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Psychological Defenses of Students in the Implementation of Coping Strategies

Психологічні захисти студентів у реалізаціях долаючої поведінки

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Abstract

Aim. To determine the relationship between the levels of actualization of psychological defenses and students' choices of various coping strategies in conditions of intense stressors. It is assumed that for students who are passionate about the learning process and motivated to successfully master educational and professional competencies and develop skills and abilities, the actualization of psychological defenses in stressful conditions inhibit the necessary focus on solving various problems and help to avoid problem situations. **Methods.** The study involved 83 bachelor's and master's degree students aged min = 18 to max = 39 years. All respondents consented to the survey. The sample was created randomly. Three valid and reliable psychodiagnostic instruments were used, which were adapted to the Ukrainian sample: the questionnaire "Lemour-Tessier-Fillion Psychological Stress Scale (PSM-25)" (O. Shtepa); the "Lifestyle Index" method (G. Kellerman, R. Plutchyk, H. Conte); and "Coping Strategies Indicator" (CSI) (D. Amirkhan). **Results.** It was established that respondents under stress, when choosing coping strategies, are mostly oriented towards problem-solving strategies (medium to high levels) and least inclined to avoid problem situations (low levels of expression). It was found that respondents with heightened stress-induced mental tension, mainly at the average level of expression, have an increased tendency to choose a coping strategy oriented towards avoidance, along

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Анотація

Мета. Визначення зв'язку рівнів актуалізації психологічних захистів і виборів студентами різних копінг-стратегій в умовах інтенсивних стресогенних впливів. Зроблено припущення, що для студентів, які захоплені процесом навчання і вмотивовані на успішне опанування навчально-професійних компетенцій, формування умінь та навичок, актуалізація психологічних захистів у стресогенних умовах гальмує необхідну спрямованість на вирішення різноманітних проблем і сприяє уникненню проблемних ситуацій. **Методи**. У дослідженні взяли участь 83 здобувачі бакалаврського та магістерського рівнів вищої освіти у віці від min = 18 до max = 39 років. Усі респонденти надали згоду на проходження опитування. Вибірку створено рандомним чином. Використано три валідні й надійні психодіагностичні інструменти, що пройшли адаптацію на українській вибірці: опитувальник "Шкала психологічного стресу Лемур-Тесьє-Філліона (PSM-25) (О. Штепа); методику "Індекс життєвого стилю" (Г. Келлерман, Р. Плутчик, Х. Конте); "Індикатор копінг-стратегій" (CSI) (Д. Амірхан). **Результати.** Установлено, що респонденти в умовах впливу стресогенних факторів при виборі копінг-стратегій здебільшого орієнтуються на стратегію вирішення проблем (рівень виразності середній, але близький до високого) і менш за все налаштовані на уникнення від проблемних ситуацій (низький рівень виразності). Констатовано, що в респондентів з підвищеним стресогенним

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with increased activation of such psychological defenses as regression, substitution, projection, compensation, and rationalization. **Discussion and conclusions.** It is substantiated that in students with increased stressogenic mental tension, mainly at an average level of severity, a noticeable strengthening of psychological defenses in the adaptation process is observed, which, with a high probability, provides sufficient support for the integrity of the mental organization and does not significantly hinder an adequate response to current threats and challenges.

Keywords: coping strategies, academic stress, distress, motivation, educational and professional competencies, adaptation, neuropsychiatric tension, tension states.

психічним напруженням переважно до середнього рівня виразності спостерігається збільшення схильності до обрання копінг-стратегії, зорієнтованої на уникнення, разом з посиленням активації таких психологічних захистів, як регресія, заміщення, проєкція, компенсація, раціоналізація. **Дискусія і висновки**. Обґрунтовано, що у студентів з підвищеним стресогенним психічним напруженням переважно до середнього рівня виразності відстежується помітне посилення психологічних захистів в адаптаційному процесі з високою ймовірністю забезпечує і достатню підтримку цілісності психічної організації, і суттєво не перешкоджає адекватному реагуванню на актуальні загрози та виклики.

