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CRITERIA OF PSYCHOLOGICAL HEALTH OF ADOLESCENTS WITH ORTHOPEDIC DISEASES

© ***G.V. Pyatakova[1, 2], O.V. Okoneshnikova[3], S.V. Kudryavtseva[4], S.V. Vissarionov[1], D.N. Cerfus[5]***

[1] The Turner Scientific Research Institute for Children's Orthopedics, Saint Petersburg, Russia;
[2] Saint Petersburg State University, Saint Petersburg, Russia;
[3] Saint Petersburg State University of Railway Engineering, Emperor Alexander I, Saint Petersburg, Russia;
[4] East European Institute of psychoanalysis, Saint Petersburg, Russia;
[5] Saint Petersburg University of Emergency Situations Ministry of Russia, Saint Petersburg, Russia

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Introduction. The task of preserving the psychological health of children and adolescents is recognized as most important in the complex conditions of the modern world. Interdisciplinary research addresses the psychological aspects of mental health. For psychological health, understanding the highest level of mental health is an integral characteristic of the well-being of the individual, and the prerequisites for the development of personal maturity. Among the adverse factors in relation to mental and psychological health is what is known as somatic suffering, which occurs in orthopedic diseases. Cognitive, emotional, and behavioral responses to orthopedic disease, eliminating maladaptive manifestations in difficult life situations due to the disease, can be important indicators of psychological health of adolescents.

Aim. We identify specific indicators of psychological health in adolescents with various orthopedic diseases.

Materials and methods. The study involved 90 adolescents: 60 aged 12–17 years with orthopedic diseases (30 with articular juvenile chronic arthritis and 30 with long-term consequences of mechanical trauma of the upper and lower limbs, resulting from an accident due to negligence) and a control group consisting of healthy adolescents of the same age. The characteristics of the self-esteem personality component (satisfaction with various aspects of their own lives) in adolescents with orthopedic diseases and their healthy peers were considered traditional indicators of psychological health. We used Piers–Harris scale modified by V.I. Gordeev Y.S. Aleksandrovich and test of attitude to disease.

Results. In adolescents with various forms of orthopedic disorders, the formation of stable variants of the attitude to the disease with a violation of adaptation of inter- and intrapsychic types is accompanied by the experience of discomfort, difficulties of self-regulation during treatment, and signs of a negative attitude. Formation of stable variants of emotional, cognitive, and behavioral responses without expressed disorders of mental and social adaptation is accompanied by a feeling of comfort and self-satisfaction. The prevailing reaction at harmonic, allopathic, and anosognosic types of mogutt act as a sanogenic effect. Emerging resistant variants of the attitude to the disease with a violation of adaptation of inter- and intrapsychic types can represent risk factors for breach of psychological health in adolescents with orthopedic diseases.

Keywords: mental health; psychologic health; criteria of psychologic health; teenagers; orthopedic disease; juvenile chronic arthritis; consequences of physical trauma.

КРИТЕРИИ ПСИХОЛОГИЧЕСКОГО ЗДОРОВЬЯ ПОДРОСТКОВ С ОРТОПЕДИЧЕСКИМИ ЗАБОЛЕВАНИЯМИ

© ***Г.В. Пятакова[1, 2], О.В. Оконешникова[3], С.В. Кудрявцева[4], С.В. Виссарионов[1], Д.Н. Церфус[5]***

[1] ФГБУ «НИДОИ им. Г.И. Турнера» Минздрава России, Санкт-Петербург;
[2] ФГБУ ВО «Санкт-Петербургский государственный университет», Санкт-Петербург;
[3] Петербургский государственный университет путей сообщения императора Александра I, Санкт-Петербург;
[4] ЧОУВО «Восточно-Европейский институт психоанализа», Санкт-Петербург;
[5] Санкт-Петербургский университет ГПС МЧС России, Санкт-Петербург

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Введение. Задача сохранения психологического здоровья детей и подростков признается одной из главных в сложных условиях современного мира. В междисциплинарных исследованиях рассматриваются психологические аспекты психического здоровья. Под психологическим здоровьем понимают высший уровень психического здоровья, интегральную характеристику благополучия личности, предпосылки развития личностной зрелости. Среди неблагоприятных факторов в отношении психического и психологического здоровья называют соматическое страдание, в том числе ортопедические заболевания. Было сделано предположение, что когнитивные, эмоциональные и поведенческие реакции на ортопедическое заболевание, элиминирующие дезадаптивные проявления в трудной жизненной ситуации в связи с болезнью, могут служить важными показателями психологического здоровья подростка.

