

Emotional intelligence and defense mechanisms as determinants of psychological health in medical students

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Abstract: Problem. Despite the recognised role of emotional intelligence (EI) and defense mechanisms in personal adaptation, their systemic influence on the psychological health of medical students experiencing intense stress and professional development remains insufficiently studied. The lack of data on the specific interrelationships of these constructs in future doctors hinders the development of targeted psychological support programs. **Aim.** To identify the nature of the relationships between emotional intelligence, psychological defense mechanisms, and indicators of psychological health in medical students, as well as to conduct a comparative analysis of the expression of defense mechanisms and the level of psychological well-being in groups with different levels of emotional intelligence. **Methods.** The sample consisted of 392 second-year medical university students. The following instruments were used: the “EmIn” questionnaire (D.V. Lyusin, 2006) for diagnosing emotional intelligence; the “MMPD” method of measuring psychological defense (E.R. Pilyugina, R.F. Suleymanov, 2020); and the PERMA-Profiler questionnaire (J. Butler, M.L. Kern, 2016), adapted by O.M. Isaeva, A.Yu. Akimova, and E.N. Volkova, to assess psychological well-being. Statistical processing included comparative (Mann–Whitney *U*-test), correlation (Spearman’s *rs*), and contingency table analysis (Pearson’s χ^2). **Results.** An imbalance in the EI components was revealed: despite high interpersonal EI (77.8 %), 49.3 % of the students showed a deficit in intrapersonal EI. Negative correlations were established between overall EI and regression ($rs=-0.38$), avoidance ($rs=-0.39$), and dissociation ($rs=-0.25$), while positive correlations were found with sublimation ($rs=0.40$) and humor ($rs=0.28$). Significant differences in the expression of adaptive and immature defenses were found between groups with high and low levels of EI. A strong association was identified between EI and psychological well-being ($\chi^2=61.9$; $p<0.001$): in the low EI group, the proportion of individuals with insufficient well-being was 39.8 %, whereas in the high EI group, it was 4.4 %. **Conclusions.** High emotional intelligence is associated with the use of mature defense mechanisms and a higher level of psychological well-being. The obtained data substantiate the need for targeted development of the intrapersonal component of EI in medical students to prevent psychological health disorders and emotional burnout.

Keywords: emotional intelligence; defense mechanisms; psychological health; stress resistance; medical students; professional competencies

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INTRODUCTION

Psychological health problems are widespread among modern students, and psychosocial stress is considered one of the main factors contributing to their occurrence. Emotional intelligence (EI) is a protective factor against stress, depression, and anxiety. It is necessary to timely identify and eliminate factors contributing to the emergence of mental health problems [1]. Researchers emphasize the protective role of EI in the mental health of medical students and its contribution to psychological well-being. A higher level of EI is associated with a lower probability of stress, anxiety, and depression [2].

Modern medical practice requires future doctors both to possess professional competencies and to have developed EI (EI) and adaptive psychological defense mechanisms. Their study and development acquire particular significance during the period of professional formation, when basic strategies for coping with professional difficulties are formed. Integrating EI training into medical education programs has significant potential for strengthening the formation of professional identity in future healthcare practitioners [3; 4]. The targeted development of EI leads to improved personal well-being, communication skills, and professional development among medical students [5].

The literature notes that EI correlates with a wide range of competencies significant for the modern doctor and the effectiveness of a doctor's work. Research highlights a stable relationship between the level of EI development and the state of psychological health, successful social adaptation, and subjective well-being of students [6]. Emotional intelligence is associated with psychological well-being, as well as with the effectiveness of mental illness treatment. The ability to recognise and control emotions in a social context helps reduce the risk of developing depression and anxiety. Moreover, the relationship between EI and anxiety and depression does not depend on gender [7].

In the context of helping professions, EI becomes a significant factor in the prevention of professional burnout and personality deformation. In the educational environment, the development of EI contributes to improving communication skills and reducing emotional tension [8]. Positive dynamics have been revealed in the development of such EI indicators as emotional awareness and management of one's own emotions among medical university students from their first to fourth years of study [9]. This allows considering EI as an important internal resource that supports psychological health and requires targeted formation.

