

Correction of the Anxiety Level of Students at the Physical Training Classes Using a Complex of Health-Improving Practices

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Abstract

Background: Modern life realities in the developed countries presuppose an attentive attitude to human health, and the success of the dynamic development of society greatly depends on the health of young people. It is them who will have to identify and solve global issues regarding transformation and development of the state and society in the future. Great difficulties can arise with a change in the teaching time and regime for students of higher educational institutions. During the COVID-19 pandemic, having moved from classrooms to isolated flats or houses, students were left without a direct, open opportunity to communicate with their peer sand teachers. They had to spend a lot of time at a computer and lead a passive lifestyle, having dramatically changed their usual conditions to self-isolation.

Methodology: The current study has been conducted using methods of pedagogical observation, a questionnaire and an online testing. The experimental platform for the study was the physical training (PT) classes at the Russian University of Transport in Moscow. The pedagogical experiment was conducted from September 2019 till May 2020.

Results: The conducted online testing has shown a significant decline in the indicators of anxiety in the experimental group ($P < 0.01$) compared with the control group. The results of the current study showed that the students of the experimental group, being trained according to the methodology developed by the authors of the current paper, significantly reduced the indicators of situational anxiety on 32.3%, and personal anxiety on 33.3%. The indicators of situational and personal anxiety among students of the control group were moderate (mean).

Conclusions: The effect of the combination of volleyball and oriental health-improving practices on the psycho-emotional state of a person allowed students to reduce the indicators of their situational and general anxiety, which has confirmed a positive effect of oriental health-improving practices combined with sports games on health.

Keywords: university students, physical training (PT), general anxiety, situational anxiety, personal anxiety, health-improving practices.

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Introduction

Life in megacities, unfavorable climatic and ecological conditions, inappropriate diet, physical hypodynamia, short sleepingand emotional struggles constitute the sources of psychological stress. All this

results in an increased level of anxiety among young people.^{1,2} The unusual conditions of the COVID-19 pandemic, which the world has faced and still faces throughout the years of 2020 and a part of 2021, online learning and self-isolation are also linked to elevated distress levels.

Constant emotional stresses and anxiety contribute to the development of many cardiovascular and digestive diseases. This situation is quite predictable and understandable, since such a mental state arises against the background of conditions unusual for the psyche, requiring changes and adaptation of all body systems.^{3,4} During the period of intensive formation of a personality, development of their own style of behavior in the society, young people experience anxiety and mental tension more often because the student age is the final stage of progressive age development. All of the listed circumstances combined can give a negative effect.^{5,6}

One of the urgent issues of psychology, medicine and pedagogy is the analysis of mental states and levels of anxiety of the youth. Anxiety is the emotional state of an individual, his emotional reaction to a stressful, unfavorable situation. This phenomenon has been thoroughly studied by such outstanding scientists as Sigmund Freud, Charles Spielberger, Karen Horney, Alfred Adler, Yuri Khanin and others. For the all-round development of a personality, the presence of anxiety is one of the main factors which directly affects the processes of adaptation of the organism to the environment.⁷

A wide range of physiological reactions accompanying anxiety explains the emergence of various psychosomatic disorders on the background of a long state of anxiety, especially in conditions of self-isolation.^{8,9}

In modern reality, the researchers have come to the conclusion that anxiety is a complex personality trait based on the physiological and mental components of a personality, and constantly increased anxiety is an attribute of a weak nervous system.^{12,13} A sufficiently pronounced anxiety includes two components, such as

awareness of physiological sensations (palpitations, sweating, nausea, etc.) and awareness of the very fact of anxiety.^{10,11}

The mechanism of anxiety, from the point of view of physiology, causes a reactive response of the body, preparing it for struggle, resistance, and attack. Because of anxiety, the cardiovascular system is excited. Finding themselves in non-standard learning conditions, students experience stress because of leaving their comfort zone.^{14,15}

Materials and Methods

One of the non-drug means and a recognized method in the regulation of mental stress and increased anxiety are regular exercise, sports, any physical activity. The conditions of social self-isolation forced to reconsider a number of approaches to physical education.¹⁶

It is common knowledge that sports games allow participants closely communicate, interact with each other and a coach, and discharge emotionally due to the ability to move freely around the workspace. Unfortunately, students are deprived of such an opportunity at other educational classes.¹⁷

The human resources' policy of a progressive employer is based on the principles of preserving the labor potential, health and longevity of its employees. It is undoubtedly important to involve and introduce students as future specialists to a healthy lifestyle, and the Russian University of Transport does its best for it. The university has all possible tools for interaction and communication between teachers and students when switching to a distance learning format (e-learning). The physical education process was not interrupted even during the general quarantine.