Цель исследования заключалась в выявлении специфических показателей психологического здоровья у подростков с различными ортопедическими заболеваниями.

Материалы и методы. В исследовании приняли участие 90 подростков, в том числе 60 подростков с ортопедическими заболеваниями в возрасте от 12 до 17 лет: 30 подростков с суставной формой ювенильного хронического артрита и 30 детей с отдаленными последствиями механической травмы верхних и нижних конечностей, полученной в результате несчастного случая по неосторожности. Контрольную группу составили здоровые подростки того же возраста. В качестве традиционных показателей психологического здоровья рассматривали характеристики самооценочного компонента личности (удовлетворенность различными сторонами собственной жизни) у подростков с ортопедическими заболеваниями и у их здоровых сверстников. Применяли модифицированную В.И. Гордеевым и Ю.С. Александровичем шкалу Пирса – Харриса (ШПХМ) и тест отношения к болезни (ТОБОЛ).

Результаты. У подростков с различными формами ортопедических заболеваний формирование устойчивых вариантов отношения к заболеванию с нарушением адаптации по интер- и интрапсихическому типу сопровождается переживанием дискомфорта, трудностями саморегуляции в ситуации лечения; негативным отношением к себе. Образование устойчивых вариантов эмоционального, когнитивного и поведенческого реагирования без выраженных нарушений психической и социальной адаптации сопровождается переживанием чувства комфорта и удовлетворенности собой. Преобладающие реакции по гармоническому, эргопатическому и анозогнозическому типам могут выступать в качестве саногенных проявлений. Формирующиеся устойчивые варианты отношения к заболеванию с нарушением адаптации по интер- и интрапсихическому типам могут представлять собой факторы риска по нарушению психологического здоровья у подростков в ситуации ортопедического заболевания.

Ключевые слова: психическое здоровье; психологическое здоровье; критерии психологического здоровья; подростки; ортопедическое заболевание; ювенильный хронический артрит; последствия физической травмы.

Introduction

The problem of mental health attracts the attention of specialists working with children and adolescents [1–5]. This topic is significant due to the prevalence of mental and psychological abnormalities in children and the need for a healthy mental status for an individual to deal with the difficult conditions of contemporary world [3, 4, 6, 7]. The task of preserving the mental health of children and adolescents is recognized as one of the primary aims of psychological work in the field of educational psychology and pedagogy [1, 2], an indicator of effectiveness of comprehensive medical and psychological rehabilitation, and a criterion of evaluation of the activity of a clinical psychologist in medical institutions [3–6, 8]. The World Health Organization first introduced the term "mental health," and it has been found in the English-language publications since 1979. Mental health denotes a person's success in substantive work and communication activities, the ability to successfully adapt to new conditions, and the ability to withstand difficulties [9]. It should be noted that the concept of mental health does not have clear definitions. It is noted that mental health at all stages of ontogenesis is the basis for intellectual and personal development, the acquisition of knowledge and skills, and the growth of emotional stability and self-esteem. Mental health is understood to mean the highest level of psychological health, an integral characteristic of individual well-being manifested in social, behavioral, emotional, and intellectual characteristics [1, 2, 8, 10–15]. Russian psychologists often understand the mental health of children and adolescents as the full mental development of the child at all stages of ontogenesis, which is a necessary condition for a harmonious inter- and intrapsychic functioning of a person [1, 12]. The main substantive characteristics of mental health in childhood and adolescence are considered to be the conditions

and prerequisites for the development of personal maturity [1, 11, 12, 14, 15]. The factors that have an adverse effect on psychic and mental health include adverse social and economic conditions, a modern pace of life, disharmony in the micro-social environment, problems from the education system, and high demands on the level of child development [9, 14, 15]. The unfavorable factors with regard to psychic and mental health involve somatic suffering and include congenital and acquired disorders of the musculoskeletal system [4, 5, 7, 15–18]. The concept of mental health criteria in childhood and adolescence appears in the psychological literature at the level of setting of a problem. These criteria are listed by researchers as various psychological phenomena, such as the degree of a child adaptation to society [1, 3, 4], ability to reflect, to choose resources in a difficult life situation, and the general level of abilities [1, 12, 13]. The most important characteristic of mental health in adolescence is mentioned by various authors as phenomena such as the predominant emotional background, anxiety, satisfaction with various aspects of life and personal traits, and self-esteem level [1, 8].

