

# INDIVIDUAL-PSYCHOLOGICAL AND PHYSIOLOGICAL MANIFESTATIONS OF MALADJUSTMENT TO EDUCATIONAL ACTIVITIES

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**Abstract:** In the course of work with the purpose of studying the psychophysiological features of adaptation disorders in students of medical University had conducted comprehensive psychodiagnostic and psychophysiological examination of 603 students of Kharkiv national medical University, of both sexes, aged between 17 and 24 years. As shown by the results of the evaluation of students' adaptation to educational activity and 4.5% of the surveyed students revealed a high level of maladjustment, 13.3% higher, at 36,2% - moderate in 20.2% - low level of maladjustment; 25.8% in the absence of signs of maladjustment. In the course of work systematizes the main manifestation of the states of maladjustment in medical students. Mental, manifested by deterioration of psychological well-being, growth, asthenia, anxiety and depressive disorders, decrease of activity, violation of interpersonal relations, increased intrapersonal conflicts. Psychophysiological, decreased mental performance, impaired memory, decrease in productivity of attention, fatigue, decreased speed of information processing, a greater period of sensorimotor reactions and a low level of coordination and significant deterioration of the described indicators is influenced by physical activity.

**KeyWords:** students, maladjustment, psychological state, physiological state.



## INTRODUCTION

The problem of the search of regularities and mechanisms of the students' adaptation to training in high school inevitably leads to the need for analysis of the whole complex of factors determining peculiarities of educational activity [1, 2, 3].

The relevance of the study of the disruption of adaptation process to educational activity is determined by the fact that the course of study is considered to be particularly strenuous and the learning process takes place in conditions of information and emotional stress, significant physical and mental stress. Deterioration of physical and mental health of students stated recently, reduction of stress and cognitive functions have become a subject that receives growing attention from researchers [4, 5, 6].

Student age is a special period in an individual' development in point of the "saturation crisis" (exam stress, age-related problems, awareness of the content of professional activities as self-realization and self-actualization, etc.), which is also rich in opportunities for the maximum development of one's abilities and potential [7, 8, 9].

An interest in activities was shown to be the basic psychological condition for implementation of personal development. Depending on how implemented potential psychological possibilities of man, his inclinations, interests determined by the professional level of specialists [10, 11, 12].

The students' adaptation to learning in higher education must be viewed as dynamic, multidimensional and integrated process skills meet those requirements that apply to the student during the period of training and education in high school [13, 14].

## 2 PURPOSES, SUBJECTS and METHODS:

### 2.1 Purpose

To study psychophysiological characteristics of adaptation disorders in students of Medical University.

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## 2.2 Subjects & Methods

### Study population

To address this goal in compliance with the principles of bioethics and deontology, we conducted a comprehensive survey of 603 students of Kharkiv National Medical University, of both genders, aged between 17 and 24 years.

During the study we used the following research methods: clinical history taking; psychodiagnosis using the questionnaire "Evaluation of occupational maladjustment" (Rodina, A. N., 1995, adaptation Dmitrieva M. A., 1997), Hamilton Depression Rating Scale (M. Hamilton, 1967), adapted to ICD-10 (G. P. Panteleyev, 1988) (HDRS); neuro-mental stress questionnaire (T. A. Nemchin, 1984), asthenic condition scale (L. M. Fushing and T. G. Malkova 1981), Zung Depression Self-rating Scale (adapted by T. N. Balashova, 1984); psychophysiological "Questionnaire to identify signs of vegetative changes" and "Study design for detecting signs of autonomic disorders" (A. M. Weiner, 1981). The study involved an assessment of the complex psycho-physiological parameters at rest and their changes occurring under the impact of pre-dosed physical loads. It included a quantitative assessment of visual memory, evaluation of attention span, the balance of processes of excitation and inhibition in the cerebral cortex (Korobchansky V. A., 2005), determination of time of simple sensorimotor (Schmidt, Thews.G., 1983); methods of mathematical statistics.

### Conflict of interests

There is no conflict of interests.

## 3 RESULTS AND DISCUSSION

The students' adaptation to learning in higher education must be viewed as dynamic, multidimensional and integrated process, with performance indices including the following: functional stability of the student's body (absence of severe disruptions of most physiological functions); absence of apparent signs of fatigue when carrying out training activities; absence of emotional problems;

educational success.

As shown by the results of the evaluation of the students' adaptation to educational activity with the questionnaire "Assessment of occupational maladjustment" (Rodina, A. N., 1995, adapted by Dmitrieva M. A., 1997) and 4.5% of the surveyed students demonstrated a high level of maladjustment requiring urgent measures (psychological and medical); 13.3% showed severe level of maladjustment, requiring mandatory rehabilitation program from psychologists; 36.2% revealed moderate level of distress, requiring consultations from specialists; 20.2% had low level of maladjustment; 25.8% had no signs of maladjustment.

