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## SOCIO-PSYCHOLOGICAL ADAPTATION CAPABILITIES OF FOREIGN STUDENTS

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### Abstract

**Aim:** calculation of adaptive capabilities of the body in foreign students.

**Methods and materials of research:** 158 3rd-year students of the Faculty of General medicine took part in the experiment. Among them -79 international students, representatives from India and 79 respondents from different regions of Kazakhstan. The average age is  $21 \pm 1,3$  years. All subjects were male.

Health-related quality of life was studied using a questionnaire by the international validated MOS SF-36 questionnaire. In order to diagnose disorders of the anxiety-depressive spectrum, a special HADS scale was used, which allows us to understand the emotional state and well-being of the patient and detect depression at the early stages of its development. Statistical analysis was performed in SPSS version 25.

**Results:** In the course of the study, it was found that foreign students had a total index of physical functioning of  $65,0 \pm 23,1$  and in the group of Kazakhstanis -  $91,3 \pm 12,0$  points. The median value of the variable role physical functioning were lower ( $75,0 \pm 34,3$ ) in the group of foreign students than domestic students ( $100,0 \pm 21,3$ ). Differences of these variables physical health component was statistically significant.

**The novelty of the research:** It can be assumed that the need for climate adaptation, change of time zone, language barrier, difficulties in everyday life, frequent violations of work, rest and nutrition of foreign students may be the causes of discomfort and failure of biological rhythms. All of the above can contribute to the development of various psychosomatic disorders and reduce the quality of life.

**Practical application of the study:** The identified changes should be used for conducting socio-medical research with the identification of risk groups, to ensure dynamic monitoring of risk groups and to assess the effectiveness of preventive programs to provide psychological assistance in order to improve the quality of life.

**Key words:** multilingual education, quality of life, international validated MOS SF-36 questionnaire, HADS scale.

### Резюме

## ВОЗМОЖНОСТИ СОЦИАЛЬНО-ПСИХОЛОГИЧЕСКОЙ АДАПТАЦИИ ИНОСТРАННЫХ СТУДЕНТОВ

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**Цель исследования:** расчет адаптивных возможностей организма у иностранных студентов.

**Материалы и методы исследования.** В эксперименте приняли участие 158 студентов 3 курса лечебного факультета. Среди них -79 иностранных студентов, представители из Индии и 79 респондентов из разных регионов Казахстана. Средний возраст  $21 \pm 1,3$  года. Все испытуемые были мужчинами. Качество жизни, связанное со здоровьем, изучали с помощью анкеты по международно-валидному опроснику MOS SF-36. Для диагностики расстройств тревожно-депрессивного спектра использовалась специальная шкала HADS, позволяющая понять эмоциональное состояние больного и выявление депрессии на ранних стадиях ее развития. Статистический анализ проводился в SPSS версии 25.

**Результаты.** В ходе исследования установлено, что у иностранных студентов общий индекс физического функционирования составил  $65,0 \pm 23,1$ , а в группе казахстанцев -  $91,3 \pm 12,0$  балла. Среднее значение переменной роли физического функционирования было ниже ( $75,0 \pm 34,3$ ) в группе иностранных студентов, чем у

отечественных студентов ( $100,0 \pm 21,3$ ). Различия компонентов физического здоровья по этим переменным были статистически значимыми.

**Новизна исследования:** можно предположить, что необходимость адаптации к климату, смена часового пояса, языковой барьер, трудности в повседневной жизни, частые нарушения работы, отдыха и питания иностранных студентов могут быть причинами дискомфорта и сбоев в обучении. Все вышеперечисленное может способствовать развитию различных психосоматических расстройств и снижению качества жизни.

**Практическое применение исследования:** Выявленные изменения следует использовать для проведения социально-медицинских исследований с выявлением групп риска, для обеспечения динамического мониторинга групп риска и оценки эффективности профилактических программ оказания психологической помощи с целью повышения качества жизни.

**Ключевые слова:** полиязычное образование, качество жизни, международный апробированный опросник MOS SF-36, шкала HADS.

Түйіндеме

## ШЕТЕЛДІК СТУДЕНТТЕРДІҢ ӘЛЕУМЕТТІК – ПСИХОЛОГИЯЛЫҚ БЕЙІМДЕЛУ МҮМКІНДІКТЕРІ

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**Зерттеудің мақсаты:** шетелдік студенттердің организмнің бейімделу мүмкіндіктерін есептеу.