The use of mature defense mechanisms, such as sublimation, humor, and altruism, also contributes to maintaining psychological balance and adaptation in stressful situations. Conversely, the dominance of immature forms of defense – repression, regression, dissociation – correlates with an increased level of anxiety and the risk of developing psychosomatic disorders [10]. Non-adaptive psychological defense mechanisms contribute to the development of non-constructive strategies of professional behaviour towards the patient and reduce the personal emotional resource, leading the specialist to emotional burnout [11].

In studies of students' psychological health, a special place is occupied by the analysis of psychological well-being as an integral characteristic [12; 13]. It has been shown that its level is closely related to tolerance for uncertainty [14] and can change significantly in situations of social instability [15]. This allows considering psychological well-being both as an indicator of the current state and as an important factor in the professional formation of a future specialist [16].

Despite the growing interest in these phenomena, the question of how exactly these two constructs interact with each other and what their combined contribution to psychological health is remains open. This gap is particularly significant and specific when applied to medical students. On the one hand, their professional training is accompanied by intense psycho-emotional loads and requires the mobilization of adaptive resources. On the other hand, it is precisely during this period that the professional personality is formed, and the immaturity of defense mechanisms and emotional competence can become a risk factor for psychological health.

Thus, a contradiction arises between the need to maintain the psychological health of future doctors and

the insufficient knowledge about the systemic role of such intrapersonal resources as EI and psychological defenses in ensuring this health under conditions of professional formation.

Understanding the features of the relationship between EI, defense mechanisms, and psychological well-being will allow developing effective psychological support programs aimed at maintaining the psychological health of future healthcare specialists.

The aim of the study is to identify the nature of the relationships between emotional intelligence (EI), psychological defense mechanisms, and indicators of psychological health in medical students, as well as to conduct a comparative analysis of the expression of defense mechanisms and the level of psychological well-being in groups with different levels of EI.

METHODS

Sample

The study involved 392 second-year students from Krasnoyarsk State Medical University (Pediatric and General Medicine Faculties) aged 18-21 years (median – 19 years), including 288 females and 104 males. The study was conducted in 2024-2025.

Psychodiagnostic tools

To diagnose EI, the "EmIn" questionnaire by D.V. Lyusin was used [17]. The characteristics of psychological defenses were studied using the "Method of measuring psychological defense" method of measuring psychological defense, developed by E.P. Pilyugina and R.F. Suleymanov in 2020 [10]. This method allows for the diagnosis of 20 psychological defense mechanisms. Psychometric testing on a sample of 172 subjects confirmed its reliability and validity: construct validity is substantiated by factor analysis; internal consistency of the scales (Cronbach's $\alpha=0.76-0.89$) and test-retest reliability ($r=0.72-0.91$ upon retesting after 2 weeks) are at a sufficient level. Thus, the method meets psychometric requirements and is applicable in scientific research.

Assessment of psychological well-being was carried out using the PERMA-Profil questionnaire (J. Butler, M.L. Kern, 2016), based on M. Seligman's integral model of well-being, adapted by O.M. Isaeva, A.Yu. Akimova, E.N. Volkova (2022) [18]. In our study, we relied on the integral well-being indicator, which is a cumulative index across the five key components of the PERMA model (Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment) and includes an overall happiness indicator, which corresponds to the goals of a comprehensive assessment of the psychological well-being of medical students [18].

Statistical data processing

The normality of the distribution of quantitative indicators was tested using the Kolmogorov-Smirnov and Shapiro-Wilk tests. Since the distribution of most indicators (including general EI) in this sample significantly

deviated from normal ($p < 0.05$), Spearman's rank correlation coefficient was used for correlation analysis, and the Mann-Whitney U -test was used for comparing independent groups. Pearson's χ^2 test was employed to analyze the relationship between categorical variables (EI level and psychological well-being).

Research design and procedure

The study was conducted in two stages and had a cross-sectional design.

Stage 1: Initial diagnostics and formation of contrast groups.

