



## Research Article

# Adaptive Resource of Disabled Persons with Late Affection of the Musculoskeletal System

Spiridonov EA<sup>1</sup>, Shmeleva SV<sup>2\*</sup>, Maskaeva TYu<sup>3</sup>, Mikhailova IV<sup>2</sup>, Karpov VYu<sup>2</sup> and Eremin MV<sup>2</sup>

### Abstract

Injuries of the musculoskeletal system are accompanied by disorders of personal adaptation, anxious and depressive reactions. The purpose of the study is to assess the adaptive resource of the disabled person's personality in the event of late defeat in their musculoskeletal system. It has been established that disabled people with late defeat of the musculoskeletal system are much more likely than children with disabilities to experience poor health, low activity and a bad mood. It is known that a severe physical trauma can become a trigger for the development of a person's anxiety, frustration and aggressiveness. Persons with disabilities in most cases have a low level of development of ability to translate life plans based on personal values and personal interests. They do not feel their personal involvement in their own lives which as a rule go their own way and can hardly be planned and willed. It was found out that disabled people with a late defeat of the musculoskeletal system are characterized by an increased desire to start life anew, to rethink their values. It became clear that among disabled people with a late defeat of the musculoskeletal system, the majority are people who have internal resources and willpower. At the same time, their manifestations are inhibited by the development of neurotic disorders and self-doubt, arising from unexpected life circumstances and feelings of fear of further life events.

### Keywords

Personality; Invalids; Adaptation; Trauma of the musculoskeletal system; Infantile cerebral palsy

## Introduction

Ontogeny is inevitably accompanied by the development of various dysfunctions [1,2], pathological conditions [3,4], the number of which inevitably increases with aging [5-7]. Despite the serious success of medicine, there are still many unresolved problems of recovery of the adult population in physical [8,9] and psychological terms [10,11]. The severity of this problem is provided by a large number of disabled adults in the population of developed countries, the number of which tends to increase [12,13]. One of the most numerous categories of people with disabilities is persons with musculoskeletal involvement [14,15]. They constitute about a fifth of the total number of all persons with disabilities. Traumatic impact is not only able to damage a person's somatic structures, but also affect his personality characteristics, the degree of which depends heavily on the initial state of the personality's adaptive mechanisms.

\*Corresponding author: Shmeleva Svetlana Vasilievna, Director of the Department of Adaptive Physical Culture and recreation Russian State Social University, Moscow, Russia, Tel: +7-915-147-98-32; E-mail: smelevasv@mail.ru

Received: January 01, 2018 Accepted: February 09, 2018 Published: February 15, 2018

It is noted that the onset of disability associated with damage to the musculoskeletal system is a serious psychological crisis for a person, requiring him to make enormous internal efforts aimed at restoring interaction with the society [16,17]. In this regard, it is necessary to systematically study the characteristics of the psychological characteristics of persons who have suffered severe physical injuries and become disabled as a result of them. They are able to help reveal the peculiarities of the psychological mechanisms of people's adaptation to the new conditions of life and continue to improve the ways of their psychological support. This is the purpose of the study to assess the adaptive resource of the disabled person's personality in the event of a late defeat in their musculoskeletal system.

## Material and Methods of Investigation

The study was approved by the local ethics committee of the Russian State Social University on September 15, 2016 (protocol No. 9). 128 disabled people with pathology of the musculoskeletal system of the first adult age were examined. All of them were divided into two equal comparable, homogeneous groups. The first group (experimental) was represented by people who became disabled in adolescence or at the beginning of the first adulthood due to trauma. The number of people surveyed in the group was 64 (31 men and 33 women), with an average age of  $29.7 \pm 1.1$  years. The period of disability in this group is at least 5 years. The second groups of people with disabilities (control) are disabled children born with infantile cerebral palsy. The total number of people surveyed in the second group was 64 (35 men and 29 women), with an average age of  $3.1 \pm 1.4$  years.

