

PSYCHOLOGICAL AND PSYCHO-PHYSICAL TRAINING AS A FACTOR OF PERSONAL ANXIETY AT STUDENTS

Pichurin V.V.

Dnipropetrovsk National University of Railway Transport named after Academician V.Lazaryan

Annotation. *Purpose:* to test the hypothesis that the proposed content of the psychological and psycho-physical preparation of students of railway high schools in the physical education is effective in terms of reducing the high level of personal anxiety. *Material:* the study involved 120 students who had high levels of trait anxiety. Age of study participants was 17 - 19 years. Psychological diagnostics level of personal anxiety in students was conducted using a scale assessing the level of reactive and personal anxiety Ch.Spilberger. *Results:* the use in psychological and psycho-physical training in the classroom for physical education for men (significant sports - athletics and powerlifting) and girls (aerobics and Sahaja Yoga) significantly influenced the decline in their personal anxiety. *Conclusions:* It is recommended that training on physical education to carry out the following structure. Preparatory part of the class - 10 minutes. Basically - 75 minutes. Of these, 25 minutes - to solve the traditional problems of physical education students to build their motor skills and the development of physical qualities. 20 minutes - was given to the students to perform specific exercise. 30 minutes devoted to the main part of a busy professional significant sport. The final part - 5 minutes.

Keywords: psychological, psycho-physical, preparation, physical education, personality, anxiety.

Introduction

From the points of view of professional significance such feature (characteristic) of specialist as personal anxiety is of special interest for railway transport. In psychology it is regarded as individual psychological feature, which is manifested in person's bent to frequent and intensive feelings of alarm; in low threshold of its appearing. In its turn alarm is interpreted as feeling of emotional discomfort, connected with expectation of misfortune or danger. In psycho therapy attention is paid to connection of this feature with neurotic behavior of people [3, pg.40]. It also rather influences on such characteristic of modern specialist as his (her) emotional stability. The latter in many cases determined effectiveness of functioning and is regarded as person's ability to preserve psychic and psycho-motor processes, for maintaining of professional effectiveness under influence of emotion causing factors.

In some professional characteristics of railway specialties anxiety is noted as quality, hindering from effective professional functioning (organization of transportation and management on railway transport, bridges and transport tunnels). In our opinion high indicators of students' personal anxiety shall be reduced.

The problem of anxiety was studied by Z. Freud, K. Horny, Ch. Spilberger, R. May, A.M. Prykhozhan, F.B. Berezin, Yu.L. Khanin et al. Recent years different aspects of the problem have been studying by T.A. Arutiunyan [1], I.V. Vozhentseva [2], Ye.M. Kaliuzhna [5], O.V. Kuznetsova [6], G.A. Mamadaliyeva [7] et al. Among foreign works it should be noted [11-20] and many other.

In physical education there also exists interest to this problem. In this context we should note researches by Ya.S. Yermolayev [4]. Analysis of above mentioned works shows that, in spite of obvious results, there have remained still more questions. To full extent it concerns possibility of usage of physical culture means for weakening of students' high personal anxiety. In the frames of researching of formation of personality's professionally important features in process of psychological and psycho-physical training we determined its influence on weakening of students' personal anxiety.

The work was fulfilled in compliance with topical plans of scientific research works of physical education department of Dnipropetrovskiy national university of railway transport, named after academician V. Lazaryan. It is a component of topic "Theoretical-methodological and pedagogic principles of psychological and psycho-physical training of students in process of physical education" (state registration number 0113U006237).

Purpose, tasks of the work, material and methods

The purpose of the research is testing of assumption that the offered content of psychological and psycho-physical training of railway students in process of physical education is effective in reducing of personal high anxiety.

The tasks of the research:

1. Testing of assumption that psychological and psycho-physical students' (boys) training in process of physical education (which includes athletic gymnastics and power lifting) positively influence on reduction of personal anxiety's level.
2. Testing of assumption that psychological and psycho-physical girl students' training in process of physical education (which includes aerobics and sahadzha yoga) positively influence on reduction of personal anxiety's level.

In the research 120 students of Dnipropetrovskiy national university of railway transport, named after academician V. Lazaryan participated. They were 60 boys and 60 girls. Age of participants was 17-19 years. Sample was formed in the following way. At the beginning of academic year we carried out psychological diagnostic for

determination of first year students' situational and personal anxiety. By results of materials' processing we determined students with high level of personal anxiety. These students were offered to take part in the research. We formed one experimental and one control groups of boys and one experimental and one control groups of girls. Every group consisted of 30 persons.

