertension is the allocation of individuals with a high risk of the formation of cardiovascular complications.

**The purpose of the study** was to assess the significance of indicators of physical development in adolescents with hypertension, their relationship with biochemical and non-humoral indicators of homeostasis.

**Materials and methods.** 142 young men 13-18 years old were under the supervision, depending on the respectively BMI: 48 with normal body weight, 35 with overweight and 59 with I-II degree

obesity. The control group included 21 young men with normal blood pressure and body weight. The diagnosis of hypertension, its degree and stage were established individually for each patient based on the classification of primary hypertension in children adopted at the III Congress of Pediatricians of Ukraine (2006) [13] and the Recommendations of the Ukrainian Association of Cardiology for the Prevention and Treatment of Hypertension [10]. Persons with symptomatic hypertension (pheochromocytoma, hyperthyroidism, congenital heart defects, malformations of the kidneys, glomerulonephritis, etc.) were not included in the study. All adolescents underwent daily monitoring of blood pressure (BPM). BPM was performed on an AVRМ-04 apparatus (Hungary), the mean values of systolic blood pressure (SBP), diastolic (DBP) in the daytime and at night and the hypertension index of SBP and DBP were determined.

The physical development of children was assessed using anthropometric parameters (height, body weight, waist and hips) and BMI calculation (kg/m<sup>2</sup>). BMI was evaluated by nomograms taking into account age and gender. BMI was considered as a normal between 15 and 85 percentile. BMI between 85 and 97 percentile was regarded as excess body weight, above 97 percentile - as obesity. The criterion for abdominal obesity was considered the waist size equal to or more than 94 cm for boys over 16 years old, and more than 90 percentiles for children younger than 15 years of age (IDF 2007).

To assess the state of carbohydrate metabolism the level of fasting glycaemia in venous blood, the indicators of the oral glucose tolerance test (OGTT), the level of basal immune-reactive insulin (IRI) and the insulin resistance coefficient (index) (HOMA-IR) were determined. The level of glycaemia in venous blood was determined by the GOD-PAP method using a Glucose liquicolor kit (Human, Germany) on a Microlab-200 photometer. The oral glucose tolerance test was carried out according to a standard method with determination of fasting glucose, one and two after glucose loading (75 mg/kg body weight, but not more than 75 g). The increase in glucose was determined at a glucose level equal to and more than 5.6 mmol/l (126 mg/dl). A glucose tolerance disorder was diagnosed at a glucose level after two hours of 7.8 mmol/l (140 mg/dl) and higher, but less than 11.1 mmol/l (200 mg/dl). The state of prediabetes was established in the presence of an increase in fasting glucose and impaired glucose tolerance. The diagnosis of diabetes was established if the fasting glucose level was equal to or greater than 6.1 mmol/l or the glucose level two hours after exercise was 11.1 mmol/l and higher.

To quantify the level of basal immune reactive insulin (IRI) in blood serum, the method of solid-

phase enzyme-linked immune sorbent analysis (ELISA) with the DRG insulin kit (ELISA, Germany) was used. Hyperinsulinaemia was diagnosed with an increase in insulin levels above the reference value of 25  $\mu\text{U} / \text{ml}$ . The insulin level from 20 to 24.9  $\mu\text{U} / \text{ml}$  was considered borderline. Insulin resistance (IR) was evaluated by indirect indicators: the level of basal insulinaemia and the homeostatic model of insulin resistance with HOMA-IP parameters determination (Matthews D.R. et al. 2006). The criterion of high IR was considered a HOMA-IP level more than 3.6; the average (limiting) degree of IR was considered the level of HOMA-IR from 2.77 to 3.59. Preserved insulin sensitivity (lack of IR) was diagnosed with a HOMA-IR level less than 2.77.

The study of the blood lipid spectrum included determination of the level of total cholesterol (TCh), triglycerides (TG) and high density lipoprotein cholesterol (HDL cholesterol) by the photometric method on a CORMAY MULTI photometer (Poland). Very low density lipoprotein cholesterol (VLDL cholesterol), low density lipoprotein cholesterol (LDL cholesterol) and the atherogenic coefficient were determined by calculation methods. Elevated levels of total cholesterol were considered to exceed its values more than 5.2 mmol / l, LDL cholesterol - more than 3.3 mmol / l, TG - more than or equal to 1.7 mmol / l, VLDL cholesterol - more than 0.78 mmol / l. A lower level of HDL cholesterol was considered a value of less than 1.03 mmol / L.