At the first stage, all respondents ($n=392$) were assessed for their overall EI (OEI) level using the "EmIn" questionnaire by D.V. Lyusin. Based on the obtained results and in accordance with normative values, the entire sample was divided into three groups according to the level of OEI development: high, average, and low/very low.

To maximise the differentiation of the psychological profiles of respondents with fundamentally different emotional competencies, individuals with an average level of general EI were excluded from further consideration.

Consequently, two groups were formed for comparative analysis:

Group 1 (high EI): respondents with a high level of general EI ($n=114$).

Group 2 (low EI): respondents with low and very low levels of general EI ($n=135$).

In the second stage, using the method for measuring psychological defenses (MMPD), the mean scores of defense mechanisms were compared between the groups with high and low EI. The statistical significance of differences was assessed using the Mann-Whitney U -test. Pearson's χ^2 test was used to assess the relationship between EI level and psychological well-being. Psychological well-being was measured using the PERMA-Profil questionnaire [18]; based on normative values, respondents were divided into two categories: "adequate" and "inadequate" well-being. Additionally, Spearman's rank correlation coefficient was used on the entire sample to identify relationships between EI indicators and the expression of psychological defenses.

RESULTS

The results of the EI diagnostics using the "EmIn" method indicate an uneven development of its structural components among medical students (Table 1). A high overall level of EI was recorded in 28.8 % of respondents, while low and very low levels together constitute 34 % of the sample. The most developed is interpersonal EI, which combines understanding and managing the emotions of others. The majority of students (77.8 % – the sum of average and high levels) demonstrate the ability to navigate effectively the emotional state of a communication partner.

The most problematic area is intrapersonal EI – the ability to understand and manage one's own emotions. Almost half of the sample (49.3 %) have a low or very low level for this component. This means that future doctors are better at reading and regulating the state of others than at understanding and managing their own experiences. Understanding emotions, the ability to analyse and verbalise one's own and others' emotions, is accessible at a high level only to a small part of respondents (18.6 %) and is poorly developed in almost half of the students (46.4 %). Only 29.6 % of respondents possessed a high level of the skill of purposeful emotional management. For more than a third (37 %), this competence is extremely limited. Thus, even with an understanding of the situation and a general orientation towards others, many students demonstrated a deficit in the skills and abilities to transform negative emotional states into a constructive direction. At the same time, developed interpersonal EI acts as a powerful resource for establishing contact with the patient and serves as the basis for empathy, whereas critically low intrapersonal EI and deficient understanding and management of emotions form a vulnerability in the future doctor's own personality.

The results presented in Table 2 indicate that psychological defenses in medical students, in groups defined by different (high and low) levels of OEI, have significant differences in their characteristics. In the group of students with a high level of OEI, statistically significantly lower scores were recorded for a number of scales belonging to the cluster of psychotic defenses, compared to the low OEI group. The most pronounced differences,

Table 1. Distribution of respondents by development levels of emotional intelligence (EI) components according to the "EmIn" method ($n=392$, %)

Таблица 1. Распределение респондентов по уровням развития компонентов эмоционального интеллекта (ЭИ) по методике «ЭмИн» ($n=392$, %)

Levels EI	Overall EI	Main scales of the "EmIn" method			
		Interpersonal EI	Intrapersonal EI	Understanding emotions	Managing emotions
Very low	20.2	11.5	23.0	24.0	16.3
Low	13.8	10.7	26.3	22.4	20.7
Average	37.2	34.9	30.9	34.9	33.4
High	28.8	42.9	19.9	18.6	29.6

Table 2. Comparison of the expression of non-adaptive psychotic defenses in students with low and high levels of overall emotional intelligence
Таблица 2. Сравнение выраженности неадаптивных психотических защит у студентов с низким и высоким уровнем общего эмоционального интеллекта

Subscales	Group with low OEI (n=135)			Group with high OEI (n=114)			Mann-Whitney U-test value	Level Z
	Level of psychological defense intensity							
	High	Average	Low	High	Average	Low		
Dissociation	19.3	77.0	3.7	9.6	69.3	21.1	5165.0*	-4.5
Regression	19.3	77.0	3.7	4.4	68.4	27.2	3357.5*	-7.7
Hypochondriasis	37.0	62.2	0.7	27.2	69.3	3.5	7342.0	-0.6
Isolation	19.3	69.6	11.1	13.2	45.6	41.2	5043.0*	-4.7
Repression	10.4	83.7	5.9	3.5	68.4	28.1	4665.0*	-5.4

Note. * statistically significant differences at the level of $p < 0.05$.

