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The evaluation of the mental and emotional state of the university students in the situation of exam

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Abstract

The purpose of the paper is to describe the results of the theoretical and empirical study of the mental and emotional state assessment of university students in the examination situation. The dependence of students' mental and emotional state during the examination on personal traits, students' self-assessment, as well as the specificity of their mental and emotional state with different levels of examination anxiety are discussed.

Materials and methods: In our research we used the following methods: Cattell's 16-factor personality questionnaire, modified version of Max Luscher's eight-color test – colors choice method (CChM), express test 'The diagnostics of the examination anxiety'. The sample consisted of 72 first-year full-time students of the specialty 'pedagogical education'. Age of the students is 17-18 years old. Methods of mathematical statistics are used to estimate data.

Research results: The data of the empirical research of the students' mental and emotional state have revealed the negative impact of the examination situation on the students' mental and emotional state. The level of examination anxiety, formed in response to a threatening situation, is determined by a set of the students' personality traits. It has been established that the lower the person's self-assessment is, the higher the level of students' examination anxiety. For students with average data of personal anxiety, the state of stress and exam stress has appeared to be tonic, what allows to keep a sufficient level of ability to work and achieve good learning outcomes.

Discussion: The results of the research indicate that the assessment of the mental and emotional state of students in the examination situation will allow predicting human behavior in stressful situations, preventing the adverse impact of negative factors on human activity, and also will become the key to the developing a strategy for maintaining students' psychological health.

Keywords: mental and emotional state, psychological stress, exam anxiety.

Streszczenie

Celem artykułu jest przestawienie wyników teoretycznego i empirycznego badania oceny stanu psycho-emocjonalnego studentów w sytuacji egzaminu. Omówiono zależność pomiędzy stanem psycho-emocjonalnego studentów podczas trwania egzaminu a cechami osobistymi, poczucia własnej wartości studentów, a także specyfikę stanu psycho-emocjonalnego studentów o różnych poziomach lęku egzaminacyjnego.

Materiały i metody: W badaniu wykorzystano następujące metody: 16-czynnikowy kwestionariusz osobowości R.Cattella, zmodyfikowaną wersję ośmiokolorowego testu Maxa Luscher'a – metodę doboru koloru (MDK), ekspresowy test „Kwestionariusz lęku przed egzaminem", metody statystyki matematycznej. Przebadano 72 studentów pierwszego roku specjalności „Edukacja pedagogiczna" kształcenia w pełnym wymiarze godzin. Wszyscy studenci mieli 17-18 lat.

Wyniki badań: Dane empirycznych badań stanu psycho-emocjonalnego studentów ujawniły negatywny wpływ egzaminu na stan psycho-emocjonalny studentów. Poziom lęku przed egzaminem, który powstaje w odpowiedzi na sytuację zagrożenia, zależy od konfiguracji cech osobowościowych studentów. Ustalono, że im niższa samoocena osoby, tym wyższy jest poziom lęku przed egzaminem wśród studentów. Dla studentów ze średnim niepokojem ogólny stan stresu i stres egzaminacyjny jest takim, który pozwala na wystarczający poziom zdolności do pracy i osiągania dobrych efektów uczenia się.

Dyskusja: Wyniki badań pokazują, że ocena stanu psychoemocjonalnego studentów w sytuacji egzaminacyjnej pozwoli przewidzieć ludzkie zachowania w sytuacjach stresowych, zapobiegając niekorzystnemu wpływowi negatywnych czynników na działalność człowieka, i są kluczem do opracowania strategii zachowania zdrowia psychicznego studentów.

Słowa kluczowe: stany psychoemocjonalny, stres psychologiczny, lęk przed egzaminem.

Introduction.

One of the contradictions of modern higher professional education is the unconditional recognition of the importance of maintaining the mental and psychological health of student youth and the lack of both programs of its formation and the development of the system of preventive measures for mental disorders. At the same time, the existence of the so-called stress-induced examination effect, which manifests itself in the steady and significant negative impact of the examination situation on the functional state of the physiological systems and the student's psyche, causes the appearance of maladaptive forms of well-being and behavior.

Students' psychological health is largely determined by the state of their emotional sphere and by those mental states that arise in the process of carrying out educational and professional activities. The assessment of students' mental and emotional state in the examination situation in the future will contribute to solving the problem of predicting of possible deviations in the student's mental and emotional state in educational activities and timely. implementation of the complex of psycho-hygienic measures will not only increase the students' assessment during the exam, but will also contribute to the preservation of their health.