Ключові слова: копінг-стратегії, академічний стрес, дистрес, мотивація, навчально-професійні компетенції, адаптація, нервово-психічна напруга, тензійні стани.

Introduction

In modern conditions, the volume and complexity of knowledge that are necessary for the successful self-realization of future and current specialists in most areas of professional activity are steadily and rapidly increasing. At the same time, new professionally important information, together with the rapid update of equipment and technologies, quickly becomes obsolete and becomes not only unnecessary, but also, due to the inertia of the individual experience system, makes it difficult to update the resource of necessary knowledge, skills, and abilities. As a result, due to the increase in information load in the process of forming and maintaining professional suitability, mental stress in students and specialists increases significantly, and the likelihood of the emergence and consolidation of distress increases. At the same time, the stressogenicity of students' learning is increased due to the influence of numerous extreme economic and social factors, conditions of long-term distance learning, problems in determining the prospects for the future, and, accordingly, maintaining sufficient positive motivation for cognitive activity (Akram et al., 2023; Emranet al., 2024; Olson et al., 2025; Plokhikh et al., 2025a; Plokhikh et al., 2025b; Salari et al., 2020).

In essence, any learning can be considered a process of organized, purposeful transition of the individual and the system of his individual experience from the option of ignorance and uncertainty regarding important information to a more developed option of sufficient assimilation and understanding of new information, with the possibility of its subsequent implementation in the practical plane. Such a transition is a normatively regulated overcoming and elimination by the subject of educational activity of the current uncertainty and limitations of the system of experience through the solution of special educational tasks. On the other hand, the factor of uncertainty is considered one of the determinants of psychological stress (Peters et al., 2017; Valencia-Florez et al., 2023). In view of the latter, the educational activity itself turns out to be such that it is highly likely to cause a significant increase in stress-induced mental stress and, in certain circumstances, and often in a regulated manner (exams, tests, defense of individual works), causes the development of academic stress (Barbayannis et al., 2022; Granada-Granada et al., 2025; Ruiz-Camacho, & Gozalo, 2025; Suriakumar et al., 2025). With increased educational load, especially when students must self-organize and plan educational activities, prolonged stress can become chronic, with significant negative consequences for mental and physical health (Peters et al., 2017; Valencia-

Florez et al., 2023; Yaribeygi et al., 2017).

Moderate short-term stress, due to the activation of personal and intellectual potential during the adaptation process, contributes to the improvement of cognitive functions and practical implementation of the subject; a variant of eustress is realized (Sabaliauskas et al., 2025; Selye, 1975; Yaribeygi et al., 2017). In students' studies, it is in the intense mode of cognition within the structure of individual experience that new associations are formed more effectively, new semantic relationships are understood, abilities develop, and sequences of actions for the implementation of skills and abilities are firmly established. However, chronic stress ("toxic stress") becomes exhausting and destructive in terms of learning opportunities and personal resources of stress resistance (Candeias et al., 2024; Nater, 2021; Van der Hallen et al., 2020). Under the pressure of academic overload and the numerous stressors that accompany it, students' motivation for learning decreases, cognitive functions weaken, the error rate of decisions and actions increases, and the overall effectiveness of acquiring new knowledge, skills, and abilities decreases. At the same time, the development of a general, stable negative attitude towards learning as a kind of protective reaction against threats of self-destruction can be significant for the individual.

Under stress, a person activates previously formed protective mechanisms of the psyche (Plokhikh, 2022; Plokhikh, & Bilous, 2025). Psychological defenses are implemented through mental and behavioral automatisms. In content, psychological defense mechanisms are considered a safeguard against a person's awareness of internal and external dangers, as a kind of means of distancing oneself from the perception of information that contradicts and poses a threat to the integrity of the "self-concept" (APA, 2013; Walkera, & McCabe, 2021). In primary reactions to stressogenic influences, the individual tends to involuntarily distance itself, to evade messages that threaten its integrity, stability, and dignity. Usually, educational material is not dangerous, threatening, or fundamentally incomprehensible to the student. However, when the total volume of educational material significantly exceeds the student's cognitive capabilities, the initial reaction is likely to activate psychological defenses, eliminating part of the information from perception. In this case, the eliminated information may be significant.