Serum uric acid levels were determined by enzymatic, colorimetric method with uricase and peroxidase using Liquick Cor-UA diagnostic kits (Poland).

All studies were carried out in a free mode of motor activity and nutrition in the absence of drug therapy.

Statistical processing of the material was carried out on an IBM PC / Pentium 4 using the application package "SPSS 17.0".

**Results of study.** The adolescents included in the study did not have significant differences in body length indicators. The main anthropometric changes concerned body weight and volumetric measurements (waist, hips volumes and waist/hips index) (Table 1).

Table 1. Anthropometric indicators of adolescents with hypertension depending on body weight, M  $\pm$  m

| Indicator  | I group, n = 48   | II group, n = 35   | III group, n = 59  |
|--|-------------------|--------------------|--------------------|
| Body weight, kg                                      | 72,77 $\pm$ 1,90  | 85,66 $\pm$ 1,79*  | 102,48 $\pm$ 3,16* |
| Height, cm   | 180,92 $\pm$ 2,01 | 179,66 $\pm$ 1,42  | 178,53 $\pm$ 1,56  |
| BMI, kg / m <sup>2</sup>                             | 22,21 $\pm$ 0,35  | 26,55 $\pm$ 0,35*  | 31,98 $\pm$ 0,67*  |
| Waist volumes, cm                                    | 76,07 $\pm$ 1,04  | 88,77 $\pm$ 1,69*  | 96,63 $\pm$ 1,65*  |
| Hips volumes, cm                                     | 94,15 $\pm$ 1,39  | 103,11 $\pm$ 1,20* | 107,69 $\pm$ 1,54* |
| Waist/hips index                                     | 0,80 $\pm$ 0,01   | 0,86 $\pm$ 0,01*   | 0,89 $\pm$ 0,01*   |
| p < 0,001 - compared to the teens in the first group |                   |                    |                    |

Analysis of risk factors in adolescents with hypertension showed significant differences in the groups. In young men with hypertension and normal body weight the following factors were more common: low body weight at birth (<2.5 kg), burdened heredity for coronary heart disease, and uncontrolled physical (athletic) activity. In the second and third groups (young men with hypertension and overweight and young men with hypertension and obesity) more body mass was found at birth (> 4 kg), changes in body parameters from early puberty, lack of exercise, excess animal fats and muffins in daily diet. An analysis of the family history showed that the overwhelming majority of patients (almost 90.0%) of the examined patients regardless of body weight had a hereditary history of cardiovascular diseases. Heredity for hypertension was established in 80.0%, stroke in relatives was observed in 23.0% of families from the hypertension group with obesity, myocardial infarction was noted only in the group of adolescents with hypertension and normal body weight (13.6%).

Studies of the blood lipid spectrum established significant differences in groups with different body weights. In adolescents with hypertension an increase in body weight is accompanied by an increase in the frequency of increase in total cholesterol, triglycerides and their transport forms (LDL cholesterol and VLDL cholesterol), a decrease in HDL cholesterol and the formation of various dyslipoproteinaemia, the frequency of which reached 76.9% in people with obesity, 60.0% in people with hypertension and overweight, and only 20.0% in adolescents with AH and normal body weight (p < 0.05 < 0.01) (Table 2).

Table 2. Indices of blood lipid spectrum in adolescents with hypertension depending on body weight, M ± m

| Indicator  | I group, n = 48 | II group, n = 35 | III group, n = 59 |
|--|-----------------|------------------|-------------------|
| TCh, mmol / l  | 4,10 ± 0,13     | 4,41 ± 0,16*     | 4,51 ± 0,12 **    |
| HDL cholesterol, mmol/l  | 1,42 ± 0,05     | 1,27 ± 0,05 *    | 1,24 ± 0,05***    |
| TG, mmol / l   | 0,83 ± 0,05     | 1,02 ± 0,08      | 1,30 ± 0,09***    |
| atherogenic coefficient  | 2,01 ± 0,13     | 2,54 ± 0,16**    | 2,75 ± 0,16***    |
| VLDL cholesterol, mmol / l   | 0,38 ± 0,02     | 0,47 ± 0,04      | 0,59 ± 0,04***    |
| LDL cholesterol, mmol / l  | 2,31 ± 0,13     | 2,367 ± 0,14*    | 2,75 ± 0,13**     |
| * p <0.05; ** p <0.01; *** p <0.001 - compared to the teens in the first group |                 |                  |                   |

Similar changes were observed in relation to disorders of carbohydrate metabolism. Its changes in the form of an increase in the level of immune reactive insulin and the formation of insulin resistance were found in 59.1% of obese people, 34.6% with hypertension and overweight, and only in 24.2% of adolescents with normal body weight (p <0.01; p <0.01) (Table 3).