Research on the specific psychic and mental health disorders in children has been conducted. The markers for abnormal mental health, including cognitive, emotional, and behavioral symptoms, denotes common deviant adaptation syndrome (CDAS). The syndromes of CDAS includes cognitive impairment, reduced intellectual productivity, difficulty concentrating, self-doubt, anxiety, motivation for avoiding failure, lack of sources of social support, pessimistic attitude to the world, low mood, unfilled demand for communication, reduced activity, low productivity of activity, proneness to conflict, unsociability [3, 4]. It is noted that a specific aspect of mental health of children and adolescents consists of its situational conditionality, as the characteristics of mental health manifest as reactions to specific situations, depend on the child's age (maturity of the central nervous system), they are functional, and are related directly to micro-social factors [3, 4, 8, 15]. For children and adolescents who find themselves in a difficult life situation due to a serious disease, such as orthopedic disease, the criteria for their mental health may differ from those of healthy children and is disease specific. Thus, juvenile chronic arthritis (JCA) is a serious disease that causes musculoskeletal system lesion and leading disability [16]. The progress to disability is dependent on the severity and development of the infectious-allergic lesion of the synovial membranes of the joints.

Among children with deformities of the bones and joints of the upper and lower extremities after a mechanical injury, adolescents aged 10–17 years old predominate [7, 17]. Rehabilitation treatments for children with severe consequences of mechanical injuries include complex surgical treatment and long-term remedial rehabilitation. Children and adolescents with JCA and severe consequences of mechanical injury, such as routine and traumatic stress factors, are often associated with the need to adhere to a treatment regimen, painful medical procedures, and surgical interventions. Such difficulties cannot be resolved using the usual methods of overcoming the common everyday problems and thus the development of new adaptive reactions is required. Such adaptive reactions can be determined by age aspects formed in accordance with the special conditions of development and new psychological formations that appear at each age stage. In adolescence, new psychological formations, such as personality self-assessment (self-conception), perform the function of self-regulation. Under the disease condition that is accompanied by musculoskeletal system disorders, a specific psychological new formation can be generated, which is the adolescent's attitude to his own disease, providing emotional, cognitive, and behavioral responses that determine their adaptability in a difficult life situation. The cognitive, emotional, and behavioral responses to one's own disease and the elimination of maladaptive manifestations in a difficult life situation due to the disease can be markers that indicate the maturity level of personality formed under the disease conditions and serve as important indicators of adolescent mental health. To identify the characteristics that serve as criteria for mental health in a difficult life situation due to the presence of severe orthopedic disease, the relationships between various new psychological formations of adolescence are considered, primarily the relationships between the parameters reflecting the different variants of the attitude to own disease and the characteristics of the personality self-assessment, reflecting the satisfaction of an adolescent with various aspects of his own life and the possibilities of self-regulation

traditionally regarded as an indicator of mental health in adolescence.

This study aimed to identify the specific indicators of mental health in adolescents with various orthopedic diseases. We compared the characteristics of new psychological formation in adolescents under orthopedic disease conditions and conditions without severe chronic diseases. We also studied the relationship between the indicators of different variants of attitudes to the disease and self-assessment parameters that reflect adolescent's satisfaction with various aspects of his own life.