To assess the students' mental and emotional state in the examination situation, we have planned and implemented an experimental study, which was based on the following assertions: firstly, the human reaction to extreme influence, its perception and assessment as adverse is determined by the set of properties and qualities of the individual, on which the type of human's individually-psychological reaction and the nature of behavioral reactions in these conditions depend [1]; secondly, the psychic state is a relatively stable characteristic of mental activity, characterizing its dynamics and progression, and depends on a comprehensive assessment of the situation by the subject and the past emotional experience of the individual [2]; thirdly, as the mental state is a complex multilevel entity that includes the mental level (in particular, experience), the physiological (central nervous system, vegetative system) and behavioral level (psycho emotional reactions, facial expressions, pantomime tics) [3] or combines different levels of regulation (motor, vegetative, psychic, socio-psychological, psychological, psychophysiological and physiological) [4], it is possible to conclude about a person's condition only on the totality of their characteristics [3].

Accordingly, the hypothesis of our study is as follows:

1) the assessment of the exam situation as an unpleasant future event with adverse consequences causes students' negative mental and emotional states, regardless of their level of preparedness for examination;

2) students' personality traits, in particular, emotional-volitional and self-esteem are those internal psychological conditions that determine the peculiarities of the mental and emotional state in the exam situation;

3) the assessment of the student's mental and emotional state in the exam situation will allow to distinguish those personal, psycho-emotional phenomena, which will ensure the solution of the problem of predicting the prevention of unwanted mental and emotional students' states.

Materials and methods

The sample was formed randomly and consisted of 72 first-year full-time students of the 'pedagogical education' course. The age of students is 17-18 years old.

The following methods of psychodiagnostic examining were used in the research: Cattell's 16-factor personality questionnaire [5], the modified version of Max Lüscher's eight-color test – the color choice method (CChM) [6], the express test 'The diagnostics of examination anxiety' [7].

In order to study the influence of emotional-volitional personality traits on the peculiarities of the students' mental and emotional state that arise during the examination, R. Cattell's 16-factor personality questionnaire (Form C) was used.

The determining of the peculiarities of actual mental and emotional state of students was carried out by means of CChM using the eight-color series. According to the examining procedure, the choice of colors from the most pleasant to the most unpleasant color was carried out by the students twice at an interval of 2 minutes.

The Express Test 'The diagnostics of examination anxiety' contains the statements that allow you to evaluate the general level of examination anxiety as well as separately the levels of two of its components.

Results

Thanks to the analysis of 72 respondents' answers, the data, that allow to assess the peculiarities of the students' mental and emotional state during the examination, have been received. In order to investigate the dependence of the students' mental and emotional state in the examination situation on personality traits, we conducted a study of the exam anxiety level. The anxiety level of the first-year students as a state, and their personality traits are determined by means of the above-described tools during the examination session at the university.

The psychological mechanisms of mental states' emergence and dynamics, the awareness of their manifestation by students, the peculiarities of the situation

Table 1. The ratio of the examination anxiety level and some of its components among studens (%).

The ratio of the indicators and components (emotion and worry) of the emotional anxiety	The levels of the general examination anxiety		
	Low level	Middle level	High level
The ratio of both components of the examination anxiety is equal.	13.8	—	12.5
The ratio of the emotions is higher than the ratio of anxiety	20.8	34.8	12.5
The ratio of the anxiety is higher than the ratio of emotion	2.8	2.8	—
Together	37.4	37.6	25

Table 2. The assessement of factors according to Cattell in the students with different levels of the examination anxiety.

The value of the secondary factor F^2 «low anxiety – high anxiety»		The value of the first factors of R. Cattell's test (stems)							The levels of the examination anxiety (%)		
A range of value F^2	The number of cases (%)	C	G	O	I	Q_3	Q_4	MD	Low	Middle	High
1.3 ... 3.99	20.8	8	7	3	5	7	3	8	19.4	1.4	—
4 ... 5.99	19.4	5	9	8	4	7	3	7	9.7	9.7	—
6 ... 7.99	52.8	3	8	9	5	7	5	5	5.5	22.3	25
8 and more	7	3	5	10	8	4	7	4	2.8	4.2	—

in which the students are during the examination session, have determined not only the choice of the diagnostic tools for psychological examining, the sequence of techniques' presentation, but also have caused the choice of terms for collecting empirical data.

