

Pharmacological Support of Health Protection of Children Gifted in Art

Natalya Fomina, Leyla Pechko, Tatiana Koptseva,

*Institute of Art Education and Cultural Studies of the Russian Academy of Education,
119121, Russia, Moscow, Pogodinskaya St., 8/1*

Abstract

This article presents the results of a long-term survey conducted by educators together with pediatricians working with gifted children at art schools, music schools, basic and additional education institutions. The study examined the question whether the process of active creative activity can be health protective. In order to answer this question, the possibilities of proper pharmacological support for gifted children's health protection, the valeological education of their parents and educators, and the competent application of multivitamin complexes are shown. The study focuses on the use of health-forming technologies, which are regarded as a system of measures, including the interrelation and interaction of all factors of the educational environment aimed at a child's health care at all stages of his or her education and development. Main health issues of children gifted in art are identified on the basis of the questionnaire and revision of the medical documentation. An algorithm for pharmacological support and a set of materials and directions for the valeological education for parents are offered. The survey was attended by gifted children of 7-12 years old, who took part in Russian festivals and contests for children's art in 2011-2017, as well as students of educational institutions in Moscow, the Saratov Region, and the Perm Region. The directions of pedagogical and medical support of children gifted in arts are presented. It is proved that intense intellectual, creative and mental activity of children requires a large number of B vitamins; high creative results are impossible without calcium, phosphorus and iron. A, C, E vitamins are important for immunity enhancement. All this makes it possible to properly select the vitamin complexes to support a child gifted in arts. The paper theoretically justifies focusing the pedagogical support of children gifted in arts on health protection and prevention of acute respiratory diseases and neuroticism, which are the main problems for this group of children.

Keywords. Pharmacology, support, support of children gifted in arts, valeological education, multivitamins, health-forming technology

1 INTRODUCTION

Giftedness in art is a complex phenomenon; it has its positive and negative consequences [1]. The positive aspects of giftedness in arts include good verbal and creative abilities, constancy, independence, diversity of interests, sense of worth, good memory, perseverance, abstract thinking, etc. [2]. The negative aspects include individualism, different rate of thinking and writing, instability of interests, exertion of dictatorship, increased exactingness and intolerance [3].

However, talented children can cause the greatest problems in teaching [4; 5]. First of all, this is due to their advanced development, unconventional views of the world around them, and the high demands for a health protection approach in teaching them [6]. The main goals of teaching children gifted in arts are the development of creative thinking, unconventional vision of the situation, the readiness to present their own artistic strategies, and independence in various arts [7]. All these aspects require fairly much emotional tension, the ability to get involved in mastering the accelerated, improved and complicated curriculum, which is qualitatively superior to the usual course, since the quality and level of resources applied in teaching children gifted in arts should differ from the standard ones [8].

Complex objectives and goals, high competitiveness, certain personal qualities, including perfectionism, social autonomy, and egocentricity become a kind of "trigger mechanism" for a constant feeling of

discontent with oneself, which affects self-esteem, as well as the appearance of neuroses and depression [9]. Researchers note that "the high emotional responsiveness of a gifted child can cause tears and despair in a situation of critical feedback. Increased shyness, communication issues, the duration of falling asleep, psychosomatic disorders may be latent forms of such despair" [10]. The studies also note that gifted children often suffer from Attention Deficit Hyperactivity Disorder [11].

Generalizing the polls of gifted-in-arts children's parents made it possible to summarize the main aspects of a clear decrease in the state of health of these children during studying (the parents of 7-10-year-olds, whose drawings were included in the International Collection of Children's Drawing of the Institute of Art Education and Cultural Studies of the Russian Academy of Education, the parents of 12-year-olds engaged in music in the studios of additional education and music schools and taking part in contests and festivals of children's performing arts).

We can single out the following symptoms among those noted by the parents in the first place:

- Frequency and duration of respiratory diseases;
- Various neuroses, anxiety;
- Fatigue;
- Headaches and stomachaches.

Notably, they coincide with the conclusions of physicians: "When a child's gifted needs are not served, the result can be expressed in a physical or emotional

symptom. Many gifted children may experience bodily complaints as a result of a mismatch in their educational situation, or due to an unfulfilled emotional or social need. Stomachaches and headaches are common school avoidance symptoms. Eating disorders can be a result of poor self-esteem. Depression and suicidal attempts may result from feeling different or isolated or even bullied" [12].

The question arises: should you develop a child's revealed talent in this case? After all, each child is always a special person, having special goals and objectives, values, and strategies. Do adults have the right to stimulate a child to more activity, accelerate the process of his or her formation?