To assess the adaptive resource of personality the following methods are applied:

- A methodology for assessing the quality of life, taking into account the level of psychological and physical well-being. The physical component was assessed on the scales: "physical functioning", "role functioning due to the state of health", "pain intensity" and "general health". The psychological component of the quality of life was determined using the scales of the questionnaire, "mental health", "role functioning, conditioned by the emotional state", "social functioning", "vital activity" [18].
- Express self-evaluation of well-being, activity and mood. Self-awareness was assessed by indicators of strength, health and fatigue. Activity was characterized by mobility, speed and rate of flow of functions. The mood was assessed according to the characteristics of the emotional state [19].
- "Self-assessment of mental states" Eysenck, revealing the level of anxiety, frustration, aggressiveness and rigidity [20].
- A scale of depression that allows you to differentiate depressive states and conditions close to depression [21].
- A scale of existence that allows us to identify with 46 questions, a subjective perception of a person's life [21].

The data obtained during the study were subjected to statistical

processing with the calculation of the arithmetic mean (M), the error of the average value (m), and the application of a standard set of statistical analysis methods.

### Research results and Discussion

Disabled people with late defeat of the musculoskeletal system experienced inadequate well-being, low activity and bad mood more often than children with disabilities (Figure 1). In the group of disabled children, the average arithmetic values of the studied indicators are approximately equal, which indicates that they have no acute fatigue and fatigue.

The results of the study of self-assessment of mental states, performed with the help of Eysenck's method, allow us to say that significantly significant differences between mean arithmetic meanings were recorded according to the indices of the level of development in the subjects of anxiety ( $t=2.23, p<0.05$ ), frustration ( $t=2.72, p<0.01$ ) and aggressiveness ( $t=2.14, p<0.05$ ).

It becomes clear that a strong physical trauma is capable of becoming an individual's triggering of anxiety, frustration and aggressiveness. Despite the fact that the injuries were received by the subjects more than five years ago, they are stronger than the persons of the control group, they feel negative about their life, as well as feelings of resentment for their entire life. Also, most subjects from the experimental group easily fall into despair, do not feel self-confidence, they are hypochondriac and need psychological support. They are more likely than people in the control group to have distrust of others, a feeling of irritation, a sense of unrealized life plans and the impossibility of achieving previously set goals.

In the control, 35.94% of the subjects were characterized as not alarming. In the experimental group, there were only 17.19%, while 45.30% were anxious and suspicious. It becomes clear that a serious physical trauma is a serious cause of the development of anxiety, which largely hinders their successful adaptation (Figure 2).

High frustration, which prevents the successful adaptation of disabled people with late affection of the musculoskeletal system, was noted in 45.30% of cases. At the same time, a high degree of frustration in the control was recorded only in 14.06%. Among disabled people who have suffered late physical trauma, only 15.63% of the subjects are characterized as aged, and 34.38% are aggressive, feeling excessive resentment and irritation, which is much higher than the level of control.

The main differences between the two groups of subjects were obtained from the indicators of their mental health (Table 1). The

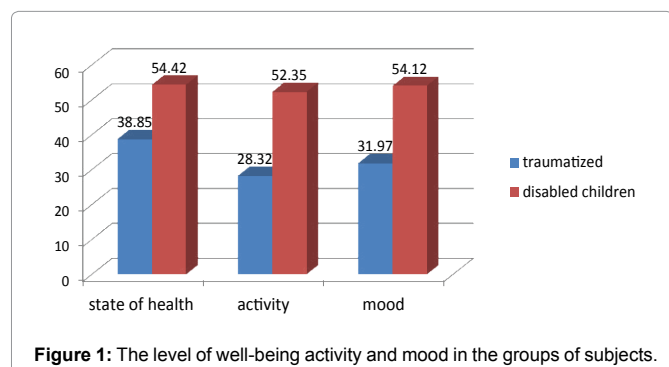


Figure 1: The level of well-being activity and mood in the groups of subjects.