Therefore, the first step in assessing the students' mental and emotional state in the exam situation was studying of their personality traits and determining the general level of students' anxiety as a specific form of situational anxiety, and the next step was to diagnose their actual state by means of the projective method (CChM) during the exam.

Examination anxiety as one of the forms of anxiety involves two components: emotionality (unpleasant feelings and physiological reactions that arise as a result of stress) and anxiety (thoughts about the consequences of failure). The interpretation has been carried out in terms of their quantitative expression: the higher the indicators, the higher the level of general examination anxiety. Also the qualitative analysis of the levels of its individual components ratio was carried out (see Table 1).

The study of students' personal features was carried out by means of Cattell's 16-factor personal questionnaire. According to the purpose and the theoretical basis of our study, the factors C, G, O, I, Q_3, Q_4, which form the block of emotional-volitional personality traits, have been analyzed, and the additional anxiety factor (F_2) has been calculated as well. The obtained results have been analyzed according to the selected groups of students with different levels of examination anxiety (see Table 2).

The generalization of the results obtained by means of CChM allowed to reveal the most typical distribution of eight colors in eight positions for each of our selected groups with different levels of anxiety. Taking into account that fact that the analysis of pairs of colors that occupy the first-second and seventh-eighth positions is the most informative, we will dwell on the analysis of such elections more thoroughly (see Table 3)

The obtained results of the empirical study of the students' mental and emotional state in the examination conditions revealed the following:

1. The level of examination anxiety in 62.6% of respondents was high and average (see Table 1), the third part of the first-year students, according to the results of the express-test, revealed a low level of examination anxiety. This indicates the existence of the number of factors that influence the emotional assessment of the situation of trials and the emergence of varying levels of examination anxiety. Among them we can name the following: the level of personal anxiety, the peculiarities of the emotional-volitional sphere of personality, mastering of ways of behavior in complex, difficult or extreme life

Table 3. The frequency of color choice by students with different factor F_2 values .

The range of F_2 values according to the Cattell's test						
	1.3 ... 3.99		*4 ... 5.99*		*6 ... 7.99*	
	Color	*Frequency (%)*	*Color*	*Frequency (y%)*	*Color*	*Frequency (y%)*
1st position	*blue*	*14.3*	*blue*	*35.8*	*blue*	*15.8*
	green	*50*	*green*	*25*	*green*	*15.8*
	red	*14.3*	*red*	*17.9*	*red*	*23.7*
	yellow	*21.4*	*yellow*	*7.1*	*yellow*	*15.8*
			black	*7.1*	*purple*	*23.7*
			grey	*7.1*	*grey*	*5.2*
2nd position	*greenred*	*21.4*	*green*	*17.9*	*blue*	*11.8*
	red	*21.4*	*red*	*14.2*	*green*	*18.4*
	yellow	*14.3*	*yellow*	*50*	*red*	*9.2*
	grey	*42.8*	*grey*	*17.9*	*yellow*	*32.9*
					purple	*15.8*
					grey	*11.9*
7th position	*blue*	*7.1*	*green*	*7.1*	*green*	*15.8*
	red	*14.3*	*yellow*	*7.1*	*red*	*15.8*
	purple	*7.1*	*purple*	*7.1*	*purple*	*3.9*
	brown	*42.8*	*brow*	*46.5*	*brow*	*32.9*
	black	*28.7*	*black*	*32.2*	*black*	*11.9*
					grey	*19.7*
8th position	*grey*	*14.3*	*yellow*	*17.8*	*yellow*	*15.8*
	purple	*21.4*	*purple*	*25*	*purple*	*15.8*
	brow	*7.1*	*brow*	*35.8*	*brow*	*9.2*
	black	*57.2*	*black*	*21.4*	*black*	*47.4*
					grey	*11.8*

situations, the level of preparedness, competence of the student, the level of uncertainty of the situation of activity, etc.

2. In the 26.3% of respondents with low and high levels of examination anxiety (see Table 1), both components of the examination anxiety (emotion and worry) were equal in value, that is, the anxiety for the exam failure and the strength of the discomfort and physiological manifestations caused by the exam, were equal for students, and this can denote the low level of students' appeals. Among the students with an average level of exam anxiety (37.6%) the level of anxiety and emotion are significantly different; herewith the level of anxiety was, as a rule, low, while the emotional component was on the middle level. This proves that if the level of anxiety is low, then, as a rule, the expectations of a positive result are higher, which may cause a decrease or, conversely, a significant increase of the level of the emotional component of the examination anxiety.

