

Comparative Evaluation Of The Emotional Burnout Syndrome Levels And State Of Health Of Different University Students

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Abstract

The purpose of the study. To conduct a comparative assessment of the state of health depending on the levels of CMEA in students of Perm State Agrarian and Technological University (PGATU) Perm State National Research University (PSNIU) Perm.

The novelty of the work. The role of the syndrome of emotional burnout (CMEA) in the deterioration of the health of university students has been studied.

Methodology. The work uses the methodology of the CMEA assessment, the questionnaire method and statistical methods,

Research results. As a result of research involving 75 students of the Perm State Agrarian and Technological University (PGATU) and 82 students of the Perm State National Research University (PGNIU) using the methodology for assessing emotional burnout syndrome (comecon) according to V.V. Boyko (a comparative assessment of the levels of comecon and the state of health of students of various faculties of universities was carried out).

Keywords: Keyword one, keyword two, keyword three, keyword four, keyword fiveemotional burnout syndrome according to V.V. Boyko, health status, university students, Perm State Agro-Technological University, Perm State Research University.

Introduction

It is a common belief that during the learning experiences in universities and colleges, deterioration of health may be present in many students: a high level of health is determined only in 1.8% of students, moderate - in 7.7%, low - in 21.5% and very low - in 69.9%(Egorychev, 2003). A similar high incidence of disease among young people is revealed by other researchers as well(Kovalenko, 2002). In this regard, it is reasonable to conclude that it is necessary to develop and implement new and widespread methods and indicators in universities and colleges to assess, keep up and improve students` health.

Literature review

The reasons of students' health deterioration is the influence of numerous harmful factors on the health of students: mental over-strain, violations of study and rest modes, physical inactivity, improper feeding, smoking, alcohol consumption, etc.

It is found that under the influence of these harmful factors, the emotional burnout syndrome (EBS) is formed in employees and students (Aktemezheva, 2015; Bagrii, 2009; Baranova&Gerasimova, 2019; Barvinskaia, 2021; Berdiaeva & Voit, 2012; Vlasova, 2020; Boiko, 1999; Vodop'ianova, 2019; Konon, 2021; Larin, 2015; Lengle, 2008). Causes, mechanisms, phases and clinical picture of EBS began to be actively studied in the 1970s. The American psychiatrist Herbert Freudenberger (Freudenberger & Richelson, 1980) first proposed the term "emotional burnout". Later, Christina Maslach (1993) formulated: "Emotional burnout is a syndrome of emotional exhaustion, depersonalization and decreased personal achievement, which can occur among specialists involved in different types of "helping" professions" (Soler et al., 2008).

Researches by S.G. Merzlyakova revealed that Emotional Burnout Syndrome can be a motivational factor for changing professional activities (Murzakova, 2019). Emotional Burnout Syndrome, according to L. A. Vlasova, is an increasing emotional exhaustion, psychological defense mechanism which appears as complete or partial emotional deafness in response to psycho-traumatic factors. It often occurs in doctors, psychologists, educators and people caring for children or elderly relatives (Vlasova, 2020).

The fundamental works of many scientists describe the causes, mechanisms, classifications, clinical picture, methods of diagnosis, treatment and prevention of EBS (Boiko, 1999; Vodop'ianova, 2019; Zhuravleva, 2011; Orel, 2016; Cherdymova, Chernyshova & Machnev, 2019; Hayashino et al., 2012; Jones, 1981; Thiels et al., 2015).

At the same time, researchers engaged in the development and active implementation of new methods of diagnosis, prevention and treatment of EBS (Aktemezheva, 2015; Barvinskaia, 2021; Boiko, 1999; Vodop'ianova, 2019; D'iachkova & Shulepova, 2020; Komarova, 2020; Larin, 2015; Motorina, 2021; Murzakova, 2019).

It is known from the literature that the most often used method for EBS assessment is based on the MBI questionnaire (Maslach Burnout Inventory - Maslach Burnout Questionnaire) (Rochev, 2016).