**Зерттеу материалдары мен әдістері.** Тәжірибеге медициналық факультеттің 3 курс 158 студенті қатысты. Олардың ішінде 79 шетелдік студенттер, Үндістаннан келген өкілдер және Қазақстанның әр аймақтарынан келген 79 респондент бар. Орташа жасы  $21 \pm 1,3$  жас. Барлық тақырыптар ер адамдар болды. Денсаулыққа байланысты өмір сапасы MOS SF-36 халық аралық деңгейдегі сауалнама көмегімен бағаланды. Мазасыздық-депрессиялық спектрдің бұзылыстарын диагностикалау үшін пациенттің эмоционалды жағдайы мен әл-ауқатын түсінуге және оның дамуының алғашқы кезеңінде депрессияны анықтауға мүмкіндік беретін арнайы HADS шкаласы қолданылды. Статистикалық талдау SPSS 25 нұсқасында жүргізілді.

**Нәтижелер.** Зерттеу барысында анықталғандай, шетелдік студенттер арасындағы физикалық белсенділіктің жалпы индексі  $65,0 \pm 23,1$ , ал қазақстандықтарта орташа -  $91,3 \pm 12,0$  балл. Шетелдік студенттер тобында физикалық жұмыс істеудің ауыспалы рөлінің орташа мәні отандық студенттерге қарағанда төмен болды ( $75,0 \pm 34,3$ ) ( $100,0 \pm 21,3$ ). Осы айнымалылар үшін физикалық денсаулық компоненттерінің йырмашылықтары статистикалық маңызды болды. Зерттеудің жаңашылдығы: климатқа бейімделу қажеттілігі, уақыт белдеуінің өзгеруі, тілдік тосқауыл, күнделікті өмірде кездесетін қиындықтар, шетелдік студенттердің еңбек, демалыс және тамақтанудың жиі бұзылуы себеп болуы мүмкін деп болжауға болады. Биологиялық ырғақтар. Жоғарыда айтылған дардың барлығы әртүрлі психосоматикалық бұзылулардың дамуына және өмірсапасының төмендеуіне ықпал етуі мүмкін.

**Зерттеуді практикалық қолдану:** Анықталған өзгертулерді қауіпті топтарды анықтай отырып, әлеуметтік және медициналық зерттеулер жүргізу үшін, қауіпті топтардың динамикалық мониторингін қамтамасыз ету үшін және сапаны жақсарту мақсатында психологиялық көмек көрсету бойынша профилактикалық бағдарламалардың тиімділігін бағалау үшін пайдалану керек.

**Түйінді сөздер:** көптілді білім беру, өмірсапасы, халықаралық бекітілген MOS SF-36 сауалнамасы, HADS шкаласы.

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## Introduction

A prestigious indicator of the state of education in any country is the level of international educational services, i.e. the number of foreign students studying in higher educational institutions and colleges [12]. The number of foreign students in 3 years in Kazakhstan increased by 8.9 thousand people (2016 - 12,837 people, 2017 - 13,898 people, 2018 - 21,727 people). According to the press service of the Center for international programs JSC, the Ministry of education and science of Kazakhstan has the following task:: increase the number of foreign students in the country's universities to 50 thousand by 2020. Long-term observations and practice have shown that the problems that arise in the educational space of foreign students of any higher education institution are identical, relevant and require systematic research and scientific discussion [4]. At the initial stage of training, adaptation problems are associated with getting used to unusual climatic conditions, overcoming language, psychological, religious and cultural barriers, which are sometimes difficult to overcome in communication and cognitive activities [1].

In the course of any activity, a person is exposed to a number of positive and negative emotions [2]. Stenic emotions help a person in all life processes and circumstances, increasing his strength and energy in achieving the goal, thereby giving courage in actions and statements. Asthenic emotions, on the contrary, are characterized by passivity and stiffness. In the adaptation processes of foreign students, much depends on their well-being, activity, and mood. By influencing the emotions of a person by various means and methods, taking into account the individual characteristics of a person, it is possible to improve his mental state and positively influence the quality and timing of the adaptation period [8,9].