Materials and methods

Ninety adolescents took part in the present study on the basis of voluntary informed consent, including 60 adolescents with orthopedic diseases aged 12 to 17 years, namely 30 adolescents with articular JCA (oligoarthritis, polyarthritis, the disease duration from 6 months to 10 years, all patients received drug treatment) and 30 children with musculoskeletal deformities after mechanical injury to the bones and joints of upper and lower extremities. The musculoskeletal deformities can be resulted from an accident (contractures of joints, long-term effects of compound limb fractures, the disease duration from 4 months to 6 years, the number of surgical interventions ranged from 1 to 4). The control group consisted of age-matched healthy adolescents. The traditional indicators of mental health were considered as the characteristics of personality self-assessment (satisfaction with various aspects of own life) in adolescents with orthopedic diseases and in their healthy peers; for this purpose, the Pierce-Harris scale modified by V.I. Gordeev and Yu.S. Alexandrovich was used, which was intended for children aged 9 years to 18 years [19]. Personality self-assessment was described using eight variables, namely: behavior, intellectual and school statuses, appearance, anxiety, popularity, happiness and satisfaction, health, and self-esteem of the psychosocial status. In order to study the adaptability of adolescents with orthopedic diseases in difficult life situations, the aspects of children's attitudes to the disease were studied.

The psychological diagnostics of the characteristics of attitudes toward the disease were performed using the attitude to the disease test (ADT) [20]. The theoretical and psychological basis of the methodology is V.N. Myasishchev's concept of psychological relations (cited in: A.E. Lichko, 1977). Attitude to the disease includes all the characteristics of a psychological relationship, such as cognitive (awareness of the disease), emotional (experiencing the disease), and behavioral (certain behavioral strategies in life situations related to therapy measure) components. The harmonious, ergopathic, anosognosic, anxious, hypochondriac, neurasthenic, melancholic, apathetic, sensitive, egocentric, paranoiac, and dysphoric types of attitudes toward the disease can be diagnosed. The harmonic type of attitude toward the disease implies an adequate assessment of the condition by the patient. The ergopathic type of attitude toward the disease is manifested in the patient's inclination to cope with negative feelings, being engaged in the types of activities available in the treatment situation. For example, adolescents in the hospital can do their homework intensely, read, and distract from disturbing thoughts and unpleasant sensations. The anosognosic type of attitude to the disease involves the active denial of the disease and its possible consequences, as well as "forgetting" the obvious fact. The anxious type of attitude to the disease is characterized by a persistent concern about the efficacy of the treatment, outcome of the surgical interventions, predominant anxiety, and unwarranted fears. With the hypochondriac variant of the attitude to the disease, the patient is too focused on the feelings associated with the painful sensations and suspicious about the efficacy of planned medical procedures. The neurasthenic type of attitude toward the disease manifests itself in increased irritability, tearfulness, especially in the presence of pain, and in a situation of seemingly failed treatment. In a melancholic type of response to a treatment situation, a patient experiences a depressed state and a lack of confidence on health improvement. The apathetic type of attitude to the disease implies a complete indifference to the results of treatment. With a sensitive variant of the attitude toward the disease, an excessive concern with the impression that the somatic deficiency can have on others is typical, as well as the fear of an unfriendly attitude from others, and the fear of negative evaluations from peers. In the egocentric type of attitude, there is a desire to demonstrate to others the uniqueness due to the disease. In the paranoid type of attitude to the disease, patients

tend to blame others for their disease; for example, doctors and close relatives. In the dysphoric type of attitude to the disease, the patients predominantly have a somber and acerbated mood, envy, and anger toward healthy peers, and a hypercritical attitude toward medical personnel.

The different types of attitudes toward the disease are characterized by a presence or absence of maladaptive behavioral and emotional reactions. With harmonic, ergopathic, and anosognosic types of attitude to the disease, the patient's social and mental adaptation is not significantly impaired. Anxious, hypochondriac, neurasthenic, melancholic, and apathetic types are manifested in a maladaptive response, which has an intrapsychic orientation and manifests itself in various emotional spectrum disorders. Sensitive, egocentric, dysphoric, paranoiac types have an interpsychic orientation and are clinically manifested as impaired social functioning, including aggressive behavioral responses to others.

We collected the anamnestic data and studied the case histories. The statistical method of data processing included the calculation of means, determination of significant differences by using Student's and Fisher's tests, and correlation analysis.

Results and discussion

The characteristics of a new psychological formation were compared under disease conditions (attitudes toward the disease) in adolescents with injury consequences and in JCA adolescents. Among the "pure" types of attitudes to the disease in adolescents with orthopedic diseases, those types are more common, in which the mental and social adaptation was not significantly impaired. In JCA adolescents, ergopathic, harmonic, and anosognosic variants of attitudes toward the disease were more frequently detected. In adolescents with the consequences of mechanical injury, the ergopathic and anosognosic types of attitude toward the disease were equally common (Table 1).