Table 3. Indicators of carbohydrate metabolism in adolescents with hypertension depending on body weight, M ± m

| Indicator  | I group, n = 48 | II group, n = 35 | III group, n = 59 |
|--|-----------------|------------------|-------------------|
| Fasting glycemia in capillary blood, mmol / l                    | 4,31 ± 0,052    | 4,47 ± 0,08      | 4,48 ± 0,08       |
| Glycemia 120 minutes after loading with glucose, mmol / l        | 5,01 ± 0,10     | 4,74 ± 0,10      | 4,81 ± 0,15       |
| Fasting glycemia in venous blood, mmol / l                       | 5,14 ± 0,05     | 5,17 ± 0,07      | 5,16 ± 0,08       |
| Immune reactive insulin, μO / ml                                 | 12,45 ± 0,59    | 15,5 ± 0,95*     | 17,2 ± 0,79 **    |
| Index HOMA-IR  | 2,93 ± 0,15     | 3,5 ± 0,22*      | 3,96 ± 0,20 **    |
| * p <0.05; ** p <0.01 - compared to the teens in the first group |                 |                  |                   |

The presence of hyperuricaemia was found in 53.9% of all adolescents with hypertension, regardless of the patient's body weight. At the same time, her presence significantly worsened endothelium-dependent vasodilation in adolescents with hypertension and obesity and had an effect on renal function. The highest incidence of endothelial function disorders, both in endothelium and in

endothelium-stimulated samples, was found in adolescents with obesity (in 70.0% and 62.1% of cases, respectively). Moreover, in adolescents of the second and third groups biventricular remodeling of the heart occurs, most often with concentric remodeling (47.8%), less often with concentric (15.0%) or eccentric hypertrophy (23.0%), the formation of left diastolic dysfunction of the left ventricle myocardium were present.

**Discussion.** The conducted studies allow us to highlight several important points. The first of these should be the start of socially significant diseases in adolescence. In this regard, people working with children need to pay more attention to the factors of the environment in which the child grows. Life and family history data needs to be analyzed in more detail by medical personnel. The formation of healthy life skills, especially nutrition and physical activity (both insufficient and uncontrollably excessive) should be one of the priorities of socio-pedagogical work with children [14].

The appearance of changes in the health status of children, including the formation of arterial hypertension, requires not only therapeutic measures. The requirements of protocols on lifestyle changes and body weight correction in adult patients are undeniable in adolescence [10]. For patients with hypertension it is necessary not only to control the level of blood pressure, its daily fluctuations, rhythm and structure and function of the heart. Studies have shown that such a factor as changes in body weight, body circumferences, BMI is not only an aesthetic problem in this group of patients. In adolescence overweight and obesity are important indicators of the formation of an aggressive course of the disease with the development of disorders in the blood lipid spectrum of atherogenic orientation (76.9%), insulin resistance (59.2%), hyperuricaemia (57.6%), which contribute to the development of endothelial dysfunction and structural-functional changes in target organs (heart and kidneys). These patients also accumulate aggressive risk factors, both correctable (lack of exercise, smoking, abuse of computer games, etc.) and non-correctable (burdened heredity, gender of the patient).

The presence of excess body weight in a teenager is an easily determined and visible factor that not only doctors, but also teachers, educators, and parents can pay attention to. In this regard, not only knowledge of this problem is required, but also attention, indifference and skills in working with adolescent adults.

### **Conclusions.**

Adolescents with arterial hypertension do not differ in height, the main changes in physical

development relate to body mass and volumetric circles.

The increase in body weight and the development of obesity are accompanied by pronounced changes in the metabolic homeostasis of patients with hypertension already at the initial stages of the formation of the disease. Despite the first manifestations of the disease and the young age of patients, overweight and obesity are indicators of the formation of an aggressive course of arterial hypertension with the development of disorders in the blood lipid spectrum of atherogenic orientation, insulin resistance, hyperuricaemia, endothelial dysfunction, morphological and functional changes in target organs (heart and kidney).

This category of adolescents requires special attention from medical and socio-pedagogical staff, the use of a range of treatment and rehabilitation programs. A special role belongs to the correction of adverse risk factors and the development of healthy lifestyle skills.

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ISSN: 2641-9823