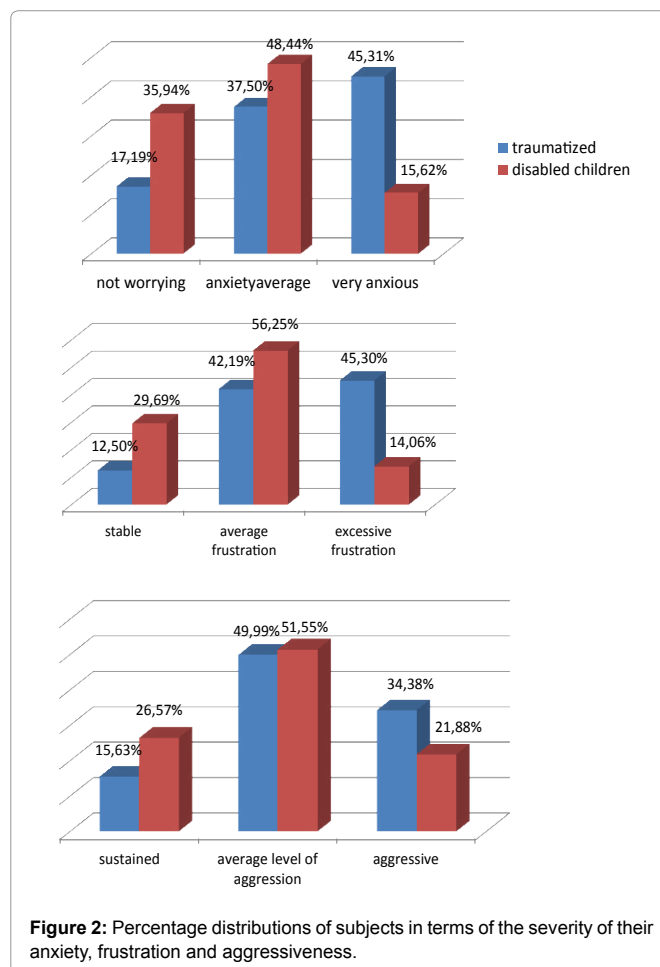


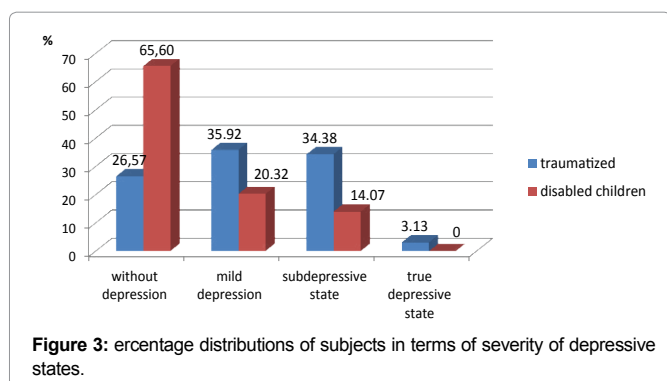
Figure 2: Percentage distributions of subjects in terms of the severity of their anxiety, frustration and aggressiveness.

emotional state of the majority of disabled children, even with significant limitations of health, is characterized by greater well-being, compared to those who suffered severe physical injuries and became disabled at a conscious age. Most people in the experimental group feel tired, emotionally depleted, while the respondents of the control group, on the contrary, felt full of energy and energy. The greatest differences between the two study groups were recorded in terms of social activity indicators of respondents ( $t=6.25, p<0.001$ ). So, if the majority of disabled children, despite significant limitations to their health, led an active social life, constantly expanding their social contacts, most of the disabled with a late defeat of the musculoskeletal system, on the contrary, limited their social contacts and avoided communication. They focused their attention on medical rehabilitation and on their physical sensations. It becomes clear that emotional experiences and excessive anxiety in the persons of the experimental group strongly hinder their successful role-playing function in the society. This determines that in the group of disabled children, the average indicators of mental health are in the range of average values, and in the group of people with disabilities with late affection of the musculoskeletal system - in the range of low values.

