HEALTHY LIFESTYLE. PREVENTION

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# COMPARATIVE EVALUATION OF THE ADAPTATION CHARACTERISTICS

**ABSTRACT**

The given article presents the investigation of the adaptation characteristics and the comparative analysis of the adaptive opportunities of the first year students as well as the young men who are recruited in the armed forces. The authors present the conclusion concerning the multidirectional dynamics of the adaptation indicators of the first year students and the young men who do military service during the first year- negative dynamics for the University students and positive one for military servants. Successful adaptation to the conditions of military professional activity is due to more comfort environment for the young men organism.

**Keywords:** adaptation to environmental factors, students, soldiers.

## INTRODUCTION

The health of the young men during their professional formation is one of the actual problems of the modern public health. The adaptation to some new environmental factors is currently considered to be a permanent process of the individual's developmental adaptation to the social and activity conditions. This process affects all levels of human functioning. The adaptation of young men to the military service is of the particular interest as it originates from the specificity and high social importance of human activities to protect the state interests and national security. According to A. S. Kislitsina's data psychological hardships during military service can be represented by a hierarchical scale of the 12 stress factors (the main of them are the restriction of freedom, helplessness, hard and dangerous work, uncomfortable living conditions). These factors allow considering the military service conditions as difficult living conditions [9]. At the same time, the students' adaptation to some new factors specific to high schools, is accompanied by a large flow of information, acceleration of the pace of life, bad habits, frequent violation of the work – rest schedule and nutrition regime, regular mental and psycho-emotional stress, especially during training sessions [1,3,8].

The **purpose** of the given study is the investigation of the young men's adaptation capabilities, depending on the conditions and requirements of the human environment.

## MATERIALS AND METHODS

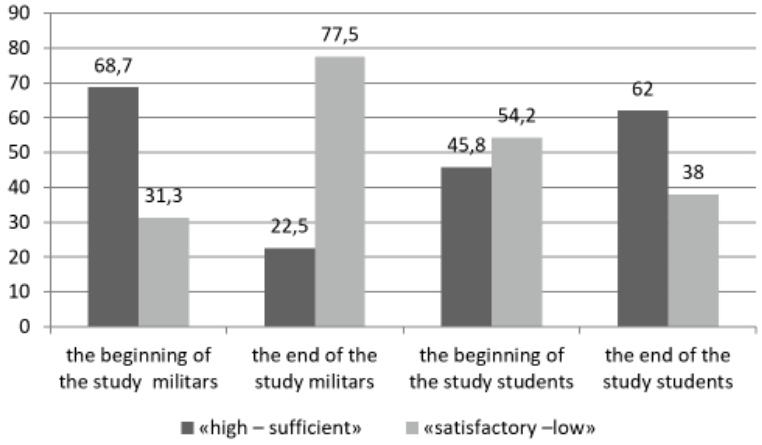


**Fig. 1** Personal adaptation potential at young men of the studied groups at initial and final investigation phases

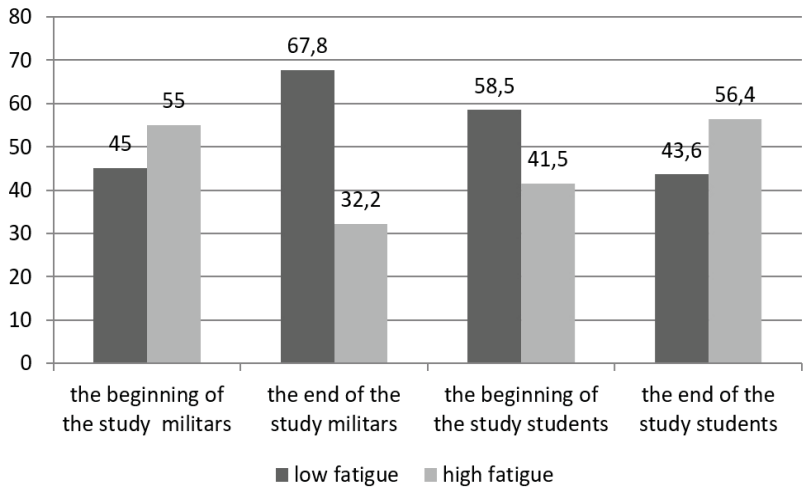


**Figure.2.** Fatigue of boys in the study groups at initial and final stages of the study

The objects

Table 1

**Indicators of urgent alarm and personal uneasiness at young men of the researched groups at initial and final investigation phases, (point/%)**

