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EXPRESS METHOD FOR TREATING NEGATIVE EMOTIONAL STATES IN DENTISTS

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ABSTRACT — This paper is aimed to examine the prevalence of such negative emotional states as tension, anxiety and depression among students and dentists (n=80). Herein, we developed the "Method for treating negative emotional states" and analyzed its effectiveness.
The data of questionnaire survey and determination of adaptive potential were assessed according to R.M. Baevsky. It was revealed that such parameter as decrease in the heart rate by 7 beats per minute could be used as a criterion to evaluate the effectiveness of treating negative emotional states in medical professionals. It has been proved that our original method is effective in managing negative emotional states, thus maintaining working ability, professional longevity and mental health among specialists and future doctors.

KEYWORDS — tension, anxiety, depression, pulse, adaptive potential, treatment of negative emotional states.

RELEVANCE

Medicine, in particular, dentistry is a type of human activity where negative emotions prevail, affecting individual's physical and psychological well-being [5]. Dentists in general are characterized by a low level of health and quality of life, high morbidity, one of the reasons for which is neuro-emotional overload and high levels of stress [3, 12].

Initially, the concept of *stress* originating in physiology characterized a non-specific reaction of the body in response to any adverse effect known as *general adaptation syndrome*. In reference studies of stress development among dentists, it is noted that several reasons could be distinguished in the activities of these specialists that allow them to be attributed to a risk group: constant competition, hard and painstaking work that is performed in a limited space of the oral cavity, etc.

These problems cause a high incidence of cardiovascular diseases, ulcers, colitis, neuromuscular pain, eye strain, and also affect family relationships, causing alcoholism, drug addiction, mental depression and even suicide [13]. Prolonged occupational stress, in turn, leads to the emergence of burnout syndrome [8]. Emotional burnout is considered as a breakdown in adaptation system developing as a result of prolonged work stress caused by exposure to various stressors, including physical, chemical, biological, social, and even one's own thoughts. It is also believed that stress and burnout are relatively independent phenomena. Thus, the key difference between burnout and stress is the causal factors. Stress occurs in a myriad of situations (e.g., war, natural disasters, illness, unemployment, various situations at work, etc.), while burnout manifests itself in connection with professional activities [6, 11]. Stress may not necessarily cause burnout, and conversely, stress can have a mobilizing effect on the human body.

Scientists have found that the practice activity of dentists at the age of 41–55 is characterized by predominance of negative emotions, maximum professional tension of personal adaptive resources that contribute to the formation of psychosomatic pathology in this contingent. At the same time, most of the dentists (64.3%) belong to the group of doctors who confirm the presence of psycho-emotional stress, 20.9% of which have signs of clear depletion of adaptation mechanisms [8].

When assessing the health condition in clinical practice, adaptive potential (AP) of circulatory system could serve as one of the effective health indicators, since cardiovascular system represent the primary adaptive mechanism of the whole organism that reacts in response to external conditions. It acts as a regulator of internal environment of the body, maintaining adequate blood supply and homeostasis of organs and tissues [7]. Considering the above mentioned evidence, we have chosen the well-known assessment of AP of circulatory system proposed by R.M. Baevsky [2].

Nowadays, there are many approaches for eliminating the breakdown of adaptation mechanisms such as psychotherapy, muscle relaxation, phyto- and drug therapy, etc. The majority of these therapeutic methods have one drawback: such treatment should be carried out for a long time, months and years, sometimes throughout life.

Therefore, it is of particular importance to develop short-term and adequate psychological methods aimed to prevent specific forms of psychological

tension and preserve professional longevity and mental health of specialists [1].

Aiming to solve the indicated problem, we have developed an express method to cope with such emotional states as tension, anxiety and depression and received a patent for this invention. The proposed method deals with embracing negative emotions via activation of the information processing system. It is effective, convenient, and most importantly, the therapeutic time does not exceed 3–5 minutes.

Aim of the research:

to evaluate the effectiveness of the author's method in treating emotional states in the study group.

The object of the research

includes negative emotional states and its manifestations in the practice of dentists and students of the dental faculty.

The subject of the research

is the breakdown of AP in the study group and its normalization by application of the author's method.

RESEARCH OBJECTIVES

1. To analyse the prevalence of emotional states in the study group.
2. Determine the AP of cardiovascular system in the study group according to R.M. Baevsky.
3. Eliminate the revealed emotional states using the author's "Method of treating emotional states".

RESEARCH MATERIAL

We examined 80 volunteers aged 21 to 64 years old, with mean age 34.16±0.97 years; 39 men and 41 women. 25% of examined volunteers were students of the Dental Faculty of Bashkir State Medical University (BSMU), 10% were orthodontists, 65% were students of the Department of Prosthetic Dentistry and Maxillofacial Surgery at the Institute of Additional Professional Education of BSMU.

RESEARCH METHODS

Testing, measurement of pulse, systolic and diastolic blood pressure was carried out twice in the examined volunteers: at rest while sitting in a chair (initial AP), and immediately after the intervention by the proposed author's method. It includes special actions with macrosaccades of eyes revealed during their smooth rotation and verbalized localization in the body of negative emotions [9]. For the objectivity of the experimental results, the volunteers received the treatment once.