It should be noted that the ergopathic variant of attitude toward the disease implies active behavior aimed at overcoming the discomfort-causing situations. An anosognosic variant of attitude to the disease implies a passive, energy-saving behavior during the disease with an activation of the protective mechanisms of the denial type. The harmonic type of attitude toward the disease is a combination of active and passive means of adaptation along with an adequate assessment of the situation and the ability to cope with negative feelings. In most adolescents with orthopedic diseases, a mixed type of attitude toward the disease prevails. A mixed variant of the attitude to the disease indicates the situational conditionality of various cognitive, emotional, and behavioral reactions to the disease. The data confirms the results of the comparison of mean values of the severity of reactions correspond to different types of attitudes to the disease. In general, the data reflects the process of attitude formation to one's own disease in adolescent patients with JCA and patients dealing with the consequences of mechanical injury, which indicates a lack of formalization of this new psychological formation. It can be assumed that the process of the formation of a stable attitude to the disease in adolescents involves much trial-and-error searching and "testing" of various adaptive reactions to the disease and the treatment situation. The role of a modulator in this process can be played by self-assessing characteristics, including a sense of comfort or discomfort as well as the satisfaction with various aspects of one's own life, including those associated with manifestations of the disease.

The level values of the self-assessments of various aspects of the life activity of adolescents with orthopedic disorders were compared with those of healthy adolescents. It turned out that in the patients

Table 1

Types of attitudes to the disease of adolescents with JCA and injury consequences (according to the results of the ADT method)

Patients	Types of attitude to the disease, %							
	Mixed	H	R	Z	A	E	I	D
JCA	39.96%	9.99%	33.3%	13.32%	3.33%	–	–	–
Injured	43.29%	3.33%	23.31%	19.98%	–	3.33%	3.33%	3.33%

Note. H — harmonious, R — ergopathic, Z — anosognosic, A — apathetic, E — egocentric, I — hypochondriac, D — dysphoric; JCA — juvenile chronic arthritis.

in orthopedic traumatological clinic and JCA adolescents, the self-assessment parameters have reduced compared with their healthy peers. In JCA adolescents, the self-assessment characteristics were slightly lower than that of injured adolescents. However, no significant differences in these indicators were found between the two groups of patients in the orthopedic clinic (Table 2).

Adolescents with trauma consequences differ from their healthy peers by reduced self-assessment indicators on the "appearance" scales ($t = 2.60$ with $p \le 0.05$); "popularity" ($t = 2.81$ with $p \le 0.05$); and "health" ($t = 2.05$ with $p \le 0.05$). The results indicate that patients experienced anxiety and dissatisfaction with their health, appearance, and in the sphere of communication with peers. An analysis of the responses of patients with trauma showed that they experienced a feeling of discomfort in situations involving physical activity, daily activities that require physical endurance, well-being, and the absence of pain. In addition, anxiety is caused by difficulties in physical movement, self-care, the need to undergo medical procedures, and spending a lot of time on physical therapy. A physical defect, which is a deformity after mechanical injury to the bones and joints of the upper and lower extremities, is viewed by injured adolescents as a cosmetic defect that makes them unattractive or ugly, which in turn hinders their successful interaction in the reference group and reduces their authority among peers. In the other areas of their lives injured adolescents and healthy peers have a positive self-esteem. They experience a sense of life pleasures, considering themselves quick-witted and quite successful in learning activities, behavior, and communication with adults.

