A technique for improving the mental well-being of individuals with disabilities through aquatic-based physical therapy

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Abstract

Objective of the study was to evaluate the impact of aquatic-based therapy on the mental well-being of individuals with disabilities.

Methods and structure of the study. The study involved 19 participants ranging in age from 5 to 18 years, with diverse health conditions. The research focuses on the design of classes in a water-based environment for individuals with disabilities. A novel approach has been implemented to evaluate alterations in the psychological and emotional activity of individuals with disabilities: assessing their general psychological and emotional state through psychodiagnostic techniques, monitoring their physiological indicators, and examining their capacity for consciously regulating these indicators during BOS procedures.

Results and conclusions. The experiment demonstrated that the techniques and tools employed in water-based physical therapy classes should not only aim to enhance physical development indicators, but also to foster the development of cognitive, motivational, regulatory, communicative, and emotional aspects in children with disabilities. The findings underscore the significance of implementing the proposed approach for assessing the psychological and emotional well-being of children with disabilities, allowing for a comprehensive evaluation of the changes in their emotional and motor activity.

Keywords: *body-oriented therapy, hydro-rehabilitation, psycho-emotional state, limitations in health, adaptive physical culture.*

Introduction. Modern rapid changes in the socio-economic life of Russia, the aggravation of many social problems, dictate the need to find new, adequate to reality, mechanisms for social rehabilitation of the individual. In this regard, special attention is required by children with disabilities (hereinafter –ChD). Recognition of the rights of such a child, his needs, interests, provision of effective assistance in the process of personal development, are extremely important.

Children with disabilities are individuals under 18 years of age (not yet of age), who have deviations from the norm in physical or mental development due to a health disorder, characterized by a complete or partial loss of the ability or opportunity to provide self-service [2].

The main task of rehabilitation of children with disabilities is the development of their potential, behavior correction, expansion of social horizons, instillation of socially significant skills and abilities [1]. In our opinion, it is advisable to seek a solution to the problem of comprehensive rehabilitation of children with disabilities in the involvement of new methods of body-oriented therapy. One of the promising areas that has a targeted effect on the impaired functions of the body, correcting and compensating them with the help of existing rehabilitation areas is water-based body-oriented therapy.

Specialists in various fields of scientific knowledge - psychologists, philosophers, teachers, sociologists and other specialists study the mechanisms, stages and phases, factors of social rehabilitation of children with disabilities. Thus, the problems of children with disabilities are studied by L.I. Akatov, G.I. Deryabina,

T.S. Zubkova, N.V. Timoshina, E.I. Kholostova [4]. The main areas of socialization are reflected in the works of Ya.A. Kravchenko, K.K. Cherdonova [9, 10]. Issues of prevention and education are addressed in the works of N.V. Antonova, M.A. Belyaeva, E.V. Bedeeva, Yu.V. Vasilkova [2]. The medical aspect of rehabilitation is studied by I.V. Astrakhancev, V.M. Bogomolova, M.V. Elshtein, A.M. Zotova, A.V. Fedorov [3]. The methods of body-oriented psychotherapy in psychology, laid down by V. Reich, indicate the potential for their use in working with children with health problems [5, 7]. An analysis of theoretical sources revealed that most of the studies devoted to assessing the psycho-emotional state of children with disabilities during body-oriented therapy pay attention to the development of new methods. At the same time, an insufficient number of studies were found that would analyze the psycho-emotional state of children with disabilities under the influence of water body-oriented therapy.

Objective of the study was to evaluate the impact of aquatic-based therapy on the mental well-being of individuals with disabilities.

Methods and structure of the study. The experiment involved 19 children aged 5 to 18 years with different nosologies with the conclusion of informed consent from their parents. Classes in «Akvaskazka» in Yekaterinburg are held both individually and in small groups. Their peculiarity lies not only in the constant water temperature of 33 degrees, but also in the fact that the child's parents can be in the water together with the instructor. Since the children come in advance to prepare for the lesson, it was suggested to occupy their free time while waiting in an unusual way for them – by participating in interactions using biofeedback training and psychological projective techniques that allow assessing the level of influence of water body-oriented therapy on the psycho-emotional state of children. To obtain complete objective information about the characteristics of the psycho-emotional state of children, testing was carried out both before the start of the lesson and after the lesson. In accordance with the purpose of the study, the following psychological methods and trainings were used with the use of the biofeedback method of software devices:

1. Modified test of M. Luscher, aimed at measuring the psychophysiological state of children.

2. Modified test «Cactus» to identify the state of the emotional sphere.

3. Software and hardware complex «BOS-TEST – Professional» and professional complex Brain Bit Neurofit for psychoemotional correction based on the BOS method.

A short version of the color test of M. Luscher consists of eight color tables. The procedure itself consists of ordering colors by the subjects according to their degree of subjective pleasantness. Since the choice of color is based on unconscious processes, it indicates not how we imagine ourselves, but what we really are [6]. In our testing, a modified test of M. Luscher was used. In accordance with the water-based body-oriented therapy, a picture of bathing children was used for greater association with the upcoming lesson. One of the eight colors of the M. Luscher method is superimposed on top.