In assessing the severity of depression in subjects revealed significant differences between groups (Figure 3). It was found out that 65.60% of the subjects in the control group and 26.57% in the experimental group had no signs of depression. At the same time, among those subjects who suffered severe physical injuries and became disabled as a result of them, 3.13% have a pronounced

**Table 1:** Parameters of adaptive abilities of the individual surveyed.

Considered indicators	Experimental group	Control group	T	P
Anxiety points	16.26 ± 1.71	11.64 ± 1.26	2.23	< 0.05
Frustration points	17.02 ± 1.72	11.38 ± 1.23	2.72	< 0.01
Aggressiveness points	17.92 ± 1.84	13.06 ± 1.42	2.14	< 0.05
Rigidity points	13.48 ± 1.42	12.92 ± 1.34	0.76	>0.05
Physical functioning points	52.35 ± 5.30	61.82 ± 6.25	1.16	>0.05
Role performance due to physical condition points	41.48 ± 4.20	62.25 ± 6.31	2.75	< 0.01
Intensity of pain points	52.18 ± 5.45	60.24 ± 6.27	1.02	>0.05
General health points	47.34 ± 4.94	61.08 ± 6.13	1.91	>0.05
Vital activity points	28.84 ± 2.92	64.32 ± 6.58	4.99	< 0.001
Social functioning points	22.16 ± 2.43	68.94 ± 7.10	6.25	< 0.001
Role functioning due to emotional state points	24.38 ± 2.56	62.44 ± 6.34	6.78	< 0.001
Mental health points	25.54 ± 2.60	65.08 ± 6.54	5.59	< 0.001
Self-distancing points	32.34 ± 1.27	30.28 ± 1.22	0.56	>0.05
Self-transcendence points	72.28 ± 2.12	69.93 ± 1.46	0.43	>0.05
Freedom points	44.58 ± 1.84	48.84 ± 1.72	0.64	>0.05
Responsibility points	62.27 ± 1.74	39.28 ± 1.21	3.12	<0.01
Personality points	92.24 ± 2.41	102.13 ± 2.47	0.98	>0.05
Existentiality points	93.85 ± 2.54	81.12 ± 2.50	1.42	>0.05



depressive state, 34.38% had a sub-depressive state, and 35.92% had mild depression of situational or neurotic genesis.

In the group of disabled people with a late defeat of the musculoskeletal system, a third of respondents (32.82%) are characterized by a high level of self-distancing, combined with insufficient self-transcendence. In the group of disabled children, despite the fact that high scores on the scales “self-distancing” and “self-transcendence” are recorded in a small number of respondents, the majority (65.63%) are characterized by a harmonious combination of the ability to distance themselves from life and the ability to perceive and accept yourself with all your needs.

It becomes clear that the relatively low level of self-distraction and self-transcendence is the result of years of deprivation of childhood disabilities. Personality, which has suffered a serious physical trauma and became due to it as an invalid, has other features of development. The non-harmonic combination of the level of development of the ability to self-distancing and self-transcendence is more likely to indicate the situational state of the respondents: either about their compensated fear, or about a temporary sense of confusion and defenselessness.

In the experimental group were respondents with a high degree of willingness to make decisions and to find adequate ways of acting, as well as individuals with a rather low level of self-confidence and in

their own strengths. It is noteworthy that among respondents with high self-transcendence rates, 26.32% are characterized by a low level of development of internal freedom. This may indicate their depressive states and reactions to a complex life situation, due to lack of power and excessive immersion in their inner world [22,23]. Such subjects made up 7.82% in the experimental group.

Significantly significant differences between the two groups were observed in the indicators of responsibility, with an average score for this indicator of existential fulfillment higher in the group of people with disabilities with late affection of the musculoskeletal system than in the disabled group of childhood ( $t=3.12, p<0.01$ ).

In the group of disabled children, the majority of respondents have an understated level of development of the ability to translate life plans based on personal values and personal interests. They do not feel their personal involvement in their own lives, which, as a rule, goes on in its own way and is not amenable to planning and own will. In the group of people with disabilities with late affection of the locomotors system, on the contrary, many respondents are characterized by an increased desire to start life anew, to rethink their values.

