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**PSYCHOLOGICAL HEALTH RESOURCES OF HEI STUDENTS:  
EMOTIONAL AND AUTONOMIC COMPONENTS**

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***Abstract***

The article touches upon the issues of studying the resources of the psychological health of students of Higher Educational Institutions (HEI). The notions of “psychological health”, “health resources”, “adaptation”, “study-related stress”, “autonomic imbalance” are analyzed and defined. The results of studying the emotional and autonomic components of the psychological health of students in relation to the adaptation level are presented. The indicators of health resources are spirit, low and medium levels of anxiety, emotional stability, domination of positive emotions, lack of autonomic dysfunctions. As the autonomic nervous system mediates the negative emotions’ impact on the visceral organs, the autonomic imbalance developed under the influence of the stress factors is indicative of the reduced psychophysiological resources of HEI students. During the study, the interrelation between the adaptation level and the students’ psychological health was discovered. It was found out that the students’ non-adaptive states cause the reduced health resources: increased anxiety, negative emotions, autonomic dysfunctions, asthenia, sleeping disorders, headaches, functional disorders of the cardiovascular and respiratory systems as well as of the gastrointestinal tract. The interrelation between the changes of the autonomic regulation and the adaptation level can be noted. The test persons with the low and medium adaptation level have clear autonomic disorders; their psychophysiological resources are lower. In order to optimize the adaptation, to raise the stress resistance, to preserve and improve the students’ health, the program of psychodiagnostic and psychocorrective work with students is offered.

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**Keywords:** Psychological health resources, anxiety, autonomic dysfunctions.



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## 1. Introduction

Health is one of the most significant values of a human; it is a necessary term of his/her productive life, satisfaction of the material and spiritual needs, participation in the working and social life as well as in other types of activity.

High requirements are imposed on students in the modern higher institutions including the requirements for their health state, as the education is accompanied by the significant mental stress and the situations of the information stress.

The insufficient attention to the personal physical and psychological health presents an objective danger for the students' life plans. The higher rating of health in the HEI students' set of values, teaching them how to assess its state and to improve it are the essential conditions of their study-related adaptation. Despite the numerous studies of health from the points of view of psychology and psychophysiology, the real conception of health as a part of HEI students' professional status is in the formative state (Omigbodun et al., 2006; Vaez & Laflamme, 2008). The students' value treatment of health is analyzed insufficiently; little attention is paid to the research of the processes of adaptation to the academic environment, as well as to the prevention of the information stress impacts in the learning activity.

## 2. Problem Statement

Razumov and Ponomarenko (2015) study the problems of a modern human's health from the perspectives of medicine, psychology and spiritual cognition. They underline the importance of prevention for preserving and reproducing the nation's health, as well as the necessity of the doctors', psychotherapists' and psychologists' integrated efforts to achieve these goals. The authors create the health-centrist paradigm of the health protection for the healthy people emphasizing the prior significance of the moral-spiritual aspect of a person's health.

McLean, Strongman, and Neha (2007) researched the study-related stress of college students and coping-strategies used to overcome the hypothetical failure at the exam. They estimated the expected psychological disorder and the possible reasons of the hypothetical exam failure by means of attributive measurements related to the locus of causality, controllability and stability. The respondents assessed the possibility of using the coping-strategy if they were able to cope with the exam failure. The results of the research showed that the exam failures caused by some inner factors were linked with the lower levels of the expected psychological disaster. The reasons that were considered as stable were the strong predictors of avoiding and "wishful thinking" of copability strategies.

Baranov and Zhuchenko (2015) studied the interconnection between the students' stress resistance and the inadequate forecast of the examinational situation result. To prove the hypothesis about the interrelation between the poor stress resistance and inadequate forecast, they used the tests defining communicative, emotional and volitional features as the most important ones for reacting in a stress situation. The authors found out that the poor stress resistance manifesting itself as the high sensitivity to the failures in the professional and social spheres, disposition toward tension, anxiety, worry correlated with the inadequate forecast of the examinational situation result. The authors believe that the knowledge of these interrelation regularities will allow working out the program of developmental classes, which will

significantly increase the psychological readiness for working under the stress conditions in order to improve the skills of a future specialist.

