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Original article

Features of the Emotional Sphere of the Personality of Urban Medical Students in the Educational Process

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Abstract

Introduction. The emotional sphere of a personality is shaped under the influence of the system of public relations, which has its own specifics in the universities of the metropolis. Modern conditions have a limited amount of data on the development of the emotional and personal sphere and the possible risks of socio-psychological maladaptation of medical students studying in a megalopolis. For the first time, the emotional sphere of personality is considered in the context of manifestation of possible social maladaptation (conflict, stress, anxiety, neuroticism) of medical students in the conditions of the educational process in the megapolis. The aim of our work was to look into the emotional sphere of the personality of urban medical students in the conditions of the educational process drawing on their conflict, anxiety, neuroticism.

Materials and Methods. 105 medical students of various years of studies, living and studying in the megapolis, took part in the survey. A set of diagnostic techniques was used. The cross-sectional method was used to collect data. The results were processed using the SPSS program.

Results. Significant differences in the assessments of neuroticism among students of different years were found. There was a significant difference in stress assessments between first and last year students. The results differ significantly among students from different clusters based on cluster analysis of stress, anxiety and neuroticism assessments. The assessment of anxiety, stress and neuroticism makes it possible to talk about certain types of students in the context of maladaptation: type 1 – adapted, type 2 – have risks of development of maladaptation, type 3 – prone to maladaptation. It was also noted that the conflict of girls is expressed higher than the conflict of boys.

Discussion and Conclusion. The conclusions made by the authors contribute to the development of psychological and pedagogical knowledge that improves the training systems in a medical university. The materials of the article can be useful for teachers and administrators when interacting with students of all years of study. The assumption of a combination of all social maladaptation on a certain year of study is refuted, which indicates the need to continue the study.

Keywords: emotional sphere, stress, conflict, anxiety, neuroticism, medical students, higher medical education

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Оригинальная статья

Особенности эмоциональной сферы личности студентов-медиков в условиях образовательного процесса мегаполиса

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Аннотация

Введение. Эмоциональная сфера личности формируются под влиянием системы общественных отношений, которая имеет свою специфику в вузах мегаполиса. Современные условия располагают ограниченным объемом данных о развитии эмоционально-личностной сферы и возможных рисках социально-психологических дезадаптаций студентов-медиков, обучающихся в вузах крупных городов. Цель статьи – изучение эмоциональной сферы личности студентов-медиков в условиях образовательного процесса мегаполиса на примере их конфликтности, тревожности, невротизации.

Материалы и методы. В исследовании принимали участие 105 студентов-медиков различных курсов медицинских факультетов, проживающих и обучающихся в мегаполисе. Использовался комплекс диагностических методик. Для сбора данных применялся метод поперечных срезов. Обработка полученных результатов проходила с помощью программы SPSS.

Результаты исследования. Обнаружены значимые различия в оценках невротизации у студентов разных курсов, а также в оценках стресса между студентами первого и последних курсов. На основании кластерного анализа оценок стресса, тревожности и невротизации авторы предлагают рассматривать возможную психологическую типологию студентов-медиков, что позволит эффективнее организовать учебный процесс: 1 тип – адаптированные, 2 тип – имеющие риски развития дезадаптаций, 3 тип – склонные к дезадаптации. Отсутствие прямой связи конфликтности студентов младших и средних курсов с показателями тревожности, стресса и невротизации можно объяснить тем, что студенты, переживающие сильный стресс, используют стратегию избегания взаимодействия, возможно, из-за страха возникновения конфликтов. Уровень конфликтности девушек выше, чем у юношей.

Обсуждение и заключение. Сделанные авторами выводы вносят вклад в развитие психолого-педагогических знаний, способствующих улучшению системы подготовки в медицинском вузе. Преподавателям и администрации важно учитывать полученные результаты при взаимодействии со студентами всех курсов. Опровергается предположение о сочетании всех социальных дезадаптаций по определенному пути, что указывает на необходимость продолжить исследование.

Ключевые слова: эмоциональная сфера, стресс, конфликтность, тревожность, невротизация, студенты-медики, высшее медицинское образование

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Introduction

The emotional sphere of personality is a large layer of phenomena that is traditionally considered by psychological science and practice as a topical issue. The idea of personality research originated in the psychodynamic approach, and various directions continue to enrich the understanding of this phenomenon. However, highlighting the general, we can say that personality is understood as the result of socialization and the realization of those social relations, which includes the individual developing in society[1]. The study of emotional manifestations of personality is important, since emotions and feelings reflect the attitude of a person to himself/herself, the world around him/her and people.

