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# Studying Structure of Students' Needs in Healthy Life Style.

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**ABSTRACT**

The article interprets the results obtained in research and experiments which confirmed the basic theoretical principles for the formation of a healthy life style and psychosomatic theory - the theory of communication and mental health. We give used methods of investigation that revealed the stress factors in the educational process of the university, as well as correlations between the parameters of being students and stressors. The article shows that in order to remove the negative impact of psychogenic stress on the health of students in high school following steps are needed: optimization of training loads and an ergonomic approach; taking into account the needs of students; consideration of the impact of teacher's personal qualities on the condition of students (pedagogical tact, speech, creativity, critical assessment of students' strengths and weaknesses, substantive expertise, organizational skills, the feedback from the audience).

**Keywords:** healthy lifestyles, psychological resilience, cluster analysis, agglomerative procedure, factor analysis, component analysis ranking, correlation analysis, the need.

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## INTRODUCTION

In the context of implementation of the strategic objectives to become one of the fifty most competitive countries in the world, affecting almost all spheres of socio-economic development in the Republic of Kazakhstan, requirements for graduates become more complex. Modern Kazakhstani society requires not only professionally trained but also physical healthy professionals with stable motivation for a healthy lifestyle [1]. Today, only a healthy person with good health, optimism, psychological resistance, high workability can live actively, overcome professional and personal difficulties, compete successfully in the labor market. In this connection, issues relating to students health promotion acquire high significance. Understanding that students are powerful reserve, who in the near future will carry out all strategic transformation and achievements in order to ensure the successful development and prosperity of our Republic, makes this problem very important [2].

In Kazakhstan the problems of healthy lifestyle formation are involved in different directions: the study of scientific bases of healthy lifestyles formation among the population – Satpaeva, H.K., Alimzhanova, G.D., Adambekov, K.I., Imangaliev, A.S., Saparbaev, M.B.; non-traditional methods of natural healing – Nazarbayeva, S.A.; study of social-pedagogical bases of healthy lifestyles formation- Akberdieva, D.F., Abishev, K.S., Nuridinova, G.A., Suleymenova, S.N., Torybaeva, Zh.Z., Boleev, T.K., and others.

Meanwhile, as practice shows, today in higher education not enough attention has been paid to problem of students healthy lifestyle: there is a steady shift to the development of cognitive and professional-applied activities of students.The volume of physical education classes in educational institutions of the republic are in 3-4 times lower than the level of science-based motor activity of students [3]. As a consequence of this imbalance, risk factors for the health of students during training (mental overload, tension and stress situations during the session, a sedentary lifestyle, etc.) largely dominate teaching measures which are taken in universities to save and strengthen the students' health. Consequently, it must be noted that during the period of study in high school students gain mostly negative experience in building lifestyle which is far from the main rules and regulations of HLS (healthy life style).

Thus, the analysis of the scientific literature on this issue, as well as experience in institutions of higher education of the republic allows to highlight a number of contradictions, objectively existing today:

- Between society's need for healthy citizens and the real state of health of students;
- Between meaningful sports and recreational activities for the formation of a students healthy lifestyle and the lack of evidence-based research, methodological recommendations on its organization in the conditions of high school [4].

Taking into account given contradictions it is possible to formulate a research problem, which is as follows: what are the pedagogical conditions and ways of improving the process of organizing sports and recreational activities at the university in order to ensure the effectiveness of building students healthy lifestyle.

## METHODS

At the present stage, it is important to understand the fundamental laws of health formation of the younger generation; to guide the actions of higher education institutions for changing the unfavorable trends until students' life potential do not suffer irreversibly. From this perspective, improving the process of healthy lifestyle formation in higher education has two aspects, the first of which is related to the insufficient development of pedagogical theories, as well as to the lack of special literature, and the second is due to the need to organize educational work with students, aimed at the formation of health values and a healthy lifestyle. These positions require modifying of existing forms of training, creation of innovative training programs, structuring of educational information, creating elective courses, implementation of health maintaining technologies, which involves the intensification of learning in order to preserve the health of students.

Therefore, the readiness of the student to a healthy lifestyle is revealed by the criteria:

- Location of "health" value in the structure of the student person;
- The presence of conscious purpose to lead a healthy lifestyle, expressed in the presence and power of the desire to improve yourself physically and spiritually;
- The degree of following a healthy life by student, expressed in a spiritual self-improvement, in rejection of any bad habits, in good nutrition, in the intensive and systematic exercise, in adherence to labor and rest, good hygiene, and others.
- Conditions which conduce improving the student's readiness to lead a healthy lifestyle. First of all, the physical condition of the student, which is reflected in his/her well-being, mood, desire to work and activity.