3. In the 5.6% of the students, the level of anxiety caused by the failure of the exam significantly exceeded their emotional level, while there were no students among

them with a high level of examination anxiety (see Table 1). It can be assumed that this deals with the significant shortcomings in students' preparing for the exam or with a high level of social expectation as for the positive outcome of the exam in the environment of the first-year student.

4. At the same time, in 68.1% of respondents of all three levels of the general level of examination anxiety, the level of emotionality (see Table 1), that is, the fixation of negative physiological reactions and discomfort caused by the examinations, is much higher than the anxiety for the negative result of the exam. Such values of the anxiety level as a component of examination anxiety are the proof that students tend to concentrate more on their own discomfort and physiological manifestations of excitement than on the social significance of the exam. At the same time, we assume that students of this group, due to the adequate and somewhat overestimated self-esteem, positive 'Me-concept', the formation of which is also significantly influenced by the results of current knowledge control, the quality of their knowledge, do not expect failure on the exam.

5. In the analysis of 6 main factors, which form the block of emotional-volitional personality traits, and one secondary factor (anxiety factor), which were obtained by using R. Cattell's 16 factor personality questionnaire (see Table 2), it was found that in the students with low anxiety level and low or moderate emotional levels (in this case, the level of general examination anxiety is average), the F2 factor's value is in the range of 1.3 to 5.99, whereas with values of this factor exceeding 8 units, the level of anxiety has a minimal value, and the level of emotion is high or average.

6. Analyzing the emotional-volitional personality traits described by the factors C, G, O, I, Q3, Q4, and the secondary factor F2 of R. Cattell's test, the following tendencies have been revealed: a) among all the students with a low level of examination anxiety values of the factors 'calmness – anxiety' and Q4 'relaxation – tension' have revealed low marks, that characterize them as confident in their abilities and in themselves, insensitive to threats, intrepid, cold-blooded and sensible, sometimes careless and self-confident, which at the same time is combined with sluggishness, apathy, low motivation, leading to the contentment of low learning results, steadiness, equanimity; b) in all students with high level of examination anxiety high values of the factors O is 'rest – anxiety' and G 'low standards of behaviour – high standards of behaviour', which proves the fact that respondents of this group are characterized by anxiety in difficult situations, worry, self-doubt, propensity to bad mood, poor expectations, as well as self-demandingness, perseverance, responsibility and the developed sense of duty; c) among students with an average level of examination anxiety low marks on factors I 'stiffness – sensitivity' and Q4 'relaxation – tension' and high G factor 'low standards of behavior – high standards of behaviour' are revealed, such data indicate that self-assertiveness, perseverance, responsibility, and the developed sense of duty are combined with laziness, apathy, low motivation, which lead to satisfaction with low learning outcomes, balance, irresistibility, and skills of self-confidence, pragmatism, prudence and greater aggressiveness. It is worth mentioning that MD's assessment 'adequacy of self-esteem – inadequacy of self-esteem' is reduced with increasing F2 factor 'low anxiety – high anxiety', that is, the respondents with low self-esteem have showed high anxiety.

7. All students with a high level of examination anxiety on factor F2, 'low anxiety – high anxiety' have high marks, what indicates a high level of anxiety that may be caused by the situation in which the activity is carried out (in our case, this is an exam), dissatisfaction, caused by inability to achieve the desired. In the majority of students with a low general level of examination anxiety, and in all students with a low level of emotional component of examination anxiety, low marks on factor F2 'low anxiety – high anxiety' are revealed, which indicates the satisfaction by the achieved results of activity, lack of motivation in difficult, tense situations. Respondents who have showed an average level of examination anxiety on factor F2, 'low anxiety – high anxiety', have fixed average, high and low values, suggesting that the students' personality traits and the exam situation are the main factors that lead to such differences in the results obtained by means of these methods. It is also worth noting that respondents, who on the F2 factor showed higher score than 8, use medication for normalizing the mental and emotional state during the session. Exactly with their taking, we associate the specific reactions detected by them during the CChM, and therefore the empirical results obtained by the CChM, the last allocated group by factor F2 with a range of values of 8 or more separately have not been analyzed.