**Materials and methods.** The study was conducted in December 2019 at the M Ospanov West Kazakhstan Medical University in an initiative form. 158 3rd-year students of the Faculty of General Medicine took part in the experiment. Among them are all male international students, representatives from India, and respondents from different regions of Kazakhstan. Taking into account that 79 foreign male students were enrolled in the 3rd year, the respondents were selected in the same number at will. The average age is  $21 \pm 1, 3$  years. Informing the consent of the students was taken in oral form. Health-related quality of life was studied using a questionnaire by the international validated MOS SF-36 questionnaire [21]. The SF-36 questionnaire (by J.E. Ware, 1992) was created to meet the minimum psychometric standards required for group comparisons, i.e. general health that are not specific to age groups, specific diseases or treatment programs [22]. His methodology is designed to study all the components of the quality of life. To create this questionnaire, the MOS researchers selected only 8 of 40 health concepts, because their study has shown that they are most frequently measured in practice in population-based studies and are most often influenced by disease and treatment. The analysis of these 8 concepts showed that they represent the composite characteristics of health, including function and dysfunction, stress and well-being, objective and subjective assessments, positive and negative self-assessments of overall health. The SF-36 questionnaire has reliable

psychometric properties and is acceptable for conducting population-based quality of life studies in Kazakhstan.

Data collection was carried out by the questionnaire method by direct survey of respondents. After explaining the goals and objectives of the study, the SF-36 questionnaire was filled out by the respondents themselves within 1 day. The questionnaire questions were for foreign students in English, and for respondents - in Russian. All questions were closed-ended. There were no corrupted questionnaires. The questionnaire contains 36 questions that form 8 scales: physical functioning (FF), role-based physical functioning (RFF), pain intensity (IB), General health (GH), social functioning (SF), role-based emotional functioning (REF), mental health (PH), vital activity (viability) (G). The first four scales (FF, RFF, B, OZ) measure the physical component, the last four scales (SF, REF, PZ, W) make up the mental component of health. Each scale consists of 2 to 10 questions. For each question, there are options for the respondents to choose from. The results of the study are reflected in scores from 0 to 100 on each of the eight scales. High scores on the SF-36 scale demonstrate good quality of life indicators.

In order to diagnose disorders of the anxiety-depressive spectrum, a special HADS scale (The hospital Anxiety and Depression Scale Zigmond A.S., Snaith R.P.) was used, which allows us to understand the emotional state and well-being of the patient and detect depression at the early stages of its development. Respondents filled out the scale themselves. In the process of reforming the HADS test, specialists excluded the symptoms of anxiety and depression, which could be interpreted as a manifestation of a somatic illness (dizziness, headaches, weakness, fatigue). The scale is composed of 14 statements, and includes two parts: anxiety (part I) and depression (part II). Questions on the Anxiety scale are numbered odd, and Depression items are even numbered. Items of both the first and second subscales represent a statement, each of which corresponds to 4 answer options. The patient receives a form with test questions and a task: to choose the option that best suits the subjective state that he has been experiencing over the past seven days. The questionnaire is issued to the patient separately from the comments interpreting the result, in order to exclude a possible impact on the objectivity of the study.

For interpretation, it is necessary to summarize the scores for each part separately:

- 0-7 points normal (no reliably pronounced symptoms of anxiety and depression)
- 8-10 points subclinically expressed anxiety / depression
- 11 points and higher clinically expressed anxiety / depression.

Each statement of the HADS scale corresponds to four possible responses that correspond to the individual's condition during the last 7 days.

Statistical analysis was performed in SPSS version 25 [7]. Continuous variables are represented as a median with an interquartile range. Categorical variables are represented as numbers or percentages. Comparisons between groups for variables were made using the Mann-Whitney test [5]. The scheme for using the Mann-Whitney test is as follows. The Mann-Whitney U-test is used to

assess the differences between two small samples ( $n_1, n_2 \geq 3$  or  $n_1 = 2, n_2 \geq 5$ ) according to the level of the quantitatively measured trait. In this case, the first sample is considered to be the one where the value of the feature is greater. Null hypothesis  $H_0 = \{\text{the level of the feature in the second sample is not lower than the level of the feature in the first sample}\}$ ; alternative hypothesis -  $H_1 = \{\text{the level of the feature in the second sample is lower than the level of the feature in the first sample}\}$ . The Mann-Whitney U-test was calculated according to the algorithm:

1. Transferred all the data of the subjects to individual cards, marking the cards of the 1st sample with one color, and the 2nd with another.
2. Lay out all the cards in a single row according to the degree of increase of the sign and rank them in that order.
3. Again, the cards were divided into two groups by color.
4. We calculated the sum of the ranks separately for the groups and checked whether the total sum of the ranks coincides with the calculated one.
5. Determine the larger of the two rank sums.
6. The empirical value U was calculated: where is the number of subjects in the sample ( $i = 1, 2$ ), is the number of subjects in the group with a larger sum of ranks.
7. Set the significance level  $\alpha$  and, using a special table, determining the critical value  $U_{cr}(\alpha)$ .