Примечание. * достоверно значимые различия на уровне $p < 0,05$.

confirmed by the Mann-Whitney U -test ($p < 0.05$), were found for the defenses of isolation, dissociation, and regression. However, for the hypochondriasis scale, no significant differences were found between the groups. The most pronounced psychotic defenses in students with low OEI are dissociation, regression, and isolation (19.3 % each), while repression occurs almost half as often (10.4 %). Comparison of groups with low and high OEI using the Mann-Whitney U -test revealed statistically significant differences across all indicators of psychotic defenses ($p < 0.05$), except for hypochondriasis.

Hypochondriasis, as a defense mechanism, manifests with equal intensity regardless of group membership. The absence of significant differences (Mann-Whitney test: ($n_1=114$, $n_2=135$; $U_{EMP}=7342$, $p=0.53$) indicates that this defense method is not a differentiating feature for the compared groups, supported by the lack of a significant correlation (Spearman's $r_s = -0.029$, $p > 0.05$) in the overall sample. Comparison of groups with low and high OEI using the Mann-Whitney U -test revealed statistically significant differences across all indicators of psychotic defenses ($p < 0.05$), except for hypochondriasis.

The results of the comparative analysis, presented in Table 3, indicate the presence of both statistically significant differences and similarities in the expression of immature psychological defenses between groups of students with low and high levels of OEI. Thus, in the low OEI group, the high rate of displacement use was 17.0%, and the average rate was 74.8 %, which is statistically significantly different from the high OEI group ($U=3504$, $p < 0.05$). However, 21.9 % of medical students from the high OEI group exhibit an avoidant type of coping with frustration in the form of denial, where anxiety factors are recognised, although their danger is rejected. Passive aggression, as a form of defense mechanism, is observed in 17.8 % of students from the low OEI group. In addition, as with hypochondriasis, the groups are indistinguishable regarding the psychological defense mechanism of projection

($n_1=114$, $n_2=135$; $U_{EMP}=6873$, $p=0.15$ ($p > 0.05$)); the level of OEI is not related (Table 2) to attributing one's own unacceptable feelings, motives, ideas, etc., to other people, shifting personal responsibility onto them.

The results of the comparative analysis indicate the presence of both statistically significant differences and similarities in the expression of neurotic psychological defenses between groups of students with low and high levels of OEI (Table 4). For two neurotic defenses: reaction formation and omnipotent control, there are no significant differences in the studied subgroups ($n_1=114$, $n_2=135$; $U_{EMP}=6789$, $p=0.16$ and $n_1=114$, $n_2=135$; $U_{EMP}=6658$, $p=0.18$ ($p > 0.05$)). Significant differences were found for the defense mechanism of rationalization ($n_1=114$, $n_2=135$; $U_{EMP}=6178$, $p < 0.05$). 17.0 % of respondents from the low OEI group actively use this neurotic psychological defense. In the high OEI group, the frequency in this segment is 28.1 %, which is, as expected, higher.

The frequency of a high level of avoidance as a defense mechanism – a way of escaping situations that pose a potential threat to self-esteem – is observed in 17.0 % of the low OEI group, whereas in the high OEI group this figure is 5.3%. It can be assumed that medical students from the high OEI group are more self-aware overall, since the frequency of low usage of avoidance as a defense mechanism among them is 38.6%, which is confirmed by statistics ($n_1=114$, $n_2=135$; $U_{EMP}=3589$, $p < 0.05$).