8. The generalization of the data of the CChM (see Table 3) revealed the number of individual psychological tendencies. Thus, among respondents with different levels of general examination anxiety and personal anxiety, some differences in the choice of colors at 1, 2 and 7, 8 positions have been observed (see Table 3). Taking into account that we did not conduct a longitudinal study with CChM, we consider the obtained results of our two-choice color choices in the examination situation are caused precisely by these special circumstances and reflect the mental state caused by the exam situation. In particular, in most cases, the primary positions are placed in the main colors (blue, green, red and yellow), and additional colors

(violet, brown, black and gray) are shifted to the bottom of the layout. This indicates a positive mental and emotional state of most first-year students as well as the absence of serious psychosomatic disorders.

9. However, in the first position among students is the range of values of factor F2 from 1.3 to 3.99, which corresponds to a low level of anxiety. Green (50%) and yellow (21.4%) colors are dominating (see Table 3). Such choice reveals the necessity in passive-defensive positions, rigidity, aggressiveness, which has protective nature, resistance to external influences, and, on the other hand, optimism, insignificant emotional instability, dependence on the environmental influences, the necessity in action and communication. The respondents with the range of the factor F2 from 4 to 5.99, in the first position predominant are blue (35.8%) and green (25%) colors. This group is characterised by tendencies to emotional comfort and protection from external influences, some passivity, rigidity, aggressiveness, which has protective nature, resistance to the effects of the external environment. At the same time, in students with the range of factor F2 values from 6 to 7.99 in the first position predominant are red (23.7%) and violet (23.7%) colors, which reflect the desire to dominate, position activity, high motivation of achievement. They are combined with the difficulties of adaptation, emotionality, the desire to move away from reality.

10. In the second position of respondents with a range of factor F2 values from 1.3 to 3.99 and F2 from 4 to 5.99 there is a similarity of general tendencies in the choice of colors (green, yellow, red and gray), although the apparent dominance of one of the colors in these groups is recorded: in the first one — gray (42.8%), in the second one — yellow (50%) colors (see Table 3). In the first case this reflects the exhaustion, fatigue, desire for rest, whereas in the second one it reflects expectations and hopes of a better result, emotional instability and, at the same time, the need for social activity. Among the respondents from the range of F2 factor values from 6 to 7.99, the choice of colors in the second position is more complicated: the dominance of yellow (32.9%) is combined with a significant proportion of green (18.4%), violet (15.8%), gray (11.9%) and blue 11.8%). Therefore, the tendency of optimism, emotional instability, and dependence on the environmental influences is accompanied by the aggressiveness of the protective nature, the need for rest, as well as an irrational way of protection against stress. Attention is also worth the fact that a small number of the studied placed additional colors (violet, black and gray) in 1-2 positions, and this placement of additional colors is mainly observed in the group with a high level of anxiety according to Cattell (the range of the F2 factor values from 6 to 7.99). At the same time, it should be noted that exactly in this group of respondents the general level of examination anxiety is the highest.

11. In the seventh position among the respondents with the range of factors F2 from 1.3 to 3.99 and F2 from 4 to 5.99 there are also similar tendencies in the choice of colors of somatic discomfort: brown and black are dominant in these groups (brown — respectively 42.8% and 46.5%, while black is 28.7% and 32.2% respectively) with a small amount of violet (7.1% in both groups). This is a reflection of anxiety with somatic color, stress, dissatisfaction with the desire of recognition, emotional instability. The domination of the brown color (32.9%) was recorded in the group of respondents with a range of factor F2 values from 6 to 7.99. Although this dominance is combined with a significant proportion of green (15.8%), gray (19.7%), red (15.8%), black (11.9%) and violet (3.9%). Such choice adds to the described above tendencies irritability, neurasthenic manifestations and, at the same time, the presence of obstacles and difficulties.

12. All respondents revealed similar tendencies in the choice of colors in the eighth position: there are no blue, green and red colors. Respondents with the range of factors F2 from 1.3 to 3.99 and F2 from 4 to 5.99 have been selected in four colors, three of which match (brown, purple and black), while respondents with a range of factor F2 values from 6 to 7.99 are placed in the eighth position with five colors (black) (47%), yellow (15.8%), gray (11.8%), and brown (9.2%) (see Table 3). And if black (57.2%) and violet are predominant in the first group (21.4%), then in the second group major colors are brown (35.8%), purple (25%) and black (21.1%). And if this position for black color is statistically more frequent and expresses emotional instability and the desire to control their emotions, the presence of brown color in this position is evidence of denial of the need in relaxation, suppression of the physiological needs of the body.

