

# The Relationship Between Personal And Motivational Characteristics And The Success Of First-Year Medical University Students Teaching

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## Abstract

**Background.** Among the urgent problems facing higher education today, special attention is paid to the problem of successful mastering by students of the chosen specialties, which is impossible without proper adaptation to the conditions of the new social environment.

**Objective.** The purpose of the work was to study the personal and social motives, the peculiarities of the adaptation processes of first-year medical university students and their connection with the form of recruitment and the order of admission to study, academic performance and expulsion.

**Methods.** The paper uses the method of psychometric research (through anonymous testing), which includes methods for diagnosing personal adaptive potential (behavioral regulation, communicative potential, moral normativity) and assessing personal and social motives for learning (the need for external stimulation, the level of subjective control). The personal and social motives for learning, personal adaptive potential of 198 first-year students of Sechenov University (Moscow, Russian Federation) were investigated. The results were processed using the hardware-software psychodiagnostic complex "Multipsychometer".

**Findings.** The conducted research has shown a direct, statistically significant correlation between personal and social motives for learning and the level of personal adaptive potential of students with the success of their studies, depending on the form of recruitment and the order of admission to the university, which is essential for the prognosis of the development of medical specialties. Thus, integral indicators on the scales of questionnaires of students studying at the expense of budgetary allocations allowed them to be attributed to a group with more effective adaptive capabilities. At the same time, their academic performance was 7% higher compared to students of other comparison groups. Integral psychometric indicators of students who signed a contract for tuition on a paid basis were on average 10% lower than those of other comparison groups, which indicates less effective adaptive capabilities.

At the same time, students in this group were 7% more predisposed to conflict initiation, delinquent behavior and had significantly lower academic performance. In addition, more than 50% of students who were expelled for two years of study at the university studied under a contract on a fee basis.

**Conclusions.** The generalized Russian and foreign experience, as well as the results obtained in the course of this study, are the methodological basis for the development of psychodiagnostic tools used in additional entrance tests of medical university applicants in order to identify and then possible correction of personality qualities and properties, forecasting and forming an individual educational trajectory and improving the work of all participants in the educational process.

**Keywords:** learning success; personal and motivational characteristics; adaptation; personal adaptive potential; expulsion; forms of recruitment; students

## Introduction

The process of modernization of higher education in Russia is conditioned by intensive changes taking place in all spheres of socio-economic life. In the current conditions, educational institutions of higher education face the task of providing training of highly qualified specialists capable of professional growth and professional mobility in constantly changing living conditions, which requires proper personal and motivational qualities of all participants in the educational process [1].

Training in medical specialties differs significantly from other areas of training, therefore, the problem of adaptation of students, especially in the first year of study, can also have significant features and affect academic performance in disciplines. The adaptation of a person to changing living conditions and professional activity leaves an imprint on both the general psychophysiological state and the ability to perform certain tasks. The process of their personal growth and professional formation depends on the process of adaptation of school graduates to a new way of life and activity for them [2].

The first year of the university becomes the starting point for students in terms of their adaptation to a new environment of activity in all respects. In the first year of study, it is important for students to integrate into a fundamentally new educational process. The student's ability to adapt determines the success of the formation of the educational trajectory and the quality of the education received. At the same time, do not forget that university students are the "products" of many years of complex

interactions with the outside world (family relationships and parents' education, the social environment in general, the educational environment, etc.). The life and educational background with which they come to universities is a significant factor in adaptation and academic performance [3].

In the first years of study, students have certain difficulties with adaptation, which is due to the influence of several groups of factors [4, 5, 6]:

- the first group is represented by factors that reflect the level of preparation of students for academic activities: the volume and level of basic knowledge; professional orientation and need for educational activities; integration into the social life of the university; coincidence or discrepancy of personal values and values of the university community;

- the second group combines psychological factors that characterize the development of individual adaptation characteristics (levels of legal awareness, social and moral maturity) and individual-personal characteristics of the development of mental processes (levels of anxiety, internality, self-organization, socialization, risk-taking, etc.).

- the third group includes factors that have a pedagogical impact on the adaptation process: the presence of the institute of supervision, theoretical and methodological training of teachers, pedagogical and psychological monitoring of the educational process, a personal approach to the student, regardless of academic performance.

Thus, the impact of a complex of psychological and social factors determines the

vector of student adaptation in the first years of study and its integration into the educational process, which is necessary for the successful development of the profession.