In summary, we believe that the formation of a healthy lifestyle of the future teacher in the course of training at pedagogical university becomes successful if:

- Students give meaning to information, which is given in different organizational forms of training and education. It should occur in specially created or spontaneously occurred situations of behavior choice and values that becomes the basis for the development of personal, concerning relationships to a healthy lifestyle;
- Personal attitude to a healthy lifestyle is reflected in motivating of behavior and actions, which can cause motivation as well as configure them on the basis of perceived value aspects of a healthy lifestyle;
- Evaluation of actions connecting "categorical commandment" (the moral law, becoming a practical principle) to keep a healthy lifestyle and to orient other student on a healthy lifestyle in the specific situation and motivation. It contributes to the choice of actions and values, to the understanding lifestyles of others.

To identify the needs of students in healthy lifestyle we carried out the experimental work, in which we have used a variety of research methods of both psychological and pedagogical science. The peculiarity of methods to study the problem of needs of students in a healthy lifestyle is in necessity of a serious statistical processing of results [5].

The quality of research paper is determined by the completeness and level of description, analysis of its results. The role of the used statistical methods is twofold: on the one hand, they are capable of detecting previously unknown patterns, on the other hand, with their help we can verify the accuracy of the findings. If we consider that these findings are converted into recommendations for the education of children and youth, it is clear in what accurate way these methods should be applied. Various statistical methods of processing results can be used to test the hypothesis. Choosing the designated method of research is due to the fact that it is directed to the canonical correlation, factor and cluster analysis. However, these methods allow us to study the structure of the investigated systems, to highlight objectively existing groups and to compare them with each other, whereas the accuracy of the conclusions in experimental studies is largely determined by the correct application of statistical analysis methods. The results should be effective due to increasing the accuracy of the results, because modern computer statistics was professionally used. Issues related to the application of statistical methods in the science have been developed by different authors: Glass, D., Stenli, D., 1976; Grabar, M.I., 1977; Itelson, L.B., 1968; Pavlov, Yu.V., 1972, Kozyrev, O.A., 1997; S.A.Belanovsky, 2002 and others.

In this article, we want to make a brief overview of statistical methods that can be applied to the analysis of educational data and an overview of methods for classifying cases, cluster, correlation analysis, and others.

Cluster analysis is a set of methods for the classification of multivariate observations or objects based on the definition of the distance between objects, with following isolation of groups, clusters of observations (clusters, taxons). There is no need in a priori information about the distribution of general totality [6]. Cluster analysis as a mean of typological analysis is used in pedagogy, biology, medicine, geography, philology, etc. The basic idea of the cluster analysis is the idea of "structural classification" or selection of compact groups of objects. The word cluster also means "a bunch of group." For the first time this analysis was called "bunch analysis". To create effective classifications clustering should ensure the use of indicators which characterize

the object under study; also it should assess the degree of similarity between them and ensure accommodation of similar objects in the same group. Formed group should be sufficiently "local", that is, similarity within groups of objects must exceed the similarity between the groups themselves. Cluster analysis methods are available at most best-known domestic and foreign statistical packages: SIGAMD, STADIA, TNG-PMI, COPPA-2, SAS, SPSS, STATISTICA, BMDP, STATGRAPHICS, GENSTAT, S-PLUS, etc.

There are three main reasons for the interest to this type of analysis. The first is the appearance of powerful computer technology; the cluster analysis cannot be represented without it. The second reason is that science relies on the classification in its arguments. The third reason is the deepening of special knowledge, resulting in an increase in the number of variables, which are taken into account in the analysis of various objects and phenomena. Unfortunately, among the physicians, biologists and educators cluster analysis has not yet become quite popular and commonplace method of research [7]. In this study, for the classification we have used hierarchical agglomerative procedure of cluster analysis. In this procedure, on the first step of agglomeration each observation is considered as a separate cluster. In the future, on the next steps of the algorithm there is a combination of the two closest clusters, wherein the distance between the clusters is recalculated, and the number of clusters is reduced by one. The algorithm ends when all observations are combined into one cluster. The objects of the classification were students, teachers, universities, faculties of universities, etc. Signs of the objects were personal qualities, certain states, etc.