Many researcher [13; 14; 15; 16; 17], practicing teachers [18; 19], pediatricians [20; 21; 22], and parents are concerned with these questions. In the United States, the National Association for Gifted Children has been established, which sets the tasks "to support those who enhance the growth and development of gifted and talented children through education, advocacy, community building, and research" [23]. The survey analysis shows that the absolute majority of specialists working with gifted children are convinced that a gifted child needs to be properly supported, "accompanied", assisted to overcome emerging obstacles in social and emotional development, contributing to the health protection.

For instance, Ellen Winner, the well-known American scholar, justifies the following idea in her book on myths and reality of giftedness: "Myth No. 7: Gifted kids are glowing with psychological health. Reality No. 7: Moderately gifted kids are well-adjusted, but more highly gifted kids are often stigmatized by peers who are different from them. They face social problems due to the intensity of their interests" [24]. Thus, correct systematic support, including the medical support, contributes to the phased, reasonable and effective personal and professional development of a gifted child [25], creating conditions for the prevention of the negative impact of the external and social environment [26].

This article presents the results of a long-term survey conducted by educators together with pediatricians working with gifted children at art schools, music schools, basic and additional education institutions. The features of proper pharmacological support for gifted children's health protection, teaching parents and teachers on the principles of healthy nutrition, the application of multivitamin complexes, and the creation of a health-protective environment in educational institutions are shown.

At the same time, the following principles of the development of the giftedness in arts are taken into account:

- 1 The development of abilities occurs only in the activity, when a child gets positive emotions [27].
- 2 The development of abilities demands the constant complexity increase of the child's main activity; in this context, it means both studying and extracurricular activities.

- 3 The activities should be developmental and represent significant value for the child due to internal motivation, as children gifted in arts often have the development deficit issues in voluntary self-regulation, lack of self-organization and self-control, difficulties in business and personal communication.

The paper lays an emphasis on the use of health-protective technologies, such as medico-prophylactic, technologies for ensuring the child's social and psychological well-being, valeological education technologies for parents, health-protective educational technologies and health-forming technologies, which in this case are regarded as a system of measures, including the interrelation and interaction of all factors of the educational environment aimed at a child's health care at all stages of his or her education and development.

2 MATERIALS & METHODS

Survey basis and sample.

The survey was attended by gifted children of 7-12 years old, who took part in Russian festivals and contests for children's art in 2011-2017 – 256 people; pupils of educational institutions: Zhuravushka Kindergarten, Secondary School No. 1 of Pohvistnevo, Samara Region; Sozvezdie Kindergarten, Secondary School of urban-type settlement of Peter Dubrava, Samara Region; Secondary School No. 22, Berezniki, Perm Region; Secondary School No. 668, Secondary School No. 656, Moscow, Children's Music School named after S.I.Taneyev, Moscow, Children's Music School No. 71 in Zelenograd. At different stages, the survey totally covered 1,200 children gifted in art. 47 pediatricians from Moscow, Berezniki (Perm Region), Pohvistnevo of the Samara Region, UTS Dubrava of the Samara Region; 240 teachers of art, 126 primary school teachers also took part in the survey.

The parents of children gifted in arts were involved in the survey; 540 people were involved in the polls at ascertaining and completing assessment steps of the survey.

Survey description. The survey was carried out from 2008 to 2017 (see Table 1).

The following **diagnostic methods** were used in the paper. The evaluation of the creativity parameters was carried out according to E. Torrance's test [31], the assessment of the students' incidence according to the main nosological entities – on the basis of the analysis of their medical records. The diagnosis and prediction of the person's psychophysiological state was based on the modification test by M. Luther [32]. The somatic systems of the body were evaluated in the following areas: the physical state of children gifted in arts was analyzed on the basis of the medical record analysis and interviews of parents and health professionals; the statistical result analysis was carried out using the Student's T-test and the non-parametric Wilcoxon test [33].