### Literature Review

There has recently been a significant evolution in the trends of studying adaptive potential as a set of personal characteristics and properties, on which the student's ability to cope with problematic situations depends, actively seek a way out of them, thereby acquiring new qualities that allow him to become a full-fledged and full-fledged member of society [7]. More and more researchers are turning to the problem of general adaptation "to life". At the same time, individual ways, styles and strategies of personality behavior are analyzed not only in difficult extreme situations, but also in everyday life [6]. In foreign literature, much attention is paid to the influence of personal adaptive potential on the effectiveness of adaptation and socialization [8]. Scientists analyzed coping strategies of behavior, adaptive personal resources, and the possibilities of adaptation of students [9]. A number of researchers have studied the peculiarities of the influence of value orientations and adaptive abilities on the success of socio-cultural adaptation of students [10]. Much attention is devoted to the problems of adaptation of foreign students [11, 12]. A number of foreign studies are devoted to the problems of adaptation of medical students to practical classes using preparations of human and animal corpses, as well as problems of their relationships with teachers [13, 14] and depression among medical students [15] with a description of the mechanisms of their overcoming, both on the part of the university and on the part of students [16].

In recent years, the results of a number of cohort studies have been published, which compared the effectiveness of additional psychological testing in the selection of candidates, an analysis of the rating and average grades for admission to medical faculties of European universities, followed by observation of groups during training [17, 18].

Also, higher academic performance of

medical students studying under the bachelor's degree program and who voluntarily passed the psychological testing procedure was demonstrated by research at the University of the Netherlands. However, there was no correlation with the level of deduction of such persons [19]. Also, individual psychological factor analysis was carried out for medical students of two universities in the Netherlands, which, according to the researchers, made it possible to identify groups of students for future specialization and, as a result, the correct career orientation [20]. Similar studies were conducted in Saudi Arabia and were devoted to predictors of the choice of specialization in psychiatry in this region [21].

Since 2018, the issue of strengthening psychosocial criteria in the selection of candidates for admission to medical schools has been discussed in Germany. The average score, being the best indicator of the effectiveness of training, is increasingly being criticized due to the growing number of applicants with higher grades [22, 23].

In addition, in recent years, due to the Covid-19 pandemic, many students, both abroad and in Russia, have faced additional stress due to the revision of forms of study at universities and other restrictions related to isolation and the inability to return to their homeland or to come to the place of study [24, 25].

Thus, the problem of the influence of the level of development of adaptive potential and personal psychological characteristics of students on the success of their adaptation in medical educational organizations and the effectiveness of the development of educational programs is very relevant.

### Objective

The study of personal and social motives, peculiarities of adaptation processes in first-year medical university students and their relationship with the form of recruitment and the order of admission to study, academic performance and expulsion.

### Materials and methods

To achieve the work goal, a group of

researchers from Sechenov University from 2019 to 2021 investigated the personal and social motives for studying 198 first-year students of Sechenov University (Moscow, Russian Federation): among them 122 girls and 76 boys (61.6% and 38.4%, respectively). The age of the respondents ranged from 18 to 24 years, the average age was 19.8 years. The study was conducted in the first year of study at a medical university, which is connected with the peculiarities of students' adaptation to new

conditions.

The students were divided into 4 groups, depending on the form of recruitment and the order of admission to the university (Table 1): students studying at the expense of budget allocations (Budget); students studying on the basis of a contract on targeted training (Target); mastering the military training program (Military); those who signed a contract on tuition on a fee basis (Paid).

**Table 1. Distribution of students by groups depending on the form of admission to a medical university**

Group No.	Groups of students according to the form of recruitment	Sex		Total number of students in group (N)
		Male	Female	
1	Budget	6	31	37
2	Target	11	29	40
3	Military	46	18	64
4	Paid	13	44	57
Total		76	122	198

Provided that studying at a medical university has significant features, it can be assumed that the personal and motivational qualities of each student (value orientations, beliefs, stereotypes, attitudes, motives) are important for the successful development of educational programs. Therefore, it seemed appropriate to evaluate the complex of personal and motivational characteristics of students as a marker of the success of mastering the medical profession. The study was conducted by anonymous questionnaire, and the results were processed using the hardware-software psychodiagnostic complex "Multipsychometer". All students signed an informed voluntary consent to participate in the study. The study was approved by the Local Ethics Committee of Sechenov University.

The following psychodiagnostic techniques were used in the study to analyze personal and social motives for learning, the course of adaptation processes in first-year medical university students [26, 27]:

Questionnaire "The need for external stimulation – 1". The need for external stimulation as a property refers to the tendency

to look for relatively new and stimulating situations and explore them. This technique makes it possible to identify persons predisposed to conflict initiation and delinquent behavior. The interpretation of the questionnaire assumes the presence and use of five subscales: the search for thrills (ST), intolerance to routine (IRT), the search for novelty (SN), the desire for difficulties (ST), the need for stimulation (NS). Abbreviations of the names of the scales are used in Table 2.

