STUDYING THE FACTOR MODEL OF PSYCHOPHYSIOLOGICAL AND SOMATOTYPIC STATUS OF YOUNG PEOPLE WITH THE AIM OF MODERATING THEIR PROFESSIONAL TRAINING

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Abstract. Somatotypic and psychophysiological parameters of the body are an important factor determining its health and the effectiveness of professional activities. Modeling and predicting personal characteristics based on data from mental physiological and somatotypic status will help young people choose a profession and increase the effectiveness of their professional activities.

Keywords: somatotype, psychophysiological parameters, genotype, phenotype, choice of profession, body mass deviation, adaptability, schizoid, neuroticism factor.

The somatotypic and mental physiological parameters of a person are determined by his genotype (heredity) and are reflected in the form of various phenotypic options as the "reaction norm" of a certain sign (trait). The main modifying factors that determine the limited genetic variability of these traits include climate, i.e., a combination of physical and chemical environmental factors, and social conditions.

Somatotypic and psychophysiological parameters of the body are undoubtedly an important factor determining its health and the effectiveness of professional activity. Modeling and predicting personal characteristics of an individual based on data from mental physiological and somatotypic status is important in a person's choice of profession and mastering a profession, as well as in increasing the efficiency of his professional activity /2, 3/.

In this regard, the purpose of this study was to study the factor model of the psychophysiological and somatotypic status of young people with the aim of moderating preparation for a profession.

Materials and methods. The study was conducted on 259 healthy young volunteers (131 men and 128 women) aged 17 to 28 years. For each subject, their general (code, gender, date of birth), psychophysiological (adaptation, schizoid, neuroticism, epileptoid, affectivity, heart rate variability) and somatotypic (body weight and length, body mass index, body mass composition, body surface) were determined. . Area data was recorded, including 52 simple (elementary) and arithmetic indicators reflecting the condition of the heart (area and volume, basic metabolic parameters, blood pressure, indicators of autonomic control and cardiac performance). Psychophysiological data were obtained using the CMS hardware and software complex. For computer statistical calculations, standard software packages MS Excel-97 and Statistica 6.0 were used.

Factor analysis was carried out by determining the optimal number of factors, separated by the method of principal components, using the Kaiser criterion, the "Screen test" and the level of factorization completeness /1, 3/. Indicators with a factor loading of 0.5 or more were selected for analysis.

The Given that the spatial axes of the common factors are rotated, infinite results arise, we used the method of selecting a suitable system using factor rotation "Varimax normalized".

Results and discussion. Factor analysis showed that in young people with factorization completeness equal to 88.8%, 10 factors can be identified that determine their psychophysiological and somatotypic characteristics. Factors that were not identified and had little significance accounted for 11.2%.

The first factor - "Somatotype Factor" (28.5%) had a particularly strong influence on indicators such as daily size, speed and power of the basal metabolic rate. The subject's gender, body weight and length, body size, and surface area were clearly important factors. It has been observed that this factor is of great importance in maintaining the ideal parameters of body weight and body surface area ratio at the same level. The contribution of this factor to the overall effect is determined by its significance in the formation of behavioral reactions and the formation of the energy potential of the body.

The second factor is "Body weight deviation coefficient" (15.8%) with a significant (more than 10%) deviation from ideal body weight, absolute and relative amount of fat tissue, average body density, individual body weight indicators (IR-Rorera, I. S.-Sheldon, I.K.-Kotle) and was associated with body surface area. This condition indicates that being over or underweight has a negative impact on maintaining moderate physiological activity.

The third factor - "Adaptability Factor" (11.8%) reflects the properties of the main integral psychophysiological indicators, such as schizoidity and affectivity, and is determined by the number of heartbeats and heart rate variability, the Cordot index and the endurance coefficient. The presence and weight of this factor play a role in preparing for the profession and increasing the efficiency of professional activity.

The fourth factor - "Blood pressure factor" (9.3%) was associated with the values of blood pressure and tone of the autonomic nervous system.

The fifth factor - "Age factor" was not associated only with the age (date of birth, years of life) of the subjects. This shows the significance of age-related characteristics in human psychophysiological indicators.

The efficiency of blood circulation depended on the sixth factor - "circulatory efficiency" (6.1%) and was determined by pulse pressure, endurance coefficient, indicators of systolic and minute blood volume.

The main parameters of heart rate variability are associated with the influence of the seventh factor - "Heart rate variability factor", which is reflected in the level of adequacy of control mechanisms for the changed conditions of human activity. It has not only diagnostic, but also paradiagnostic significance.

If the influence of the third factor on schizoidity depends on the interaction of this parameter and adaptability, then in the eighth, the schizoid-epileptoid factor, the meaning of introversion and epileptoidity is shared. This situation not only reflects the degree of dependence of the object on the environment, but also characterizes the mobility of mental reactions.

The level of neuroticism is separately highlighted as the level of mental sensitivity in the ninth - "Factor of Neuroticism". Despite its small weight (2.2%) in the overall impact, it is of great importance in the formation of interpersonal relationships in the team and professional activities.

Tenth - "Birth date factor" is associated with the day and month of a person's birth and amounted to 2.1% of the influence of the sum of factors. The significance of this factor requires

further study, since it is associated with the individual biorhythms of the body. They, in turn, determine the performance, adaptability and health status of a person within the individual biorhythmic year.

Thus, analysis of the factor load of the studied indicators shows that these factors are of great importance in creating optimal conditions for professional training and professional activity.

Conclusions:

1. Professional training and optimization of professional activity are significantly influenced by a number of factors that reflect the psychophysiological and somatotypic characteristics of the body.

2. The decisive factors are the "somatotype factor", "body weight deviation coefficient" and "adaptation coefficient".

3. Blood pressure factor, circulatory efficiency, heart rate variability, schizoid-epileptoid, neuroticism and other factors are the main factors influencing the background.

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