Psychological defenses are divided into mature and immature (Carvalho et al., 2019; Zeigler-Hill et al., 2008). Immature defenses are associated with the compensatory development of problematic mental states of anxiety, depression, and eating disorders. On the contrary, mature defenses are assessed in terms of a person's success in their activity and satisfaction with their life. Along with this, it is also important to what extent information that is significant for solving current tasks is unconsciously blocked through psychological defenses. Even if the mechanisms of mature psychological defenses have been actualized, because of this, along with the weakening of significant mental tension, significant information is lost, and solving the current task in the necessary completeness becomes difficult or impossible. The latter in critical, stressful conditions can have fatal consequences. Local failures in solving educational tasks, in themselves, are not particularly critical or problematic. A student can often solve previously unresolved problems again in more favorable conditions. But even this option can be limited by the deadline factor and lead to the development of mental stress due to a lack of time.

In stressful conditions, students choose different strategies to organize their actions. The most desirable, of course, is a positive outcome of the educational process with reliable assimilation of professionally important knowledge, skills, and abilities, and all this accompanied by a high formal assessment of success. But sometimes students consider, for example, only formal guidelines for completing training with indirect options for achieving a satisfactory result through various resources in the social environment and the flexibility of their own compensatory behavior. It is the latter option that is similar in content to the implementation of psychological defenses. In contrast, full-fledged learning requires students to successfully solve all basic educational tasks under any conditions, with an appropriate general positive attitude and a strategy for organizing educational actions.

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The cognitive concept of stress, in terms of the individual's adaptive resources, involves various coping strategies (Lazarus, & Folkman, 1987). In reality, the subject's choice of a specific coping strategy must, to a large extent, be coordinated with current circumstances (Sattar et al., 2022; Van der Hallen et al., 2020; Waterhouse, & Samra, 2025). For students, the most acceptable should be orientation to solving problems. Along with this, various psychological defenses activated in response to the development of academic and other stress can limit educational activity and conceal information important to solving educational tasks. Thus, the question arises about the consistency between students' disposition towards full-fledged learning and the forced restrictions imposed by the action of various psychological defenses under stressful conditions of activity.

The aim of the research is to determine the relationship between the levels of actualization of psychological defenses and students' choices of various coping strategies under conditions of intense stress.

The hypothesis of the research. For students who are oriented towards the learning process and motivated to successfully master professional knowledge, skills, and abilities, the actualization of psychological defenses in stressful conditions can inhibit the necessary focus on solving various problems and help avoid problem situations.

Methods

Methodology. The methodological basis of the empirical study was based on the following theoretical approaches: systemic, the concept of psychological defenses, and concepts of stress by H. Selye (1975), R. Lazarus and S. Folkman (1987).

Participants. The empirical study involved 83 male and female students (bachelor's and master's levels of higher education) who were citizens of Ukraine (age in years: Me = 19.00; min = 18.00; max = 39.00). There were six males. The subjects voluntarily agreed to participate in the study with the possibility of later refusal. The sample of subjects was randomly selected.

Variables. In the empirical study, students were diagnosed with stress-induced mental stress, psychological defenses, and coping strategies. The parameters of the general tension of psychological defense and the level of manifestation of the following psychological defense mechanisms were determined: displacement, regression, substitution, denial, projection, compensation, hypercompensation, and rationalization. The following coping strategies were found to have advantages: problem-solving, seeking social support, and avoiding problems.

Organization of Research. Empirical research is correlational. Empirical data were obtained in the first quarter of 2026. The empirical research was conducted during the academic semester. Test tasks with instructions for completion were provided by the research package via e-mail. The results of the test tasks were returned to the researchers by the research participants via e-mail.

Procedures and Instruments. The subjects performed tasks using three standardized test methods: a method for assessing manifestations of psychological defenses; a method for diagnosing stress-induced mental stress; and a method for examining tendencies to use various coping strategies.