Analysis of adaptive defense mechanisms in the studied groups suggests that, overall, their usage frequencies lie in the average to high range; however, the data differ proportionally between the low and high OEI groups (Table 5). Sublimation, as a very frequently used defense mechanism, is characteristic of 69.3 % of respondents from the high OEI group. The Mann-Whitney test statistic for these groups indicates their statistical distinction ($n_1=114$, $n_2=135$; $U_{EMP}=3129$, $p < 0.05$). For the low OEI group, the high level of sublimation is 27.4 %. It can also be assumed that the OEI level is related to the frequency difference in these defense mechanisms across the groups,

Table 3. Distribution of students with low and high levels of overall emotional intelligence (OEI) by levels of expression of immature psychological defenses, %
Таблица 3. Распределение студентов с низким и высоким уровнем общего эмоционального интеллекта (ОЭИ) по уровням выраженности инфантильных психологических защит, %

Subscales	Group with low OEI (n=135)			Group with high OEI (n=114)			Mann-Whitney U-test value	Level Z
	Level of psychological defense intensity							
	High	Average	Low	High	Average	Low		
Displacement/Transference	17.0	74.8	8.1	8.8	41.2	50.0	3504.5*	-7.4
Projection	56.3	43.0	0.7	43.9	54.4	1.8	6873.5	-1.4
Compulsive behaviour	28.1	67.4	4.4	17.5	71.1	11.4	5843.5*	-3.3
Passive aggression	17.8	81.5	0.7	14.9	75.4	9.6	5675.5*	-3.6
Denial	4.4	75.6	20.0	21.9	71.9	6.1	4440.5*	5.7

Note. * statistically significant differences at the level of $p < 0.05$.

Примечание. * достоверно значимые различия на уровне $p < 0,05$.

Table 4. Distribution of students with low and high levels of overall emotional intelligence (OEI) by levels of expression of neurotic psychological defenses, %
Таблица 4. Распределение студентов с низким и высоким уровнем общего интеллекта (ОЭИ) по уровням выраженности невротических психологических защит, %

Subscales	Group with low OEI (n=135)			Group with high OEI (n=114)			Mann-Whitney U-test value	Level Z
	Level of psychological defense intensity							
	High	Average	Low	High	Average	Low		
Rationalisation	17.0	82.2	0.7	28.1	71.9	0.0	6177.5*	2.7
Avoidance	17.0	78.5	4.4	5.3	56.1	38.6	3589.0*	-7.3
Reaction formation	18.5	78.5	3.0	15.8	81.6	2.6	6789.0	-1.6
Compensation	23.7	72.6	3.7	17.5	71.1	11.4	6124.5*	-2.8
Omnipotent control	8.1	65.2	26.7	16.7	66.7	16.7	6657.5	1.8

Note. * statistically significant differences at the level of $p < 0.05$.

Примечание. * достоверно значимые различия на уровне $p < 0,05$.

as Spearman's rank correlation coefficient for them is $r_s = 0.40$, $p < 0.05$ ($r_k = 0.11$ with $n = 392$).

A similar pattern in the frequency of use between groups is observed for the defense mechanism of humor (a rationalizing type of frustration coping). 68.4% is the high frequency of occurrence of the defense in the high OEI group, and 34.8% is the high frequency in the low OEI group ($n_1 = 114$, $n_2 = 135$; $U_{EMP} = 4649$, $p < 0.05$). The defense mechanism of altruism is mainly represented by high and average usage frequencies

(64.9% and 32.5%); however, in the low OEI group, the average level dominates (58.5%), whereas in the high OEI group, the high level dominates. The differences between the groups are statistically significant ($n_1 = 114$, $n_2 = 135$; $U_{EMP} = 5101$, $p < 0.05$). A similar result indicating differences between the groups ($n_1 = 114$, $n_2 = 135$; $U_{EMP} = 6395$, $p < 0.05$) is found after analyzing the defense mechanism of anticipation. In both studied groups, the average and high levels of using the defense mechanism of suppression predominate.