| Urgent alarm, and personal uneasiness, regulation (point) | military personnel | | | students | | |
|---|---|---|---|---|---|---|
| | 0-30 | 31-45 | more than 46 | 0-30 | 31-45 | more than 46 |
| Urgent alarm, point/%, beginning of a research | 26,6/10,1 | 39,3/49,4 | 52,6/40,5 | 25,5/20 | 36,1/75,6 | 55,4/4,4 |
| Urgent alarm, point/%, end of a research | 27,3/22,5 | 34,4/75,0 | 47/2,5 | 23,8/24,1 | 37,4/66,7 | 51,4/9,3 |
| Personal uneasiness, point/%, beginning of a research | 29,3/4,5 | 38,8/67,4 | 51,8/28,1 | 26,4/15,5 | 36,8/84,5 | – |
| Personal uneasiness, point/%, end of a research | 27,4/32,5 | 35,1/67,5 | – | 27,8/31,5 | 39,246,3 | 52,08/22,2 |

Table 2

**Physical training of boys studied groups at the beginning and the end of the study, M±m**

| Name | Students | | military | |
|---|---|---|---|---|
| | test | Students | military | конец исследования |
| | Beginning | 12±0,54 | 6±0,5 | 10±0,5* |
| researches | End | 4,17±3,2 | 4,39±4,2 | 3,49±2,3* |
| researches | Beginning | 32,8±0,29 | 30,91±0,24 | 26,9±0,1* |
| researches | End | | | |
| researches | | | | |
| Pulling up | 11±0,6 | 12±0,54 | 6±0,5 | 10±0,5* |
| Run on 1000 meters | 4,05±2,7 | 4,17±3,2 | 4,39±4,2 | 3,49±2,3* |
| Shuttle run (10x10 m) | 32,5±0,29 | 32,8±0,29 | 30,91±0,24 | 26,9±0,1* |

* $p<0,001$.

of the study were the young men enrolled in the first course of the Irkutsk Technical University (n =60) and the young men who were called up for National Service (n =40). The study was conducted as at the beginning of the academic year and the recruitment to the RF Armed forces, as at the end of the academic year and at the end of the military service period.

A multi-level personality questionnaire (MLQ "Adaptability-200") was used to explore the adaptive capacity of an individual. The values of the 4-th level (the integral scale of personal adaptation capacity (PAC) and the values of the 3-level (scale of behavioral regulation, communicative potential and moral normativeness) have been determined.

The self-assessment scale by Ch. Spielberger - Hanina (actual alarm and personal anxiety) was used to define subjective estimation of experiencing and the levels of alarm and anxiety. The results of the study were estimated by the values (points), characterizing the low, middle and high degrees of actual and personality anxiety [11].

The identification of persons with the symptoms of chronic fatigue and exhaustion was conducted by the means of the questionnaire "«Accompaniment», allowing to define the violations in a communicative, active and psychosomatic areas. The area of health disorders (stress and overstrain) has been marked out in 4 separate groups: the absolute norm area; the area of the norm options; the area of extreme variants of norm and premorbid states; the area of premorbid and pathological conditions according to the standard methods by the B. V. Ovchinnikov, M. M. Reshetnikov et al. [12]. We have combined the absolute norm area and the area of the norm options into one group – "normal", the others have been united in " premorbid and pathological states" group.

Physical indicators of speed, power and endurance were determined by standard methods on the base of such physical activity results, as shuttle running 10 x 10 meters, pulling up on a crossbeam and running 1000 meters.

The obtained results were processed with the application of the mathematical-statistical methods used in medico biological researches. Data processing was carried out in the computer programs « Microsoft Excel-2007», «Statistica 6.0».

**Results and discussion**

The data of the conducted researches made among students and the military personnel during the process of training and military career, are submitted in figures 1, 2 and Tables 1, 2.

According to S. L. Solovieva, the anxiety can be considered, on the one hand, as a normative phenomenon, providing adaptation, and, on the other hand, as one of the main factors of mental disadaptation. The probability of passing or permanent adaptation violations increases in the process of anxiety intensity [13]. Actually the trouble in this case is regarded either as the main component of psychopathology, or as a basis for the mental disadaptation [4].It is evident that in the beginning of the research, the indicators of "high – sufficient «and "satisfactory –low" levels of PAC were distributed approximately equally among the University students. In the group of military men, almost 70% of young people had a "satisfactory - low "PAC levels (Fig.1). The analysis of the LAP structure and its components has shown that from 37% to 66,2% of the soldiers are in the area of low and satisfactory physical characteristics , in comparison with a group of students (from 29 to 41.2%). In addition, the military men significantly differed from University students on the levels of the actual and personal anxiety. So, the majority of students were within the zone of moderate current and personal anxiety at the beginning of the academic year, at the same time from 28 to 40% of the military men had high levels of anxiety in the beginning of the military service.