Statistical analysis

For the static processing of the data obtained and the determining of the statistical significance of the empirical data obtained, the criterion for the Fisher's angle transformation φ* was used. We note that all the empirical values of the Fisher's angle transform criterion φ* were determined only for the level of statistical significance $p \leq 0.01$.There are slight differences between the examination anxiety indicators, as reactive anxiety forms, diagnosed by the express test 'The diagnostics of the examination anxiety', and the F2 factor value 'low anxiety – high anxiety'. The following statistical differences between the group of respondents with a high level of examination anxiety and respondents with a low level of examination anxiety ($\varphi^* = 0.536$) ($p \leq 0.01$) have been established). The established difference shows that the differences found

are not statistically significant. Therefore, there is no confirmation of the established tendency. This means that both methods allow to assess the level of the exam anxiety in the exam situation.

The self-esteem parameters (MD factor according to the R. Cattell's 16-factor personality questionnaire) in the groups we have selected due to the level of general examination anxiety differ significantly. Statistically significant differences in the level of self-esteem between the group of respondents with a low level of examination anxiety and group of students with a high level of examination anxiety have been established: $\varphi^* = 2.764$ ($p \leq 0.01$). The established difference indicates that the differences in self-esteem among students with different levels of examination anxiety is statistically significant. That is, we have proved that students with a low self-esteem develop a high level of anxiety as a state. We have noted the significant differences in the assessing of the individual criteria of R. Cattell's 16-factor personality questionnaire in the students selected by us according to the level of general examination anxiety. The following statistically significant differences have been established: between the groups with high and low levels of examination anxiety in the manifestation of the factor O—: ($\varphi^* = 3.056$) ($p \leq 0.01$), factor Q4—: ($\varphi^* = 3.056$) ($p \leq 0.01$); the factor O+: ($\varphi^* = 2.764$) ($p \leq 0.01$), the factor G+: ($\varphi^* = 2.567$) ($p \leq 0.01$); between the groups with high and average level of examination anxiety in the manifestation of the factor I: ($\varphi^* = 3.165$) ($p \leq 0.01$), the factor G+: ($\varphi^* = 2.567$) ($p \leq 0.01$). The established differences in the manifestation of the factors in the groups of respondents with different levels of examination anxiety are statistically significant. This means that exactly these factors and their corresponding personality traits determine the specificity of the mental and emotional state of students in the situation of the exam.

Significant differences in the choice of the colors by respondents with different levels of anxiety (like personality traits and status) in the first, second, seventh and eighth positions were detected for green in the first position ($\varphi^* = 2.589$) ($p \leq 0.01$) (between groups of respondents with a range of values F2 from 1.3 to 3.99 and from 6 to 7.99), for the gray color in the second position ($\varphi^* = 3.311$) ($p \leq 0.01$) (between groups of respondents with a range of values F2 from 1.3 to 3.99 and from 6 to 7.99) for yellow in the second position ($\varphi^* = 2.429$) ($p \leq 0.01$) (between groups of respondents with a range of values F2 from 1.3 to 3.99 and from 4 to 5.99), for the black in the eighth position ($\varphi^* = 2.52$) ($p \leq 0.01$) (between the groups of respondents with a range of values F2 from 4 to 5.99 and from 6 to 7.99). The established differences indicate that the changes in the color position are statistically significant. Other differences are not statistically significant or it is impossible to determine them because of the lack of choice of some colors in the positions that were considered by the respondents of all our groups. The established differences are confirmed by minor negative changes in the mental and emotional state of students in the exam situation, associated with the exam stress and the peculiarities of the perception of the examination situation by students with different emotional-volitional qualities.