There is no unambiguous data in Russian and foreign scholarly literature on how the level of stress, anxiety, neuroticism and conflict of students correlate with each other. Based on this, it is important to consider possible social maladaptation (stress, anxiety, neurotization) and their correlation with conflict in medical students studying in a megalopolis. Summarizing the reviewed studies, we assumed that significant changes (up to psychological maladaptation) will occur in the emotional sphere of the personality of medical students of different years studying in a megalopolis. We assume that there is an increase in the level of anxiety, neuroticism, stress and conflict among first- and last-year students, girls' indicators for these parameters will be higher.

The aim of our work is to look into the emotional sphere of the personality of urban medical students in the conditions of the educational process in the megapolis on the example of their conflict, anxiety, neuroticism. This study and its results can be used to organize a system of assistance to students with mental maladaptation, reduce the level of conflict in the educational environment, improve the effectiveness of education and the quality of communication in universities. The applied value of the study lies in the description of the types of maladaptation and understanding of their causes and content.

Literature Review

The principle of the unity of the emotional and the intellectual, which indicates the importance of emotional manifestations in the context of the educational process, was derived from the works by L. S. Vygotsky, S. L. Rubinstein, V. K. Viliunas[2]. The emotional sphere performs the most important functions in obtaining education, as in any cognitive activity. Based on the needs and motives of the individual, it reflects the importance and significance for the personality of the content of the educational process, and directs it, encourages certain actions – both reactive in the case of frustrations, and consistent, related to the satisfaction of actual needs. These processes become especially important in the context of student life. In addition, the educational process is included in the system of public relations and the general social context, which is manifested, in particular, in the influence of the urban environment. Being in a megalopolis largely determines the nature of students' communication with each other, as well as with representatives of universities, whether it is the teaching staff or the administration. S. Milgram was one of the first to study the psychological content of life in big cities, he came to the conclusion that such an environment leads to increased alienation, a sense of insecurity and the expectation of competition for the necessary resources. These features may be the result of information overload and a decrease in the importance of social connections[3]. A number of researchers claim that it is university education that helps students develop professionally and personally; various aspects of this development are widely discussed in modern psychology[4]. Many medical universities currently have a complex

[1] Leontiev A.N. [Needs, Motives and Emotions]. Moscow; 1971. (In Russ.)

[2] Vygotsky L.S. [Teaching about Emotions. Historical and Psychological Research. Collected Works. Vol. 4]. Moscow: Pedagogy; 1984. (In Russ.); Rubinshtein S.L. Fundamentals of General Psychology. St. Petersburg; 2002; Vilyunas V.K. [Psychology of Emotions]. St. Petersburg: Piter; 2004. (In Russ.)

[3] Milgram S. The Experience of Living in Cities. *Science*. 1970;167(3924):1461–1468. https://doi.org/10.1126/science.167.3924.1461

[4] Orenstein G.A., Lewis L. Eriksons Stages of Psychosocial Development. In: StatPearls. Treasure Island (FL): StatPearls Publishing; 2022. Available at: https://www.ncbi.nlm.nih.gov/books/NBK556096 (accessed 10.01.2023).

system for assessing academic performance, which can increase students' anxiety, raise stress levels and lead to various internal and, as a result, interpersonal conflicts, as students are forced to compete for a high status in the academic ranking. Foreign colleagues are actively conducting research on the emotional sphere of medical students, which confirms the significance of our research. For example, the study of the influence of personality stability on the relationship between stress, depression and anxiety in Indonesian medical students. It has been shown that resilience has a partial mediating effect on depression (B = 0.044) and anxiety (B = 0.017) after taking into account the age of students, living conditions and the subsistence minimum [1].

The emotional sphere of medical students from 18 to 21 years old shows that girls are more likely to be able to recognize the emotions of other people. They have a higher level of empathy and emotional awareness. It can be assumed that girls are more aware of their internal state, it is easier for them to understand the experiences of other people and influence their emotional state [2].

Nowadays education has become an integral part of human life, it is a kind of dynamic society where there is a place for conflicts. In the process of students' interaction with each other or with teachers, various conflict situations may arise, their resolution may have both positive and negative consequences[5]. New personality traits and ways of interaction, constructive and destructive, can be formed here. Unfortunately, students who successfully solve educational problems cannot always build relationships in society and when faced with conflicts, they do not always resolve them constructively. Modern research shows that it is important to purposefully form communication skills, especially in future doctors. In the process of studying at the University, a communicative culture develops, which reflects knowledge about acceptable and unacceptable forms of interaction and creates a basis for understanding a person by a person [3; 4]. The Swiss Catalog of Learning Objectives (SCLO) confirms the importance of effective communication and has been the basis for assessing communication skills in the Swiss Federal Medical Licensing Examination (FLE) since 2011. In particular, there are studies showing the emotional value of mastering communication skills under the guidance of well-trained and experienced senior colleagues [5]. In recent years, data have been obtained that the educational process, which includes communication and emotional intelligence trainings, contributes to a more harmonious development of the personality of healthcare professionals [6].