The study **methods** were selected in accordance with the purpose and objectives of the research: pedagogical observation, a questionnaire and an online testing.

The experimental platform for the study was the physical training classes at the Russian University of Transport (Moscow) in the 2019-2020 academic year. There were formed two groups of students: one

experimental group (EG) with 27 first-year students and one control group (CG) with 27 first-year students (n = 54).

The pedagogical experiment was conducted from September 2019 till May 2020. The students taking part in the experiment did not have any problems with their health. All were allowed to attend PT lessons. All students, according to the medical examination, had the main health group.

Since the students are faced with very large psycho-emotional and intellectual stress, **the purpose** of the current study was to analyze the possibilities to use combined physical training technologies at PT classes and estimate their effect on the psycho-emotional state of the students.

In the control group (CG), the PT lessons were conducted according to the curriculum of the department of Physical Culture and Sports of the Russian University of Transport. In the experimental group (EG), the PT lessons were conducted according to the methodology developed by the authors for the integrated use of oriental health-improving practices (breathing exercises of yogis, Chinese health-improving gymnastics 'Baduanjing', hatha-yoga exercises) with sports games (volleyball).

The **objective** of the current paper was to study the effect of sport games (volleyball) in combination with the use of a complex of oriental health-improving practices on the level of psychological stress of the first-year students. The basis of the proposed pedagogical technology was the introduction of students in the active environment, such as teaching the elements of volleyball, that objectively affect lowering the level of anxiety and emotional tension, and additionally a use of a set of oriental health-improving practices.

The complex methodology consisted of theoretical and practical sections. The theoretical material was presented both in theoretical and practical lessons in the form of conversations, individual communication with students, lectures, video materials. Health-improving practices were used after playing volleyball at the end of lessons. The duration of the complexes of health-

improving gymnastics was 10-15 minutes.

Complexes of breathing exercises of yogis were used to prevent colds, accelerate the body's recovery processes after exercising, relieve tension, relax, improve the functional preparedness of the respiratory and cardiovascular systems, and increase the overall body resistance.

Oriental health-improving gymnastics 'Baduanjing' was used mainly for the improvement and strengthening of the body of students. Attention was focused on smooth stretching of ligaments, tendons and muscles. The movements should be alternated with deep breathing. When performing movements of Baduanjing, there is an effect on biologically active points (BAP) of the body. Due to it, a powerful healing effect occurs, which has a very good effect on the respiratory, cardiovascular and nervous systems. There is a relief of mental and nervous tension, fatigue, improvement of the mood of the trainees.

The duration of the complex of Chinese health-improving gymnastics was 10 - 12 minutes. The complex consisted of 8 exercises, the number of repetitions was 5-8 times. The main structure of the experimental PT lesson included 3 parts: the preparatory part was a volleyball player's warm-up, comprised of a set of exercises that prepared all muscle groups (lasted 15 min); then the main part, that was built depending on the goals and objectives of the lesson (60-65 min); and the final part, which included exercises with the use of health-improving practices, such as a complex of hatha yoga gymnastics for relaxation, relieving nervous tension, lowering the level of anxiety (12 min) or a complex of Chinese health-improving gymnastics Baduanjing (12 min).

The main objectives of the oriental health-improving practices at the experimental PT lessons were:

- strengthening of health, physical and mental conditions;
- increasing mental and physical performance;
- improvement of immunological reactivity and

resistance of the body;

- training in rational breathing;

- acquaintance with oriental health-improving gymnastics and the issues of psychological training and meditation;

- the formation and consolidation of the skills of doing basic exercises that are part of the oriental health-improving practices for further use in the form of individual self-study;

- initiating interest and motivation for independent physical education;

- increasing the resistance of the body of students to negative external effects;

- mastering the techniques of meditation, psychoregulation, relaxation.

In the EG (experimental group) the PT program corresponded to the plan of the CG (control group), but in the final part it ended with exercises from oriental health-improving practices. For determining the level of students' anxiety, there was used the test of Charles Spielberger (State-Trait Anxiety Inventory (STAI)), adapted by Yu.L. Khanin and recommended for practical use by M.A. Kharchenko.¹⁸ The test was conducted at the beginning of the school year and before the exams at the end of the school year.

The STAI measures an individual's situational anxiety and personal anxiety.