Table 5. Expression of adaptive psychological defenses in students with low and high levels of overall emotional intelligence (OEI), %
Таблица 5. Выраженность адаптивных психологических защит у студентов с низким и высоким уровнем общего эмоционального интеллекта (ОЭИ), %

Subscales	Group with low OEI (n=135)			Group with high OEI (n=114)			Mann-Whitney U-test value	Level Z
	Level of psychological defense intensity							
	High	Average	Low	High	Average	Low		
Sublimation	27.4	68.1	4.4	69.3	30.7	0.0	3128.5*	8.1
Altruism	40.7	58.5	0.7	64.9	32.5	2.6	5100.5*	4.6
Suppression	47.4	51.9	0.7	43.0	56.1	0.9	7491.0	-0.4
Anticipation	47.4	52.6	0.0	60.5	39.5	0.0	6394.5*	2.3
Humor	34.8	63.0	2.2	68.4	29.8	1.8	4648.5*	5.4

Note. * statistically significant differences at the level of $p < 0.05$.

Примечание. * достоверно значимые различия на уровне $p < 0,05$.

The Mann-Whitney U-test indicates no differences between the groups for this type of defense ($n_1=114$, $n_2=135$; $U_{EMP}=7491$, $p=0.36$ ($p > 0.05$)).

The results of the analysis of the distribution of psychological well-being levels among medical students indicate a predominance of respondents with moderate indicators, with comparable numbers in the extreme groups (Table 6). Primary data analysis revealed that the majority of students (63.3 %) are characterized by a moderate level of psychological well-being. At the poles of the distribution, groups of comparable size were found: 18.9 % of respondents are at the level of insufficient well-being, while a full, harmonious state of personal flourishing, including meaningfulness, engagement, and achievement, is accessible to 17.9 % of students. Thus, the distribution of respondents by levels of psychological well-being is asymmetric with a predominance of average values.

Correlation analysis revealed statistically significant relationships between OEI and the expression of a number of psychological defense mechanisms, the nature of which differs

depending on the type of defense mechanism (Table 7). Statistically significant negative correlations (at $p < 0.05$) were recorded for the following groups of defense mechanisms: immature defenses (regression, $r_s = -0.38$; passive aggression, $r_s = -0.21$), neurotic defenses (avoidance, $r_s = -0.39$), and psychotic defenses (dissociation, $r_s = -0.25$). No statistically significant relationships were found between OEI and defenses such as hypochondriasis, projection, and suppression.

The presence of a relationship between EI and the psychological well-being of medical students was demonstrated by the analysis of contingency tables (Pearson's χ^2). It was found that in the group of students with low OEI, the proportion of individuals with insufficient well-being (39.8 %) is significantly higher than in the group with high OEI (4.4 %), while the proportion of individuals with harmonious well-being shows the opposite trend (9.8 % and 24.8 %, respectively). Statistical analysis confirmed the high significance of these differences ($\chi^2(4, N=392)=61.9$, $p < 0.001$), indicating the existence of a non-random relationship between the constructs under study.

Table 6. Distribution of students with low and high levels of overall emotional intelligence (OEI) by levels of psychological well-being, %

Таблица 6. Распределение студентов с низким и высоким уровнем общего эмоционального интеллекта (ОЭИ) по уровням психологического благополучия, %

OEI levels	Levels of psychological well-being expression		
	Insufficient	Moderate	Harmonious
Low (n=133)	39.8	50.4	9.8
Average (n=146)	11.0	69.2	19.9
High (n=113)	4.4	70.8	24.8
Total (N=392)	18.9	63.3	17.9

Table 7. Relationship between overall emotional intelligence and indicators of defense mechanisms (Spearman's rank correlation coefficients)**Таблица 7.** Взаимосвязь общего эмоционального интеллекта с показателями защитных механизмов (коэффициенты ранговой корреляции Спирмена)

Psychotic		Immature		Neurotic		Adaptive	
Mechanism	<i>r</i>	Mechanism	<i>r</i>	Mechanism	<i>r</i>	Mechanism	<i>r</i>
Dissociation	-0.25*	Displacement/ Transference	-0.39*	Rationalisation	0.16*	Sublimation	0.40*
Regression	-0.38*	Projection	-0.09	Avoidance	-0.39*	Altruism	0.22*
Hypochondriasis	-0.03	Compulsive behaviour	-0.18*	Reaction formation	-0.12*	Suppression	-0.02
Isolation	-0.26*	Passive aggression	-0.21*	Compensation	-0.13*	Anticipation	0.12*
Repression	-0.27*	Denial	0.29*	Omnipotent control	0.12*	Humor	0.28*

Note. *Critical value (*rk*) at $n=392$ for $p<0.05$ is 0.11 (correlations are significant).