Student age (18–25 years) is the beginning of mature age. This period is characterized by the formation of economic, social and professional independence, a high educational level, active immersion in the cultural life of society and high motivation for learning and cognition[6]. A young person begins to learn more deeply the sphere of relations with people and learns to create and maintain connections, despite the internal conflicts that exist for him and his partner[7]. The student's life is full of new and often stressful situations. According to sociological data, they are often found in modern society and affect the life of any social group, in particular, students of medical specialties. According to VTsIOM, 29% of young people aged 18–24 often face stress. The international statistics collection and analysis company Statista revealed that 38% of Russians noted anxiety and stress. Studying the manifestation of psycho-emotional stress in medical students, the authors note that high demands are placed on them, which do not always correspond to the psycho-emotional readiness of students. A large study load is the leading stressor; in addition, improper nutrition, non-compliance with the daily routine, training with strict teachers, fear of the future, problems in personal life, living away from parents, financial problems are common [7].

There are many causes of stress at this age; here are some of them: a new learning

[5] Kupriyanov R.V. [Interpersonal Conflicts in the Dyad Teacher – Student]. Kazan: KNRTU Publ.; 2011. (In Russ.)

[6] Zimnyaya I.A. [Pedagogical Psychology: A Textbook for Universities]. Moscow: Logos Publ.; 2016. (In Russ.)

[7] Erickson E. [Identity. Youth and Crisis]. Moscow; 2006. (In Russ.)

system, responsibility for attending classes, a large flow of sometimes poorly systematized information, which causes significant emotional responses [8]. Learning stress can negatively affect the immune system, nervous system and emotional state [9].

There are studies showing that students living in large cities often experience more stress the more they encounter forced contacts [10; 11].

Stress at student age can have many causes, especially if the future student is not ready to live independently and be responsible for himself and his studies. A new social circle, new responsibilities, a change of residence and other factors can lead to a stressful state, especially for young people who are just starting education [12].

Z. Freud, one of the first authors who studied anxiety, saw in anxiety the result of an internal conflict, i.e. discrepancies between mental structures of a neurotic nature, one side of which is the unconscious[8]. Anxiety can also cause conflict situations. Anxiety is a tendency to worry about social threats, when danger looms over the social status and core of the personality[9]. Depression and anxiety are common mental health problems among medical students due to various problems during medical education. These problems affect not only their quality of life, but also their academic and professional development [13].

K. Horney, continuing the analytical discourse on this issue, wrote that anxiety is always the center of neurosis experienced by a person[10]. Many authors agree that anxiety is a tangible emotional discomfort associated with the expectation and anticipation of approaching problems and danger[11]. This is often associated with internal conflicts, the solution of which is quite difficult for the individual. Modern studies also show stable links between neuroticism and stress, confirm a decrease in the ability to understand others in people with high rates of these personal characteristics [4].

In students, anxiety may increase due to the process of adaptation to student life, in connection with the upcoming session or due to problems with further employment[12]. R. E. Tarasova conducted a study that revealed that first- and last-year students are more anxious than intermediate-year students, who mostly have a medium level of anxiety [14].

The duration of the educational process in time allows you to compare the psychological state of students of different years. The highest levels of anxiety and stress are noted in the first year (adaptation to new social roles and environment) and the last (final certification and job search). Students of intermediate years have a medium level of anxiety, non-anxious students are practically absent [14]. A study of the mental health of university students from different regions of Russia ($n = 3\,057$) in terms of depression, anxiety and stress indicated better mental health in boys than in girls [15].

In a study of the level of neuroticism in healthy citizens, it was found that 44.5% of students have an increased level of neuroticism [16]. In the work *Student Neurosis: Causes of Occurrence* the author shows that the level of neuroticism among students is very high. This can be explained by various features of development – social and individual. The main reason for students' neuroticism is the inability to regulate their emotions, which can be observed in different years, not only in the first and last years as transitional in terms of social development [17].

It is important to consider the conflict in the educational environment and the level of conflict of students of different years, since their social situation of development is different, which can lead to contradictions with different content. In this article, we will focus on the definition of conflict as a rather acute way of resolving contradictions in views, interests

[8] Freud S. The Ego and the Id. In: The Standard Edition of the Complete Works of Sigmund Freud. London: The Hogart Press; 2011. Vol. 19. p. 3–66. Available at: https://www.sas.upenn.edu/~cavitch/pdf-library (accessed 10.01.2023).

[9] Horney K. [Neurotic Personality of Our Time. Introspection]. St. Petersburg: Lenizdat; 2014. (In Russ.)

[10] Ibid.

[11] Parishioners A.M. [Causes, Prevention and Overcoming Anxiety]. Moscow: Psychological Science and Education; 2014. (In Russ.)