Recognition of the functional state of volunteers was carried out on the basis of the test by V.V. Libinykh and A.V. Libinykh modified by A.F. Yermoshina called / *Constructive drawing of a person from geometric figures* [4] and the questionnaire proposed by us, as well as the analysis of AP results before and after treatment.

AP was determined by the formula:

$$AP = (0.0011^{*}HR) + (0.014^{*}SBP) + (0.008^{*}DBP) + (0.009^{*}BW) - (0.009^{*}H) + (0.014^{*}A) - 0.27,$$

where HR is the pulse rate per minute, SBP is the level of systolic blood pressure and DBP — diastolic blood pressure, BW — body weight, H — height and A — age [2].

For statistical processing of the obtained results, MS Excel 10.0 software was used. The calculation was carried out by nonparametric method χ^2 — Pearson's criterion with arithmetic mean values (M ± m).

RESEARCH RESULTS

Anthropometric characteristics among the subjects were as follows. The body height in females ranged from 152 to 178 cm, on average was 163.29±0.85 cm, while in males ranged from 165 to 202 cm, on average — 176.00±1.26 cm. The body weight in women varied from 44 to 85 kg, the average was 62.05 ± 2.06 kg, while in men the body weight was much higher ranging from 60 to 114 kg, the average was 80.23 ± 1.94 kg.

The mean SBP at rest and after treatment was 124.31±21.15 and 123.73±17.58 mm Hg, while DBP, respectively, was 77, 72±10.9 and 80.36±13.58 mm Hg. HR before and after exposure was significantly different ($\chi^2 = 0.000$): before — 79, 51±17.41 beats per minute, after — 72, 35±11.16. The difference was approximately 7 beats per minute [10]. Therefore, decrease in the heart rate could be used in further research as evidence of the effectiveness in treating negative emotional states.

Consequently, all examined volunteers were divided into 4 groups according to the presence of negative emotional states: I — those experiencing tension; II — anxiety; III — depression; IV — calmness.

According to the AP values, the functional state of the volunteers was determined and divided into the following groups:

I. AP below 2.6 corresponding to satisfactory adaptation of circulatory system;

II. AP between 2.6 and 3.09 corresponding to tension of adaptation mechanisms (practically healthy according to L.L. Miller [7]);

III. AP range from 3.10 to 3.49 corresponding to poor adaptation;

IV. AP of 3.5 and higher corresponds to adaptation failure.

Following the therapeutic intervention by the proposed author's method, the total number of volunteers experiencing negative emotional states decreased from 46.25% to 30.0% and was distributed as follows (Table 1).

Table 1. *Distribution of emotional states among the volunteers before and after intervention (n=80, χ^2=0,033)*

According to the intervention	Emotion				Total
	tension	anxiety	depression	calmness	
before	31,25%	15,0%	5,0%	48,75%	100%
after	21,25%	5,0%	3,75%	70,0%	100%

At the same time, there were no significant differences between men and women. The portion of respondents experiencing anxiety decreased most of all by approximately 66.7%, those experiencing tension — by 32.0%. The number of volunteers experiencing depression decreased by almost 25.0%, while those feeling calmness increased by 30.35%.

Depending on the results of AP before and after therapeutic intervention, all volunteers were distributed into the following groups (Table 2).

Table 2. *Distribution of AP before and after therapeutic intervention into the following groups (n=80, χ^2=0,000)*

Group of AP	Before therapeutic intervention	After therapeutic intervention			
		I	II	III	IV
I	50,0%	87,5%	12,5%	–	–
II	23,75%	26,32%	73,68%	–	–
III	22,5%	5,5%	22,22%	72,22%	–
IV	3,75%	–	–	33,33%	66,66%

Before the therapeutic intervention, half of the volunteers were included in the group I according to the AP values, where the adaptation of circulatory system was satisfactory. The rest of the respondents were distributed as follows: 23.75% of the respondents entered the II and 22.5% — III group, corresponding to tension and unsatisfactory adaptation. The group IV was the smallest one and included those experiencing a breakdown in adaptation.

After the therapeutic intervention, the following results were obtained: a large proportion of the studied group I (87.5%) remained in the same group characterized by satisfactory adaptation with sufficiently high functional capabilities of the organism. The remaining 12.5% of the respondents from the first group experienced stress and moved to the second group. 26.32% of the respondents from the group II improved their indicators and moved to the group I with satisfactory adaptation. Meanwhile, the remaining 73.68% of cases from the second group remained the same. 22.22% of respondents from group III moved to group II, 7.69% — to group I, thereby improving their AP indicators. 33.33% of respondents from group IV with "failure of adaptation" moved to the III group with unsatisfactory adaptation, and in terms of the numerical AP indicators improving their condition.

To conclude, a single treatment of negative emotional states with the proposed author's method resulted in the improvement of adaptive capabilities in 13.75% of respondents. At the same time, there were no cases of deteriorated AP parameters after the therapeutic intervention as compared to the baseline levels.

CONCLUSION

1. Negative emotional states such as tension, anxiety, depression are widespread among dentists.
2. A statistically significantly specific effect of our method on the body functional status has been confirmed.
3. A decrease in the heart rate in the adult population by 7 beats per minute can be used in scientific research as a reliable criterion for the effectiveness of treatment of emotional states.
4. The proposed therapeutic intervention method is effective in treatment of such negative emotional states as tension, anxiety and depression. It enables to

maintain professional longevity and mental health of dental specialists and future doctors.

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