The questionnaire "Locus of Control – 2" is a technique for identifying generalized localization of personality control, that is, a person's beliefs about where the forces that influence, control and control what is happening in his fate are located. The interpretation of the questionnaire was presented by the following scales: general internality (GI), internality in professional activity (IPA), internality in interpersonal communication (IM), readiness for activity (RA), internality in family relations (IFR), internality of health (IH), internality of achievements (IA), internality of failures (IFS). Abbreviations of the scale names are used in

Table 3.

Questionnaire “MMRI – derivatives-4”. The multilevel personality questionnaire “Adaptability” by A.G. Maklakov and S.V. Chernyanin is designed to study the adaptive capabilities of an individual based on the assessment of some psychophysiological and socio-psychological characteristics of the individual. It is used to solve the problems of professional psychological selection and psychological support of professional activity. The interpretation of the questionnaire was presented by the following scales: personal adaptive potential (PAP), behavioral regulation (BR), communicative potential (CP), moral normativity (MN), social desirability (SDes), atypical responses (AT). Abbreviations of the scale names are used in Table 4.

To study the success of students' studies at the university, attendance, academic performance and deductions were monitored. The database of administrative data of the university “Electronic Dean's Office” was used as a source of information for analysis. The attendance of all forms of classes by students was taken into account during the first two years of study by keeping logs of classes in electronic form. An indicator such as the percentage of classes attended by students was evaluated, followed by a comparison between groups.

Academic performance was analyzed based on the results of mastering disciplines in the form of tests and exams, including centralized testing in subjects for two years of study. The academic performance indicator was expressed by an average score on a 100-point scale and was compared in groups of subjects.

The expulsion of students was studied for two years of study at the university. Moreover, only deductions for academic failure were taken into account, without taking into account transfers to other areas of training or going on academic leave.

Statistical analysis of quantitative variables was based on the calculation of the

arithmetic mean ( $\bar{x}$ ) and included calculations of mathematical expectation, standard error, standard deviation (SD), median, coefficient of asymmetry. To test the hypothesis of a normal population from which the registered samples were extracted, the asymmetry coefficient was used [28].

The studied groups were compared in pairs. To prove the reliability of the difference of certain values in the comparison groups, the Student's criterion with probability ( $p$ ) was used, characterizing the difference in the sample indicators of independent small samples and allowing, taking into account them, to assess the discrepancy between the values of the general parameters of the population, which were the basis of the research results. The differences were considered statistically significant at  $p < 0.05$ .

The material is presented with categorical data in the form of tables with a description of the studied parameters according to the main indicators of the assessments of the scales of questionnaires.

## Results

The results of the study showed a direct, statistically significant correlation between the level of personal adaptive potential, personal and social motives of students with the success of their studies, which is essential for predicting the possibility of successful development of medical specialties. Thus, the integral estimates of the questionnaire “The need for external stimulation – 1” in the group of students at the expense of budgetary allocations amounted to  $5.4 \pm 1.8$ , and in the group of students who signed a contract for tuition on a fee basis –  $6.1 \pm 1.1$ . These differences were statistically significant ( $p < 0.05$ ) and indicate a more pronounced predisposition to delinquent behavior and initiation of conflicts in the group of students who signed a contract for tuition on a fee basis (Table 2).

Table 2. The results of the evaluation of the questionnaire “The need for external stimulation – 1”