If, then  $H_0$  at the chosen significance level is accepted. The differences were considered statistically significant at  $p < 0.05$ . The correlation of variables was analyzed using the Spearman (R) method. The Spirmen's singing correlation coefficient will allow statistically to establish the presence of a connection between the phenomena. Its calculation presupposes the setting for every sequential number - panga. Pang can be either growing or descending. The number of persons susceptible to guilt can be anything. This is a fairly cumbersome process, limiting their number. Work starts at 20 times. For the calculation of the coefficient of Spirmen use the following format:

$$r_{xy} = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

in which:  $n$  - displays the number of spirits;  $d$  - nothing else like the difference between the pangs by two variables;  $\sum (d^2)$  - the number of squares of the parallels.

Correlation analysis with the use of the Spirmen method was performed according to the following algorithm:

paired comparable activities are arranged in 2 rows, one of which is designated with the help of X, and the other Y;

the values of the X series were in the order of growth;

the sequence of the position of the values of the Y series determined their correspondence to the values of the X series;

for each value in the range of X, we defined a pang - assigned an order number from the minimum value to the maximum;

for each of the meanings in the series We have also defined the pang (from the minimum to the maximum);

calculated the difference (D) between the pangs X and Y, having arrived at the form  $D = X - Y$ ;

the obtained values of the difference were brought into a square;

completed the simulation of the squares of the parallels;

performed calculations in the format:

$$r_{xy} = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

The relationship between the indicators was assessed as strong at  $R > 0.7$ , medium strength - at  $R$  from 0.3 to 0.7, weak - at  $R < 0.03$

#### Results of the study.

During the study, it was found that foreign students had a total index of physical functioning of  $65.0 \pm 23.1$  and in the group of Kazakhstans -  $91.3 \pm 12.0$  points. The median value of the variable role physical functioning were lower ( $75.0 \pm 34.3$ ) in the group of foreign students than domestic students ( $100.0 \pm 21.3$ ) Differences of these variables physical health component was statistically significant (Table 1)

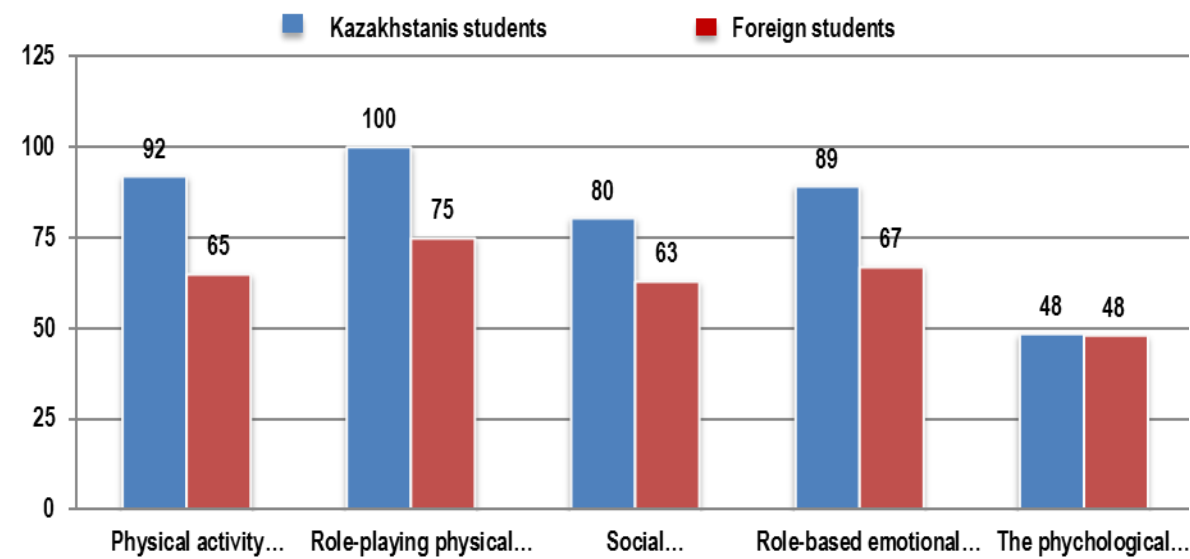
Table 1.