### 3. Research Questions

The psychological health of a person, his/her criteria, development processes are researched by the psychologists, sociologists and clinicians. The integrated studies of different components of students' health are carried out: the dynamic indicators of psychological health as well as their interrelation with such personal features as stress resistance, vitality and tolerance (Vaez & Laflamme, 2008; Razumov & Ponomarenko, 2015; Chotiner & Korobeinikova, 2016).

Filatov (2013) analyzes the problems of the university students' psychological health in relation to the issues of tolerance and extremism in the youth sphere, describes the possible usage of the health-improving psychotechnologies. The author introduces the three-level model of the students' psychological health and defines its specific parameters and integral indicators. Filatov (2013) offers the original classification of the psychological health-improving technologies and the system of health-improving practice in HEI based on the given three-level model of the psychological health (Filatov, 2013).

The modern concept of psychological health is as follows: psychological health is a state of the mental well-being characterized by the lack of the psychological disorders symptoms and ensuring the regulation of behavior and activity that is comparable with the environment conditions (Health Psychology, 2006). From this perspective the following criteria of the psychological health can be defined:

- relevance of the subjective images to the reflected objects of reality;
- age-appropriate level of maturity of the emotional-volitional and cognitive spheres of personality;
- ability to self-control the behavior;
- rational planning of life goals and making efforts to achieve them (Health Psychology, 2006).

The psychological health is an integrative characteristic of a personality responsible for its inner consistency and self-regulation, successful adaptation and self-fulfillment under the definite conditions of the social existence. This feature comprises axiological, instrumental and motivational components. The term "psychological health" refers to the entire personality; it is closely connected with the acme of the human spirit and allows separating the psychological aspect of the mental health from the philosophical, medical and sociological ones.

Liu (2016) studying the psychological health of HEI students in China researches the criteria of the Chinese students' psychological health and analyzes the factors influencing the Chinese students' health. Special attention is paid to the following factors: competition of the HEI applicants, adaptation of the first-year students, rethinking of the profession choice (reappraisal of personal identity values) and alumni's looking for a job according to their profession.

Among the criteria of the personal psychological health special emphasis is placed on the degree of the personal integrity, harmony, consolidation, tranquility as well as on such components as spirituality (kindness, justice etc.), self-development orientation and soul enrichment. Disorders of the mental and psychological health manifest themselves as changes in the cognitive processes (memory impairment,

concentration difficulties, thought process disorder etc.), changes of the emotional sphere (anxiety, depressions, frustrations, irritation etc.) and loss of the value orientation and life interests (Padun, 2016).

The states of illness and health cannot be examined with no regard to the processes of the organism's adaptation, as the latter are aimed at working out a rational strategy of a live system that can ensure its homeostasis. As one of the health criteria is the adaptation ability, the psychological health is one of the most powerful adaptive resources of a person.

Adaption is a dynamic formation, a result and a process of the organism's or person's adjustment to the conditions of the outside environment; it is also a feature of any self-regulating system that involves the ability to adjust to the changing conditions of the outside environment. The maintenance and growth of the person's adaptation are related to searching for resources that help the person to cope with the stress situations. The person's resources are defined as the individual features and abilities that condition the psychological resistance in stress situations (Finogenko, 2012).

Applying the integrated approach to the human's health one can find out the following components: psychophysiological, cognitive, motivational-volitional, emotional, personal. As a matter of fact, they present the psychological health resources. Analyzing the cognitive-transact conception of stress N.E. Vodopianova (2009) reveals the notion of adaptive resources: "The notion of resources as a psychological category is developed insufficiently. The resources are understood as internal and external variables facilitating the psychological resistance in stress situations; they are emotional, motivational-volitional, cognitive and behavioral constructs which are actualized by the person to adapt to stressful working and life situation".

The indicators of these resources can be both the factors of the exterior successfulness of the activity and spirit, satisfaction of working results, life quality, optimism, positive attitude to oneself and other people. Emotions have an axiological function, reflect the real situation of the person's life; that is why they are a subjunctive criterion of the adaptation to the environment conditions. The following criteria of the emotional resources of health can be defined: a low and medium level of anxiety, emotional stability, predominance of positive emotions (Rasskazova, 2017).