Scales	Indicators	Comparison groups					
		1	2	3	4	5	6

		State-funded	Paid (N=57)	State-funded	Military (N=64)	State-funded	Targeted (N=40)	Paid (N=57)	Military (N=64)	Paid (N=57)	Targeted (N=40)	Military (N=64)	Targeted (N=40)
ST	$\bar{x} \pm SD$	5,6 $\pm$ 2,6	6,2 $\pm$ 2,6	5,6 $\pm$ 2,6	6,1 $\pm$ 2,3	5,6 $\pm$ 2,6	6,5 $\pm$ 2,2	6,2 $\pm$ 2,6	6,1 $\pm$ 2,3	6,2 $\pm$ 2,6	6,5 $\pm$ 2,2	6,1 $\pm$ 2,3	6,5 $\pm$ 2,2
	p	0,2746		0,2936		0,0804		0,8570		0,4825		0,3383	
IRT	$\bar{x} \pm SD$	4,7 $\pm$ 1,8	5,1 $\pm$ 1,6	4,7 $\pm$ 1,8	5,0 $\pm$ 1,4	4,7 $\pm$ 1,8	5,0 $\pm$ 1,3	5,1 $\pm$ 1,6	5,0 $\pm$ 1,4	5,1 $\pm$ 1,6	5,0 $\pm$ 1,3	5,0 $\pm$ 1,4	5,0 $\pm$ 1,3
	p	0,3541		0,3559		0,4064		0,93763		0,9270		0,9823	
SN	$\bar{x} \pm SD$	4,6 $\pm$ 1,8	5,0 $\pm$ 1,9	4,6 $\pm$ 1,8	4,5 $\pm$ 1,6	4,6 $\pm$ 1,8	4,9 $\pm$ 1,9	5,0 $\pm$ 1,9	4,5 $\pm$ 1,6	5,0 $\pm$ 1,9	4,9 $\pm$ 1,9	4,5 $\pm$ 1,6	4,9 $\pm$ 1,9
	p	0,2756		0,8459		0,3680		0,1181		0,8983		0,1944	
ST	$\bar{x} \pm SD$	5,7 $\pm$ 2,5	5,4 $\pm$ 1,9	5,7 $\pm$ 2,5	5,5 $\pm$ 1,6	5,7 $\pm$ 2,5	5,5 $\pm$ 2,3	5,4 $\pm$ 1,9	5,5 $\pm$ 1,6	5,4 $\pm$ 1,9	5,5 $\pm$ 2,3	5,5 $\pm$ 1,6	5,5 $\pm$ 2,3
	p	0,5650		0,5886		0,7630		0,8866		0,8205		0,8896	
NS	$\bar{x} \pm SD$	20,7 $\pm$ 5,9	21,4 $\pm$ 5,1	20,7 $\pm$ 5,9	20,6 $\pm$ 4,7	20,7 $\pm$ 5,9	21,7 $\pm$ 4,8	21,4 $\pm$ 5,1	20,6 $\pm$ 4,7	21,4 $\pm$ 5,1	21,7 $\pm$ 4,8	20,6 $\pm$ 4,7	21,7 $\pm$ 4,8
	p	0,5206		0,9299		0,4146		0,3515		0,7994		0,2532	
Total	$\bar{x} \pm SD$	5,4 $\pm$ 1,8	6,1 $\pm$ 1,1	5,4 $\pm$ 1,2	5,8 $\pm$ 1,1	5,4 $\pm$ 1,2	5,7 $\pm$ 0,9	6,1 $\pm$ 1,1	5,8 $\pm$ 1,1	6,1 $\pm$ 1,1	5,7 $\pm$ 0,9	5,8 $\pm$ 1,1	5,7 $\pm$ 0,9
	p	0,0130		0,0760		0,3087		0,3078		0,0852		0,4087	

At the same time, analyzing the results for each of the questionnaire scales separately, there were no statistically significant differences between the comparison groups ( $p > 0.05$ ), which indicates that all students, regardless of the forms of recruitment and the order of admission to the university, have the same need for new and complex sensations and experiences and readiness to accept physical and social risk for the sake of such experiences, that is, equally predisposed to the initiation of conflicts and delinquent behavior.

Nevertheless, the most significant differences were observed between groups of students at the expense of budgetary allocations and under contracts for targeted training on the search for thrills scale (ST). Thus, a more pronounced predisposition to conflict initiation and delinquent behavior was observed in

students under a target training agreement, but these differences were not statistically significant ( $p > 0.05$ ).

Thus, medical university students are equally inclined to search for relatively new, stimulating situations, their research and overcoming difficulties, which is most likely due to their personal qualities and motivation aimed at mastering medical specialties. Nevertheless, a group of students who have signed a contract for tuition on a fee basis is more predisposed to delinquent behavior and initiation of conflicts.

In the study of generalized localization of personality control using the questionnaire "Locus of control – 2", statistically significant differences were observed between different groups of students (Table 3).