The self-assessment indicators of JCA adolescents were even lower than that of healthy adolescents. In the group of JCA adolescents, these indicators were reduced on the scales of "intellectual status" ($t = 2.69$ with $p \le 0.05$); "appearance" ($t = 5.04$ with $p \le 0.05$); "anxiety" ($t = 3.50$ with $p \le 0.05$); "popularity" ($t = 3.30$ with $p \le 0.05$); "health" ($t = 4.04$ with $p \le 0.05$); "psychosocial status" ($t = 2.02$ with $p \le 0.05$) (see Table 2). The results indicate that JCA adolescents felt inconsistency in everyday life due to their limited ability in implementing daily activities independently, painful discomfort, and the need to spend much time in the hospital. They were dissatisfied with their position in the group of peers and they felt that they could not be interesting or gain respect and authority among healthy adolescents. In addition, they are less satisfied with their academic achievements, considering themselves less quick-witted and literate than healthy students. Classes at school, communication, and therapeutic measures can cause anxious feelings, anxiety, and emotional stress in JCA adolescents. JCA adolescents also considered themselves less successful in their studies, communication with peers, and in their ability to solve regular everyday problems. However, they were positive about their behavior and nature. These adolescents considered themselves happy people because they had a good family, brothers, sisters, or close friends; hope for a full life without a disease in the future is also an important factor in experiencing happiness and satisfaction.

The relationship between the indicators of different variants of attitude to the disease and the self-assessment parameters that reflect an adolescent's satisfaction with various aspects of his life was analyzed. In the group of JCA adolescents, the self-esteem "behavior" turned out to be correlated directly with parameters reflecting the traits of the harmonious ($p < 0.05$) and ergopathic ($p < 0.05$) variants of attitude to the disease. According to the

Table 2

Comparison of self-assessments of the psychosocial status of adolescents with orthopedic diseases and healthy adolescents (based on the results of the Pierce-Harris method)

Patients		Self-esteem of the psychosocial status							
		1	2	3	4	5	6	7	8
JCA	$M \pm \sigma$	17.1 ± 3.1	19.7 ± 4.0	8.7 ± 3.1	7.2 ± 2.3	13.5 ± 3.2	13.2 ± 3.5	14.4 ± 4.4	18.6 ± 3.6
Injured	$M \pm \sigma$	17.2 ± 4.2	20.0 ± 5.7	10.2 ± 3.6	8.4 ± 2.3	13.3 ± 4.4	13.5 ± 3.4	16.5 ± 4.6	18.9 ± 4.1
Healthy	$M \pm \sigma$	18.80 ± 3.62	22.50 ± 4.11	12.13 ± 2.06	9.20 ± 2.02	15.83 ± 2.25	14.53 ± 2.18	18.73 ± 3.92	20.47 ± 3.65
	t	–0.1	–0.2	–1.7	–1.9	0.2	–0.3	–1.8	–0.3

Note. M — mean value, σ — standard deviation; t — value of the Student's coefficient; 1 — behavior, 2 — intellectual status, 3 — appearance, 4 — anxiety, 5 — popularity, 6 — happiness, 7 — health, 8 — psychosocial status; JCA — juvenile chronic arthritis.

data obtained, adolescents who prefer to distract themselves from disturbing thoughts and unpleasant feelings in a situation of disease and treatment tend to engage in activities available in the hospital (doing homework, reading, assisting to other patients in solving everyday problems) and consider themselves active and independent. They are satisfied with their own activities in creating relationships with other people, they believe that they are good-tempered, know how to behave in different situations, and enjoy rendering assistance to other patients in clinic. In JCA adolescents, successful adaptation associated with active behavioral manifestations is accompanied by a sense of comfort, satisfaction, and high self-esteem due to their own behavior.

The self-assessment indicator "happiness" correlated positively with the parameters of the anosognosic type of attitude toward the disease ($p < 0.05$). The results show that the feeling of comfort and self-satisfaction most often occurs in sick adolescents where a passive method of adapting to the disease is involved, accompanied by an activation of protective mechanisms of the "denial" type and suggesting a subconscious disregard by the sick adolescent of obvious adverse facts related to the disease and the prospects of treatment. The self-assessment of psychosocial status turned out to be directly related to the indicator that reveals the harmonic variant of attitude to the disease ($p < 0.05$). The results indicate an acceptance of one's own strengths and weaknesses, an ability to consciously set objectives, and create a life in accordance with these objectives is consistent in sick adolescents with the ability to adapt flexibly by combining active and passive variants of response to the disease. Anxious, hypochondriac, neurasthenic, melancholic, and apathetic types are manifested as a maladaptive response that has an intrapsychic orientation and manifests itself in various disorders of the emotional spectrum. The sensitive, egocentric, dysphoric, paranoiac types are characterized by an interpsychic orientation and are clinically manifested as impaired social functioning, including aggressive behavior and avoidant reactions in a situation of interaction with other people. There are proven negative correlation dependences between the indicators that reveal different variants of maladaptive responses and indicators of a self-estimated personality component. In accordance with our data, the signs of the formation of resistant types of attitude to the disease with a predominantly maladaptive response (inter- and intrapsychic orientation) in JCA adolescents were accompanied by negative emotions, a feeling of discomfort, and personal insolvency in various spheres of life.