The questionnaire has three scales: "emotional exhaustion" (9 statements), "depersonalization" (5 statements) and "reduction of personal achievements" (8 statements). The respondent's answers are evaluated on a scale from 0 to 6 points, where 0 - the statement occurs "never", 6 points – "every day". The more the sum of points on each scale individually, the more the respondent expresses various aspects of "burnout", the severity of "burnout" can be judged by the sum of points on all scales (Rochev, 2016).

The EBS evaluation method developed by V. V. Boyko is successfully used for EBS study in our country (Boiko, 1999; Smirnov, 2008). The author has developed EBS classification by phases (stages), taking into account studies on G. Selye's general adaptation syndrome. - At the same time, V. V. Boyko divides EBS into three phases: 1 phase of strain, 2 phase of resistance (tolerance) and 3 phase of exhaustion which is characterized by a drop in overall energy tone, weakening the nervous system, symptoms of emotional deficit and disengagement, psychosomatic and vegetative manifestations (Aktemezheva, 2015; Barvinskaia, 2021; Boiko, 1999; Vodop'ianova, 2019).

The studies found that V. V. Boyko's method is characterized by simplicity, high accuracy, economy, great informativeness, allows you to predict the likelihood of the formation of various diseases, to study the role of nutrition, physical culture and sports on the health and academic performance of university students (Rochev, 2019; Rochev, 2018; Rochev, 2016a; Rochev, 2016b).

N. E. Vodopyanova and E. S. Starchenkova successfully used the method of studying EBS and, based on the research results, developed methods for preventing EBS (Vodop'ianova, 2019). S. N. Konon described personal qualities allowing you to avoid professional burnout (Konon, 2021). A. Langle describes emotional burnout with regard to existential analysis (Lengle, 2008).

The main reasons for the formation of EBS in working specialists have been studied. The work, in which the reasons of EBS occurrence among the medical personnel are predicted, is of great value.

It is found that many specialists work with a large over-strain: average working day in resuscitators is of 15 hours, regular work at night - in 79%, frequent duty at the weekend - in 72%, underpayment unsatisfaction - in 73%, professional satisfaction - in 46%; surgeons have an average working day of 10 hours, regular work at night - in 79%, frequent duty at the weekend - in 72%, underpayment unsatisfaction - in 73%, professional satisfaction - in 58%; primary care doctors have an average working day of 8 hours, the minimum quantity or the absence of overtime works, underpayment unsatisfaction - in 65%, professional satisfaction - 53% (Berdiaeva & Voit, 2012; Komarova, 2020; Cherdymova, Chernyshova, & Machnev, 2019; Shishkova, 2013).

European scientists have found that the level of burnout depends on factors such as place of residence, job satisfaction, alcohol, tobacco and psychotropic drugs consumption, age and gender of working professionals (Soler et al., 2008; Vicentic et al., 2013).

The studies of various authors based on a mass of facts have demonstratively proved the interrelation between EBS levels and the frequency of medical errors (Kobiakova, 2016; Kang, Lihm&Kong, 2013).

The US researchers have proved that stress, fatigue, excessive self-confidence of a doctor, his inadequate communication with colleagues significantly increase the errors probability in surgeons (Maslach, 1993). The studies conducted by internes and residents of South Korea and Japan revealed that the main causes of

errors in doctors are EBS, fatigue and depersonalization (Kang, Lihm&Kong, 2013; Maslach, 1993). Scientists also note a direct relationship between the EBS level, depersonalization and the amount of errors of practicing physicians. This syndrome is often a motivational factor for the change in professional activity (Murzakova, 2019).

It is proved that EBS is often determined in teachers and other specialists (D'iachkova&Shulepova, 2020).

Various research methods are successfully implemented and applied to assess EBS (Aktemezheva, 2015; Berdiaeva&Voit, 2012; Vlasova,2020; Boiko, 1999). In this regard, the conclusion about the possibility of using the method for EBS determination according to V. V. Boyko for the study of the health status of university students is justified.