Table 1. Survey: steps, activities, methods, results at each step

Step	Schedule	Objectives & activities	Methods	Results
Ascertaining	2008-2009	Conducting of ascertaining polls of parents and teachers, school pediatricians. Preparation of questionnaires, mailing to educational institutions.	Polls, questionnaire, conversations, interviews, analysis of collected questionnaires, mathematical methods, result summary; analysis of educational (logs) and medical documentation.	A poll of 150 art teachers, 86 primary school teachers, 35 pediatricians, 320 parents of children gifted in arts. 86% of parents surveyed note the frequency of acute respiratory diseases, psychosomatic syndromes, anxiety during the school period. The hypothesis was confirmed about the need for pharmacological support for the children gifted in arts and valeological education of their parents.
Conceptual	2009-2010	Advice by specialists – teachers and health professionals. Development of a pharmacological support and valeological education strategy for parents and teachers, who provide the pedagogical support for the children gifted in arts. Continuation of the polls of parents and teachers.	Interviews with specialists, the study of scientific literature on the survey issues [28; 29]	An algorithm has been developed for the pharmacological support of children gifted in arts. The multivitamin complexes were chosen, a memo was created for the valeological education of parents. Agreements on cooperation were concluded with the educational institutions from Moscow, the Samara Region and the Perm Region. 40 primary school teachers, 72 art teachers, 120 parents were interviewed. The criteria for dividing children into experimental groups have been developed: age groups, based on the frequency of acute respiratory diseases, the presence of additional chronic diseases. The hypothesis was confirmed about the most significant issue of gifted children's health protection: the prevention of acute respiratory diseases.
Experimental	2011-2016	Work with the experimental groups E1A, E1B, E2A, and E2B on the prevention of the acute respiratory diseases.	Identifying the pedagogical conditions for creating the health-protective environment for educational institutions; Seminars, distribution of valeological education information [30], Data collection on the students' health state including children gifted in arts, the study of pedagogical (attendance logs) and medical documentation (data were obtained with the assistance of involved experts – medical staff), Result analysis of the proposed algorithm for the prevention of acute respiratory diseases. Diagnosis of psychological and physiological parameters of the students' organism with the help of the invited specialists.	A study was made of the possibilities of the pharmacological support of gifted children applying multivitamin complexes; the influence of the valeological education on children's health was studied. The results of 4 experimental groups were compared with the results of the control groups C1A, C1B, C2A, and C2B. Teacher-parent meetings were held with parents of students taking part in festivals and contests of children's drawings (2014-2016). Two annual assessments of the children's health were conducted; 12 assessments were totally made for control and experimental groups. The polls were conducted among the parents, art educators, primary school teachers, and health professionals on understanding the significance of the algorithm for children's health protection prophylaxis. In total, 428 questionnaires were collected and analyzed.
Generalizing	2017	Collection and analysis of the data obtained from the project experts. The obtained results presentation at the meetings of the Scientific Council of the Federal State Budget Scientific Institution Institute of Art Education and Cultural Studies of the Russian Academy of Education, conferences and seminars.	Processing, systematization, analysis and generalization of experimental work results. Comparison of the experimental and control groups, revealing correlations between the health protection and creative achievements of children gifted in arts. Survey and interviews with parents and health professionals.	Survey of health professionals and parents of children gifted in arts – 120 questionnaires. Correction of the original hypothesis, amendments. Conclusions, introduction of methodological recommendations into the practice of the educational process of children's art schools and music schools, as well as secondary schools where gifted children study. Creation of the paper on the basis of the data obtained.

3 RESULTS

The survey results can be divided into several groups.

1. Theoretical results:

The analysis of scientific and pedagogical literature carried out in the survey makes it possible to identify a number of theoretical and methodological approaches to solving the problem of the health protection of children gifted in arts.

- Provisions on the valeological education of gifted children's parents: a) familiarizing parents with the possibilities of teaching a gifted child a value for his or her health; b) educational work with parents on the possibilities of the pharmacological support for the health protection of gifted children.

In the survey, the memos for parents were developed. Below are examples of such memos (Tables 2-6).

Table 2. Daily vitamin requirement of a 7-10-year-old child's organism

Vitamins	Required Qty
B1	1 mg
B2	1.2 mg
B3 (PP)	12 mg
B5	5 mg
B6	1.4 mg
B7 (H)	30 µg
B9 (Folate)	100 µg
B12	1.4 µg
A	2,300 ME (700 µg)
D	400 ME (10 µg)
E	7 mg
C	45 mg
K	30 µg

Note for parents: At this age, the growth of the bone and muscle systems of the child slows down, while the structures of the brain begin to form more actively. To ensure that 7-10-year-old children normally tolerate the accelerated intellectual and emotional stress that they feel in class, and confront acute respiratory diseases, it is important for them to get enough E, C, B, and A vitamins [34].

Table 3. Multivitamin complexes for 7-10-year-old children (analysis of parameters)

Multivitamin complex	Daily dosage	Characterological parameters
Pikovit 7+	1 tablet	Enhanced content of B vitamins
Pikovit Prebiotic	5 ml	No biotin, but contains oligofructose and a daily dose of pantothenic acid
Alphabet Pupil	1 doze (3 tablets)	Folic acid and E vitamin are contained in 100% of the daily requirement, but there is no H vitamin

Multivitamin complex	Daily dosage	Characterological parameters
Kinder Biovital	10 g	The premix does not contain H and B9 vitamins, but contains lecithin
VitaBears Immuno +	2 pastilles	100% daily amount of C vitamin, no B, D, A, K vitamins
Multi-tabs Immuno Kids	1 tablet	Fully covers the daily requirements for B1, B2, PP, B9, B12, C, K, D, and E