The lower health resources may manifest themselves in different ways. The emotional disorders are reflected in somatic problems, which is conditioned by the autonomic response to the stress and presents a symptom of psychosomatic disorders. Rasskazova (2017) studied the interrelation between the complaints of somatic and mental symptoms as well as the personal characteristics of the patients. It was found out that the complaints of the somatic symptoms are positively related to the complaints of the mental symptoms whereas their relation to the personal characteristics is mainly an unspecific display of the general psychological problems (Finogenko, 2015)

#### **4. Purpose of the Study**

Nowadays there is no integrated methodology of diagnosing the level of students' psychological health. The issue of parameters being the most essential characteristics of the psychological health is still debatable. "Psychological health" is an integrative and many-sided feature of a person that is why it makes sense to evaluate it using a number of complementary parameters. In the given research, the students' psychological health was studied in the context of the theory of psychosocial adaptation.

The purpose of the study was to research the resources of HEI students' psychological health as one of the conditions of their study-related adaptation. The study was conducted in Irkutsk National Research Technical University; 76 students-designers took part in it. The students' psychophysiological, personal, emotional resources were studied.

## 5. Research Methods

The theoretical methodological background to the study is the conception of resources "conservation" by S. Hobfoll (COR-theory), the cognitive model of psychological stress by R. Lazarus as well as the health psychology theory by G.S. Nikiforov. The following psychodiagnostic methods were used: the questionnaire for the assessment of the non-adaptation symptoms (by Dmitrieva, modified by Dziatkovskaya); the methodology of anxiety assessment (Spilberg & Khanin); the differential emotions scale (K. Izard); the questionnaire for the assessment of the neuro-mental stability "Prognoz" ("Forecast"); the questionnaire for the identification of the signs of the autonomic changes (A.M. Vein). The methods of the statistical processing of information were used: U-test by Mann-Whitney, correlation analysis with regard to Pearson's correlation coefficient, etc.

## 6. Findings

At the first stage, the students' adaptation was studied by means of Dmitrieva's methodology "The questionnaire for the assessment of the disadaptation symptoms" (modified by Dziatkovskaya). In Dmitrieva's opinion (2001), the lack of disadaptive signs is indicative of the testees' adaptation (Finogenko, 2012). All test persons formed three groups: 1 – the high level of adaptation (37%), 2 – the medium one (50%), 3 – the low one (13%).

Generally, the signs of the adaptation disorders manifest themselves in the third group with the low adaptation level in a greater degree. "Feeling unwell" (average of  $x$  ( $av.x$ )  $3=37.67$ ) in this group is expressed stronger than in the 1st and 2nd groups, it exhibits as lower general activity, feeling of tiredness, such emotional disorders as dismal mood, irritation; also the changes of some mental processes can be seen (concentration difficulties, memory impairment).

Among the test persons with the medium level of adaptation (the 2nd group) the disadaptive symptom "feeling unwell" ( $av.x$   $2=21.69$ ) exhibits as the feeling of tiredness and dismal mood as well as the indifference to the goings-on.

The test persons with the high level of adaptation (the 1st group) have the low indices of this symptom ( $av.x$   $1=8.17$ ) though their mood may change quite often.

"Somatic-autonomic" disorders as a disadaptive sign are expressed more explicitly in the 3rd group ( $av.x$   $3=22$ ); they manifest themselves as complaints of functional disorders in different organs and systems (headaches, angina spuria, dysfunctions of the gastrointestinal tract, gasping etc.). In the 1st and 2nd groups, the given sign is expressed less ( $av.x$   $1=5.18$  and  $av.x$   $2=10.43$ ).

All three groups showed the disadaptive symptom of the disorders in the "sleep-wake" cycle that is expressed as the difficulties with the sleep onset, frequent night wake-ups, fatigue after waking up, though the degree of them was different. The testees of the low adaptation group have the higher index of this symptom.