[12] Khukhlaeva O.V. [Correction of Violations of the Psychological Health of Preschoolers and Younger Schoolchildren]. Moscow: Academy Publ.; 2013. (In Russ.)

or goals, which consists in countering the participants in the interaction[13]. All conflicts that occur in the outside world are associated with the internal conflicts of the participants and their level of conflict[14]. Internal conflicts can also intensify. For example, there is a need to maintain a balance between the motives of affiliation and maintaining friendly relations with classmates and the motives of achievement, increasing one's educational status. Let us note that a conflicted person tends to create conflict situations around himself and aggravate existing ones, while a non-conflicted person, on the contrary, tries to find a way out of the current situation and smooth out the state of confrontation[15]. Among the main features of a conflicted personality, one can distinguish criticality to other people's shortcomings, pickiness, exactingness, impulsivity, unstable self-esteem[16]. A conflicted personality is characterized by a high probability of internal conflicts; complex disorders in the psyche can form. Unresolved interpersonal conflicts lead to mental maladaptation, such as, for example, stress, anxiety and neuroticism, which can also provoke new conflict situations[17].

It is obvious that conflict, anxiety and stress are associated with the formation of a psychogenic disorder as a result of a violation of a person's life in areas that are especially important for him, and such a person needs psychological assistance and support[18].

It is important to note that large universities in megalopolises offer students assistance in stabilizing their emotional state. In particular, the opportunity to study in additional educational programs. For example, this is the program *Factory of Healthcare Leaders*, implemented by Sechenov University. Such programs help to better master the profession and internalize universal and professional values [18].

A study of medical students shows that first year students have a high percentage of both depressive and anxiety disorders compared to 4th and 6th-year students [19].

In the case of first-year students, this may be due to a change in the social situation of development, a greater degree of responsibility for the results of their studies and the need to develop communication skills in a professional environment [20]. In the case of undergraduates, such dynamics can be justified by the completion of their studies and the beginning of professional life as certified specialists, which also means a number of difficulties of a substantive and psychological nature. Determining the specifics and compatibility of these emotional and personal parameters in different years and students of different genders, it is also possible to propose a typology of medical students based on these parameters.

Materials and Methods

After analyzing current research in the selected area and putting forward a number of assumptions, an empirical study design was developed. Data collection took place online, which made it possible to avoid excessive influence of the authors of the study on the respondents, and also allowed to get reliable answers to questions. The method of cross-sections was used to collect data, which allows us to talk about the representativeness of the data and their applicability to modern students, to characterize their emotional and personal sphere taking into account the modern context.

The sample was formed from medical students studying in the megapolis. This is due to the following reasons. Firstly, medical education is longer than training in most specialties, so it allows you to evaluate a larger range of measurements. Secondly, doctors belong to helping professions, where the emotional and personal characteristics of each specialist make a significant contribution to the quality of his work along with the formed skills, so it is important to see what they are during training in order to be able to correct.

Medical students of various years from state universities of Moscow, took part in

[13] Antsupov A.Ya., Shipilov A.I. [Conflictology: A Textbook for Universities]. Moscow: Eskimo Publ.; 2015. (In Russ.)
[14] Grishina N.V. [Psychology of Conflict]. St. Petersburg: Piter Publ.; 2018. (In Russ.)
[15] Banykina S.V. [Pedagogical Conflictology: State, Research Problems and Development Prospects]. In: Sovremennaya konfliktologiya v kontekste kul'tury mira. Moscow; 2001. p. 373–394. (In Russ.)
[16] Nazarenko S.V. [Sociology: Textbook]. St. Petersburg: Piter; 2011. (In Russ.)
[17] Grishina N.V. [Psychology of Conflict].
[18] Karvasarsky B.D. [Clinical Psychology]. St. Petersburg: Piter Publ.; 2015. (In Russ.)

this study. All students received educational services in Russian. They were not foreign students. All respondents will be doctors upon graduation. The formation of this sample is also due to the fact that when diagnosing stress, it is assumed that an event that occurred more than a year ago no longer has such a strong effect on a person, and during this period ways will be found to cope with an exciting event[19].

In the study of the psychological aspects of the adaptation of nonresident students to the conditions of the megapolis on the example of the megapolis (Moscow), the stages of adaptation of nonresident students were identified: initial 4 months, intermediate 9 months, stable 3.5 years[20].

The study sample consists of medical students who have lived in a megapolis for at least three years at the time of taking part in our study, which allowed us to avoid the convergence of factors that contribute to stress. For example, the stress associated with coming to the megapolis and the stress resulting from the process of studying at the university.