Примечание. *Критическое значение (*rk*) при $n=392$ для $p<0,05$ равно 0,11 (связи значимы).

DISCUSSION

The main result of the study was the identification of the systemic nature of the relationships between EI, defense mechanisms, and psychological well-being in medical students. A high level of EI is associated with the use of mature defenses and higher psychological well-being, while low EI is combined with immature and neurotic defenses and insufficient well-being.

Among the medical students in this sample, 34 % demonstrate a low level of EI, which requires targeted correction. Research shows that with such indicators, students have an increased risk of emotional burnout in the future [19]. In the majority of students (66 %), the level of EI corresponds to the norm and is sufficient for performing professional tasks; however, a detailed analysis revealed insufficient formation of key components – understanding and managing emotions, which are critically important for psychological health and future professional activity [16]. The most concerning finding is the imbalance: interpersonal EI is significantly better developed (77.8 %) than intrapersonal EI (deficit in 49.3 %). While being focused on empathic understanding of others, students are less able to recognise and regulate their own experiences, which creates a risk of emotional burnout [4]. The deficit in managing emotions (in 37 %) and understanding emotions (in 46.4 %) confirms that emotions are often recognised without analysing their causes, reducing the effectiveness of coping with stress.

Negative correlations of OEI with regression ($rs=-0.38$), passive aggression ($rs=-0.21$), avoidance ($rs=-0.39$), and dissociation ($rs=-0.25$) confirm that low EI is associated with primitive ways of responding to stress. Students with low OEI significantly more often use displacement (17.0 %), denial (21.9 %), and passive aggression (17.8 %). The absence of differences in projection and hypochondriasis suggests their connection with deep personality structures rather than with the level of EI, and they require targeted correction of psychological defenses [20].

Among neurotic defenses, high OEI is, as expected, associated with less use of avoidance (5.3 % vs. 17.0 %); however, rationalisation is more common precisely in the high EI group (28.1 % vs. 17.0 %). Probably, future doctors use intellectualisation as a socially acceptable way of coping with anxiety, which may serve an adaptive function in the initial stages of training.

The conducted study showed that students with high EI more often use the following adaptive mechanisms: sublimation ($rs=0.40^*$), humor ($rs=0.28^*$), and altruism ($rs=0.22^*$), which is consistent with data on their role in maintaining psychological balance [10]. Differences in anticipation (60.5 % in the high EI group) indicate the ability of emotionally competent students to realistically predict the future. The absence of differences in suppression ($p=0.36$) suggests the universality of this mechanism, which is not related to the level of EI.

A study of the psychological well-being characteristics of psychology students found that students with an average level of EI had a significantly higher indicator of psychological well-being [16]. A higher level of EI is associated with the mental health of medical students [2; 7]. Our study also revealed a close relationship between the level of OEI and psychological well-being ($\chi^2=61.9$, $p<0.001$): with an increase in EI, the proportion of students with insufficient well-being decreases (from 39.8 % to 4.4 %) and the proportion of those who achieved a harmonious state increases (from 9.8 % to 24.8 %). This allows considering high EI as a protective factor, and low EI as a risk factor, which is consistent with data on the role of EI in preventing burnout in medical students [4; 16; 19]. Along with values and optimism, EI and defense mechanisms also act as significant determinants of psychological well-being [12].

Thus, it can be concluded that high EI acts as a protective factor, and low EI as a risk factor for the psychological well-being of students. The obtained data confirm the presence of a "dose-dependent" effect: with an increase in

the level of OEI, the proportion of respondents with insufficient well-being systematically decreases, and the proportion of those who achieved a harmonious state increases.

Study limitations

Despite the significant results obtained, this study has a number of limitations that should be considered when interpreting the findings and planning further research.

Since this study was conducted on a sample of second-year medical students from a single university and with a predominance of females – which, although typical for many medical universities, does not automatically allow generalising the results to all medical students. The obtained correlations require further verification on a gender-balanced sample, as there are data on gender differences in the expression of individual components of EI and preferences for defense mechanisms. The results obtained are valid for students at the initial stage of training (second year) and cannot be extrapolated to senior students without additional research.