**Table 3. Results of the evaluation of the questionnaire "Locus of control – 2"**

Scales	Indicators	Comparison groups					
		1	2	3	4	5	6

		State-funded	Paid (N=57)	State-funded	Military (N=64)	State-funded	Targeted (N=40)	Paid (N=57)	Military (N=64)	Paid (N=57)	Targeted (N=40)	Military (N=64)	Targeted (N=40)
GI	$\bar{x} \pm SD$	26,8 $\pm$ 4,2	24,2 $\pm$ 4,3	26,8 $\pm$ 4,2	28,3 $\pm$ 5,4	26,8 $\pm$ 4,2	25,6 $\pm$ 6,3	24,2 $\pm$ 4,3	28,3 $\pm$ 5,4	24,2 $\pm$ 4,3	25,6 $\pm$ 6,3	28,3 $\pm$ 5,4	25,6 $\pm$ 6,3
	p	0,0059		0,1504		0,3303		0,0001		0,2113		0,0217	
IPA	$\bar{x} \pm SD$	11,4 $\pm$ 2,6	10,3 $\pm$ 2,4	11,4 $\pm$ 2,6	11,9 $\pm$ 2,9	11,4 $\pm$ 2,6	10,6 $\pm$ 2,6	10,3 $\pm$ 2,4	11,9 $\pm$ 2,9	10,3 $\pm$ 2,4	10,6 $\pm$ 2,6	11,9 $\pm$ 2,9	10,6 $\pm$ 2,6
	p	0,0356		0,3793		0,1819		0,0012		0,5506		0,02238	
IM	$\bar{x} \pm SD$	9,8 $\pm$ 5	9,2 $\pm$ 4	9,8 $\pm$ 5	10,6 $\pm$ 2,2	9,8 $\pm$ 5	9,7 $\pm$ 6	9,2 $\pm$ 4	10,6 $\pm$ 2,2	9,2 $\pm$ 4	9,7 $\pm$ 6	10,6 $\pm$ 2,2	9,7 $\pm$ 6
	p	0,1963		0,1037		0,8117		0,0008		0,3011		0,0556	
RA	$\bar{x} \pm SD$	11,5 $\pm$ 2,6	9,7 $\pm$ 5	11,5 $\pm$ 2,6	11,9 $\pm$ 2,6	11,5 $\pm$ 2,6	10,6 $\pm$ 2,9	9,7 $\pm$ 5	11,9 $\pm$ 2,6	9,7 $\pm$ 5	10,6 $\pm$ 2,9	11,9 $\pm$ 2,6	10,6 $\pm$ 2,9
	p	0,0023		0,4050		0,1941		0,0001		0,1237		0,0216	
IFR	$\bar{x} \pm SD$	4,0 $\pm$ 3	4,1 $\pm$ 6	4,0 $\pm$ 3	4,7 $\pm$ 4	4,0 $\pm$ 3	4,2 $\pm$ 6	4,1 $\pm$ 6	4,7 $\pm$ 4	4,1 $\pm$ 6	4,2 $\pm$ 6	4,7 $\pm$ 4	4,2 $\pm$ 6
	p	0,7749		0,0150		0,5028		0,0256		0,6784		0,1128	
IH	$\bar{x} \pm SD$	5,6 $\pm$ 9	4,8 $\pm$ 5	5,6 $\pm$ 9	5,7 $\pm$ 5	5,6 $\pm$ 9	5,2 $\pm$ 7	4,8 $\pm$ 5	5,7 $\pm$ 5	4,8 $\pm$ 5	5,2 $\pm$ 7	5,7 $\pm$ 5	5,2 $\pm$ 7
	p	0,0048		0,6335		0,2949		0,0012		0,1746		0,1526	
IA	$\bar{x} \pm SD$	5,8 $\pm$ 6	5,1 $\pm$ 4	5,8 $\pm$ 6	6,2 $\pm$ 4	5,8 $\pm$ 6	5,5 $\pm$ 9	5,1 $\pm$ 4	6,2 $\pm$ 4	5,1 $\pm$ 4	5,5 $\pm$ 9	6,2 $\pm$ 4	5,5 $\pm$ 9
	p	0,0467		0,1635		0,5739		0,0001		0,2519		0,0515	
IFS	$\bar{x} \pm SD$	5,1 $\pm$ 6	5,1 $\pm$ 5	5,1 $\pm$ 6	5,7 $\pm$ 5	5,1 $\pm$ 6	4,9 $\pm$ 4	5,1 $\pm$ 5	5,7 $\pm$ 5	5,1 $\pm$ 5	4,9 $\pm$ 4	5,7 $\pm$ 5	4,9 $\pm$ 4
	p	0,9578		0,0328		0,7070		0,0164		0,6310		0,0069	
Total	$\bar{x} \pm SD$	5,0 $\pm$ 1	4,5 $\pm$ 9	5,0 $\pm$ 1	5,4 $\pm$ 3	5,0 $\pm$ 1	4,8 $\pm$ 4	4,5 $\pm$ 9	5,4 $\pm$ 3	4,5 $\pm$ 9	4,8 $\pm$ 4	5,4 $\pm$ 3	4,8 $\pm$ 4
	p	0,0123		0,1818		0,4754		0,0001		0,1742		0,0492	

Thus, a group of students at the expense of budgetary allocations had higher indicators on the scale of general internality (GI) than students who signed a contract for tuition on a fee basis ( $p < 0.05$ ). At the same time, the indicators of the general internality of students mastering the military training program were higher than in all other groups, but statistically significantly higher than the indicators of students studying under a contract for targeted training and students who signed a contract for tuition on a fee basis ( $p < 0.05$ ). The results obtained indicate a more pronounced self-confidence and self-responsibility for what is happening in life and to a lesser extent the dependence of fate on external factors among students mastering the military training

program and students studying at the expense of budgetary allocations. In the group of students who signed a contract for tuition on a paid basis, the indicator on the scale was the lowest, which indicates a more pronounced external locus of control – externality, which indicates the inability of a person to influence his own fate and rely more often on chance.