The total number of respondents – 105 students from 18 to 28 years (M = 20.7; SD = 2.48) living and studying in the megapolis (23 (21.9%) boys and 82 (78.1%) girls). Distribution by years: 40 students (38.1%) study in the first year, 40 students (38.1%) – in the middle years (2–4 years) and 25 students (23.8%) – in the last years (5–6 years). The choice of respondents was also determined by a number of other comparative studies of indicators of the emotional sphere of personality of students of different years in helping professions [19]. All respondents were informed about the purpose of the study and expressed their willingness (consent) to cooperate.

Groups of first, middle and last year students were compared with each other in terms of stress, anxiety, neuroticism and conflict to determine whether there is a relationship between these indicators, the specifics of the emotional sphere of the individual in different years, as well as a combination of all social maladaptations in a particular year.

Groups of students of the first, middle and last years were compared with each other in terms of stress, anxiety, neuroticism and conflict in order to determine whether there is a relationship between these indicators, the specifics of the emotional sphere of the individual in different years, as well as the combination of all social maladaptation in a particular year.

Due to the lack of methods for measuring the level of maladaptation, methods were taken for its components (stress, anxiety and neuroticism). The diagnostic complex included the following set of methods: *Assessment of Neuropsychic Stress* (T. A. Nemchin), the questionnaire *Level of Neuroticism* (authors V. V. Boyko, L. I. Wasserman)[21]; test *Determination of the Level of Conflict of an Individual*[22]*; questionnaire Anxiety of Students* (modification of the questionnaire by J. Taylor)[23]. The validity of all questionnaires was confirmed.

Results

The data were analyzed for the normality of distribution using the Kolmogoro–Smirnov criterion to select the correct mathematical and statistical criteria. The distribution for the variables under consideration is different from normal, so nonparametric criteria will be used everywhere for further analysis.

After applying the Mann–Whitney criterion to compare the averages on the scales of stress, anxiety, neuroticism and conflict between boys and girls, data were obtained on the presence of significant differences between respondents of different sexes only in terms of the level of conflict. The value of the Mann–Whitney criterion and the significance levels are given in Table 1. Statistical significance was assumed for $p < 0.05$.

Table 2 presents a comparison of assessments of stress, anxiety, neuroticism and conflict in the whole sample and separately in boys and girls, the result of comparing the differences between them is presented (the Mann–Whitney criterion for two independent samples).

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[21] Raigorodsky D.Ya. [Practical Psychodiagnostics. Methods and Tests]. Samara: Bahrakh M; 2015. (In Russ.)
[22] Ramendik D.M. [Management Psychology]. Moscow: Forum Publ,; 2016. (In Russ.)
[23] Peisakhov N.M. [Applied Psychology in Higher Education]. Kazan; 2019. (In Russ.)

Table 1. **The significance of differences in the level of stress, anxiety and neuroticism among the subjects of different sexes**

Psychological characteristics	The value of the Mann–Whitney criterion, *U*	Statistical significance, *p*
Stress	767.5	0.174
Anxiety	759.0	0.153
Neurotization	780.0	0.206
Conflict	686.5	0.046

Source: Hereinafter in this article all tables were made by the authors.

Table 2. **Mean and standard deviations of assessments of stress, anxiety and neuroticism in boys and girls, differences between them**

Parameter/ Gender	All		Boys		Girls		Differences	
	M	SD	M	SD	M	SD	U	p
Anxiety	14.05	6.160	12.26	6.369	14.55	6.045	759.0	0.153
Stress	49.05	10.863	46.04	9.349	49.89	11.158	767.5	0.174
Neurotization	17.99	7.771	16.26	7.978	18.48	6.124	780.0	0.206
Conflict	28.29	3.290	27.00	3.606	28.65	2.124	686.5	0.046

The table illustrates that although in all three parameters (stress, anxiety and neuroticism) the average scores of girls are higher than boys, these differences between boys and girls have not reached statistical significance (Table 2).

The assumption about the difference in characteristics between the sexes is confirmed at the level of conflict. Table 2 shows that conflict assessments between boys and girls differ – they are significantly higher for girls.

Using cluster analysis (K-means method), based on stress, anxiety and neuroticism assessments, the students were divided into 3 clusters (K-means clustering). Using the Kraskel–Wallis criterion for several independent samples, it was found that the estimates of anxiety (K–U = 50.296; $p < 0.001$), stress (K–U = 84.454; $p < 0.001$) and neuroticism (K–U = 74.347; $p < 0.001$) significantly differ among respondents from different clusters, which allows us to talk about the resulting clusters as types. Table 3 shows the centers of the resulting clusters and indicates the number of respondents in each of them.

The first cluster included respondents with low scores on stress, anxiety and neuroticism, the second – with medium ones, and the third – with high ones.

Using the clusters described above (clustering by K-means) and distinguishing by the strength of the impact of stress, anxiety and neuroticism (Table 3), the mutual frequency distribution of respondents with different types of stress, anxiety and neuroticism assessments in different years was estimated (Table 4).