To determine the measures of difference (distance) between [rho] and [zeta] and objects Euclidean metric is used:

$$\rho_{ij} = \sqrt{\sum_{t=1}^{m} (z_{il} - z_{jl})^2}$$

where [zeta] is a value of feature [zeta]-th object, [mu] is the number of objects features. During cluster analysis characteristic values were normalized to align their contributions to the defined extent of the differences between objects, and point values were considered as quantitative values. The distances between the clusters were determined by Ward method (with miniminization of dispersion inside the cluster distances). After definite agglomeration step the distance between connecting clusters sharply increases. As a result, a subjective classification, which is based on a small amount of carried signs, is unreliable. The objective classification, with ever-increasing set of characteristics of an object, requires the use of sophisticated algorithms of clustering, which can be implemented on the basis of modern computers [8]. Correlation analysis or calculation of the cross-correlation allows to establish a relationship between two series (direct or inverse relationship).

Factor analysis. According to the correlation matrix of features X find new linear variable - Y. They are usually not correlated with each other and describe certain patterns of variation and correlation of the original features. These new variables are called the main factors. Component analysis is designed to convert the system of the initial signs to the system of new indicators (main components). The main components are not correlated with each other, also they are in the order of magnitude of the dispersions, the main component has the highest dispersion, and the last, *k*, the smallest. Component analysis is one of the main methods of factor analysis. For the purpose of statistical processing and analysis of experimental data, obtained in the study, different methods of statistical analysis (ranking, correlation analysis, classification of the objects based on agglomerative hierarchical cluster analysis, factor analysis) are used. It is efficient to use statistical methods in developing the questionnaire and interpretation of their data [9]. As for the canonical correlation, factor and cluster analysis, etc., they can be used with a variety of objectives, for example, factor analysis makes it possible to identify the most significant questionnaires for the age or social group. Therefore, questionnaires compiled for testing pupils of elementary and secondary schools as well as high school and university students, can be totally different not only by the complexity of the questions, but also by their meaning. Correlation analysis allows you to check methods for the reliability and availability of backup (correlated) data. For example, structure of student needs are examined in the research. We applied Litvintseva method, which is represented by 15 different needs. This technique has been tested on the reliability of the results, which are proved to be so. Correlation of results between the different needs of the students were not found. It means that the highlighted needs are not allocated to overlap in meaning. Correlation analysis makes it possible to

exclude questions from the test, which overlap each other. Correlation analysis can also find connections between the various features.

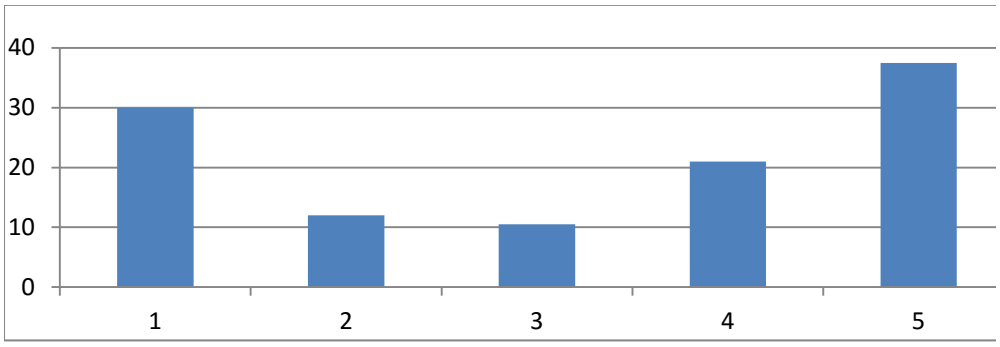


**Figure 1: The ratio of different needs groups of students**

## MAIN PART

Effectiveness of education depends on the intensity of exposure to the "inner sphere of the pupil". The following authors wrote about needs, communications needs and behavior, education needs: Leontiev, 1971; Kiknadze, 1968, and others. Activities of a teacher must satisfy, as far as possible, the needs of pupils and students associated with training, because needs are trigger of any activity and, ultimately, needs form the purpose of the activity. The question is that pupil and student satisfy some of their needs the training activities, and if they do not, then the learning process does not suit the learner and the teacher creates a stressful situation [10].

Why does the category of "need" have to be the key features in the study of learning process? This is due to the fact that the focus of the student activity is influenced by the needs. Requirements are the motive power of cognitive and practical activities of any person. Needs are the starting point of human activity. Human needs are diverse and in a certain way linked. Currently dominating need can overwhelm the other and define the main activity. Principle of focusing on a particular object can be in the core of needs classification [11]. In the classical "need-motive-goal" triad need serves as original mechanism of any activity. Needs answers the question of why there is activity, the goal - what to do. Subject always perceives the goal. Need, as specific mental state, belongs to the sphere of the unconscious. In literature we can meet different needs classifications. From foreign classifiers of needs we noted Herbert, McClelland, McGregor, Madsen, Pfander, Lerma, Rempleyn, Tom Murray, Maslow and others. Maslow's theory satisfactorily explains many facts of the individuals' behavior.