Screening tests in the form of simple questions created on the basis of complaints observed in case of deviations from various organs and systems have become widespread in general education and medical institutions in studying the health status of children and adolescents (Ananyeva et al., 1991). The authors rightly point out that the on-target selection of such children during mass examinations at school is of particular importance, since often various pathologies are not fully identified, which in turn leads to a late appointment of treatment and decrease in its effectiveness. However, these tests are not widely used in universities to assess the students' health status. It should be noted that the collection of complaints gives the possibility to make a diagnosis in the absolute majority of patients. To improve the diagnosis accuracy, objective, laboratory, radiological and other studies are purposefully carried out, which are set out in the medical literature: [Case history: rules for examining a patient and reporting the results. Compiled by: E.M. Kaulina, Dr. habil. med. N.A., Lobanova, Candidate of Medical Sciences Educational and methodical manual. Nizhny Novgorod: Lobachevsky State University of Nizhny Novgorod, 2019 – 36 p.].

Purpose of the study: to carry out a comparative assessment of the health status depending on EBS levels in students of PSATU and PSNRU of Perm.

Materials and Methods

75 second year students, including 10 boys and 65 girls at the age of 19-22 of the Veterinary Medicine and Animal Science Faculty of the PSATU and 82 second year students of the PSNRU: 34 boys and 48 girls at the age of 18-23 of the Economics Faculty of the PSNRU took part in the research.

Evaluation method of the emotional burnout according to V. V. Boyko contains 84 statements, it is based on students survey. The research results of three EBS phases: strain, resistance and exhaustion are estimated in points: 36 or less points – the non-formed phase, 37-60 points – the forming phase, 61 or more – the formed phase (Boiko, 1999; Rochev, 2016b).

The questionnaire test for assessing the students' health is based on collecting their complaints observed in case of deviations from organs and systems functions, as well as the body as a whole (Ananyeva et al., 1991).

While statistical processing of the research results, the arithmetic mean (M), the mean error ($\pm m$), Student confidence coefficient (P) and the rank correlation coefficient (r) were calculated.

Results and Discussion

The research results of the interdependence between EBS levels and the number of complaints about the health status of university students are shown in the table.

As can be seen in the table, 75 students are divided into three groups according to the magnitude of the strain phase. 21 students were assigned to the first group. Individual indicators range from 0 to 35 points. The average value of the strain phase is 26.0 ± 1.7 points. In this group, all of these individuals have the non-formed strain phase.

The second group included 28 surveyed with individual indicators from 37 to 57 points. Individuals of this group have the forming strain phase. The average phase value is 49.6 ± 1.1 points. These students, like the first group, present the non-formed strain phase.

The third group includes 26 students whose individual indicators range from 62 to 112 points. All persons in this group have the fully formed strain phase (100.0%). The average value of the strain phase is 73.2 ± 3.2 points. The difference between the values of phases of the first and second groups, the first and third groups is statistically significant ($P < 0.05$).

Table 1. Relationship between the levels of EBS phases and the students' health status

Groups of students of various universities by value of the first EBS phase	Number of students	EBS phases (M $\pm$ m):			frequency of health complaints	
		1 strain	2 resistance	3 exhaustion	abs. num (M $\pm$ m)	in % to average value
I. PSATU	21	<u>26.0 ± 1.7</u>	<u>57.9 ± 4.4</u>	<u>34.4 ± 3.5</u>	<u>595 ± 0.66</u>	<u>67.8</u>
I. PSNRU	40	22.7 ± 1.3	56.1 ± 3.3	30.2 ± 2.8	521 ± 0.52	76.5
II. PSATU	28	<u>$45.4 \pm 1.0^*$</u>	<u>63.6 ± 3.6</u>	<u>43.4 ± 2.5</u>	<u>$746 \pm 0.61^*$</u>	<u>85.1</u>
II. PSNRU	28	$49.6 \pm 1.1^*$	$66.8 \pm 3.2^*$	$46.3 \pm 3.0^*$	$787 \pm 0.74^*$	115.6
III. PSATU	26	<u>$78.3 \pm 2.5^*$</u>	<u>$78.3 \pm 2.9^*$</u>	<u>$63.8 \pm 4.6^*$</u>	<u>$1239 \pm 0.74^*$</u>	<u>141.2</u>