Using the Pearson's χ^2 criterion, it was found that there is no connection between the year and getting students into a certain cluster ($\chi^2 = 5.030$ at $p = 0.284$).

Thus, the assumption of a combination of all the features on a certain year is refuted. The data obtained show that students in different years have their own characteristics.

Table 3. **Cluster centers for assessments of stress, anxiety and neuroticism**

Parameter / Type	1 type	2 type	3 type	Significance of differences between clusters
Stress	9	15	21	0,000
Anxiety	38	51	65	0,000
Neurotization	10	20	28	0,000
Number of students	38	45	22	–

Table 4. **Cluster centers for assessing stress, anxiety and neuroticism in different years**

Year / Type	1 type	2 type	3 type	Total
The first	12 (30%)	10 (25%)	18 (45%)	40
Middle	12 (32%)	8 (21%)	18 (47%)	38
The last	14 (52%)	4 (15%)	9 (33%)	27
Total	38	22	45	105

Table 5 presents a comparison of stress, anxiety and neuroticism scores for students of different years (first, middle and last); the result of comparing the differences between them (the Kraskel–Wallis criterion for several independent samples) is presented.

Table 5 shows that the level of stress and anxiety does not significantly differ among students of different years. Significant differences in neuroticism scores were found in students of different years (K–U = 7.134, $p = 0.028$). At the same time, the highest level of neuroticism is observed in middle–year students, the lowest – in last-year students. It is obvious that the median scores of neuroticism in first- and last-year students are lower than in middle-year students.

Comparing in pairs the estimates of the level of neuroticism among students of different years (the Mann–Whitney criterion for two independent samples), it was found that the estimates of the level of neuroticism among students of middle and last years of study differ significantly ($U = 316.000$; $p = 0.010$). The assessment of the level of neuroticism in middle-year students is significantly higher than that of last-year students.

Next, a one-factor analysis of variance with a nonparametric Welch correction was carried out to assess the significance of differences in stress, anxiety and neuroticism in pairs between students of different years.

It was found that in addition to significant differences in the assessment of the level of neuroticism between the middle and last years (Welch = 3.491, $p = 0.036$), there is also a significant difference in stress assessments between first and last year students (Welch = 3.654, $p = 0.032$). Stress indicators for first-year students are significantly higher than for last-year students.

Further, a comparison of conflict assessments for students of different years (first, middle and last) was carried out, the Kraskel–Wallis criterion was used for several independent samples. According to our data, the assessments of conflict among students of different years do not differ significantly.

Table 6 shows the result of a correlation analysis (Spearman's criterion) of assessments of conflict with the severity of stress, anxiety and neuroticism in the whole sample and separately for different years.

Table 5. **Mean and standard deviations of assessments of stress, anxiety and neuroticism among students of different years, differences between them**

Parameter / Year	The first		Middle		The last		Differences	
	M	SD	M	SD	M	SD	K–U	p
Anxiety	15.00	5.835	14.20	6.309	12.28	6.295	3.843	0.146
Stress	50.85	10.762	49.55	11.959	45.36	8.411	4.828	0.089
Neurotization	18.13	7.254	19.75	8.174	14.96	7.271	7.134	0.028

Table 6. **The relationship of conflict assessments with the severity of stress, anxiety and neuroticism in students of different years of study individually and in general**

Parameter / Year	The level of conflict in the total sample		The level of conflict among first-year students		The level of conflict among students of middle year of study		The level of conflict among last-year students	
	r	p	r	p	r	p	r	p
Anxiety	–0.040	0.687	–0.119	0.463	–0.202	0.212	0.386	0.047
Stress	0.085	0.388	0.159	0.326	0.032	0.845	0.181	0.387
Neurotization	0.011	0.912	–0.124	0.448	0.035	0.830	0.181	0.387

For graduate students, conflict assessments are directly related to the severity of anxiety (they demonstrate a weak correlation at a high level of significance).

Discussion and Conclusion

First of all, in the course of the study, data were obtained that allow us to give a comparative description of the emotional sphere of the personality of students in the context of different years. First-year students can be characterized as having a medium level of conflict, neuroticism, but with a high level of stress. Stress is probably associated with university admission and the need to adapt to a new educational situation. In the third year, the highest level of neuroticism is observed, although the indicators of stress and anxiety decrease. This can be explained by the fact that the adaptation to the university was quite successful, but the need to master the social roles of an adult, as well as a more complete understanding of one's profession, can lead to internal conflicts, for example, at the level of values and beliefs. Many medical students begin to immerse themselves in practical activities in the middle years. It is important to note that the acquaintance of medical students with their profession through the prism of acquired skills and available theoretical knowledge, awareness of the importance of their work for society, understanding of their personal and professional identity is associated with an identity crisis, which can be accompanied by anxiety and depression.