Results of the research

Assumption that athletic gymnastic and power lifting (included in block of psychological and psycho-physical training of railway students) effectively influence on weakening of boys' personal anxiety and aerobics and shadzha yoga have the same effect on girl students became experimental hypothesis.

As independent variable we accepted: for boys – fulfillment of athletic and power lifting exercises by boys and aerobics and sahadzha yoga exercises by girls at physical culture lessons. In the course of trainings we used also other blocks of psychological and psycho-physical training of railway students.

Statistically “zero” hypothesis was assumption that shift between indicators of students' personal anxiety of experimental and control groups at initial and final stage did not differ from zero significantly.

As alternative we made assumption that shift between indicators of students' personal anxiety of experimental and control groups at initial and final stage differ from zero significantly.

For statistical processing of the obtained data we used t-criterion of Stjudent for the samples.

Students (both boys and girls) of experimental groups were involved in physical education trainings, which included studying of worked out by the author principles of psychological and psycho-physical training of railway students [8, 10]. The classes included:

1. Studying of theoretical material, included in part of psychological education.
2. Practicing of kinds of sports, which in the author's opinion can improve students' self-confidence and as a result weaken level of personal anxiety. For boys they were athletic exercises and power lifting; for girls – aerobics and sahadzha yoga.
3. Application of psycho-training means for development of attention.
4. Application of special physical exercises for development of psycho-motor abilities.
5. Participation in sport competitions.
6. Exercise for self-regulation of mental state (autogenic training).

In the process of academic classes we also solved traditional tasks of physical education on formation of motion skills and development of students' physical condition.

Control group students were trained only as per academic program for higher educational establishments.

The structure of academic classes on physical education in experimental groups was as follows: 10 minutes – warming up; 75 minutes – main part. From 75 minutes 25 were devoted to traditional tasks of physical education on formation of motion skills. 20 minutes were devoted to special physical exercises or psycho-training, or self-regulation exercises. In structure of certain lesson we used only one from the mentioned blocks. 30 minutes of main parts were devoted to professionally important kind of sports. Final part took 5 minutes.

Psychological diagnostic of students' personal anxiety was fulfilled with the help of scale for evaluation of level of responsive and personal anxiety by method of Ch. Spilberger.

Students of experimental groups had to master program of psychological and psycho-physical preparation. They were explained that mark for this section was a component of general mark for “physical education” discipline.

3By the result of first cross section we formed experimental and control groups. Their characteristics are given in table 1.

Table 1.

Level of personal anxiety of experimental and control groups' students before experiment (N=120)

	Boys		Girls	
	Experimental group	Control group	Experimental group	Control group
Mean arithmetic	49.6	49.6	53.1	52.96
Median	48.5	48.5	52	52
Mode	46	46	61	61
Standard deviation	3.69	3.62	5.34	5.49

As we can see in the table experimental and control groups had close indicators of students' personal anxiety before experiment.

Repeated cross section was fulfilled at the end of fourth semester. Experimental and control groups had characteristics, given in table 2.

Table 2.

Level of personal anxiety of experimental and control groups' students after experiment (N=120)

	Boys		Girls	
	Experimental group	Control group	Experimental group	Control group
Mean arithmetic	48.2	49.43	52.23	53.13
Median	48	48.5	52	52
Mode	46	46	60	61
Standard deviation	3.94	3.69	5.99	5.61

Secondary statistical processing of experimental data was carried out with Student's t criterion for dependent samples. As a result of this work we determined: a) indicators, which were in zone of insignificance (control groups of boys and girls); b) indicators in zone of significance (experimental groups of boys and girls). On the base of it: a) we made conclusion about validity of zero hypothesis concerning boys' and girls' control groups; b) concerning experimental groups of boys and girls we refused this hypothesis and proved validity of alternative one.

Planning experiment, we based on the fact that professional functioning at railway transport often is accompanied by significant emotional tension, which is connected with high responsibility for life of passengers and safety of loads. It negatively influences on specialists' workability, results in mistakes, negatively influences on specialists' health.

Discussion

Studying of professional characteristics of railway specialties showed that for important railway specialties, such as "Organization of transportation and management at railway transport", "Electric transport", "Bridges and transport tunnels" and other there is a list of personality's features, hindering from effective professional functioning. Among them there was personal anxiety. The author's researches showed that high indicators of personal anxiety were manifested by 14 % of boys and 49 % of girls, who study at railway HEE [9]. This situation requires appropriate response, conducting of work on weakening of personal anxiety in this category of student. In our opinion psychological and psycho-physical training of railway students in process of physical education can reliably help in solution of this problem. For testing of this assumption we conducted experiment. In our experimental hypothesis we assumed that psychological and psycho-physical training in process of physical education, oriented on weakening of personal anxiety would significantly reduce students' personal anxiety. For testing of this assumption we conducted experiment, in which four groups of students participated: two experimental (boys and girls) and two control (boys and girls). Control groups' students mastered traditional physical education program for HEE students (HEE of third and fourth accreditation levels). Experimental groups' students had to master, except mentioned traditional program, block of psychological and psycho-physical exercises, oriented on weakening of personal anxiety.