#### Indicators of the variable quality of life of students (level of statistical significance).

Indicators	Kazakhstan students	International students	P
Physical activity (PH)	91,9 $\pm$ 12,0	65,0 $\pm$ 21,10	$P < 0,05$
Role-playing physical activity (RFP)	100,0 $\pm$ 21,3	75,0 $\pm$ 34,30	$P < 0,05$
SocialServices (SS)	80,4 $\pm$ 17,8	63,0 $\pm$ 25,8	$P < 0,05$
Role-based emotional activity (RoE)	89,2 $\pm$ 21,0	67,0 $\pm$ 36,5	$P < 0,05$
The psychological component of health (MH)	48,4 $\pm$ 6,5	48,0 $\pm$ 8,6	$P < 0,005$

When analyzing the variables of the psychological component of the total measurement, foreigners revealed a significantly low level of role functioning due to emotional state (REF) -  $67.0 \pm 36.5$  points ( $p < 0.05$ ). Low median values were also determined in the scale of social functioning -  $6.03 \pm 25.8$  points ( $p < 0.05$ ), which indicates psychological distress, reduced social contacts, and a decrease in the level of communication due to poor health

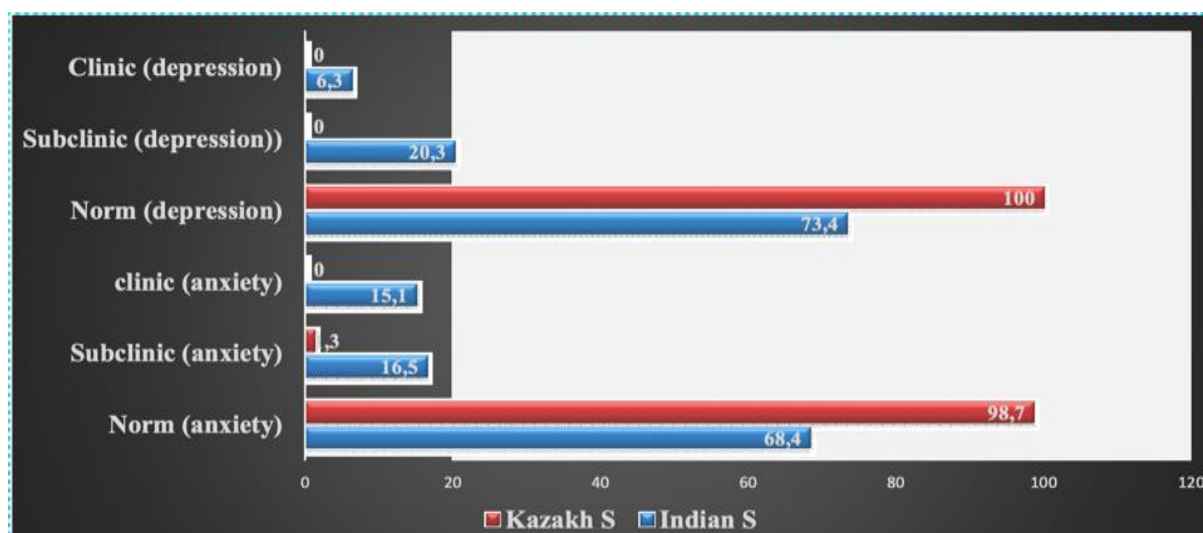
[6]. The levels of variable scales of REF and SF in the group of Kazakhstans were high and amounted to  $89.2 \pm 21.1$  and  $80.4 \pm 17.8$  points, respectively. Comparison of the total values of other indicators of physical and psychological components of health (pain intensity, General health, vital activity, mental health) it showed higher values for Kazakhstani students, but no significant differences were found (Figure.2).



**Figure1. Indicators of the quality of life of third-year students of the West Kazakhstan Medical University named after Marat Ospanov.**

Spearman's correlation analysis was used to determine the strength of the connection and the joint variability of the studied variables (9.10). This measure expresses the tendency for one random variable to grow as the other increases. Using this statistic, a direct strong correlation between indicators of psychological health and role-physical health ( $R=0,8$ ) Strong direct relationship found and in the scales of role emotional functioning and mental health component ( $R=0,73$ ).