Researchers record a change in the motives for the educational activities of medical students of the first, middle and last years, provided they are actively involved in the practical aspects of their future professional activities [2].

Our research has shown that the level of social maladaptation of graduate medical students is lower. Medical graduates are more adapted to the educational environment and professional life. Probably, they were able to overcome internal conflicts associated with formal mastery of the profession and with understanding of its meaning and values, therefore, they are more stable psychologically, which is reflected in the peculiarities of the emotional and personal sphere.

It is important that high rates of conflict occur in each of the years. It is possible that this may be due to the existence of different grounds for conflicts.

For example, in the first year, conflicts related to the need to master new social roles and norms of an educational institution are more likely, in the third year – with the difficulties of studying and the first experience of combining study and work, in the last – with the need to prepare for graduation and further professional development, for example, admission to residency. In addition, there may be conflicts related to the personal and family life of students, which will inevitably affect the educational situation.

To clarify this assumption, the personal characteristics of students were considered in groups: in the first group – students with low rates of stress, anxiety and neuroticism, in the second – with medium ones, in the third – with high ones. However, no significant differences were found between students from the 1st and 3rd types in terms of stress, anxiety and neuroticism ($U = 381.500$; $p = 0.574$), that is, between students with low and high grades in stress, anxiety and neuroticism (comparison of extreme groups). The 3rd type included students who have high rates of stress, neuroticism and anxiety, which turned out to be unrelated to the indicators of conflict. These data differ from those obtained earlier in similar studies and require serious reflection. There is no direct link between conflict and stress, as students experiencing severe stress can purposefully avoid communication and related conflicts. Thus, one of the ways to overcome difficult situations caused by educational, work, personal tasks may be avoidance and attempts to distance, retire. The absence of a fixed high level of conflict among graduate medical students may also indicate the successful development of communication skills by graduates. It can be assumed that students spend quite a lot of mental resources on restraining themselves, avoiding potentially unfavorable and conflict situations, while the level of neuroticism, stress and anxiety of the student's personality increases. Students, experiencing stress, feel anxiety and have a high level of neuroticism, do not enter into conflict situations, bypass them so as not to increase stress, anxiety and the action

of neuroticism mechanisms. At the same time, the conflict turns into an internal plan, it may not manifest itself clearly in communication with classmates and teachers, but in the future it may lead to maladaptation.

Regarding conflict assessments in medical students of different years, the data from Table 6 indicate that conflict assessments are not related to the severity of stress, anxiety, neuroticism in students of different years, therefore, there are no differences between conflict in medical students with increased stress, anxiety and neuroticism in the first, middle and last years. Probably, conflict is not directly related to stress, anxiety and neuroticism of students.

The data obtained can be compared with the data from similar studies on the problem of conflict in a student group in different years. For example, G. F. Mingaleeva and V. R. Bildanova found that a high level of conflict is most pronounced in second-year students, and there is no high level of conflict in last-year students [21].

The study of differences in the level of conflict showed that the level of conflict among medical students does not differ significantly. The professionalization of students does not affect the change in the level of conflict in senior years. Our study showed that there is no relationship between a high level of conflict and the year in which a medical student is studying. Summarizing, we can say that the level of conflict does not depend on the year and the chosen direction of study, but is associated with the personal characteristics of an individual student and the skills to overcome educational stress. It is possible that for some students the level of conflict increases due to low adaptation to changing environmental conditions, for others it may be due to the peculiarities of protective mechanisms and coping strategies used, which requires additional verification.

In the course of the calculations, other important provisions were revealed. For example, assessments of conflict between boys and girls differ significantly – they are much higher for girls. This is not related to the age and year of the student. Our results are confirmed by the study of depression and anxiety among medical students by our foreign colleagues; they show that medical students, especially girls, are at a significantly increased risk of depression and anxiety disorders. Researchers note that female students of any year and first-year students have high rates of anxiety [13; 22].

It was revealed that boys and girls use different styles of conflict resolution. Girls more often resort to the avoidance style, rarely use cooperation, unlike boys [23]. Due to rapidly developing technologies, girls can strive to master traditionally male specialties in various spheres of life, actively express their life position and build a career. Based on this, it can be assumed that in conflict situations they will use a greater palette of conflict resolution strategies than young men. However, regardless of the choice of different strategies of behavior in conflict, girls and boys have similar rates of maladaptation, i.e. the choice of one or another strategy of conflict interaction does not guarantee an easy solution of personal and professional problems, and there is a place for stress, neuroticism, anxiety.