Discussion

Inconsistency in the interpretation of the concept of 'mental state', the attempts to identify its relationship with processes, functions and properties, indicators of the physiological state of the organism, the level of efficiency, system activity, the behaviour of the individual, etc., to establish primary and secondary phenomena signalling the emergence of mental state and reveal its essence, complicate the consideration of this phenomenon in the methodological plan and its assessment in the real conditions of human life. Initially, the psychic state was defined as 'a holistic characteristic of mental activity for a certain period of time, which reveals the peculiarities of the course of mental processes, depending on the reflected objects and phenomena of reality, the previous state and mental properties of man' [8] and 'holistic human reaction to external and internal incentives, aimed at achieving a useful result' [3]. That is, this is a special psychic phenomenon that is temporary, determined by a combination of external and internal factors and manifested in the system's multiple-level human reaction to them. Mental states affect the course of activity (both mental and practical) and at the same time is the product of this activity (mental, sensory and physical) or inactivity of man [3]. The mental state of the subject and its relation to the object is manifested in the form of emotion [9]. K. Izard in certain phenomena emphasized the sensory and functional side of emotions [10], whereas A. M. Leontiev pointed to the nature of emotions in regulation activity [11]. G. G. Verbina, considering emotions as the level of emotional response that arises in assessing of the situation with the future prediction and at the same time is a mechanism for predicting the significance of the situation for a person and adequate preparation for it through the mobilization of mental and physical energy, points to the main mechanisms of dynamics of mental and emotional state [12].

One of the ways of the emotional response to the effects of prolonged and intense negative social, professional, environmental and other factors of life is psychological stress. As noted by Polish researchers, there is no consensus among scholar in determining the mental state of stress. It is often interpreted as an incentive either

as an organism's response or as an interaction between an individual and an environment [13]. In particular, Lasarus R.S. and Launier R. defined psychological stress as a reaction to the peculiarities of human interaction with the outside world [14], which is the product of cognitive processes. That is, in fact, stress will arise in the result of unsatisfactory outcome of the analysis and assessment of the current situation, the consequences, the human resources available, the available strategies and methods of managing behaviour and activities in these conditions. Not every new situation is considered by the individual as emotional. For it to acquire such signs it must be evaluated by the individual as subjectively significant [3], or one that, according to the individual's assessment, is a threat that cannot be avoided [14]. Such situations cause an emotional response. The exam's situation is usually considered by students to be threatening. It does not contribute to the discovery of knowledge among students [15], but also prevents it, regardless of how the student is prepared for the exam. The destructive effect of the exam on students' behaviour and psyche is demonstrated in a series of empirical studies [2, 15, 16 and others]. It is proved that the influence of the exam's situation does not disappear after its completion; the affective exam notes are stored within three months after it [15]. The exam not only causes an acute affective state, it deeply and for a long time hems the students [15].

Significant statistical changes were detected due to the exam situation, a number of physiological indicators, and the level of reactive (situational) anxiety [17]. In general, anxiety is the subject of numerous studies of the problem of mental states, given the prevalence of anxiety disorders, not only among adults with various somatic diseases [18]. Various social and demographic factors cause anxiety disorder among students [19]. It was found that a high level of anxiety as a personality trait causes an increase in the level of anxiety as a mental state [19]. In addition, people with a low self-esteem have a higher level of anxiety and excitement in a threat situation, and they also perceive themselves incapable to prevent the negative consequences they expect because they are convinced that they are not able to survive the difficulties [20].

A certain type of student response in the exam situation depends on a number of factors, especially the student's individual characteristics [17]. Therefore, exam stress is not always destructive [15, 17]. In some cases, psychological stress can have a stimulating effect, helping students to mobilize their knowledge and personal resources to meet their goals.

That is why it seems expedient to study and assess the mental and emotional states of students in different forms of educational activity and their interpretation in connection with individual peculiarities of a person. Developing a psychologically grounded set of measures to combat negative and the formation of positive mental states will overcome unwanted consequences of psychological stress and normalize students' mental and emotional state in the educational process.

Conclusion

The research allowed to assess students' mental and emotional states in the situation of the exam and determine its dependence on personality traits. The leading personality traits of respondents with a low level of examination anxiety are confidence in themselves and their abilities, which sometimes becomes self-confidence, balance, impatience, prudence, insensitivity to threats, which is combined with apathy, laxity and low motivation, laziness. In the students with a high level of examination anxiety, the following personality traits have been recorded: insecurity in themselves and in their strengths, propensity to bad mood, failure expectations, pessimism, interwoven with perseverance, responsibility, sense of duty, demanding self-esteem. Students, who have revealed the average level of exam anxiety, along with moderate self-esteem, responsibility, pragmatism and imperturbability, show greater aggressiveness and lack of or weak motivation, resulting in poor learning outcomes and activities. It is established that the lower the person's self-esteem, the higher the level of examination anxiety of students.