The survey on the HADS scale revealed gradations in the severity of anxiety and depression With increasing severity of the symptom from 0 points (absence) to 4 (maximum severity) (Figure 2). When interpreting the data, significant differences were found: 13% of foreign students had a subclinical and 12% – a pronounced form of anxiety, and 32% -a pronounced form of depression. According to the survey, Kazakhstan respondents showed no signs of anxiety or depression.



**Figure 2. The degree of anxiety and depression on the HADS scale.**

### Discussion

A comparative study of the variables of the physical component of the total health measurement showed a decrease in the average values of physical functioning and role – based physical functioning in a group of 3rd - year foreign students by 26% and 25%, respectively. The low values obtained on these scales for foreign students show a restriction of physical health and daily life in this group,

which is often manifested by fatigue, sleep and rest disorders, and a decrease in the individual's strength and energy. According to most authors, student life for foreign students becomes a serious life test, since they are forced not only to master a new type of activity – studying at a University, but also to adapt to the culture, climate, and social conditions of the new social environment [10]. A foreign student, included in an unfamiliar environment, is

changing the psychophysiological processes of the individual, he experiences natural discomfort, which reduces the quality of life [11].

When comparing the indicators of the scales of physical and mental health components, it was found that the indicators of the mental health component of students from India have significantly lower values than the indicators of the physical health component. When analyzing the variables of the psychological component of the total measurement, foreigners revealed a significantly low level of role functioning due to their emotional state. Low values of the median are also determined in the scale of social functioning, which indicates psychological distress, reduced social contacts, and a decrease in the level of communication associated with health. The levels of variable scales of role-based emotional and social functioning in the group of students from Kazakhstan were high, which suggests a favorable emotional state and social activity. It should be assumed that Russian 3rd-year students, in General, are satisfied with life and feel well-being, and in their daily life, positive emotional experiences prevail over negative ones [13]. They are optimistic about the world [14]. Evidence of maladjustment of foreign students and a decrease in their quality of life is the presence of a pronounced form of anxiety in 12% of students, and a pronounced form of depression in 32% according to the hospital scale HADS. Depression is a mental disorder characterized by depression, loss of interest or joy, feelings of guilt and low self-esteem, sleep or appetite disorders, lethargy and poor concentration [3]. The organization also notes that there is a relationship between depression and physical health. The main difference between anxiety and depression is that anxiety is an emotional reaction, and depression is a state of mind [20]. Under certain conditions, a person manages to adapt and the level of anxiety decreases. In other situations, anxiety can eventually turn into depression. It is believed that medical students experience significant psychological and emotional overload, which can manifest itself in the formation of the initial stages of burnout syndrome, psychological stress and lead to a decrease in self-esteem of the quality of life, including indicators of physical and psychological functioning [16].

The importance of the psychological level of health as the basis of physical health is indicated in the publications of many researchers. It can be assumed that the need for climate adaptation, change of time zone, language barrier, difficulties in everyday life, frequent violations of work, rest and nutrition of foreign students may be the causes of discomfort and failure of biological rhythms. All of the above can contribute to the development of various psychosomatic disorders and reduce the quality of life [19].

### Conclusion

Kazakhstan's 3rd-year students are characterized by significantly high values of physical and role-based physical functioning indicators, which indicate that physical activity is not limited to their health status. In this group, high, statistically significant levels of social activity and role-based emotional functioning were also identified, which indicate that the respondents' daily activity is unlimited by their emotional state. In the group of foreign students, there is a significant decrease in the indicators of scales, both

physical and psychological components of health. The self-esteem of foreign students is reduced mainly due to a decrease in physical activity and the development of depressive States, while the physical component is reduced to a greater extent [15]. Foreign students experience significant restrictions on their daily activities, social contacts, and a decrease in the level of communication due to health reasons that lead to a decrease in the quality of life [18]. The detection of clinically expressed anxiety and depression on the HADS scale in foreign respondents is also an evidence of a decrease in the adaptive capacity of the body in foreign students.

Thus, monitoring the quality of life of students is an important tool for quantifying the state of health and monitoring possible maladaptation among medical students. The identified changes should be used for conducting socio-medical research with the identification of risk groups, to ensure dynamic monitoring of risk groups and to assess the effectiveness of preventive programs to provide psychological assistance in order to improve the quality of life [17].

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