The desadaptive sign of “peculiarities of the social interaction” characterizes the problems in the relations with relatives, friends and course-mates. The highest values were found out in the 3rd group (av.x 3=7.67). In the 2nd group this symptom is expressed moderately (av.x.2=5.17).

The symptom “lower motivation for activity” is also characteristic of the students with medium and low levels of adaptation (av.x 1=1.82, av.x 2=3.91, av.x 3=4.00). It reflects the lower interest to the learning activities, the developing chronic fatigue in the context of health resources lack.

Summing up the results of the comparative analysis with the usage of Mann-Whitney’s U-test allowed defining the statistically relevant differences in the adaptation levels between groups 1 and 2, 1 and 3, 2 and 3.

Thus, during the research the different levels of the students’ adaptation disorders were detected. The high level of adaptation means successful going through the adaptation process with possible trifle problems. The medium adaptation level may involve some definite difficulties in the learning process, rapid fatigability, lower motivation for learning. The students’ low adaptation level is characterized by the evident disadaptive symptoms.

The students’ disadaptation symptoms were expressed by emotional shifts, lower mental processes (concentration, memory), feeling of tiredness. Besides, the changes in the social interaction (problems in communicating with relatives, friends, course-mates) can also be the signs of disadaptation. Lower motivation for the activity related to the testees’ learning process can be mainly noted in the 2nd and 3rd groups. All the disadaptive signs are the most evident among the students of the 3rd group – with the low adaptation level.

The emotional sphere state is an important indicator of a human’s mental well-being. The state of the students’ emotional sphere was investigated by means of such methodologies as “Anxiety Assessment” (Spilberg, Khanin), “Questionnaire for the Assessment of the Neuro-Mental Stability “Prognoz” (“Forecast””, “The Differential Emotions Scale” (Izard).

Anxiety is a very important forecasting indicator of a person’s psychological health. The definite level of anxiety is a natural and obligatory characteristic of the person’s activity. Every person has his/her optimal or desirable anxiety level – it is so-called useful anxiety.

The conducted study showed that in the first group (with the high adaptation level) the medium and low values of situational anxiety (76% and 18% consequently) prevailed. It is well known that the people with a low (optimal) anxiety level can control their mental state in the best way. The optimal situational anxiety ensures the reliable, stable and high-quality performance of activity to achieve the really reachable goals. Among the students of the 2nd group 48% showed the high level of anxiety and 43% - the medium one. It was found out that in the third group (with the low adaptation level), 83% had the high level of situational anxiety. It makes sense to suggest that under the stress conditions these students tend to be confused and to panic.

Personal anxiety is a stable individual characteristic reflecting the subject’s disposition to anxiety and assuming his/her tendency to interpret the wide range of situations as dangerous ones and to react to them in a certain way (Vaez & Laflamme, 2008; Rasskazova, 2017). All the test persons of the third group (100%) have the high level of personal anxiety. Perceiving the certain stimuli, they tend to interpret them as dangerous and related to the specific situations of threat to their prestige, self-assessment and self-

respect. In the 2nd group, the high personal anxiety level prevails (74%) which is indicative of the decreased resources of the psychological health of the students with the medium adaptation level. The 1st group is characterized by the predominance of the medium and low values (53% and 12% consequently). Anxiety of the medium degree has a mobilizing function and facilitates the efficient study-related adaptation of the students of the 1st group.

Neuro-mental stability is regarded as the ability of the person to regulate his/her interaction with the environment. It comprises the unity of energetic, dynamic and content-conceptual aspects.

In the 1st and 2nd groups, the high and medium indicators of the neuro-mental stability prevail (76% and 57% consequently). High neuro-mental stability is expressed by the adequate perception of the reality and people, high self-assessment, self-regulation capacity that can be regarded as the criteria of psychological health. In the 3rd group, 83% of the students showed the unsatisfactory neuro-mental stability that manifested itself as irritation, emotional lability, dismal mood, decreased motivation for activity. Thus, it can be concluded that the students with the low adaptation level have the decreased emotional resources of the psychological health.

The differential emotions scale by K. Izard is used for diagnosing the dominant emotional state by means of the scale of the emotions significance.