The method developed by M.A. Panfilova [8] is aimed at identifying the characteristics of psycho-emotional manifestations and determining stress resistance. Analysis of the obtained data allows diagnosing personality traits: the degree of aggressiveness, impulsiveness, anxiety, extroversion/introversion. The interpretation of the color scheme indicates how flexible the test subject's psyche is. The study used various drawing templates, since not every participant in the experiment could draw a cactus on their own. Testing was conducted after swimming lessons so that the children could fully immerse themselves in completing the task without time limits.

One of the reliable methods for diagnosing stress resistance is the technology of game computer biocontrol. The game competitive plot is controlled by physiological functions, indicating the ability to self-regulate. As a result of automatic diagnostics of self-regulation strategies, the P indicator is calculated, reflecting the prevalence of effective/ineffective or intermediate self-regulation strategies of the test subject, presented on the efficiency matrix in the appropriate color. Interpretation is carried out according to the types of self-regulation corresponding to the maximum probabilities. Thus, the BFB method, supported by gaming and multimedia techniques, is a «Physiological Mirror» reflecting the processes occurring in the body.

Results of the study and discussion. The analysis of the obtained results corresponded to the purpose of the study – to assess the degree of influence of water body-oriented therapy on the psycho-emotional state of children with disabilities. Since, due to various reasons related to deviations in health, children cannot always attend classes, the indicators of 13 experiment participants who were present at all

stages of testing were taken into account for the analysis. The procedure for studying color associations made it possible to identify the comfort or tension of the state before and after the lesson. Thus, 62% (eight people) of the experiment participants had alertness, anxiety, fussiness, and increased sensitivity before the lesson. After the lesson in the pool, the identified indicators tended to decrease. Residual states were observed only in 23% (three people). Color preferences were replaced by expression of interest, openness to communication, and demonstration of volitional qualities. As a result of these regulated indicators in the process of passing biofeedback trainings before and after classes, the majority of the test subjects (69%, nine people) showed the result corresponding to the manifestation of an intermediate self-regulation strategy. This leads to the conclusion about moderate tension of regulatory systems - a state of tension of adaptation mechanisms with a tendency to increase the activity of stress-realizing systems. A decrease in physical stressors was also noted.

Conclusions. The conducted experiment confirmed that the methods and means used in water body-oriented therapy classes should be oriented not only to the growth of physical development indicators, but also to the formation of cognitive, motivational, regulatory, communicative and emotional components in the development of children with disabilities. The results of the study emphasize the importance of using the proposed method to assess the psycho-emotional state of children with disabilities, which made it possible to fully consider and evaluate the change in the emotional and motor activity of the child.

References

1. Azarova L.N. Telesno-oriyentirovannyy podkhod v rabote s giperaktivnymi detmi. Obucheniye i vospitaniye: metodiki i praktika. 2015. No. 20.
2. Bedeeva E.V Osnovnyye sredstva profilaktiki i korrektsii psikhoemotsionalnogo napryazheniya u detey s OVZ. Novaya nauka: psikhologo-pedagogicheskiy podkhod. 2017. No. 2. pp. 23-27.
3. Berezkina-Orlova V.B. Telesnaya psikhoterapiya. Biodinamika. Study guide. Moscow: AST publ., 2010. 409 p.
4. Deryabina G.I. Primeneniye kreativnykh telesno oriyentirovannykh praktik v komplekse s fizkulturno-korrektsionnoy deyatelnostyu s invalidami, imeyushchimi posledstviya detskogo tserebralnogo paralicha. Gumanitarnyye nauki. Pedagogika i psikhologiya. 2012. No. 12. pp. 443-449.
5. Sergeevich A.A. Klassifikatsiya metodov telesno oriyentirovannoy terapii. Problemy sovremennogo pedagogicheskogo obrazovaniya. 2022. No. 74. pp. 252-255.
6. Sobchik L.N. Metod tsvetovykh vyborov – modifikatsiya vosmitsvetovogo testa Lyushera. Practical guide. St. Petersburg: Rech publ., 2012. 128 p.
7. Malkina-Pykh I.G. Telesnaya terapiya. Handbook of a practical psychologist. Moscow: Eksmo publ. 2015. 960 p.
8. Panfilova M.A. «Kaktus». Graficheskaya metodika. Available at: http://www.psy-files.ru/2007/06/14/kaktus.html
9. Rybachenko A.B., Barba M.F., Kravchenko M.I. Telesno-oriyentirovannyye praktiki v rabote s detmi. Metod zameshchayushchego ontogeneza. Voprosy doshkolnoy pedagogiki. 2015. No. 3. pp. 99-101.
10. Cherdonova V.A., Igumnova A.S. Akvaterapiya kak igrovaya tekhnologiya v korrektsionno-razvivayushchey rabote pedagoga psikhologa s detmi s OVZ. Aktualnyye problemy nauki i obrazovaniya v usloviyakh sovremennykh vyzovov. Proceedings of the 11th International scientific-practical conference. Blagoveshchensk, February 20, 2018. Blagoveshchensk: Dalnevostochnogo GAU, publ. 2023. Vol. 2. No. 11. pp. 77-82.