Table 4. Daily vitamin requirement of an 11-12-year-old child's organism

Vitamins	Boys' dosage	Girls' dosage
	daily	daily
B1	1.5 mg	1.1 mg
B2	1.8 mg	1.3 mg
B3 (PP)	17 mg	15 mg
B5	4-7 mg	4-7 mg
B6	2 mg	1.6 mg
B7 (H)	17 µg	15 µg
B9 (Folate)	200 µg	200 µg
B12	2 µg	2 µg
A	3,000 ME	3,000 ME
D	400 ME (10 µg)	400 ME (10 µg)
E	10 mg	8 mg
C	60 mg	60 mg
K	45 µg	45 µg

Note for parents: Ensure that the growing child does not have a shortage in these vitamins, as this will slow down his or her physical development, reduce the level of readiness for arts and, consequently, affect the child's creative achievements. Hypovitaminosis will also affect the work of the brain and the immune system.

Table 5. Multivitamin complexes for 11-12-year-old children (analysis of parameters)

Multivitamin complex	Daily dosage (on average, without taking into account the gender and physical development of the adolescent)*	Characterological parameters
Pikovit 7+	1 tablet	Enhanced content of B vitamins
Alphabet Pupil	1 doze (3 tablets)	No biotin
VitaBears Immuno +	2 pastilles	No B, D, A, K vitamins, daily dose of C vitamin
Kinder Biovital	10 g	No folic acid and H vitamin, but contains lecithin

- Attention: consult with the pediatrician.

Table 6. Comparison of vitamin complexes

Multivitamin complex	Composition	Formula	Features and application
Pikovit	9 vitamins	Syrup Chewable tablets Pills	The med is presented in different dosages and forms, depending on the child's age.
Pikovit Prebiotic	10 vitamins Oligofructose	Syrup	The complex can be mixed with juice, pureed fruit or tea.
Sana-Sol	10 vitamins	Syrup	The premix contains sorbitol, so it can cause disruption of the gastrointestinal tract
VitaBears Immuno +	E vitamin C vitamin Selenium and Zinc Seabuckthorn Extract	Chewing pastilles	Marmelade bears of lemon, orange, grape, and peach taste.
Vitrum Kids	12 vitamins 10 minerals	Tablets	Chewing figurines of animals chewed after meal
Multi-tabs Immuno Kids	13 vitamins 6 minerals Lactobacillus	Tablets	It should be taken during meals or immediately after it. Recommended up to 12 years.
Kinder Biovital	10 vitamins 3 minerals Lecithin	Gel	A viscous consistency, fruity aroma, sweet and sour taste.
Alphabet Our Baby	11 vitamins 5 minerals	Powder	Daily give 3 different powders after the main meals, dissolving in boiled warm water.
Alphabet Kindergarten	13 vitamins 9 minerals	Chewable tablets	Hypoallergenic components, collected in several tablets.
Alphabet Pupil	13 vitamins 10 minerals	Tablets	The multicolored tablets are daily given: red for the nervous and circulatory system, green for the immune and endocrine systems, yellow for brain activity and for bones.

The distribution of information on the possibilities of the pharmacological support of children gifted in arts and the role of vitamins in the prevention of acute respiratory diseases made it possible to form active parental groups that distributed the information on forums in the Viber and WhatsApp applications, made presentations about the healthy nutrition and the day regime at the teacher-parents meetings, and thus had a positive impact on other parents. During the ascertaining and generalizing assessments, the annual poll analysis showed that the parents began to be more confident about the possibilities of the pharmacological support, they often sought advice from qualified pediatricians (rather than from acquaintances, relatives, the Internet as it was before receiving the valeological education), were involved in self-prophylaxis of the health protection of their children.

Thus, Figure 1 shows a parental attitude dynamics diagram regarding the possibilities of the pharmacological support for health protection of gifted children, who took part in the contest of children's drawings organized by the

International Children's Drawing Collection of the Federal State Budget Scientific Institution Institute of Art Education and Cultural Studies of the Russian Academy of Education in 2015-2016.

The survey involved 240 parents from Moscow, the Perm Region, and the Samara Region. The parents received information about the possibilities of the pharmacological support (including remote support), advice from specialists, spoke at teacher-parents meetings at class and school, made their own abstracts of articles on the possible effects of certain elements on the health protection of children gifted in arts (below is a fragment of the abstract). Then 4 polls were conducted at the beginning and at the end of 2015 and 2016 respectively, in which the parents recorded their attitude to the possibilities of the pharmacological support and their participation in the health protection of the child. The answers were grouped according to the following points: "I react adversely" (purple), "I actively participate" (yellow), "I take part in various measures for health protection" (red).