The 1st group with the high adaptation level presented the high values on-scale “index of positive emotions” (47% of the students). The following emotions are characteristic of the positive background: interest, joy, surprise that create the feeling of the psychological well-being. Extremely negative emotions were seen not so often as in the 2nd or 3rd groups. The anxious-depressive emotions are also noted in this group. It can be assumed that despite the predominance of the positive emotional background, the students’ emotional lability may be seen.

In the 2nd group, “the index of extremely negative emotions” is much higher (56% of respondents have the high values), anxious-depressive emotions are also noted in this group. These emotions are characterized by fear, shame, fault. The shame is accompanied by the strong feelings of failure and fiasco. Experiencing of fear and dread to show this fear can cause the feelings of fault and shame. The combination of fear and shame in the emotional pattern of anxiety is extremely harmful for a person’s psychological health, as neither of these emotions can be regarded as positive background for the social interaction. Thus, the prevailing negative emotions of the students of the 2nd group reduce their adaptive capacity.

In the 3rd group with the low adaptation level, the medium and low values of the positive emotions index were detected, whereas the negative and anxious-depressive emotions were equally presented by the high, medium and low values. The predominance of the negative emotions leads to feeling ill, decreased motivation for activity; even depressed states are possible – dismay, apathy, decrease of working capacity. The negative emotions indicate the ill-being of a person, accompany the stress states and are transformed into the psychosomatic disorders by means of the autonomic dysfunctions.

Thus, the research showed that the students of the 1st group have rather high emotional resources, whereas the students of the 2nd and 3rd groups (with the medium and low adaptation levels) have the decreased emotional resources of the psychological health.

The human emotional sphere is closely related to the autonomic nervous system. Any activity is impossible without the autonomic support – the coherent interaction of the sympathetic and

parasympathetic nervous systems. The autonomic regulation of activity is the most important psychophysiological resource of the human health.

The autonomic nervous system mediates the influence of the emotions on the functioning of different organs and systems. A.M. Vein writes that the autonomic correlations can be found with any emotional reactions. Affects of dismay, fear or anxiety cause the somatic consequences through the nervous-automatic-endocrine system. And the inhibition of the exterior representation of the negative emotions (psychomotor or linguistic) may become pathogenic: the autonomic nervous system agitates causing the problems in the functioning of the organs. If the negative emotions have been experienced for a long time the intensification of some autonomic way begins; this is expressed as the vessels hypertensive state or spastic state of the intestine (Autonomic disorders: clinic, treatment, diagnostics, 1998).

A.M. Vein suggested the notion of “the psychoautonomic syndrome” which may be considered as an early stage of the psychosomatic disorder. Weakening of the functional reserves of the nervous system can be seen in many psychoautonomic symptoms (weakness, loss of appetite, rapid fatigability and irritation) (Autonomic disorders: clinic, treatment, diagnostics, 1998).

The autonomic regulation disorders may affect cardiovascular, respiratory, gastrointestinal, thermotaxis systems and cause such symptoms as limbs numbness, hyperhidrosis, palpitations, gasping, headaches, angina spuria (Finogenko, 2015).

The study of the students’ autonomic regulation was carried out with the help of A.M. Vein’s methodology “The Questionnaire for the Identification of the Signs of the Autonomic Changes” (Autonomic disorders: clinic, treatment, diagnostics, 1998). The average value, standard deviation and the range of values were calculated in the 1st, 2nd and 3rd groups.

High values of the autonomic changes prevail in the 3rd group (67% of respondents). In the second group, one can see the predominance of the medium level of autonomic dysfunctions (61%). 65% of the students of the 1st group showed the low values of autonomic disorders, though another 45% tend to have the autonomic regulation problems. Among the symptoms of the autonomic changes, the complaints of the dysfunctional disorders of the cardiovascular system prevail: palpitations, angina spuria, rapid fatigability, sleeping problems. One of three students has colicky headaches, dysfunctions of the gastrointestinal tract. “Respiratory syndrome” manifests itself as gasping, shallow breath with the limited inhalation. These dysfunctions have psychogenic nature and are conditioned by the stress factors. The mentioned symptoms decrease the efficiency of the students’ study-related adaptation.