Similar results were revealed when assessing on the scales of internality in professional activity (IPA) and readiness for activity (RA), where the indicators of students mastering the military training program were also higher than in all other groups, but statistically reliable only in comparison with students studying under a contract on targeted training and students, signed a contract for

tuition on a paid basis ( $p < 0.05$ ). At the same time, the group of students studying at the expense of budgetary allocations also had statistically significant higher indicators on these scales than students who signed a contract for tuition on a fee basis ( $p < 0.05$ ). The results obtained indicate a higher internality of students mastering the military training program and students studying at the expense of budgetary allocations in academic and professional activity, as well as high adaptability, self-confidence and perseverance in achieving goals in comparison with other groups.

The lowest indicators on the scales of internality in professional activity (IPA) and readiness for activity (RA) were observed in a group of students who signed a contract for tuition on a fee basis, which characterizes their low adaptability, self-doubt, difficulty in assuming any responsibility, denial of the meaning of any activity aimed at to achieve life goals, explaining everything by the laws of the world order.

The assessment on the internality scale in interpersonal communication (IM) revealed a statistically significant high value of this indicator in the group of students mastering the military training program, in comparison with students who signed a contract for tuition on a fee basis ( $p < 0.05$ ). This indicates the significant role of respondents mastering the military training program in their relationships with loved ones and unfamiliar people around them. The low indicator of the scale for students who have signed a contract for tuition on a paid basis characterizes a person who is dependent on others and is unable to change the nature of his communication with them.

The indicators of the internality scale in the field of family relations (IFR) in the group of students mastering the military training program were higher and statistically significantly differed from the indicators of the groups of students studying at the expense of budgetary allocations and students who signed a contract for tuition on a fee basis ( $p < 0.05$ ), which can directly or indirectly characterize human behavior in the sphere of family and marital relations.

The results of the assessment on the

scales of internality in relation to health (IH) and internality in the field of achievements (IA) revealed a statistically significant decrease in the indicators in the group of students who signed a contract for tuition on a fee basis in comparison with the groups of students studying at the expense of budgetary allocations and students mastering the military training program ( $p < 0.05$ ). This indicates the inability of students who have signed a contract for tuition on a fee basis to significantly affect the success of their own lives and activities, as well as to maintain their own health, believing that the disease is the result of chance. Students studying at the expense of budgetary allocations, and students mastering the military training program, on the contrary, considered themselves largely responsible for their health, and also considered themselves the cause of their own achievements and positive results in the future.

The indicators of the internality scale in the field of failures (IFS) were statistically significantly higher among students mastering the military training program compared to the indicators of the other groups ( $p < 0.05$ ), which indicates greater responsibility of students for those failures that have already occurred or may still occur in life. In the remaining groups, these indicators characterized the tendency to see their non-involvement in accomplished or possible failures in life, explaining their failure by the participation of external factors.

Thus, analyzing the integral estimates of the questionnaire "Locus of Control – 2", it was revealed that the highest rates of internality were observed in groups of students mastering the military training program and students studying at the expense of budgetary allocations, which amounted to  $5.4 \pm 1.3$  and  $5.0 \pm 1.1$ , respectively. This characterizes their self-confidence and a higher level of development of self-regulation of vital activity. Low indicators of internality, that is, close to externality, were observed in the group of students who signed a contract for tuition on a paid basis and in students studying under a contract for targeted training, which amounted to  $4.5 \pm 0.9$  and  $4.8 \pm 1.4$ , respectively. This



indicates their lack of independence in solving various kinds of life tasks and greater need for psychological and any other support.

When studying the process of active adaptation of an individual to the conditions of

the social environment and new conditions of professional activity, using the questionnaire “MMRI – derivatives-4”, the results were obtained that showed statistically significant differences in the comparison groups (Table 4).