III. PSNRU	14	73.2±3.2*	70.2±3.1*	54.6±3.4*	863±0.1.1*	126.7
<u>I-III. PSATU</u>	<u>75</u>	<u>51.3±2.7</u>	<u>67.1±2.3</u>	<u>47.9±2.3</u>	<u>877±0.05</u>	<u>100.0</u>
I-III. PSNRU	82	40.5±2.3	62.2±1.9	39.8±1.7	681±0.42	100.0

Note: $P < 0.05$ compared to indicators of the first phase of EBS strain.

At the same time, studies were carried out in students of the second and third phases of EBS: resistance and exhaustion. In the first group of students, the average value of the resistance phase is 57.9 ± 4.4 points, individual indicators vary from 14 to 90 points. 8 persons from 21 (38.1%) have the fully formed resistance phase. 28 persons of the second group have the average value of this phase of 63.6 ± 3.6 points, the indicators vary from 37 to 87 points. At the same time, 16 (57.1%) students have the fully formed resistance phase. In the third group, individual indicators of the resistance phase range from 43 to 83 points, the average value is 78.3 ± 2.5 points. 21 persons from 26 (80.8%) have the formed resistance phase. The difference between the resistance phases indicators between the first and third groups of students is statistically significant ($P < 0.05$).

In the first group of students, the average value of indicators in the exhaustion phase is 34.4 ± 3.5 points, individual indicators of this phase vary from 16 to 77 points. 1 student from 21 (4.8%) has the formed exhaustion phase. In the second group of students, the individual indicators of this phase vary from 14 to 90 points, the average value is 43.4 ± 2.5 points. This group of individuals includes 16 persons (57.1%) with the formed exhaustion phase. In the third group of individuals, the average value of the exhaustion phase is 63.8 ± 4.6 points, individual indicators vary from 18 to 110 points. At the same time, 14 individuals (53.8%) in this group have the formed exhaustion phase. A statistically significant difference is identified between indicators of the exhaustion phase of the first and third groups of students ($P < 0.05$).

The direct correlation of indicators between the strain and resistance, strain and exhaustion, resistance and exhaustion phases of students' EBS is proved: the rank correlation coefficient is $+ 1.00 \pm 0.00$, $P < 0.05$.

Thus, among 75 students of the PSATU, the formed strain phase of EBS is determined in 14 students (17.1%), the resistance phase – in 48 (58.5%) and the exhaustion phase – in 15 (18.3%).

PSNRU students were also divided into three groups: the first group included 40 examined students with the low strain phase value of 22.7 ± 1.3 points. The second group included 28 examined students with the average strain phase value of 49.6 ± 1.1 points. Individual indicators range from 37 to 60 points, which indicates the forming strain phase. The third group included 14 students with the high train phase value: 73.2 ± 3.2 , indicators range from 61 to 102 points, which indicates the formed strain phase. The first group

of the resistance phase includes students with the EBS value equal to 56.1 ± 3.3 points. 18 students from 40 in the first group (45.0%) have the formed resistance phase. Of 28 students of the second group and 14 of the third group, the formed resistance phase is determined in 19 (67.9%) and 11 (78.6%), respectively, which indicates the fully formed resistance phase.

Students of the first group of the exhaustion phase have the average EBS value of 30.2 ± 2.8 points, individual indicators range from 0 to 77 points. Of 40 students of the first group, 2 students (5.0%) have the formed exhaustion phase. 28 students of the second group have a high value of 66.8 ± 3.2 points, individual indicators range from 24 to 92 points. 9 students in this group (32.1%) have the formed exhaustion phase. 14 students of the third group have the average value of 54.6 ± 3.4 points, while 4 students (28.6%) have the formed exhaustion phase.