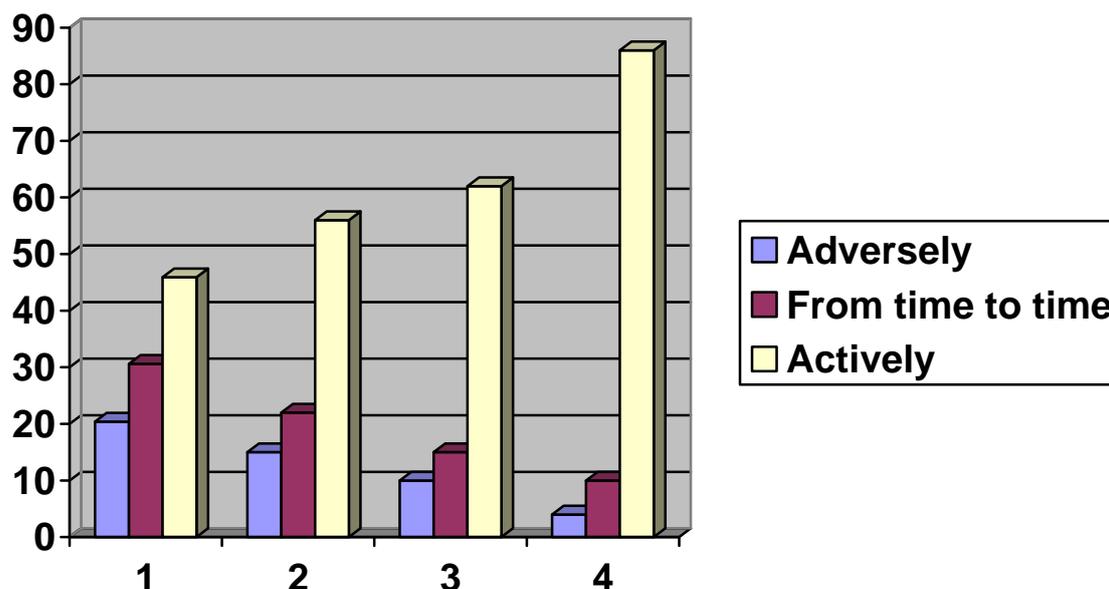


Figure 1. Dynamics diagram on parental attitude to possibilities for their participation in the prophylaxis of the children's acute respiratory disease

The diagram clearly shows how the responsible attitude of the parents grows regarding the children's health. In many respects, as confirmed by the interviewed parents themselves, this is the result of the active valeological education and stimulation of self-education in this field.

An example of paper abstract on elements useful for the development of the child's organism created for distribution among the parents of the children gifted in arts. Author – Julia S. (41 y.o., Moscow, mother of Egor S. gifted in painting and studying at the art studio of the Zagorje House of Culture).

"Article by V. Zabelina, the endocrinologist, Candidate of Medical Sciences, "Magnesium and Magnesium Containing Medications. With Magnesium Intra Vitam". See the full text on http://www.voed.ru/art_102.htm

You can learn that magnesium is a "natural insulator on the way of carrying out a nerve impulse. Replacing the relative deficit of dopamine, magnesium alleviates the symptoms of nervous tension: anxiety and irritability. Thus, it is important to remember the following: 1) magnesium helps the body to adapt to cold, 2) it serves as a structural component of bones and tooth enamel, helping to assimilate calcium, 3) it stimulates intestinal motility and increases the separation of bile. In addition, magnesium medications relieve spasms of the vessels, chronic fatigue syndrome".

The parents of the students of the studio noted at the forum that the materials posted by Julia S. helped them to significantly activate their own pharmacological support, to participate in the solution of problems of healthy nutrition, and to provide the children with the prevention of acute respiratory diseases, which reduced their frequency. This is evidenced by the studio attendance logs.

2 Experimental results.

The study has identified the several following experimental and control groups based on the age criterion [14], a criterion for the presence of additional chronic somatic diseases (for example, diabetes):

- Experimental group 1A includes 7-10-year-old children gifted in arts (the pupils of primary school), who are included in the general treatment group and do not have additional somatic diseases.
- Experimental group 2A includes 11-12-year-old children gifted in arts (the students of secondary school), who are included in the general treatment group and do not have additional somatic diseases.
- Experimental group 1B includes 7-10-year-old children gifted in arts (the pupils of primary school), who have additional somatic diseases as noted in the medical records.
- Experimental group 1B includes 11-12-year-old children gifted in arts (the students of secondary school), who have additional somatic diseases as noted in the medical records.

The control groups C1A, C2A, C1B, and C2B were identified by the same criteria. The number and lineup of children gifted in arts, included in the described groups, has been changing because the children accordingly have grown up. In total, 240 people were involved in the experimental groups of the survey. The control groups included gifted children, whose parents did not receive the valeological education; those children were not included in the program for obtaining the pharmacological support for the selected algorithm for taking the multivitamin complexes. In total, 360 medical reports on the frequency of respiratory diseases, parents' reviews, and the pedagogical documentation analysis results on school absences were taken into account in the control groups. The data obtained were summarized in tables and diagrams. The example of such a table (Table 7) is given below.