In the group of adolescents with consequences of mechanical injury, there were also correlations between the parameters of the self-assessment component of the personality, which reveal the adolescent's satisfaction with various aspects of his life, and the characteristics associated with behavioral, cognitive, and emotional reactions, which constitute the individual's attitude to his own disease. The largest number of direct correlations (six) were found between the features of the anosognosic variant of attitude to the disease and the parameters of the self-assessment component of the personality, namely: the self-assessment of psychosocial status ($p < 0.05$), self-assessment of popularity ($p < 0.05$), self-assessment of intellectual and school status ($p < 0.05$), appearance ($p < 0.05$), an indicator reflecting the subjective feeling of the life pleasures and self-satisfaction ($p < 0.05$), as well as a self-estimated indicator of health ($p < 0.05$).

There were direct correlations between the parameters of the ergopathic type of attitude toward the disease with the self-assessment of happiness and satisfaction ($p < 0.05$) and the self-assessment indicator on the "psychosocial status" scale ($p < 0.05$), which includes statements about communications, psychological aspects of personality, and employment. The findings show that adolescents suffered from physical injuries, a passive way of adaptation to the disease, which involves ignoring the obvious difficulties associated with treatment and the prospects for recovery, often leads to a feeling of comfort and self-satisfaction. In this case, adolescents create their relationships with others, taking into account only the positive experiences of the past, without thinking about the possible health constraints of the future. Numerous negative correlation dependences between indicators of maladaptive reactions were identified within the anxiety, neurasthenic, apathetic, melancholic, sensitive, hysterical, dysphoric, and paranoid types of attitude to the disease emerging in disease conditions. The established relationships indicate that the emergence of sustainable variants of the maladaptive inter- and intrapsychic response is manifested in adolescents with severe consequences

of mechanical injuries by a sense of their own insolvency and emotional discomfort. Moreover, negative feelings may be related to learning, communication, and activity in various spheres of life.

Conclusion

In adolescents with orthopedic diseases, a mixed type of attitude to the disease prevails, indicating a situational conditionality of various cognitive, emotional, and behavioral reactions to the disease. In JCA adolescents, ergopathic, harmonic, and anosognosic variants of attitudes to the disease were found to be the most developed, implying an active behavior aimed at overcoming discomfort-causing situations, followed by a combination of active and passive ways of adaptation with an adequate assessment of the situation and the ability to cope with negative feelings. In adolescents with the consequences of mechanical injury, the attitude toward the disease in terms of ergopathic and anosognosic types was equally common, which implies that both active behaviors aimed at overcoming discomfort-causing situations and passive, energy-saving behavior in which mental and social adaptation is not significantly impaired.

In adolescents with injury consequences and JCA adolescents, the self-assessment parameters did not differ in the level of characteristics; however, they were reduced compared with healthy adolescents. JCA adolescents felt their own inconsistency in everyday life due to their limited ability in implementing daily activities, painful discomfort, and the need to spend a lot of time in the hospital. Hence, they considered themselves less successful in their studies and in communication with their peers. They evaluated their personality traits positively; the feeling of happiness and satisfaction is typically observed from them, as well as a hope for a life worth living without a disease in the future. Adolescents coping with the consequences of mechanical injury experienced a feeling of discomfort regarding their appearance and health in situations requiring physical endurance and overcoming pain sensations. In the fields related to the educational activities and communication, injured adolescents felt satisfied and comfortable. In JCA adolescents and adolescents with the consequences of mechanical injury, the stable types of attitudes to the disease were formed with a predominantly maladjusted response (inter- and intrapsychic orientation); therefore, they experienced negative emotions, discomfort, and their own insolvency in various spheres of life. Successful adaptation associated with active behavioral manifestations in JCA adolescents and those with the consequences of mechanical injury was accompanied by a feeling of comfort and satisfaction. The characteristics of an emerging attitude toward a disease can be considered as criteria for mental health in adolescent. The reactions of harmonic, ergopathic, and anosognosic types are prevailing, which can act as sanogenic manifestations. Emerging stable attitudes toward a disease with impaired adaptation by inter- and intrapsychic type can represent risk factors for mental health problems in adolescents under orthopedic disease condition.