Situational anxiety is a psycho-emotional state of a person at the moment, and is expressed by an increased emotional response to stress. Personal anxiety reflects a person's predisposition to anxiety and is characterized by a response to most situations with intense excitement.

A person with increased personal anxiety perceives most of the situations that arise as extremely threatening.

The test consisted of 40 questions. The first 20 questions were intended for assessing the level of situational anxiety, the remaining 20 were for assessing personal anxiety. For quick processing of test results, students took the test online. At the beginning of the pedagogical experiment, the students of the experimental and control groups did not have significant differences.

Results and Discussion

In order to overcome psychological stress, students need to develop the ability to see the reasons for the barrier and adapt to a situation that causes discomfort. In physical culture, the adaptive effect to a competitive situation is carried out in the process of improving the personality traits and mental states, which determine the success and stability of results. Most often, psychological preparation is either correction, elimination of such features as emotional excitability, anxiety, diffidence on the one hand, or the improvement and development of such features as calmness, composure, self-confidence on the other.

Testing of the levels of anxiety (situational anxiety and personal anxiety) among the first-year students of control and experimental groups of the Russian University of Transport was carried out in September 2019 and in May 2020. In order to assess the level of anxiety, we used the State-Trait Anxiety Inventory (STAI) by Ch. Spielberger and Yu.L. Khanin.

The conducted testing of the level of anxiety in September 2019 (the beginning of the experiment) showed that the results of the control and experimental groups did not have significant differences ($P > 0.01$) (Table 1).

Table 1. Changes in anxiety level indicators (test by Ch.D. Spielberger - Yu. L. Khanin) of the students of control and experimental groups

Indicators		Control group		Experimental group	
		September	May	September	May
Characteristics	Symbols	Units	Units	Units	Units
Situational anxiety (SA)	\bar{X}	60.11	52.78	61.07	41.3
	+m	1.89	1.22	1.93	1.7
	P	< 0.01		< 0.01	
Personal anxiety (PA)	\bar{X}	59.3	51.22	59.93	39.93
	+m	1.7	1.22	0.93	2.07
	P	< 0.01		< 0.01	

The online testing, conducted at the end of May 2020, identified a significant increase in the indicators of the experimental group ($P < 0.01$) in comparison with the control group. Both the control and the experimental groups showed a significant improvement in indicators ($P < 0.01$):

- the level of situational anxiety in the control group decreased on 7.33 points, the state of anxiety decreased on 12.2%; the level of situational anxiety in the experimental group reduced on 19.77 points, the state of anxiety decreased on 32.3%;
- the level of personal anxiety in the experimental group decreased on 20 points, the increase was 33.3%; the level of personal anxiety in the control group decreased on 8.08 points, the increase was 13.6%.

The students of the control and experimental groups were found to have high levels of both situational and personal anxiety at the beginning of the pedagogical experiment. The results of the study, conducted in May 2020 (at the end of the experiment), showed that the students of the experimental group, being trained according to the methodology developed by the authors, significantly reduced the indicators of anxiety. The levels of their situational and personal anxiety were moderate (mean). The students of the control group, on the other hand, still had increased levels of situational

and personal anxiety.

Based on the results of testing of the levels of anxiety, we can conclude about the effectiveness of the training complex developed by the authors.

Conclusion

Students, especially freshmen, are subject to fatigue and overwork as a result of active participation in the educational and cognitive process. The methods and organization of teaching at the university differs from the school one. Freshmen are faced with a large amount of educational and scientific information, a lack of time to master it and achieve their social and life maturity, they desire to express themselves and assert themselves in the team.

Providing an individual with the possibility of long and productive physical activity is the main condition for successful economic growth and the main issue of any nation.

The analysis of the testing results, carried out in May 2020, showed that the levels of situational and personal anxiety of students who study according to the experimental method developed by the authors significantly decreased. At the end of the experiment, they had moderate (mean) levels of anxiety. The students of the control group, despite the decrease in

anxiety levels, still showed the high levels of situational and personal anxiety.

The proposed methodology of PT lessons for student allowed reducing their levels of situational and general anxiety, which proves the effectiveness of the combination of a team sport game, such as volleyball, and oriental health-improving practices on the psycho-emotional state of a person which was suggested by the authors.

Conflict of Interest: No

Sources of Support: This research was conducted at the authors' expenses.

Ethical Clearance: The study was approved by the local ethics committee of the Russian University of Transport on September, 12, 2019 (Protocol No 9)

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