Table 7. Summarized results on the quality evaluation of the implemented algorithm of pharmacological support for control and experimental groups of 7-10-year-old children gifted in arts

Group	fiz_izm	p	ps_izm	p	pos_izm	p
C1A	-.2415	.012	-.4415	.000	.1171	.164
E1A	.4205	.000	.3636	.000	.3977	.000
E1B	.3327	.008	.1510	.047	.1306	.232
C1B	-.2515	.018	-.4615	.000	.1271	.164

Notations: fiz_izm, ps_izm, pos_izm are average values for groups of changes in indicators of somatic, mental health respectively of 7-10 year old students in art studios and art schools, music schools and assessment of the frequency of attendance; p is a level of statistical significance of changes by the Wilcoxon test

4 DISCUSSION

As can be seen from the example given in Table 7, the parameters of physical ($p < 0.02$) and especially mental ($p < 0.001$) health statistically significantly worsened in the control group (C1A), which indicates that the pedagogical and medical support of the gifted children is not optimal. The intense intellectual, creative and mental activity of children requires large amount of B vitamins; high creative results are impossible without calcium, phosphorus and iron. A, C, E vitamins are important for immunity and good health. Therefore, it is so important to select the right vitamin complexes for the child and provide him or her with the qualified pharmacological support, to monitor the healthy nutrition, and to create the health-protective environment. The study of the medical documentation showed that the majority of students in the control groups are deficient in magnesium (Mg), which improves blood circulation in the brain, which affects the imbalance of nervous processes, the stabilization of attention and social behavior of children (this is confirmed by the teacher polls).

The improvement in physical health is expected within the experimental groups (E1A and E1B); this improvement does occur and is statistically significant ($p < 0.01$). The mental health indicators in these groups are also statistically significant ($p < 0.05$). The analysis of the generalized results in the experimental group (E1A) confirmed the initial hypothesis about the possibilities of the pharmacological support in the prevention of the acute respiratory diseases and neuroticism of the children gifted in arts. All the considered health indicators statistically significantly increased including the physical ($p < 0.001$), mental ($p < 0.001$) health, and these indicators have larger values than those in the control group.

Thus, on the one hand, the experimental effects on the basis of the proposed pharmacological support algorithm, and on the other hand, the valeological education of the parents of the gifted children really proved to be effective and led both to the preservation of the existing level, and to a significant improvement in the mental and social health indicators.

5 CONCLUSION

The observations showed that children gifted in arts due to their individual characteristics are much more difficult to adapt in the surrounding world. Their ability to maintain a balance between intense intellectual and creative activity is not developed enough; they are characterized by a lack of adaptability skills to a real society. In the case of a clear violation of this balance, a gifted, sensitive person often becomes ill. Therefore, in the education of gifted

children, one of the main specific problems is the increased vulnerability, which affects the decrease in immunity, the frequency of acute respiratory diseases. The emotional hypersensitivity dictated by the peculiarities of the intellectual development of children gifted in arts manifests itself in a tendency toward neuroticism.

The study examined the complex question of whether the process of active creative activity can be health protective. The main conclusion of the survey is the provision on the need for comprehensive support for children gifted in arts, which includes both the valeological education of their parents and the qualified pharmacological support for children's health.

In this respect, we are close to the ideas of E. Kübler-Ross, who has developed a theory that human health can be represented as a circle consisting of four quadrants (physical, emotional, intellectual, and spiritual). The personality can be full and healthy only when all these aspects are together [35]. The main goal of the health maintenance and promotion is to try to balance these quadrants around the health. Thus, the pedagogical support focusing on gifted children has deep methodological foundation: a healthy, active child is more open to increased creative work, does not miss classes, has good psychological well-being, high self-esteem, and improved social performance indicators. The physical and mental health correlation with the level of creative achievements of the children made in this survey confirms all the above statements. Thus, the majority of children who joined the experimental groups became regular participants in the children's drawing contests; their works are included in the International Children's Drawing Collection of the Federal State Budget Scientific Institution Institute of Art Education and Cultural Studies of the Russian Academy of Education.

The health forming technology developed in the survey includes the algorithm of the pharmacological support of children gifted in arts; the materials and directions of the valeological education of their parents.

The main principle of the technology is the construction of a pedagogical process with an orientation toward the personality of a gifted child, creating conditions for his or her prosperous existence, comfort, and positive somatic and mental well-being. The pharmacological support on the basis of taking multivitamin complexes in accordance with the age indicators and the presence of a certain need for certain elements ensures normal life of a child.