There was also a significant difference in the assessment of the level of neuroticism in middle and last year students ($U = 326.500$; $p = 0.019$). The assessment of the level of neuroticism in middle-year students is significantly higher than that of last-year students. After analyzing the additional literature on neuroticism of students, we note that the high level of neuroticism of middle-year students may be associated with excessive requirements for their academic performance [24]. Since middle years are most loaded with information, specialized subjects, writing research and other works, academic performance requirements may increase here, for example, to raise one's score in the educational ranking, due to competition between students, or because of a desire to raise one's average score in a diploma, to get a high score for a favorite subject, etc. In the study of D. A. Tolmachev, V. M. Dudarev and A. S. Balabanova it is described that there is such a pattern among students of medical universities. Students of middle years of medical universities are more susceptible to neuroticism than students of the first and last years [25]. This is due to the fact that labor-intensive disciplines are added to the middle years, the number of disciplines in general increases, clinical subjects appear,

sessions consist of 5–6 exam disciplines. Summarizing, we can assume that the results of this study may be valid for students of other specialties, since our statistical calculations also confirm the high level of neuroticism in the middle years.

In addition to significant differences in assessments of the level of neuroticism between the middle and last years, a significant difference in stress assessments between the first and last year students was revealed (Welch = 3.654, $p = 0.032$). Stress indicators in first-year students are significantly higher than in last-year students. This is probably due to the fact that the process of adaptation when joining a student group is more stressful than graduation and preparation for final exams. It can be assumed that by the time of graduation, students have a formed system of personal and professional values, which can also contribute to successful self-regulation [26].

We found that for students of the last years (fifth and sixth), conflict assessments are directly related to the severity of anxiety (the relationship is weak, but statistically significant). Perhaps this is due to the actively ongoing processes of self-actualization, upcoming final exams, attempts to find a job, to realize their abilities and knowledge in it. All these processes often occur in a competitive environment, not only in the educational, but also in the professional environment, which can also increase conflict. The reason for increased anxiety may be an understanding of the approach of "adulthood", a change in social status and/or social role. The data obtained show that in the first year students have increased stress levels, in the middle – neuroticism.

A certain internal dynamics can occur in the learning process; with low adaptation to the educational environment, stress becomes chronic, leading to neuroticism. It was revealed that these indicators do not affect the occurrence of increased conflict, but they can affect the deterioration of well-being, educational activities, interaction with other students and teachers and other aspects of student life. The data obtained correlate with a comparative study of psychology students of the first and third years, who also master the helping profession, as well as medical students. First-year students are characterized by lower neuropsychiatric stability and a higher level of anxiety [20].

The process of teaching medical students is conditioned by the need to perform a large amount of academic load, organize their independent work, display such personal qualities as self-motivation, personal responsibility, self-discipline. Due to the fact that studying takes up most of the free time of a medical student, it slows down the possibility of self-actualization and self-realization to the fullest in other areas of life, which can lead to mental maladaptations: stress, anxiety and neuroticism, which can manifest throughout the entire period of student life.

The results of an empirical study confirmed the assumption that stress is especially high in the first and last years of study. There are numerous stressful factors: adaptation to new specific conditions of study at a medical university; interaction with teachers; preparation for exams; awareness that for doctors, training follows the principle of "lifelong learning".

Researchers have revealed the relationship between the ability to adapt and the stress level of first-year students of the helping profession. It has been revealed that if it is high for a long time, it can lead to the consolidation of ineffective coping strategies, increase anxiety, form neurotic tendencies, which, as a result, reduces the effectiveness of learning, interaction with classmates and teachers, etc. In particular, first-year students are more likely to attribute the reasons for their failures to external circumstances [20].

Increased anxiety during the learning process can lead to disorganization of activities and learning difficulties. Our study showed that both stress and anxiety most often increase in the first and last years, since at these stages, as mentioned above, a lot of new stress factors appear, and a certain personal maturity is required to cope with them.

While studying at the university, neurotization mechanisms can be triggered. An improperly organized educational process, non-compliance with the mental hygiene of the learning process, lack of free time to meet personal needs – all this can form a traumatic situation and lead to the onset of neuroticism or its intensification.

Thus, the training of medical students in a megalopolis is accompanied by an increased level of stress. As a result, personal conflicts, anxiety and neuroticism may manifest themselves, which directly affects the educational process and actual personal tasks that are important for students. The data obtained characterize the emotional sphere of the personality of medical students studying in a megalopolis. The considered personal characteristics are formed under the influence of the system of social relations peculiar to large universities, where thousands of students study at the same time. On the one hand, the complexity and duration of studying at a medical university, and on the other hand, the increased prestige of the medical profession (especially after the pandemic) and its demand, the availability of jobs requires the emotional stability of medical students to complete professional training. The lack of emotional support and the presence of academic burnout, alienation in the learning process can also increase negative trends at the level of formation of social maladaptation of the personality among medical students studying in a megalopolis, both nonresident students and Muscovites. It is important to continue this line of research by making comparisons of those who lived in the megalopolis before entering university and those who moved for education.

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