

STUDY OF PSYCHOLOGICAL STATUS OF TSU STUDENTS FROM EXERCISE THERAPY GROUP

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Introduction. In recent decades, Russia has seen a steady increase in the number of students suffering from serious health conditions. According to E.Yu. D'yakova et al., analysis of medical records of first-year students of TGU revealed that only 27% of students were declared absolutely healthy and assigned to a main medical group, all the others have poor health [2].

Emotional stress caused by disease, decreasing efficiency, reduced intellectual functions are largely aggravated by deficit of motor activity. In case of a chronic disease long exposure to adverse psychological effects of it can with a high degree of probability be manifested on a personal level [4].

The ascertaining research we carried out is a part of the experiment, the main hypothesis of which is the assumption that changes in the personality sphere of students with serious health conditions can be leveled with the help of specific forms of exercise therapy. At the same time the fact of restoration of personal health can be used as a criterion of effectiveness of exercise therapy methods.

The differences in the intensity and nature of exercises in this case were estimated as an independent variable, and the indicators of personal characteristics of students related to the sphere of mental health - as an independent variable.

Taking into account the possibility of dependence of psychological health indicators on the specifics of the disease, we introduced yet another independent variable which was designated as «specificity of a somatic disease».

Objective of the research was to identify psychological characteristics of students engaged in groups of exercise therapy.

Research method and organization. The research was conducted at the premises of Tomsk State University in two stages. The sample included first-year students. Two groups were formed. The reference group consisted of students from different departments exercising in compliance with the conditioning program (n1=216 persons), the study one - of students engaged in exercise therapy classes (n2=90 persons). In terms of somatic diseases the group was a mixed one (musculoskeletal disabilities, cardiovascular diseases, eye diseases, asthma, digestive diseases).

The first stage involved identification of differences in personality indicators of the reference and study groups. It was planned to assess the extent of dependence of the student's psychological status on the type of illness during the second stage. For this purpose the study group was divided into three subgroups. The first subgroup consisted of students with musculoskeletal diseases (40 persons), the second - of those with cardiovascular diseases (17 persons), the third - of students with digestive diseases, eye, kidney, respiratory diseases, etc (33 persons).

The method of psychological testing using the following psycho-diagnostic tools was employed in order to identify personal indicators of psychological health: constructive thinking inventory [3], viability test [5], «The level of subjective control» questionnaire [1].

The constructive thinking inventory (CTI) determines the level of constructive thinking in line with the theory of Seymour Epstein of the connection between well-developed constructive thinking and stress resilience. Good constructive thinking is defined as thinking that facilitates solving problems in life in accordance with the principle of achieving maximum results with minimum costs. Constructive thinking disorder presupposes its automation that helps achieve certain results dealing with routine issues at the cost of higher risk for stress for the subject and distress for others.

The constructive thinking inventory is represented by six main factors: emotional coping; behavioral coping; categorical thinking; esoteric thinking; naive optimism; and personal superstitious thinking. We also used the integral characteristic of the "global scale" (Global Constructive Thinking).

The viability test is D.A. Leontiev's adaptation of the Hardiness Survey developed by Salvatore Maddi, an American psychologist. Viability is a system of beliefs about oneself, the world, one's relationship with it, that enables a person to withstand and effectively cope with stressful situations. In the same situation a person with high viability is less exposed to stress and copes with it better. Viability includes three relatively independent components: involvement, control and risk-taking.

The «Level of subjective control» (LSC) questionnaire is aimed at identification of the characteristics of subjective control over basic life situations. The inclination of man to find the reasons of his actions in external circumstances or his own efforts is called locus of control and has two modalities - external and internal. For us this approach is important not only because it gives basis for the simple categorization of the sample - «externals» and «internals» and ensures the possibility to use a large volume

of factual material relating to the sphere of assessment of human health [8], also in terms of overcoming consequences of a disease [6]. In addition, we focused on the studies of the connection between subjective control and successful adaptation of university students [7].

Research results and discussion. The first stage of the research revealed that a number of personal indicators of students suffering from somatic diseases differ from those demonstrated by their peers from the reference group.

Differences in psychological tests results were identified using the Student t-test for comparison of the mean values of two independent samples. At the same time the hypothesis about the equality of variances was performed based on the Fisher's variance ratio test (Table 1).