**Table 4. The results of the assessment of the questionnaire “Personal adaptive potential”**

Scales of the questionnaire	Indicator	Comparison groups											
		1		2		3		4		5		6	
		State-funded	Paid (N=57)	State-funded	Military (N=64)	State-funded	Targeted (N=40)	Paid (N=57)	Military (N=64)	Paid (N=57)	Targeted (N=40)	Military (N=64)	Targeted (N=40)
PAP	x±SD	97,6±14,8	91,6±20,4	97,6±14,8	116,4±20,7	97,6±14,8	99,3±15,6	91,6±20,4	116,4±20,7	91,6±20,4	99,3±15,6	116,4±20,7	99,3±15,6
	p	0,1264		0,0001		0,6315		0,0001		0,0484		0,0001	
BR	x±SD	64,3±10,9	60,4±16,1	64,3±10,9	77,8±14,5	64,3±10,9	65,9±13,3	60,4±16,1	77,8±14,5	60,4±16,1	65,9±13,3	77,8±14,5	65,9±13,3
	p	0,201379		0,000003		0,560948		0,000001		0,078279		0,000055	
CP	x±SD	17,4±4,5	16,5±4,9	17,4±4,5	21,7±4,4	17,4±4,5	17,5±4,3	16,5±4,9	21,7±4,4	16,5±4,9	17,5±4,3	21,7±4,4	17,5±4,3
	p	0,4078		0,0001		0,8834		0,0001		0,3115		0,0001	
MN	x±SD	16,0±3,2	14,7±2,9	16,0±3,2	16,9±3,3	16,0±3,2	15,9±2,3	14,7±2,9	16,9±3,3	14,7±2,9	15,9±2,3	16,9±3,3	15,9±2,3
	p	0,0525		0,1691		0,8759		0,0002		0,0383		0,0853	
SDes	x±SD	2,8±1,6	3,3±2,3	2,8±1,6	4,4±3,1	2,8±1,6	3,0±2,1	3,3±2,3	4,4±3,1	3,3±2,3	3,0±2,1	4,4±3,1	3,0±2,1
	p	0,2280		0,0033		0,6096		0,0287		0,4940		0,0111	
ATR	x±SD	2,8±2,3	4,9±4,7	2,8±2,3	2,4±4,1	2,8±2,3	2,5±2,6	4,9±4,7	2,4±4,1	4,9±4,7	2,5±2,6	2,4±4,1	2,5±2,6
	p	0,0151		0,6001		0,6411		0,0029		0,0056		0,8610	
Total	x±SD	4,5±0,9	4,1±1,1	4,5±0,9	5,8±1,7	4,5±0,9	4,6±0,9	4,1±1,1	5,8±1,7	4,1±1,1	4,6±0,9	5,8±1,7	4,6±0,9
	p	0,0784		0,0001		0,5063		0,0001		0,0143		0,0001	

The indicators of students mastering the military training program on the scale – personal adaptive potential (PAW) amounted to  $116.4 \pm 20.7$  and were statistically significantly higher compared to the indicators of the other groups ( $p < 0.05$ ), which indicates more effective adaptive capabilities of students in this group. At the same time, the indicators of students studying under a contract for targeted training amounted to  $99.3 \pm 15.6$  and were statistically significantly higher ( $p < 0.05$ ) than the indicators of students who signed a contract for tuition on a paid basis, which amounted to  $91.6 \pm 20.4$ .

The indicators of the scales behavioral

regulation (BR), communicative potential (CP) and social desirability (SDes) were statistically significantly higher among students mastering the military training program compared to the indicators of the other groups ( $p < 0.05$ ), which indicates their greater ability to adequately perceive themselves and their social connections, as well as measure your needs with the available opportunities and be aware of the motives of your behavior. In the remaining groups, these indicators characterized an insufficiently developed idea of one's own personality, which may be accompanied by increased conflict, misunderstanding of one's

social role, and decreased performance.

Assessments on the moral normativity (MN) scale revealed a significant decrease in these indicators among students who signed a contract for tuition on a fee basis compared to other groups of students, and these differences were statistically significant only in comparison with a group of students mastering a military training program and students studying under a contract for targeted training ( $p < 0.05$ ). The results obtained indicate a possible insufficient compliance of the value orientations of students who have concluded a contract for tuition on a fee basis with generally accepted moral norms.

Analyzing the respondents' responses on the atypical responses scale (ATR), a non-cooperative attitude to the survey was revealed on the part of the test students who signed a

contract for tuition on a fee basis, which was characterized by statistically significantly high indicators on this scale in comparison with the other groups ( $p < 0.05$ ).

The integral indicator of the questionnaire in the group of students who signed a contract for tuition on a fee basis was  $4.1 \pm 1.1$ , which indicates their insufficient ability to adapt. At the same time, students mastering the military training program, this indicator was high and amounted to  $5.8 \pm 1.7$ , which characterizes the high efficiency of their socio-psychological adaptation.

An analysis of the attendance of all forms of classes (AcP) by students for 2 years of study and academic performance calculated on the basis of an average score on a 100-point scale (AVS) is given in Table 5.

**Table 5. Results of class attendance and student performance**

Attendance and academic	Indicator	Comparison groups											
		1		2		3		4		5		6	
		State-funded	Paid (N=46)	State-funded	Military (N=62)	State-funded	Targeted (n=37)	Paid (N=46)	Military (N=62)	Paid (N=46)	Targeted (n=37)	Military (N=62)	Targeted (n=37)
AcP	x±S	96,3±	95,5±	96,3±	93,2±	96,3±	96,0±	95,5±	93,2±	95,5±	96,0±	93,2±	96,0±
	D	3,4	4,2	3,4	4,8	3,4	3,7	4,2	4,8	4,2	3,7	4,8	3,7
	p	0,3467		0,0009		0,6995		0,0101		0,5751		0,0027	
AVS	x±S	93,9±	86,6±	93,9±	86,7±	93,9±	90,4±	86,6±	86,7±	86,6±	90,4±	86,7±	90,4±
	D	7,3	8,5	7,3	8,4	7,3	9,6	8,5	8,4	8,5	9,6	8,4	9,6
	p	0,0001		0,0001		0,0821		0,9640		0,0591		0,0466	

The attendance rate had low values among students mastering the military training program, compared with other groups of subjects ( $p < 0.05$ ). In other cases, there were no statistically significant differences between the comparison groups ( $p > 0.05$ ).