## RESULTS

Research of system of the sophomore was done at L.N. Gumilyov Eurasian National university (ENU) and S.Seifullin Agronomic and Technical State University (ATSU). This part of the study involved 523 person. Litvintseva technique was applied (1994). Students ranked these needs, then these needs have been reduced to five main groups corresponding to the classification of Maslow (1997). The technique also allows you to make a quantitative expression of frustration stress degree, which occurs when there is a particular need or group of needs.

We identified the following features of the students needs structure:

- Group of needs for self-expression is on the first place; it is in a zone of dissatisfaction;
- Group of material needs is on second place; it is also in a zone of dissatisfaction;
- Group of recognition needs is on the third place. (In the area of the partial dissatisfaction).

The area of satisfaction included two groups of needs: the need for security and the need for social relations. Students of L.N. Gumilyov ENU security needs have higher levels in comparison with the needs in

social relations. Students of S.Seifullin ATSU the group of security needs and the group of needs in the social relations are on the same level. Students of L.N. Gumilyov ENU put need to be understood by others (in the area of dissatisfaction) on the first place; all three needs are on the second place, they have the same level: the need to secure the future, the need to secure a position of influence and the need to deal with a issue that requires full-time commitment. Students of this university do not have highly expressed need to have a warm relationship with others and the obvious desire to earn a living. Students of L.N. Gumilyov ENU put the need to be understood by others on the first place, the need for new and unknown on second place (in the area of dissatisfaction). The following needs are not highly expressed: to have a good conversationalist, to consolidate position, to develop strengths and abilities.

As part of this experiment we carried out investigation of influence features of social factors, associated with education, on state of health and attitude of students.

In order to have a complete picture of students' health condition we considered the impact of social factors, associated with education in the university, on their state of health.

In this part of the study objectives were as follows:

- To reveal a correlation between psychosocial factors and health problems;
- To build hierarchical classification of the researched faculties on social and psychological characteristics.
- Researched involved students of the law, philology, socio-humanitarian faculties and the faculty of journalism. In total, this study involved 527 students.

In order to process the results we used: ranking, correlation analysis, agglomerative hierarchical cluster analysis, principal components method. In the course of the research we studied the structure of social and psychological factors, supposedly affecting the health of students (10-point rating scale was used). The results showed that students of all faculties evaluate their social status and optimism quite highly (average - 8 points) and financial situation - 6 points. Students of law faculty evaluate their situation (social status - 9 points, financial position - 7 points, optimistic - 8 points) higher than others. Average position is occupied by evaluation of biological and philology faculties' student. Students of the faculty of physics and computational mathematics feel less comfortable. In comparison with other students, physics department students evaluate their optimism as low - 6 points, although this value is higher than the average. Next we made classification of the faculties on social and psychological factors, supposedly influencing the health of students. To classify faculties we used hierarchical agglomerative procedure of cluster analysis. By mathematical processing of the results we revealed correlations between psychosocial factors and the incidence of students [12]. Thus, social status and financial position have connection with disturbances in the locomotor system, also with abnormalities of respiratory, excretory, visual (e.g. myopia), and cardiovascular systems. Good financial situation negatively correlated with disorders of the circulatory system. While the poor financial situation contributes to the development of the visual system diseases (myopia) and circulatory system (anemia). Optimism positively effects on the digestive system. Optimists are also less susceptible to diseases of the cardiovascular and respiratory systems.

The main components method revealed the factors, on which range in the data is the most significant (parameters, when different faculties differ the most). They are condition of the musculoskeletal system, visual system (number of myopia), the excretory system (number of chronic pyelonephritis and nephroptosis), circulatory system (quantity of anemias). It can be concluded that these disease are characteristic for the students. We studied the content of the life meaning of students and its impact on health. Also we revealed tendency in the consciousness of the life meaning of the students and how the life meaning related to their health. 4 categories of students were highlighted - each with its own meaning of life and well-being [13]. Fromm divides all the people into two types according to their strategy of behavior: oriented on being and focused on the possession. The last ones have a significant psychological defect - their existence, the spiritual essence are depleted. This defectiveness is compensated by material excess. We revealed the life meaning and life goals of students and how they relate to health. The state of health of students was evaluated by 10-point scale (from 1 to 10 points). The lowest score of students is 4 points, and the highest is 10 points, so the average health score is 7 points. We allocated 4 categories of students - each with its own life meaning and well-being.