The direct correlation was found between the strain, resistance and exhaustion levels between EBS indicators of three groups of students: the rank correlation coefficient = $+1.00 \pm 0.00$, $P < 0.05$.

The direct correlation was confirmed between EBS levels and the number of health complaints in universities ($r = +1.00 \pm 0.00$, $P < 0.05$). The minimum number of complaints is determined in students of the first group. Conversely, as the EBS value increases, the number of complaints about the health status in universities increases significantly.

Thus, among 82 students of the PSNRU, the formed strain phase of EBS is determined in 14 students (17.1%), the resistance phase – in 48 (58.5%) and the exhaustion phase – in 15 (18.3%).

Discussion

It is generally recognized that during the educational process in higher educational institutions (universities), many students show deterioration of health: the high health level is determined only in 1.8% of students, average – in 7.7%, low - in 21.5% and very low - in 69.9% (Egorychev, 2003).

The reasons of students' health deterioration is the influence of numerous harmful factors on the health of students: mental over-strain, violations of study and rest modes, physical inactivity, improper feeding, smoking, alcohol consumption, etc.

It is found that under the influence of these harmful factors, the emotional burnout syndrome (EBS) is formed in employees and students (Aktemezheva, 2015; Bagrii, 2009; Baranova, & Gerasimova, 2019; Barvinskaia, 2021; Berdiaeva & Voit, 2012; Vlasova, 2020; Boiko, 1999; Vodop'ianova, 2019; Konon, 2021; Larin, 2015; Lengle, 2008). Causes, mechanisms, phases and clinical picture of EBS began to be actively studied in the 1970s. The American psychiatrist Herbert Freudenberger (Freudenberger & Richelson, 1980) first proposed the term "emotional burnout". Later, Christina Maslach (1993) formulated: "Emotional burnout is a syndrome of emotional exhaustion, depersonalization and decreased personal achievement, which can occur among specialists involved in different types of "helping" professions" (Soler et al., 2008).

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At the same time, researchers engaged in the development and active implementation of new methods of diagnosis, prevention and treatment of EBS (Aktemezheva, 2015; Barvinskaia, 2021; Boiko, 1999; Vodop'ianova, 2019; D'iachkova&Shulepova, 2020; Komarova, 2020; Motorina, 2021; Murzakova, 2019).

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N. E. Vodopyanova and E. S. Starchenkova successfully used the method of studying EBS and, based on the research results, developed methods for preventing EBS (Vodop'ianova, 2019). S. N. Konon described

personal qualities making the possibility to avoid professional burnout (Konon, 2021). A. Langle describes emotional burnout with regard to existential analysis (Lengle, 2008).

Thus, this work confirms the rationale of causes, clinic picture, methods of diagnosis and prevention of EBS and various diseases in university students.

Conclusion

It is found that a simple, informative and economical express method for assessing EBS developed by V. V. Boyko (1997, 1999) gives the possibility to study the students' psychological and physical health status of university students, to assess the leading symptoms of "burnout", to identify the dominant symptoms and the phase in which their greatest number present. The quantitative indicators are only indicative of how much was formed each phase, what phase has formed to a greater or lesser extent: 36 or less points – the non-formed phase, 37-60 points – the forming phase, 61 or more – the formed phase.

It was found that of 75 students of the PSATU and 82 students of the PSNRU, the fully formed strain phase of EBS is determined in 38.1% and 17.1%, the resistance phase - in 57.1% and 58.5% and the exhaustion phase - in 53.8% and 18.3% of the examined students, respectively, which gives the possibility to select persons for examination by a psychologist (psychiatrist), therapist, other specialists for complex psychological, medical and pedagogical rehabilitation aimed at improving health status.

A direct correlation has been established between the strain, resistance and exhaustion levels, between different EBS indicators of three groups of students of PSATU and PSNRU: the rank correlation coefficient $r = + 1.00 \pm 0.00$, $P 0.05$, reflecting the universal nature of changes in the basic properties of higher nervous activity of university students.

CONFLICTS OF INTEREST

The author have no conflicts of interest to declare.

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