The assessment of the actual students' mental and emotional state directly in the exam situation revealed all students' desire to control their own emotions, denying the need for rest and relaxation. However, most of the freshmen have been diagnosed with a positive mental and emotional state, as well as the absence of serious psychosomatic disorders. The mental and emotional state of students with an average and low level of examination anxiety differs from the mental and emotional state of students with a high level of examination anxiety. In particular, in the examination situation, the first are experiencing exhaustion, fatigue, desire for rest, somatic discomfort, emotional instability, the need for social activity, communication, rigidity, optimism, while the state of students with a high level of examination anxiety is characterized by irritability, aggressiveness of a protective nature, irrational means of protection from stress, the desire to dominate, the presence of high motivation achievements. In general, for students with the average personal anxiety indicators, the state of stress was tonic, allowing a sufficient level of ability to work and fight for good learning outcomes.

Consequently, the assessment of the students' mental and emotional state in the situation of examinations is a promising area of scientific research, considering the

need to develop the effective technologies for predicting human behaviour in stressful situations, preventing the adverse effects of negative factors on human activities, improving professional selection, and will become the key to developing a strategy for preservation of students' psychological health.

Conflict of interest

The author has declared no conflict of interest.

References:

1. Bodrov V.A. Psychology of the professional activity. Theoretical and empirical problems. Moscow; Publ. «Psychology Institute RAS»: 2006: 297. Russian.
2. Kondash O. Anxiety: fear before testing. Kyiiv; Radianska shkola: 1981. Ukrainian.
3. Iliin E.P. Emotions and fellings. St. Pitersburg ; Piter: 2001: 35. Russian.
4. Maksimenko K.S. Experiencsing and overcoming personal negative psychical states under chronic somatic desease.: autoreph. manuscr. c. ps. s. Kyiiv; 2010. Ukrainian.
5. Vyboishyk I.V., Shakurova Z.A Personality R. Cattell's polyfactor questionaire Cheliabinsk; Publ .UrSU: 2000. Russian.
6. Sobchik L.N. Colors choise method. Modified version of Max Luscher's eight-color test. Moscow; VNIITEMR: 1990. Russian.
7. Practical book in psychology of states /edited by prof. A.O.Prokhorov. St. Pitersburg; Speech: 2004. Russian.
8. Levitov N.D. About the psychical states of a person. Moscow; Prosveshchenie: 1964: 20. Russian.
9. Rubinshtein S.L. Fundamentals of General Psychology. St. Pitersburg; Piter: 2002. Russian.
10. Izard K. Psychology of Emotions. St. Pitersburg; Piter: 2003. Russian.
11. Leontiev A.N. Activity. Consciousness. Personality. Moscow; Politizdat: 1982. Russian.
12. Verbina G.G. Psychology of Emotions. Cheboksar; Chuvash. University: 2008. Russian
13. Talarowska M., Florkowski A., Wachowska K., Gałecki P. Stres a debriefing — definicjen i aktualne kontrowersje. Curr Probl Psych. 2011; 12 (2): 132-136.
14. Lasarus R.S., Launier R. Stress – related transactions between person and environment. In: L.A. Pervin, M. Lewis Perspectives in iteractional psychology. N.Y.; Plenum: 1978: 287-327.
15. Luria A.R., Leontiev A.N. Examination and Psychic. In: Luria A.R. Psychologycal heritage. Coll. works in general psychology. Moskwa: 2003. Russian.
16. Sapelnikova TS., Bilotserkivska UO. Study of the negative psychical states of students. Scientific daztte of Kherson state university. S. Psychologycal sciences. 2018; Vyp.1. T.1: 159-163. Ukrainian.
17. Shcherbatykh U.V. Vegetative manifestations of the examination stress: autoreph. manuscr. c. b. s. St. Pitersburg: 2011. Russian.
18. Tarczyńska M., Potembska E., Kowalska E., Pić J., Kukula B., Gawęda K. Poziom niepokoju a cechy osobowości (obraz siebie i radzenie sobie ze stresem) u pacjentów z uszkodzonym stanem kolanowym. Curr Probl Psych. 2013; 14 (1): 9-15.
19. Skoczeń N., Jędrzejwska B., Smolen A., Olajossy M. Analiza wpływu różnych czynników społecznych i demograficznych na występowanie i poziom nasilenia lęku w grupie młodzieży szkolnej. Curr Probl Psych. 2014; 15 (2): 78-84.
20. Rosen T.J., Terry N.S., Leventhal H. The role of esteem and coping in response to a threat communication. Journal of Research in Personality, 1982; 16: 90-107.

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