In general, it can be concluded that the psychological and pedagogical support of students who are gifted in arts is a complex pedagogical, psychological,

medical, and social problem [36; 37; 38]. Therefore, coordinated work with gifted children of specialists of different profiles is necessary.

ACKNOWLEDGEMENTS

The results were obtained within the framework of the state assignment of the Ministry of Education and Science of the Russian Federation (number for publications 27.7384.2017/8.9). The authors are grateful to S.B. Kazakovtsev, Candidate of Medical Sciences, for his advice in the development of the survey program.

REFERENCES

- [1] Sinyagina, N.Yu. (2004). Odarennost kak psikhologo-pedagogicheskaya problema [Giftedness as a Psychological and Pedagogical Problem]. *Odarennyi rebenok*, 3, 24-26.
- [2] Savenkov, A.I. (2000). *Odarennye deti v detskom sadu i shkole* [Gifted Children in Kindergarten and School]. Moscow: Akademiya. (p. 232).
- [3] Sibgatullina, I.F. (2002). *Dissinkhroniya psikhicheskogo razvitiya intellektualno odarennykh detei i podrostkov. Avtoreferat dissertatsii doktora psikhologicheskikh nauk* [Dissynchrony of Mental Development of Intellectually Gifted Children and Adolescents (Ph.D. Thesis Abstract)]. Kazan: Kazan State University. (p. 24).
- [4] Landau, E. (2002). *Odarennost trebuets muzhestva: Psikhologicheskoe soprovozhdenie odarennogo rebenka* [Giftedness Requires Courage: Psychological Accompaniment of a Gifted Child]. Moscow: Akademiya. (p. 246).
- [5] Miller, A. (2001). *Drama odarennogo rebenka i poisk sobstvennogo Ya* [The Drama of a Gifted Child and the Search for Selfhood]. Moscow: Akademicheskii proekt. (p. 406).
- [6] Panov, V.I. (1998). Nekotorye teoreticheskie i prakticheskie problemy odarennosti [Some Theoretical and Practical Problems of Giftedness]. *Prikladnaya psikhologiya*, 3, 33-48.
- [7] Gilmeeva, R., & Sibgatullina, I. (1997). *Odarennyi rebenok v razviti, obshchenii, uchenii ili chto mozhno skazat ob odarennosti segodnya* [A Gifted Child in Development, Communication, Learning or What Can Be Said about Giftedness Today]. Kazan: Meditsina. (p. 284).
- [8] Severniy, A.A. (2003). Nekotorye gipotezy po povodu odarennosti i problemy obucheniya odarennykh detei [Some Hypotheses about Giftedness and the Problem of Teaching Gifted Children]. *Voprosy psikhicheskogo zdorovya detei i podrostkov*, 1, 23-28.
- [9] Kholodnaya, M.A. (1993). Psikhologicheskie mekhanizmy intellektualnoi odarennosti [Psychological Mechanisms of Intellectual Giftedness]. *Psikhologicheskii zhurnal*, 1, 32-39.
- [10] Blinova, V.L., & Blinova, L.F. (2010). *Detskaya odarennost: teoriya i praktika* [Children's Giftedness: Theory and Practice]. Kazan: TGPU. (p. 56).
- [11] Hallowell, E., & Ratey, J. (2017). *Pochemu ya ovlekayus. Kak raspoznat sindrom defitsita vnimaniya u vzroslykh i detei i chto s nim delat* [Driven to Distraction: Recognizing and Coping with Attention Deficit Disorder]. Moscow: Mann, Ivanov i Farber. (p. 368).
- [12] Kuzujanakis, M. (2011). Where Does a Pediatric Doctor Fit in the Care of Gifted Children? *SENGVine*, October. Retrieved August 9, 2017, from <http://sengifted.org/where-does-a-pediatric-doctor-fit-in-the-care-of-gifted-children>
- [13] Bogoyavlenskaya, D.B. (2002). *Psikhologiya tvorcheskikh sposobnostei* [The Psychology of Creative Abilities]. Moscow: Akademiya. (p. 320).
- [14] Leites, N.S. (2001). *Vozrastnaya odarennost shkolnikov* [The Age-Related Talent of Schoolchildren]. Moscow: Akademiya.
- [15] Druzhinin, V.N. (2000). *Psikhologiya obshchikh sposobnostei* [Psychology of General Abilities]. St. Petersburg: Piter. (p. 424).
- [16] Melhorn, G., & Melhorn, H. (2001). *Geniyami ne rozhdayutsya* [Geniuses are Made not Born]. Moscow: Prosveschenie. (p. 160).
- [17] Nikolaeva, E.I. (2006). *Psikhologiya detskogo tvorchestva* [The Psychology of Children's Creativity]. St. Petersburg: Rech. (p. 246).