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Contribution of authors

G.V. Pyatakova organized and conducted the experiment, wrote the article.

O.V. Okoneshnikova took part in the experiment, corrected the text of the article.

S.V. Kudryavtseva took part in the processing of experimental material, performed correction of the article text.

S.V. Vissarionov performed clinical examination of the patients.

D.N. Zerfus took part in the processing of experimental material.

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Information about the authors

Galina V. Pyatakova — MD, PhD, Associate Professor, Senior Researcher of the Department of Cerebral Palsy of The Turner Scientific Research Institute for Children's Orthopedics; Associate Professor of the Chair Psychology of Crisis and Extreme Situations of the faculty of psychology of Saint Petersburg State University, Saint Petersburg, Russia. https://orcid.org/0000-0002-9830-9959. E-mail: pyatakova@yandex.ru.

Olga V. Okoneshnikova — MD, PhD, Associate Professor, Saint Petersburg State University of Railway Engineering, Emperor Alexander I, Saint Petersburg, Russia. SPIN: 8807-2252. https://orcid.org/0000-0001-7824-2470. E-mail: okon4@mail.ru.

Svetlana V. Kudryavtseva — MD, PhD, Associate Professor, the Department of Psychotherapy. East European Institute of Psychoanalysis, Saint Petersburg, Russia. SPIN: 1888-5657. E-mail: kcv@inbox.ru.

Sergei V. Vissarionov — MD, PhD, Professor, Deputy Director for Research and Academic Affairs, Head of the Department of Spinal Pathology and Neurosurgery. The Turner Scientific Research Institute for Children's Orthopedics. https://orcid.org/0000-0003-4235-5048. E-mail: vissarionovs@gmail.com.

Diana N. Cerfus — MD, PhD, Associate Professor, the Department of Psychology of Risk, Extreme and Crisis Situations, Saint Petersburg University of Emergency Situations Ministry of Russia, Saint Petersburg, Russia. SPIN: 3634-4305. https://orcid.org/0000-0002-4544-273X. E-mail: diana.cerfus@mail.ru.

Галина Викторовна Пятакова — канд. психол. наук, доцент, старший научный сотрудник отделения детского церебрального паралича ФГБУ «НИДОИ им. Г.И. Турнера» Минздрава России; доцент кафедры психологии кризисных и экстремальных ситуаций факультета психологии Санкт-Петербургского государственного университета, Санкт-Петербург. https://orcid.org/0000-0002-9830-9959. E-mail: pyatakova@yandex.ru.

Ольга Викторовна Оконешникова — канд. психол. наук, доцент, Петербургский государственный университет путей сообщения императора Александра I, Санкт-Петербург. SPIN: 8807-2252. https://orcid.org/0000-0001-7824-2470. E-mail: okon4@mail.ru.

Светлана Викторовна Кудрявцева — канд. мед. наук, ЧОУВО «Восточно-Европейский институт психоанализа», Санкт-Петербург. SPIN: 1888-5657. E-mail: kcv@inbox.ru.

Сергей Валентинович Виссарионов — д-р мед. наук, профессор, заместитель директора по научной и учебной работе, руководитель отделения патологии позвоночника и нейрохирургии ФГБУ «НИДОИ им. Г.И. Турнера» Минздрава России. https://orcid.org/0000-0003-4235-5048. E-mail: vissarionovs@gmail.com.

Диана Николаевна Церфус — канд. мед. наук, доцент, кафедра психологии риска, экстремальных и кризисных ситуаций Санкт-Петербургского университета ГПС МЧС России, Санкт-Петербург. SPIN: 3634-4305. https://orcid.org/0000-0002-4544-273X. E-mail: diana.cerfus@mail.ru.