25.0% of cases in the experimental group combination of responsibility indicators and low level of internal freedom development testify that such subjects are close to the state of depression [24]. On the one hand, they followed the convictions that in a difficult life situation it is necessary to exercise their will power (the demand of the society and stereotypes of perception), and, on the other hand, they lost their inner freedom, were disoriented and no longer believed in personal values. At the same time, the higher scores on the “responsibility” scale recorded in the group of people with disabilities with late affection of the musculoskeletal system testify to the rather high potential of the majority of the examined experimental group and, at the same time, the worsening of their emotional state inhibiting their adaptation [25,26]. In this regard, one might think that among disabled people with a late defeat of the musculoskeletal system, the majority are people who have internal resources and willpower. At the same time, their manifestations are inhibited due to the development of neurotic disorders and self-doubt, arising from unexpected life circumstances and feelings of fear of them.

## Conclusion

A severe physical trauma that leads to disability can become a trigger for the development of anxiety, frustration and aggressiveness for a person. Such people fall into despair, do not feel self-confidence, they are hypochondriac and need psychological support. They are more likely than children with disabilities to distrust others, feelings of irritation and resentment, a sense of unrealized life plans and the impossibility of achieving previously set goals. The majorities of disabled people with late defeat of the musculoskeletal system limits their social contacts and leave communication, while the bulk of disabled children are active social lives, constantly expanding their social contacts. The reason for this behavior with late disability is the feeling of being useless, emotional experiences and excessive anxiety. People with disabilities with a late defeat of the musculoskeletal system are marked by an increased desire to start life anew and rethink their values. In this they are very different from those with childhood disabilities, most of whom have a low level of ability to translate life plans based on personal values and personal interests. Among disabled people with a late defeat of the musculoskeletal system, the majority are people who have internal resources and willpower. Their manifestations are inhibited by the development of neurotic disorders and self-doubt, arising from unexpected life circumstances and feelings of fear of them.