On the basis of the comparative analysis with the usage of Mann-Whitney’s U-test, the statistically relevant differences between groups 1 and 2, 1 and 3, 2 and 3 were detected.

As the autonomic nervous system mediates the negative emotions influence on the functions of the visceral organs, the disorders of the autonomic regulation are the symptom and perhaps the early stage of psychosomatic dysfunctions developing under the influence of stress factors; they are indicative of the decreased psychophysiological resources of HEI students’ health.

Besides, the interrelation between the autonomic regulation changes and the students’ adaptation level is observed. The students with the low and medium adaptation level have more evident autonomic disorders, their psychophysiological resources are lower. In the group with the high adaptation level, the psychophysiological resources of health are much higher.



## 7. Conclusion

Thus, the research of the emotional and autonomic components of health revealed the interrelation between the students' level of adaption and their psychological health resources. The significant part of the students with the low and medium adaptation levels (63%) has the greater decrease of the psychological health resources than the students with the high adaptation level; this is expressed in the form of ill-being, emotional instability, somatic-autonomic disorders, lower motivation for learning. It reduces the productivity of the learning activity and makes it more difficult. The students do not meet all the requirements and adapt to the new situations and conditions not very fast and efficiently.

The correlation analysis with regard to Pearson's correlation coefficient showed the statistically relevant links at 1% and 5% levels of significance between the levels of adaptation and indices of the students' psychological health.

Thus, the conclusion can be drawn: the higher the level of the students' adaptation is, the greater emotional and psychophysiological health resources they have.

To optimize the adaptation, raise the stress resistance, to preserve and improve the students' health it is necessary to create the health-saving environment in HEI where the team of doctors and psychologists will work together performing the well-timed psychodiagnostic and psychocorrective work with students.

The given research allows demonstrating the need for the organization of systematic work aimed at prevention and coping with the students' disadaptive states, as well as at reducing the stress nature of HEI learning environment.

Nowadays within the frames of psychology, the theoretical-practical direction is developing; the essence of it is to manage stresses – stress-management.

Stress-management may be provided in different ways. One of them (psychological) can be divided into two main directions:

1. Psychoprevention of stress (consulting assistance) which is aimed at the lower individual stress vulnerability and higher stress resistance.
2. Psychological aid, aimed at coping with the acquired stress-syndromes, personal deformations or diseases of the stress nature (different forms of psychocorrection and training are used).

These approaches can be applied to the organization of the psychocorrective work with students. The majority of the students does not have developed notions or skills of self-regulation in the stress situation. The development of these skills is necessary both for the productive organization of the entire life and for coping with the information stress.

The original program of psychodiagnostic and psychocorrective work with students on the basis of the students' psychological centre was worked out. It includes three stages:

- I. Primary psychodiagnostics of the students.
- II. Consulting and psychocorrective work with the students.
- III. Re-evaluating psychodiagnostics of the students

The diagnostic methods are aimed at studying the disadaptation level, autonomic dysfunctions, neuro-mental resistance, self-esteem, anxiety level, emotional sphere state, communicative skills, coping-strategies.

Teachers of the department of psychology and senior students reading psychology render the consulting services. It allows raising the level of the students' knowledge about the prevention of the negative consequences of the information stress: work at the mini-lectures and workshops.

Psychocorrective work concerning the prevention and coping with stress covers the organization and arrangement of psychological trainings oriented at raising the adaptive potential of a person. The following trainings are possible:

1. how to raise the personal self-esteem;
2. how to develop communicative competence and communicative skills;
3. how to develop the skills of the mental self-regulation under the conditions of acute and chronic stress;
4. "Determining the positive dominant" (it helps to develop the ability to see the life events from the positive perspective);
5. training of the body-oriented therapy aimed at neutralizing or reducing the negative consequences of the stresses as well as at rapid revival of health and working capacity.

The integrated approach to the prevention of disadaptation, autonomic and emotional disorders means developing such students' sets as preservation and improvement of their health, obtaining the skills of coping with stress and difficult life situations. The health-saving work in HEI will lead to the students' increased adaptive capacity, higher health resources, and improved skills of coping with the information stress and consequently to the productivity of the learning activity.

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