The severity of stress-induced mental stress was diagnosed using the Psychological Stress Scale by Lemur-Tessier-Fillion (PSM-25) (Shtepa, 2012). The values of the psychological stress index (PSI) diagnosed using the PSM-25 method were analyzed using the following scale to determine the level of stress: low – less than 100 points; medium – 100 ÷ 154 points; high – more than 155 points.

To assess the severity of manifestations of the studied psychological defenses, the "Lifestyle Index" method was used (questionnaire by G. Kellerman, R. Plutchik, H. Conte). The method determines the severity of activation of eight mechanisms of psychological defense of the individual (repression, regression, substitution, denial, projection, compensation, hypercompensation, rationalization) in percentage terms, as well as the overall tension of psychological defenses. A significant level of manifestation of psychological defense mechanisms is defined as exceeding 50% (Neurova et al., 2016).

The propensity to use various coping strategies was determined using the "Coping Strategy Indicator" (CSI) method (D. Amirkhan). The levels

of expressiveness in the use of coping strategies were as follows: very low ("problem-solving" < 16 points; "seeking social support" < 13 points; "avoiding problems" < 15 points), low ("problem-solving" – 17 ÷ 21 points; "seeking social support" – 14 ÷ 18 points; "avoiding problems" – 16 ÷ 23 points), medium ("problem-solving" – 22 ÷ 30 points; "seeking social support" – 19 ÷ 28 points; "avoiding problems" – 24 ÷ 26 points), high ("problem-solving" > 31 points; "seeking social support" > 29 points; "avoiding problems" > 27 points) (Zlyvkov et al., 2016).

Statistical Analysis. For quantitative analysis of empirical data, IBM SPSS Statistics 20 was used. The internal consistency of the diagnosed parameters was assessed using Cronbach's α. In the general group of subjects, a group with signs of low stress (n = 39) and a group with signs of medium and high stress (n = 44) were distinguished. The correspondence of the distribution of data samples to the normal law was determined by the Kolmogorov-Smirnov test. The statistical correlation between the diagnosed parameters was established using Spearman's correlation coefficient (Rs). Statistical differences between groups of subjects were determined using the Mann-Whitney U-test. The advantages of using different coping strategies within the selected groups were established by the Friedman and Wilcoxon signed-rank statistical criteria.

Results

The obtained empirical data are internally consistent (α = .829). For most of the parameters considered, the distributions of data samples in the general group and in separate groups of subjects differ from normal (Kolmogorov-Smirnov test). Given this, the statistical relationship between the parameters was determined using Spearman's correlation coefficient. In the general group of subjects, the presence of significant direct relationships of psychological defenses with the severity of stress-induced mental stress was established (Table 1). Along with this, only the coping strategy of avoiding problems has a significant direct relationship with stress-induced mental stress (r_s = .447; p < .001).

Table 1. Statistical relationship (Spearman's test) between psychological defenses and stress-induced mental tension in the general group of subjects

Statistical parameter	Dp	Rg	Sb	Dn	Pj	Cp	Hc	Rn	TPV
r_s	.271*	.509**	.513**	.129	.371**	.442**	.289**	.196	.584**
p	.013	< .001	< .001	.247	.001	< .001	.008	.077	< .001

Note: SP – statistical parameter; Dp – displacement; Rg – regression; Sb – substitution; Dn – denial; Pj – projection; Cp – compensation; Hc – hypercompensation; Rn – rationalization; TPV – total protection voltage; * – p ≤ .050; ** – p ≤ .001.

Statistical relationships between the psychological defenses of the subjects and their propensities to choose coping strategies were also examined (Tabl. 2).

Table 2. Statistical relationship (Spearman's test) between psychological defenses and the use of coping strategies in the general group of subjects

Psychological Defenses	Statistical parameters	Coping Strategies		
		Problem-Solving	Seeking Social Support	Avoiding Problems
Displacement	r_s	-.241*	-.100	.160
	p	.028	.368	.148

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Regression	r_s	-.258*	.205	.337**
	p	.018	.063	.002
Substitution	r_s	-.208	.085	.448**
	p	.059	.443	< .001
Denial	r_s	.066	.067	.016
	p	.554	.545	.889
Projection	r_s	-.146	-.084	.340**
	p	.187	.451	.002
Compensation	r_s	-.093	.403**	.411**
	p	.403	< .001	< .001
Hypercompensation	r_s	-.078	-.099	.238*
	p	.482	.373	.030
Rationalization	r_s	.139	.137	.086
	p	.209	.216	.442
Total Protection Voltage	r_s	-.182	.153	.473**
	p	.099	.168	< .001

Note: * – p ≤ .050; ** – p ≤ .001.