Students with high, evident and moderate level of maladjustment were included into the first study group, students with low levels or absence of maladjustment signs were assigned to the second group.

Diagnostic examination of the first group students showed that 15.8% had clinical symptoms of anxiety (according to clinical scales of anxiety and depression), 16.3% had subclinical manifestations, as compared to 3.5% and 8.2% of the second group students, respectively. Clinical manifestations of depression were typical for 5.4% of the first group students and 2.1% of the second group students; subclinical symptoms of depression were detected in 20.1% and 9.5%, respectively.

The first group students had higher average levels of asthenic state according to L. M. Malkova and T. G. Chertova scale ( $54.12 \pm 1.98$ ,  $p < 0.05$ ), neuro-mental stress according to T. A. Nemca scale ( $48.38 \pm 1.79$ ,  $p < 0.05$ ) and gotm according to Zung scale ( $50.30 \pm 1.66$ ,  $p < 0.05$ ) as compared to the second group students who had the lowest results of  $41.97 \pm 1.73$ ,  $38.24 \pm 1.22$  and  $44.51 \pm 1.96$  ( $p < 0.05$ ), respectively.

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The results of objective study of the vegetative status of the students according to the method of A. M. Vein showed that the first group students mainly had autonomic disorders, cardiovascular and respiratory diseases as a single syndrome with psychovegetative disorders and high meteosensitivity as a consequence and manifestation.

Physiological studies revealed that the first group students had the worst performance concerning the majority of psychophysiological methods as compared to the students who adapted well.

This was manifested, in particular, in a smaller total volume of performing three-minute corectura samples made up  $615,93 \pm 10,37$  ( $p < 0.05$ ) character of the students of the first group and  $638,46 \pm 2.51$  ( $p < 0.05$ ) - in group II. Also, significant differences existed in the dynamics and quality of performance of the sample - patients in the first group showed less pronounced decrease in the volume of the sample in the third minute of the sample, higher precision and performance of its implementation. Under the influence of physical activity was significant deterioration in all indicators of attention to students of the first group (attention span decreased by 27.24%, accuracy - by 10.95%, productivity - by 37.22%, resistance - by 36.82%) compared to the significant improvement in the rate of the sample - the students of II group.

The time of simple sensorimotor reaction of the students of the second group was  $0.20 \pm 0.02$  ( $p < 0.05$ ), patients in the first group it was slower by 95% (to  $0.39 \pm 0.02$ ,  $p < 0.05$ ). Under the influence of physical activity was slight increase in the time of sensorimotor reactions from the students of the first group ( $0,31 \pm 0,03$   $p < 0,05$ ) and decrease in the second group ( $0,18 \pm 0,04$ ,  $p < 0,05$ ).

Conducting a sample coordination revealed significant differences between the different groups surveyed, the time during which surveyed the first group were able to maintain coordination in the course of the trial, amounted to  $18,33 \pm 2,61$ , examined the second cluster is within  $50,87 \pm 1,43$  ( $p < 0.05$ ). Under the influence of physical activity there was a reduction in the execution time of the samples, more pronounced in the examined first and second groups.

As shown by the results of the study the severity of the manifestations of maladjustment in the process of learning has certain gender differences: it is the students it connected with the manifestation of fatigue, increase of signs of insufficiency of cerebral circulation, increasing complaints about the state of the cardiovascular and nervous systems. From male students, this factor is less pronounced and is primarily a manifestation of general fatigue and increased signs of cerebrovascular insufficiency.

Thus the overall deterioration of self-rated health of female students is affected by insufficiency of cerebral circulation and the cardiovascular system, fatigue. In male students the process of adaptation is associated with increasing fatigue and deteriorating physical condition.

The emergence of non-adaptive state is accompanied by an increase and strengthening of the relationships between indicators of mental state, and their transformation is presented as a factor that weakens the maladjustment of students. In male students - changes in the indices of maladjustment is accompanied by complication of relations between them, the female students - a qualitative reorganization of the structure of relationships.

Revealed that men and women have the qualitative and quantitative differences in the relationship between emotional state and performance accuracy, and productivity of mental work.

For male students tend lack of relationship between accuracy of work performed and measures of emotional status, while among women this pattern is not observed. The accuracy of the performed mental work depends on self-esteem health and well-being. Performance, on the contrary essentially depends on increased activity and well-being of female students, in male students from the health, activity, anxiety, mood.

#### 4 CONCLUSIONS

Thus, the results of our study allowed us to characterize main manifestations of maladjustment states in medical students.

Mental problems are manifested by deterioration of psychological well-being, growth, asthenia, anxiety and

depressive disorders, decrease of activity, violation of interpersonal relations, increased intrapersonal conflicts.

Psychophysiological, decreased mental performance, impaired memory, decrease in productivity of attention, fatigue, decreased speed of information processing, greater period of sensorimotor reactions and a low level of coordination and significant deterioration of the described indices is influenced by physical activity.

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