## References

1. Medvedev IN, Lapshina EV, Zavalishina SYu (2010) Experimental methods for clinical practice: Activity of platelet hemostasis in children with spinal deformities. *Bull Exp Biol Med* 149: 645-646.
2. Medvedev IN, Zavalishina SYu (2016) Platelet Activity in Patients with Third Degree Arterial Hypertension and Metabolic Syndrome. *Kardiologiya* 56:48.
3. Skoryatina IA, Zavalishina SYu, Makurina ON, Mal GS, Gamolina OV (2017) Some aspects of Treatment of Patients having Dislipidemia on the Background of Hypertension. *Prensa Med Argent* 103:3.
4. Skoryatina IA, Zavalishina SYu (2017) A Study of the Early Disturbances in Vascular Hemostasis in Experimentally Induced Metabolic Syndrome. *Annu Res Rev Biol* 15:1-9.
5. Skoryatina IA, Medvedev IN, Zavalishina SYu (2017) Antiplatelet control of vessels over the main blood cells in hypertensives with dyslipidemia in complex therapy. *J Cardiovasc Dis Diagn* 16: 8-14.
6. Zavalishina SYu, Medvedev IN (2017) Comparison of opportunities from two therapeutical complexes for correction of vascular hemostasis in hypertensives with metabolic syndrome. *Cardiovascular therapy and prevention* 16: 15-21.
7. Kutafina NV, Medvedev IN (2015) Platelet aggregation in clinically healthy persons of the second coming of age living in the Kursk region. 28: 321-325.
8. Medvedev IN, Danilenko OA (2010) Effectiveness of vascular wall activity correction in patients with arterial hypertension, metabolic syndrome and oculo-vascular occlusion. *Russian J Cardiol* 83: 64-67.
9. Medvedev IN, Skoriatina IA (2010) Effect of lovastatin on adhesive and aggregation function of platelets in patients with arterial hypertension and dyslipidemia. *Klinicheskaya meditsina* 88: 38-40.
10. Medvedev IN, Savchenko AP (2010) Platelet activity correction by regular physical training in young people with high normal blood pressure. *Russian J Cardiol* 2: 35-40.
11. Medvedev IN, Nikishina NA (2010) Reactance of analyzing areas of brain in the course of informative activity in elderly people// *Advances in gerontology Uspekhi gerontologii/Rossiiskaya akademiya nauk, Gerontologicheskoe obschestvo* 23: 421-423.
12. Medvedev IN, Skoryatina IA (2014) Erythrocyte aggregation in patients with arterial hypertension and dyslipidemia treated with pravastatin. *Klinicheskaya meditsina* 92: 34-38.
13. Makhov AS, Stepanova ON, Shmeleva SV, Petrova EA, Dubrovinskaya EI (2015) Planning and Organization of Sports Competitions for Disabled People: Russian Experience. *Biosci., Biotech. Res. Asia* 12: 34-44.
14. Mikhaylova IV, Shmeleva SV, Makhov AS (2015) Adaptive chess educational technology for disabled children. *Teoriya i praktika fiz kultury* 7:38-41.
15. Bonkalo TI, Shmeleva SV, Zavarzina OO, Dubrovinskaya Yel, Orlova YuL (2016) Peculiarities of interactions within sibling subsystem of a family raising a child with disabilities. *RES J PHARM BIOL CHEM SCI* 7: 1929-1937.
16. Strelkov VI, Zavarzina OO, Shmeleva SV, Kartashev VP, Savchenko DV (2016) Psychological barriers in college teacher's career «Helping professions». *RES J PHARM BIOL CHEM SCI* 7: 1938-1945.
17. Mikhaylova IV, Shmeleva SV, Makhov AS (2015) Information communication teaching aids in long-term training of chess players. *Theory and Practice of Physical Culture* 5: 31.
18. Bikbulatova AA, Andreeva EG (2017) Dynamics of Platelet Activity in 5-6-Year Old Children with Scoliosis against the Background of Daily Medicinal-Prophylactic Clothes' Wearing for Half a Year. *Biomed Pharmacol J* 10: 16546.
19. Bikbulatova AA (2017) Dynamics of Locomotor Apparatus' Indices of Preschoolers with Scoliosis of I-II Degree against the Background of Medicinal Physical Training. *Biomed Pharmacol J* 10: 16762.
20. Ananyev BG (1980) Selected psychological works. Moscow: *Pedagogika* 1: 232.
21. Velichkovsky BB, Marin MI (2007) Complex diagnostics of individual resistance to stress within the framework of the model "state - stable trait". *Bulletin of the Moscow State University. Series 14.Psychology* 2: 34-46.
22. Medvedev IN, Nikishina NA (2011) Reactivity of sensory areas of the brain in the course of cognitive activity in elderly people. *Adv Gerontol* 1: 249-251.
23. Medvedev IN, Skoriatina IA (2012) Dynamics of microrheologic properties of erythrocytes in patients with arterial hypertension and dyslipidemia treated with atorvastatin. *Klinicheskaya meditsina* 90: 42-45.
24. Gnezdilov GV, Khusyainova ZN (2015) The role of psychological factors of uncertainty in the vital activity of personality. *Bulletin of the Institute of World Civilizations* 10: 76-83.
25. Zavyalova EK (2001) Psychological mechanisms of social adaptation of man. *Bulletin of the Baltic Pedagogical Academy. St. Petersburg* 40:55-60.
26. Vorobyeva NV (2017) Physiological Reaction of Erythrocytes' Microrheological Properties on Hypodynamia in Persons of the Second Mature Age. *Annu Res Rev Biol* 20:1-9.

## Author Affiliations

[Top](#)

<sup>1</sup>Moscow Pedagogical State University, Moscow, Russia

<sup>2</sup>Russian State Social University, Moscow, Russia

<sup>3</sup>Federal State Institution of Higher Education "Russian University of Transport", Moscow, Russia