Table 1. Results of verifying the hypothesis about the differences of mean values of CTI, LSC and viability test ($n_1 = 216$, $n_2 = 90$)

Scale / meaning	Mean 1	Mean 2	T	p	Std.de v 1	Std.de v 2	F-var	p-var
CTI/ global scale	94.25	100.3	-3.51	0.01	13.30	14.91	1.26	0.19
CTI/esoteric thinking	36.77	33.1	3.61	0.01	7.58	9.03	1.42	0.04
CTI/ behavioral coping	42.41	37.1	6.43	0.01	6.23	7.44	1.42	0.04
CTI/ categorical thinking	41.85	39.6	2.42	0.02	7.29	7.82	1.15	0.41
CTI/ naive optimism	42.02	40.2	2.14	0.03	7.05	6.78	1.08	0.68
CTI/ personal superstitious thinking	12.47	11.6	2.12	0.03	3.23	3.23	1.00	0.98
LSC/ general internality	18.94	26.2	-2.96	0.01	19.09	20.61	1.17	0.37
LSC/ success internality	5.99	8.6	-2.78	0.01	7.42	7.29	1.04	0.87
LSC/ failure internality	3.08	5.0	-2.07	0.04	7.02	8.31	1.41	0.05
LSC/ internality of working relations	3.34	7.6	-6.01	0.01	5.29	6.39	1.46	0.03
Viability - Risk-Taking Scale	14.53	16.5	-3.12	0.01	4.81	5.17	1.16	0.40

Note. Mean 1 – arithmetic mean for the first group (reference group); Mean 2 – arithmetic mean for the second group; T – t-test value; p – T significance level; Std.dev 1 – standard deviation for the first group (reference group); Std.dev 2 – standard deviation for the second group; F-var – the value of Fisher's variance ratio for establishing equality of variances; p-var - significance level of F-var.

The table does not contain the values of the scales of validity, defensiveness and social desirability of CTI, as they are designed to assess the psychometric properties of the test itself. The hypothesis of equality of variances was not confirmed in the case of the validity scale. The same applies to the «emotional coping», «esoteric thinking» and «behavioral coping» scales of the CTI technique as well as the scales « failure internality» and «internality of working relations» of the LSC technique and the control scale in the viability test.

In terms of these scales it was proved incorrect to use the t-test, so the differences were assessed using the Mann-Whitney U-test (Table 2).

For most of the scales of the constructive thinking inventory and the level of subjective control there is a significant difference between the indicators of the exercise therapy group and the reference group. The trend of the differences indicates a greater probability of coping with internal problems by the subjects in the exercise therapy group. This is confirmed by the test results of the LSC questionnaire.

Especially surprising is the lack of differences in the most interesting for us scale of this technique - «internality in health and disease». This may indicate the presence of protective mechanisms biasing differences into other areas where their appearance may be more productive - «internality in success and failure».

Table 2. Assessment of inter-group differences using the Mann-Whitney U-test ($n_1 = 216$, $n_2 = 90$)

Scale / meaning	U	p
CTI/esoteric thinking	7489	<0.002
CTI/behavioral coping	5660	<0.001
LSC / failure internality	6738	<0.001
LSC / internality of working relations	7946	<0.012

Note. U – value of the Mann-Whitney test; p – significance level.

As mentioned above, in terms of diagnosis, the study group (n_2) is not homogeneous. Therefore, during the second stage we assessed the probability of differences caused by specifics of diseases.

The following differences were revealed when comparing the indicators of the psychological status of the exercise therapy subgroup subjects: a reduction in the CTI scale «naive optimism» ($t=-2.35$; $p<0.022$) and an increase in the scale « health and disease internality» ($t=2.14$; $p<0.035$) in the first subgroup in comparison with those of the third subgroup.

Analysis of the viability test results revealed differences in the risk-taking scale only. Positive modality of this difference indicates a higher probability that students engaged in exercise therapy groups tend to make decisions that have ambiguous consequences. However, the ability to learn from overcoming failures proves to be a more valuable asset than avoiding risks.

Conclusions

The most significant result of the study is the possibility to note a significant number of differences in psychometric characteristics between the students of the reference group and that of exercise therapy. For example, significant differences were noted in the characteristics measured by the CTI scales and the questionnaire of the level of subjective control.

No significant differences were noted within the exercise therapy group in terms of the categorizing variable «somatic disease specifics».

Psychognostic techniques can be used not only to assess the severity of psychological issues associated with the presence of a disease, but also to assess personal potential of the exercise therapy group students in terms of resources to overcome the consequences of chronic diseases.

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Abstract

The article contains the results of the ascertaining study, aimed at identification of the psychological characteristics of students engaged in groups of exercise therapy.

It has been established that students with poor health differ greatly in psychometric characteristics from the group of students who do not have any problems with their health. These differences are most pronounced in the findings obtained by means of constructive thinking survey and level of subjective control tests. Exercise therapy group students need the educational process to be organized in a special form involving psychological methods.

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