- [18] Gilbukh, Yu.Z. (1991). *Vnimanie: odarennye deti* [Attention: Gifted Children]. Moscow: Prosveschenie. (p. 80).
- [19] Yurkevich, V.S. (1996). *Odarennyi rebenok: Illyuzii i realnost* [The Gifted Child: Illusions and Reality]. Moscow: Prosveschenie. (p. 136).
- [20] Amend, E.R., & Clouse, R.M. (2007). The Role of Physicians in the Lives of Gifted Children. *Parenting for High Potential*, September, 6-9.
- [21] Hayden, T. (1985). *Reaching out to the Gifted Child: Roles for Health-Care Professions*. New York: American Association for Gifted Children.
- [22] Robinson, N.M., & Olszewski-Kubilius, P.M. (1996). Gifted and Talented Children: Issues for Pediatricians. *Pediatrics in Review*, 17(12), 427-434.
- [23] 23. *National Association for Gifted Children*. (n.d.). Retrieved September 12, 2017, from <https://www.nagc.org/>
- [24] Winner, E. (1996). *Gifted Children: Myths and Realities*. New York: Basic Books. (p. 449).
- [25] Goerss, J., Clouse, R., & Webb, J.T. (2008). Health Care Providers Know Little about Gifted Children. *National Psychologist*, 16(2), 12.
- [26] Coleman, L.J. & Cross, T.L. (2001). *Being Gifted in School: An Introduction to Development, Guidance, and Teaching*. Waco, TX: Prufrock Press.
- [27] Druzhinin, V.N. (1996). *Psikhodiagnostika obshchikh sposobnostei* [Psychological Diagnosis of General Abilities]. Moscow: Akademiya. (p. 224).
- [28] Grigoriev, V.V., Proshin, A.N., Kinzirsky, A.S., & Bachurin, S.O. (2009). Sovremennye podkhody k sozdaniyu simulyatorov pamyati i kognitivnykh funktsii na osnove ligandov AMPA-retseptorov [Modern Approaches to the Creation of Memory Simulators and Cognitive Functions Based on AMPA Receptor Ligands]. *Uspekhi khimii*, 78(5), 524-534.
- [29] Magalhães, J.C., Gongora, M., Vicente, R., Bittencourt, J., Tanaka, G., Velasques, B., Teixeira, S., Morato, G., Basile, L.F., Arias-Carrion, O., Pompeu, F.A., Cagy, M., & Ribeiro, P. (2015). The Influence of Levetiracetam in Cognitive Performance in Healthy Individuals: Neuropsychological, Behavioral and Electrophysiological Approach. *Clinical Psychopharmacology and Neuroscience*, 13(1), 83-93.
- [30] Smirnov, N.K. (2005). *Zdorovesberegayushchie obrazovatelnye tekhnologii i psikhologiya zdorovya v shkole* [Health-Protective Educational Technologies and the Psychology of Health in School]. Moscow: ARCTI. (p. 216).
- [31] Akimova, M.K., & Kozlova, V.T. (2006). *Diagnostika umstvennogo razvitiya detei* [Diagnosis of Mental Development of Children]. St. Petersburg: Piter. (p. 240).
- [32] Kulikov, L.V. (2002). *Psikhologicheskoe issledovanie: metodicheskie rekomendatsii po provedeniyu* [Psychological Research: Methodological Recommendations to Conduct]. St. Petersburg: Rech. (p. 184).
- [33] Wilcoxon, F. (1945). Individual Comparisons by Ranking Methods. *Biometrics*, 1, 80-83.
- [34] Burbello, A., Shabrov, A., & Denisenko, P. (2005). *Sovremennye lekarstvennye sredstva. Kliniko-farmakologicheskii spravochnik prakticheskogo vracha* [Modern Medicines. Clinic-Pharmacological Reference Book of the Practical Physician]. St. Petersburg: Neva. (p. 896).
- [35] Kübler-Ross, E., & Kessler, D. (2014). *On Grief and Grieving: Finding the Meaning of Grief Through the Five Stages of Loss*. London: SCRIBNER. (p. 257).
- [36] Kulemzina, A.V. (2003). Printsipy pedagogicheskoi podderzhki odarennykh detei [Principles of Pedagogical Support of Gifted Children]. *Pedagogika*, 6, 27-32.
- [37] Webb, J.T., Amend, E.R., Webb, N.E., Goerss, J., Beljan, P. & Olenchak, F.R., (2005). *Misdiagnosis and Dual Diagnoses of Gifted Children and Adults: ADHD, Bipolar, OCD, Asperger's, Depression, and Other Disorders*. Scottsdale, AZ: Great Potential Press.
- [38] Liu, Y.H., & Lien, J. (2005). Discovering Gifted Children in Pediatric Practice. *Journal of Developmental and Behavioral Pediatrics*, 26, 366-369.