According to the level of stress-induced mental stress, the general group was divided into two groups. Group 1 included subjects (n = 39), in whom stress manifestations were practically absent (Me = 76.00; min = 30.00; max = 97.00). Group 2 consisted of subjects (n = 44) with mainly medium and in some cases high levels (Me = 117.50; min = 100.00; max = 172.00) of stress-induced mental states. According to the Mann-Whitney U-criterion, the groups were compared in terms of the expressiveness of psychological defenses and the degree of use of various coping strategies (Tabl. 3, Tabl. 4).

Table 3. Statistical comparison of the expressiveness of psychological defenses in the groups of subjects using the Mann-Whitney U-test

Group	SP	Dp	Rg	Sb	Dn	Pj	Cp	Hc	Rn	TPV
1 (n=39)	Me	30.00	29.40	10.00	36.00	42.00	20.00	30.00	50.00	34.00
	min	.00	.06	.00	9.00	.25	.00	.00	25.00	13.00
	max	90.00	88.00	100.00	100.00	100.00	100.00	100.00	100.00	96.70
2 (n=44)	Me	30.00	47.00	30.00	45.00	58.00	40.00	30.00	58.15	44.57
	min	.00	.06	.00	.00	.00	10.00	.00	16.66	20.00
	max	80.00	70.58	100.00	72.73	100.00	80.00	100.00	100.00	66.30
SP	U	657.50	402.00	430.50	764.00	587.50	511.50	688.00	657.50	361.00
	p	.064	.000	.000	.390	.013	.001	.115	.065	.000

Note: SP – statistical parameter; Dp – displacement; Rg – regression; Sb – substitution; Dn – denial; Pj – projection; Cp – compensation; Hc – hypercompensation; Rn – rationalization; TPV – total protection voltage.

Table 4. Statistical comparison of the expressiveness of the use of coping strategies in the study groups using the Mann-Whitney U-test

Group	Statistical parameters	Problem-Solving	Seeking Social Support	Avoiding Problems
1 (n=39)	Me	28.00	20.00	16.00
	min	17.00	11.00	11.00
	max	33.00	33.00	24.00
2 (n=44)	Me	26.00	22.50	19.50
	min	13.00	12.00	13.00
	max	32.00	33.00	29.00
SP	*U*	640.00	681.00	472.50
	p	.046	.106	.000

Within each group, the advantages in the use of coping strategies were determined using Friedman's statistical criteria and Wilcoxon's signed-rank test. In both groups, the subjects were most oriented towards problem-solving and least oriented towards problem avoidance (χ^2 = 37.660; df = 2; p < .001 and χ^2 = 22.037; df = 2; p < .001). Also, in both groups, the coping strategy of "problem-solving" ranked first in frequency of use, followed by requests for social support (Z = 5.451; p < .001 and Z = 5.781; p < .001). It should be added that in the general group of subjects, no significant statistical correlation was established between the coping strategy "problem-solving" and the coping strategies "avoiding problems" (r_s = -.054; p = .627) and "seeking social support" (r_s = .102; p = .361).

Discussion

According to the results obtained, more than half (53.0%) of the studied students are in a state of mostly moderate stress. Only in three cases (3.6%) was severe stress noted. Such a result can be considered characteristic of the student community in conditions of a significant semester academic workload. Naturally, during examination sessions, the frequency and intensity of stress usually increase. High values of indicators of stressful mental tension due to high academic demands are also noted according to the results of other studies, and this is rather the rule than the exception (Akram et al., 2023; Granada-Granada et al., 2025; Olson et al., 2025; Sabaliauskas et al., 2025).