Category 1: "Students looking for happiness." This category includes 37% of the students who see the meaning of life in love and family happiness. They evaluate their state of health an average of 8 points. Category 2: "Selfish students." This category includes 33% of the students who see the meaning of life in the production of various goods and pleasures of life. They evaluate their state of health an average of 7 points. Category 3: "Altruistic students" This category includes 14% of the students. They find the idea is to benefit others. They evaluate their state of health an average of 9 points. Category 4: "Students, who do not have a meaning in life." This category includes 16% of students who do not see the meaning of life. They evaluate their state of health an average of 6 points.

Study of features of motor activity influence on the health and success of learning processes gave given description and results. Physical activity promotes stress relief, associated with educational overload. In order to identify the influence of motor activity on the health and learning processes students were examined [14]. In this part of the study 163 people were involved. Health was evaluated on belonging to the health group, physical activity on the athletic group. Medical records of the subjects were also evaluated. As psychophysiological indicators we examined period of simple and complex sensorimotor reaction to the light stimulus (via chronoreflexometer) [15]. Results were as follows. Health group was definitely associated with belonging to a certain group of sports, subjective well-being (positive correlation), situational anxiety (negative correlation), and financial situation of family of the (positive correlation). Health group defines physical culture of the group. The poorer health, the easier group's physical training. Poor health is a cause of subjective well-being deterioration of student. Poor health increases the level of situational anxiety in a stressful situation. Therefore, teacher should take into account the fact that a student with poor health is more nervous in a stressful situation. Family's poor financial situation negatively affects the health of students [16]. Therefore social measures to help families in need help improve the health of children and youth. On the other hand student's belonging to a particular athletic group definitely has connection with response time (negative correlation), mental stress (positive correlation), desire to work (positive correlation), and family's financial situation (negative correlation).

## CONCLUSION

In conclusion, it can be noted that students of L.N. Gumilyov Eurasian national university put two values on the 1st place: health and love, on the 2nd place - freedom (autonomy, independence in judgments and estimates), the 3d - an interesting job. Such a distribution of values may be due to the fact that the men's team dominates at L.N. Gumilyov Eurasian national university. Students of S.Seifullin Agrotechnical State University focus firstly on health, secondly on happiness of others (the welfare, development and improvement of the people, all the people, humanity as a whole), the thirdly on financially secure life and development (work on themselves, constant physical and spiritual perfection). S.Seifullin State University of Agrotechnical dominated by female and mixed teams. For students following values are not so valuable: a productive life; development; confidence (inner harmony, freedom from internal contradictions, doubt). We can see that at the end of the year students' readiness to lead a healthy lifestyle increases dramatically, as a result of listening to the course "Fundamentals of medical knowledge": prosperous types already include 77% of students, disadvantaged types include 23%. But such result may be short-lived if the work on the pedagogical orientation of students on a healthy lifestyle will not be carried out throughout the process of teaching [17].

Based on the research we can also conclude that the well-being and health of students depend on social status, wealth and chosen specialty. Students' health is determined by the state of the nervous system, which depends on social factors in turn.

1. Research demonstrates that when designing valeology courses or carrying out preventive work with students studying not only valeology awareness of the audience (students of different faculties have different valeology awareness), also level of readiness of students to lead a healthy lifestyle is needed, etc.

2. Education of students' readiness to lead a healthy lifestyle should be conducted on the basis of diagnostic and provided with appropriate diagnostic support [18]. Competent correction of the results is needed.

3. Different factors affect formation of readiness for a healthy lifestyle: age and gender characteristics of person, the presence of the pedagogical control, content and structure of training courses and others.

4. Comparison of the experimental results shows that the types of low valeology and general culture and with the presence of well-established bad habits are the most stable. Results difference in readiness for a healthy lifestyle at the beginning and at the end of the formative experiment also show that the shift to a higher type of readiness to lead a healthy lifestyle is seen in students with middle and high levels of valeology and general culture development, and a relatively healthy lifestyle [19].

5. The experimental data also allow us to reveal that general level of culture and high spirituality of students promotes readiness for a healthy lifestyle. Therefore, university disciplines, developing a common culture and spiritual identity most of all improve healthy lifestyles. This, above all, human disciplines.

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