It is known that the mental aspect of fatigue is reflected in the form of

negative or positive feelings (fatigue, apathy, aversion to activity, joy of success achievement, etc.) as well as its physiological aspect is reflected in the change of some features ensuring the activity in performing labor tasks. As experiences so functional activities are interrelated, they always accompany each other [5]. The research of fatigue in the studied groups at the initial stage allowed to reveal a slight predominance among the students who had absolute norm and norm option indicators (58.9 per cent) compared to military men (45%). It should be noted that 55% of military men in the group were in the area of the extreme variants of the norm, premorbid and pathological states of fatigue (Fig.2).

The indexes of young men's physical development in the groups are presented at the beginning and the end of the study (table 2). In our opinion, the chosen physical tests sufficiently prove the strength, speed and endurance of young people. As it turned out, the students dominated in terms of physical strength and endurance (pull-ups and running 1000 m.), but conceded n speed (shuttle running) to the military men.

At the second investigation phase – at the end of the academic year and the termination of military service, it was evaluated that the military men who had high and sufficient PAC levels made up to 77,5% of the examined. Thus, the proportion of the military men with high and the sufficient PAC level has increased by 2,5 times in comparison with a similar indicator when the young men were called up for National Service . The opposite pattern we observed among University students . So, by the end of the first academic year we revealed the lowering of students having high and sufficient PAC levels for 16,2% and consequently the increase of young men having the low and satisfactory level of adaptation (Fig. 1).

The PAC components of students and the military personnel also have undergone changes at by the end of the observation term. We have found the considerable increase in the structure of the military men's PAC including all its components to the area of high and sufficient level, but most of all − the component of behavioral regulation (to 41,2%). The similar changes in the PAC structure, but of the regressive character, were revealed among the University students: partial indicators of behavioral control, and moral normativity of the sufficient and high level area were decreased by 22.2 and 4.2%, respectively.

The studying of the indicators of actual and personal anxiety in the researched groups allowed us to establish the divergence of dynamics of these indicators between students and military men (table.1) by the end of the observation period. So, despite the significant increase in the number of young people having a low level of relevant and personal anxiety (4.1 and 16%, respectively), the number of University students, having high anxiety level made 22% , taking into account that we did not identify any students with a high level of anxiety at the beginning of the academic year, At the same time, we noted the opposite trend of the studied parameters in the group of military men. The majority of the young men were in the area of moderate current and personal anxiety by the end of the military service period anxiety, in contrast to the similar indicators they had when they were called up for National Service. Meanwhile there weren't identified any military men having high levels of personal anxiety, and the number of young men with a high level of current anxiety was minimal (2.5 percent).

We noted the similar dynamics of fatigability indicator at the final stage among the boys of the studied groups. So, by the end of the academic year, the number of students in the area of the extreme variants of the norm, premorbid and pathological states increased by 14.9%, in comparison with the beginning of the academic year. While in the military personnel group , this indicator decreased by 22.8% by the end of the service.

We have made the conclusion concerning the positive dynamics of the physical development in the group of military men as the rates of physical strength, speed and endurance have authentically increased by the end of the observation period.

At the same time, we haven't noted any significant changes in physical fitness of the University students within the academic year.

The optimization of relations in the individual-environment system can hardly be overemphasized, as it is the essence of the adaptation process. C. B. Bondarenko believes that the majority of students don't achieve satisfactory level of adaptation to the effects of negative environmental factors. The working efficiency under such conditions is determined by the level of mental and physiological reserves of organism, but not at the expense of adaptation and it leads to health problems of an individual [6].

The group of objective criteria for success evaluation of students' adaptation to training process in higher education institution was identified by T. P. Brown on the basis of the criteria [2] proposed by V. G. Aseev in 1986. They are success in the academic activity, the stability of the functional state of students' organisms in the process of studying (the lack of sharp changes in psycho physiological functions), the lack of the fatigue evident signs [1, 7].

**CONCLUSION**

Taking into account the facts considered above and the results of our own research, we believe that more than 60% of first-year students do not reach a satisfactory level of adaptation to the University educational environment and to new conditions of activity by the end of the first year. It is manifested by low values of PAC, due to the regression of its components -behavioral regulation and moral standard, increase in levels of actual and personal anxiety as well as a high degree of exhaustion.

At the same time, the majority of young men (as it is shown in our research), have shown the effectiveness of military-professional adaptation despite the well-known difficulties of military service. It results in the LAP increasing, primarily due to the index of behavioral regulation, anxiety and fatigue reduction, and

finally, to the effective increase of their physical development to the end of military service. In our opinion successful socio-psychological adaptation of young men to military service is associated with rational modes of military training and labor, proper nutrition, regulated daily routine and the psychological atmosphere that accompanies the process of military service.

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