Academic performance was higher among students studying at the expense of budgetary allocations, compared with students of other groups, the average score in this group was  $93.9 \pm 7.3$ . Moreover, these differences were statistically significant ( $p < 0.05$ ) in comparison with students who signed a contract for tuition on a paid basis and students mastering a military training program, who had average scores of  $86.6 \pm 8.5$  and  $86.7 \pm 8.4$ , respectively.

The average score of students studying under a contract for targeted training was  $90.4 \pm 9.6$  and was statistically significantly higher than that of students mastering a military training program ( $p < 0.05$ ), and also higher than that of students who signed a contract for tuition on a fee basis, but in the latter case these differences were not statistically significant ( $p > 0.05$ ).

Analyzing the number of students expelled during two years of study from all study groups, it was revealed that their number was 18 people. Moreover, 11 of them were trained under a contract on a paid basis, 3 – on the basis of a contract on targeted training, 2 – mastered the military training program and 2

were trained at the expense of budget allocations.

Students who signed a contract to study on a paid basis, who were expelled from the university, had indicators of personal and motivational characteristics according to the scales of the questionnaires “Locus of Control - 2” and “MMRI – derivatives-4” significantly lower than the average indicators in the group, which indicates their low personal adaptive potential.

### Discussion

The conducted study of the features of personal and motivational characteristics of first-year medical university students revealed statistically significant differences in the obtained indicators in the comparison groups, depending on the form of recruitment and the order of admission, which significantly affected the success of the development of educational programs and the expulsion of students in the study groups. In addition, the indicators of psychometric research methods allow us to judge the peculiarities of the course of adaptation processes in students of the studied groups and attribute them to different groups according to the effectiveness of adaptive capabilities.

Thus, the performance indicators of students studying at the expense of budgetary allocations were on average 7% higher compared to students of other comparison groups, and integral indicators on the scales of questionnaires of students of this group allow them to be attributed to groups with more effective adaptive capabilities.

Students mastering the military training program, although they had indicators of the level of self-regulation and the effectiveness of socio-psychological adaptation more than 20.5% higher than the rest of the groups according to the questionnaire “MMRI - derivatives-4” and were included in groups with more effective adaptive capabilities, but did not receive high academic performance, which may be due to low attendance of classes.

Integral indicators on the scales of all questionnaires for students who signed a contract for tuition on a paid basis were on

average 10% lower than those of students of other comparison groups, which refers them to groups with less effective adaptive capabilities. They also had lower academic performance, although the attendance of these students was quite high.

Students studying under a targeted training agreement had insufficient independence and the ability to socio-psychological adaptation and were assigned to groups with less effective adaptive capabilities, although they had higher academic performance compared to students mastering a military training program and students who signed a contract for tuition on a fee basis.

In addition, according to the results of the study, all students of the comparison groups showed a tendency to search and explore new stimulating situations, as well as to overcome difficulties, but still students who signed a contract for tuition on a paid basis were on average 7% more predisposed to initiating conflicts and delinquent behavior.

Comparing the indicators of the questionnaires of students of the studied groups who were expelled for two years of study at the university, it was revealed that more than 50% of them studied under a contract on a fee basis, and about half of the expelled had integral psychometric indicators below the average in the group.

Thus, the results of the study showed that the success of mastering educational programs and the expulsion of first-year medical university students in the first two years of study depends on the personal and motivational characteristics of students, which differ significantly depending on the form of recruitment and the order of admission.

### Conclusion

In accordance with the modern concept, the materials obtained can become the basis for monitoring the processes of integration of students into the social and academic environment of the university community and set new vectors for studying the personal and motivational characteristics of students, their influence on the formation of an individual educational trajectory and the success of

mastering the main professional educational programs, as well as improving the work of all participants in the educational process.

The data obtained in the course of the study are the methodological basis for the formation of a complex of psychodiagnostic tools used during additional entrance tests of applicants in order to identify their active motivation to master the profession, and can also be used as recommendations for joint activities of teachers and mentors to improve educational work with students. In addition, modern forms of recruitment to educational organizations provide for the needs of the state and therefore a certain number of places are allocated for training by state order, in the interests of law enforcement agencies, as well as on the basis of an agreement on targeted training for organizations and regions of the country. So, taking into account the financial costs for each student, the problem of successful mastering of the specialty is particularly acute, therefore, any auxiliary selection tool is both the prospect of effective training of a highly qualified specialist, and a rational financial and economic component.

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