As predicted, the increase in stress-induced mental stress in the general group is statistically directly linked to the increase in the manifestations of almost all the considered psychological defenses (see Tabl. 1). Accordingly, the overall level of expressiveness of the implementation of mental defense mechanisms in Group 2 is also significantly higher, compared to Group 1 (see Tabl. 3). However, most of the psychological defenses in both groups are manifested insignificantly. Significant expressiveness can primarily be noted only in relation to the manifestations of projection and rationalization in the studied subjects with a predominantly average level of stress. Compensatory reactions are also enhanced in stress. Thus, although the activity of psychological defenses in a state of stress among students increases during the semester of study, this increase is not critical and is unlikely to have a significant impact on the overall success of study.

Along with the increased activation of psychological defenses by students in a state of stress, their tendency to consciously choose the coping strategy of "avoiding problems" also increases (see Tabl. 2). Such synchronization of different processes, given the similarity of their functional orientation, is natural and completely understandable (automatic avoidance, blocking, distortion of unpleasant information and conscious avoidance of problematic circumstances and acute contradictions). At the same time, students' psychological defenses can be implemented in various and, sometimes, dangerous ways. Such options can be, for example,

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the abuse of psychoactive substances and alcohol (Sattar et al., 2022).

Moderate stress in the subjects contributes to a decrease in their general orientation to problem-solving (see Tabl. 4). However, in comparison with the other considered options for coping behavior, the indicated orientation adequate for the educational process in students remains a priority. At the same time, the orientation to problem-solving in both groups is much more prevalent, and the choice of the coping strategy "search for social support" is expressed at an average level. The latter result is also noteworthy given that, as evidenced in the literature, students under stress very often turn to friends, teachers, and relatives for help (Sattar et al., 2022; Suriakumar et al., 2025).

For the general group of subjects, correlation analysis showed that the choices of the coping strategy "problem-solving" are inversely statistically related to immature psychological defenses "displacement", "regression" and, partially, "substitution" (see Tabl. 2). But the level of activation of these psychological defenses in the subjects should be considered uncritical. In stressful conditions, the use of students' defense mechanisms of displacement, regression, and substitution somewhat weakens their general focus on solving problems. And this result is generally consistent with the literature (Carvalho et al., 2019; Zeigler-Hill et al., 2008). However, the structure of the overcoming behavior of the studied students does not undergo any fundamental negative changes and remains fully adequate for organizing sufficiently successful educational activities. As a positive aspect, it should also be noted that the low activity of psychological defenses adequately serves its functional purpose – the situational elimination of excessive mental stress and the preservation of the individual's integrity of the mental organization (APA, 2013).

The analysis and interpretation of the results of the study confirm the hypothesis put forward above. Stress does have a negative impact on the ability students to implement adequate coping behaviors in a problem-solving orientation to organize the learning process. However, with moderate stress, this effect is not destructive, and with appropriate supportive measures, it can be neutralized promptly.

Further studies can be aimed at determining the flow of psychological defenses in the organization of educational activities of students who are in a state of severe stress. It is also important to find ways to mitigate the negative effects of the activation of students' psychological defenses during the learning process.

Conclusions

Students under stress, when choosing coping strategies, are mostly oriented towards problem-solving (medium to high levels) and least inclined to avoid problem situations (low level of expression).

In students with increased stress-induced mental tension, particularly at the average level of expression, there is an increase in the tendency to choose a coping strategy oriented towards avoidance, along with increased activation of psychological defenses such as regression, substitution, projection, compensation, and rationalization.

In students with increased stress-induced mental tension, mainly at the average level of expression, there is an increase in a significant number of psychological defenses, which weakens, but does not fundamentally change the orientation towards choosing a coping strategy aimed at solving problems. This orientation is also not statistically related to the increased expression of psychological defenses, such as projection and rationalization.

In students with increased stressogenic mental tension, mainly to an average level of severity, a noticeable strengthening of psychological defenses during the adaptation process, with a high probability, provides sufficient support for the integrity of the mental organization and does not significantly hinder an adequate response to current threats and challenges.

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