Despite these limitations, this study contributes to understanding the relationship between EI, psychological defense mechanisms, and the psychological health of medical students at the initial stage of professional training.

CONCLUSIONS

This study revealed a significant correlation between the level of EI and the choice of psychological defense strategies, as well as the presence of a relationship between EI and the psychological well-being of medical students. Students with high EI use non-adaptive defenses (immature, neurotic) less frequently, preferring sublimation and humor. Conversely, with low EI, rigid and maladaptive mechanisms predominate, hindering stress-coping behaviour. In the group of students with low EI, the proportion of individuals with insufficient well-being is significantly higher than in the group with high EI, while the proportion of individuals with harmonious well-being shows the opposite trend.

The results confirm the necessity of conducting timely research aimed at identifying the level of EI development, as well as assessing psychological defenses in future medical professionals, and for introducing EI development programs into the educational process, aimed at forming skills for awareness and regulation of emotions and reducing the manifestation of immature defenses. In our opinion, such an approach at the initial stages of training can become an effective measure for preventing emotional burnout and psychological health disorders in senior years and in subsequent professional activities.

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Эмоциональный интеллект и защитные механизмы как детерминанты психологического здоровья студентов-медиков

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Аннотация. Проблема. Несмотря на признание роли эмоционального интеллекта (ЭИ) и защитных механизмов в адаптации личности, их системное влияние на психологическое здоровье студентов-медиков, находящихся в условиях интенсивного стресса и профессионального становления, остается недостаточно изученным. Отсутствие данных о специфике взаимосвязей данных конструктов у будущих врачей препятствует разработке адресных программ психологического сопровождения. Цель. Выявление характера взаимосвязей эмоционального интеллекта с механизмами психологической защиты и показателями психологического здоровья студентов-медиков, а также сравнительный анализ выраженности защитных механизмов и уровня психологического благополучия в группах с различным уровнем эмоционального интеллекта. Методы. Выборку составили 392 студента второго курса медицинского вуза. Применялись: опросник «ЭмИн» (Д.В. Люсин, 2006) для диагностики эмоционального интеллекта; методика измерения психологических защит «МИПЗ» (Е.Р. Пилюгина, Р.Ф. Сулейманов, 2020); опросник PERMA-Profilер (J. Butler, M.L. Kern, 2016) в адаптации О.М. Исаевой, А.Ю. Акимовой, Е.Н. Волковой для оценки психологического благополучия. Статистическая обработка включала сравнительный (U -критерий Манна–Уитни), корреляционный анализ (r_s -Спирмен) и анализ таблиц сопряженности (χ^2 Пирсона). Результаты. Выявлен дисбаланс компонентов ЭИ: при высоком межличностном ЭИ (77,8 %) у 49,3 % студентов диагностирован дефицит внутриличностного ЭИ. Установлены отрицательные корреляции общего ЭИ с регрессией ($r_s=-0,38$), избеганием ($r_s=-0,39$) и диссоциацией ($r_s=-0,25$) и положительные – с сублимацией ($r_s=0,40$) и юмором ($r_s=0,28$). Обнаружены значимые различия в выраженности адаптивных и незрелых защит между группами с высоким и низким уровнем ЭИ. Выявлена тесная связь ЭИ с психологическим благополучием ($\chi^2=61,9$; $p<0,001$): в группе низкого ЭИ доля лиц с недостаточным благополучием составляет 39,8 %, в группе высокого ЭИ – 4,4 %. Выводы. Высокий эмоциональный интеллект сопряжен с использованием зрелых защитных механизмов и более высоким уровнем психологического благополучия. Полученные данные обосновывают необходимость целенаправленного развития внутриличностного компонента ЭИ у студентов-медиков для профилактики нарушений психологического здоровья и эмоционального выгорания.

Ключевые слова: эмоциональный интеллект; защитные механизмы; психологическое здоровье; стрессоустойчивость; студенты-медики; профессиональные компетенции

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