Experiment's results on dynamic of personal anxiety's change witness about the following: in control groups (boys and girls, who trained traditional exercises of physical education) there happened no substantial (statistically confident) reduction of personal anxiety's level. It is proved by absence of appropriate statistical indicators. In our opinion it is explained by insufficient usage of exercises for reduction of personal anxiety in traditional sport and physical culture functioning.

As far as experimental groups concern (boys and girls) in them, at the end of experiment, we received statistical data, which show substantial reduction of personal anxiety's level. Dynamic of these changes was statistically determined with the help of Student's t-criterion for dependent samples. It showed that they are located in zone of significance. With it in experimental group of boys we registered more intensive reduction in comparison with girls' experimental group. In our opinion it can be explained by different influence of means, used in trainings, on boys and girls.

The received in experimental groups results permit to say that experimental hypothesis has been proved. Usage of athletic and power lifting exercises for boys and aerobics and sahadzha yoga exercises for girls, in process of psychological and psycho-physical trainings, statistically confidently influenced on weakening of students' personal anxiety.

The received in experiment data prove opinion of V.I. Garbuzov. He thinks that in complex, unconscious perception of "Self" "muscular sense" plays important role. Strong skeleton, developed muscles cause person's self-confidence [3, pg. 43]. For girls acquiring of dexterity and slimness is of the same importance. In our opinion exactly experimental group students' self-confidence caused reduction of personal anxiety's level.

Conclusions:

The main conclusions of experiment are as follows:

1. Hypothesis that psychological and psycho-physical training in process of physical education is and effective mean of reduction of students' personal anxiety has been experimentally proved.
2. In boys' experimental group effectiveness in reducing of personal anxiety was showed by athletic and power lifting exercises. They were main block of system of this category students' psychological and psycho-physical training.
3. In experimental group of girls with high level of personal anxiety effectiveness in its reducing was demonstrated by aerobics and sahadzha yoga exercises. They were main block of system of this category students' psychological and psycho-physical training.

The prospects of further researches we connect with determination of purposefulness of other kinds of sport and physical culture functioning for weakening of students' personal anxiety.

References:

1. Arutiunian T. A. *Osobennosti sootnosheniia obshchitel'nosti i trevozhnosti podrozkov. Cand. Diss.* [Feature value for sociability and anxiety adolescents. Cand. Diss.], Moscow, 2013, 25 p. (in Russian)
2. Volzhenceva I. V. Dinamika stanu trivozhnosti studentiv u navchal'nomu procesi [Dynamics of state anxiety of students in the learning process]. *Pedagogichnij proces: teoriia i praktika*, 2004, no.2, pp. 319–329. (in Ukrainian)
3. Garbuzov V. I. *Prakticheskaia psikhoterapiia, ili kak vernut' rebenku i podrostku uverenost' v sebe, istinnoe dostoinstvo i zdorov'e* [Practical psychotherapy, or how to return the child and the adolescent self-confidence, the true dignity and health], Sankt Petersburg, Sphere, 1994, 160 p. (in Russian)
4. Ermolaeva Y.S. Level of anxiety as one of the criteria of efficiency of emotional stability in sport dancing. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2015, no.2, pp. 22-25. <http://dx.doi.org/10.15561/18189172.2015.0204>
5. Kaliuzhna Ie. M. *Psikhologichni mekhanizmi osobistisnoi trivozhnosti u pidlitkovomu vici. Cand. Diss.* [Psychological mechanisms of trait anxiety in adolescence. Cand. Diss.], Kiev, 2008, 29 p. (in Ukrainian)
6. Kuznecova O. V. *Vzaimosviaz' urovnej trevozhnosti i mekhanizmov adaptacii lichnosti v period iunosti. Cand. Diss.* [The relationship of anxiety levels and mechanisms of adaptation of personality in adolescence. Cand. Diss.], Moscow, 2009, 22 p. (in Russian)
7. Mamadaliyeva G. A. *Psikhologo-pedagogicheskaiia profilaktika i korrekciia trevozhnosti sovremennogo podrostka. Cand. Diss.* [Psycho-educational prevention and correction of anxiety of the modern teenager. Cand. Diss.], Nizhny Novgorod, 2011, 262 p. (in Russian)
8. Pichurin V. V. Osnovi organizacii psikhologichnoi i psikhofizichnoi pidgotovki studentiv zaliznichnikh vuziv v procesi fizichnogo vikhovannia [Fundamentals of psychological and psychophysical training schools train students in physical education]. *Naukovij chasopis NPU im. M. P. Dragomanova*. 2012, no.26, pp. 84–90. (in Ukrainian)
9. Pichurin V. V. Psikhologichna i psikhofizichna gotovnist' studentiv-zaliznichnikiv do profesijnoi praci [Psychological and psycho-physical readiness of students to professional work of railwaymen]. *Naukovij chasopis NPU im. M. P. Dragomanova*. 2013, no.37, pp. 95–103. (in Ukrainian)
10. Pichurin V.V., Psychological and psycho-physical training as a part of physical education of students in higher educational establishments. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2014, vol.11, pp. 44-48. <http://dx.doi.org/10.15561/18189172.2014.1108>
11. Ascii F. H. The effects of physical fitness training on trait anxiety and physical self-concept of female university students. *Psychology of Sport and Exercise*. 2003, no.4, pp. 255–264. [http://dx.doi.org/10.1016/S1469-0292\(02\)00009-2](http://dx.doi.org/10.1016/S1469-0292(02)00009-2)
12. Beaudreau S. A. Application of a cognitive neuroscience perspective of cognitive control to late-life anxiety. *Journal of anxiety disorders*. 2013, vol.27, no.6, pp. 559–566. <http://dx.doi.org/10.1016/j.janxdis.2013.03.006>
13. Bekhuis E. Differential associations of specific depressive and anxiety disorders with somatic symptoms. *Journal of psychosomatic research*. 2015, vol.78, no.2, pp. 116–122. <http://dx.doi.org/10.1016/j.jpsychores.2014.11.007>
14. Byrne A. E. The effect of exercise on depression, anxiety and other mood states. *Journal of Psychosomatic Research*. 1993, vol. 37, pp. 565–574. [http://dx.doi.org/10.1016/0022-3999\(93\)90050-P](http://dx.doi.org/10.1016/0022-3999(93)90050-P)
15. Mathews A. Cognitive Model of Selective Processing in Anxiety. *Cognitive Therapy and Research*. 1998, vol.22, no.6, pp. 539–560. <http://dx.doi.org/10.1023/A:1018738019346>

16. Niles A. H. Anxiety and depressive symptoms and medical illness among adults with anxiety disorders. *Journal of psychosomatic research*. 2015, vol.78, no.2, pp. 109–115. <http://dx.doi.org/10.1016/j.jpsychores.2014.11.018>.
17. Peckham A. D. A meta-analysis of the magnitude of biased attention in depression. *Depression and Anxiety*. 2010, vol.27, no.12, pp. 1135–1142. <http://dx.doi.org/10.1002/da.20755>
18. Rutter L. A. Reliability and validity of the dimensional features of generalized anxiety disorder. *Journal of anxiety disorders*. 2015, vol.29, pp. 1–6. <http://dx.doi.org/10.1016/j.janxdis.2014.10.003>.
19. Scaini S. Genetic and environmental contributions to social anxiety across different ages: a meta-analytic approach to twin data. *Journal of anxiety disorders*. 2014, vol.28, no.7, pp. 650–656. <http://dx.doi.org/10.1016/j.janxdis.2014.07.002>.
20. Zinbarg R. E. Cognitive-behavioral approaches to the nature and treatment of anxiety disorders. *Annual Review of Psychology*. 1992, vol.43, pp. 235–267. <http://dx.doi.org/10.1146/annurev.ps.43.020192.001315>

Information about the author:

Pichurin V.V.: <http://orcid.org/0000-0002-3893-375X>; dnurt@diit.edu.ua; Dnipropetrovsk National University of Railway Transport named after Academician V.Lazaryan; St. Lazaryana, 2, Dnipropetrovsk, 49010, Ukraine.

Cite this article as: Pichurin V.V. Psychological and psycho-physical training as a factor of personal anxiety at students. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2015, no.3, pp. 46-51. <http://dx.doi.org/10.15561/18189172.2015.0307>

The electronic version of this article is the complete one and can be found online at: <http://www.sportpedagogy.org.ua/html/arhive-e.html>

This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited (<http://creativecommons.org/licenses/by/3.0/deed.en>).

Received: 28.01.2015

Accepted: 17.02.2015; Published: 23.02.2015