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**PSYCHOPHYSIOLOGICAL ADAPTATION OF INTERNATIONAL
STUDENTS TO EDUCATIONAL ENVIRONMENT OF HIGHER
EDUCATION INSTITUTION**

Kermen Nastinova (a)*, Galina Nastinova (b)

*Corresponding author

(a) Kalmyk State University named after B.B. Gorodovikov, 11, Pushkin St., Elista, Russia
nastinova.ge@yandex.ru, 89099377576

(b) Kalmyk State University named after B.B. Gorodovikov, 11, Pushkin St., Elista, Russia
nastinova@yandex.ru, 89615412278

Abstract

The paper presents the regional experience of studying psychophysiological adaptation of international students within the Russian system of higher education. The specifics of psychophysiological adaptation of international students in the educational environment of a regional university is revealed following the principle of system approach to the problem of personal adaptation. The study is based on anthropometrical and morphometric assessment of physical and functional state, psychodiagnostics, questionnaire survey, analysis and generalization of obtained results. The comparative analysis of physiological compensatory and adaptive reactions of international students at the beginning of the academic year showed that the majority of students from African countries and Asia demonstrated high life index and satisfactory adaptation potential. They are able to withstand high intellectual and physical loads due to successful functioning of life-supporting systems in new living and training conditions. The functional condition of life-supporting systems of an organism of international students is directly linked to their health, mood and activity. Psychoemotional state of international students affects the efficiency of acquiring educational programs at the university. Unrealized reserves in educational environment created for international students at a regional university are revealed. The results of the study will provide for systemic methods to create the necessary conditions for self-fulfillment, to improve adaptive opportunities and to maintain health of international students during their adaptation to the educational environment to solve an urgent task of the integration of domestic universities into the international higher education system.

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1. Introduction

At present in the conditions of globalization and requirements of the Russian educational reform it seems relevant to study the integration of domestic higher educational institutions into the international higher educational system. Higher educational institutions of Moscow, St. Petersburg, Kazan, etc. utilize brands acquired in the Soviet period and attractiveness to a large number of potential entrants from foreign countries. When joining Russian higher educational institutions international students get to unusual climatic-geographical, social, linguistic and national environment, to which they shall adapt. A great advantage of Russian education is the possibility to choose not only the program or the university, but even a comfortable climatic zone. Favorable climatic conditions, tolerance of multinational population of southern territories of Russia make the system of higher education in regions ever more attractive for foreign citizens to get professional education. A new cluster of economy – export of educational and intellectual services – appeared in the south of Russia. It is formed by leading educational institutions of the region. Many regional higher educational institutions only starting to expand the service sector in the form of educational migration.

Located in the capital of the Republic of Kalmykia (Elista) Kalmyk State University is one of the national higher educational institutions of the south of Russia, consisting of ten departments and one institute. As a result of competitive selection in 2017 it was among the top backbone universities of the country, which defined its main development directions. Its priorities include active development of international activity to involve international students to study at the educational institution. At present the university trains over 1000 foreign citizens from 40 countries of the world. They study in 60 different bachelor and 46 master programs.

The research concept implies the study of adaptation of international students during education and life in a multinational region. It is extremely important since sociocultural conditions and, hence, the practices of mutual adaptation drastically differ. The growing interest of the society in improving regional educational systems for successful adaptation of international students to educational activity in the multinational educational environment is obvious.

2. Problem Statement

It seems relevant to study and analyze the specifics of psychophysiological adaptation within educational conditions of regional universities. This will solve educational tasks related, first of all, to the achievement of the required level of education and at the same time will maintain health of students, thereby increasing the attractiveness of regional higher educational institutions for international students.

3. Research Questions

The influence of the environment on the organism is among the most difficult in biology since it requires multidisciplinary approach and use of different scientific methods. The basic provisions formulated in the works of Sechenov (1866), Pavlov (1973), Anokhin (1975), Selye (1982), etc., and complemented with fundamental studies of Kaznacheev (1980) formed the basis for the theory of personal adaptation. Later, Aldasheva (2014) described the activity paradigm in various environmental conditions within the

theory of personal adaptation. Russian psychophysiological school studies adaptation in close relation to biological and social origin of a person (a person as a rational being), as an integrated system, as coordinated and self-checking system. Vigorous activity of a person who can model various adaptation strategies forms the basis of interaction between a person and the environment. Theoretical and practical studies based on activity approach allow identifying new principles of interaction of a person with the environment and developing the strategies of adaptive behavior. This directly concerns the problem of adaptation of international students to new sociocultural conditions, which requires the search for new approaches to increase the efficiency of educational process thus enhancing the attractiveness of Russian higher education for foreign citizens.

4. Purpose of the Study

The purpose of the study is to explore the specifics of psychophysiological adaptation of international students to the educational environment of a regional university to define reasons and prevent risks of maladjustment, as well as to create conditions for their self-realization, to increase adaptive opportunities and maintain health.

5. Research Methods

The psychophysiological assessment of adaptation of international students to foreign-language environment is carried out from the perspective of humanistic, system-cohesive and multidisciplinary approaches, conceptual provisions of domestic and foreign experts in the field of pedagogics, psychology, physiology and ecology of a person. The survey covered international students of Kalmyk State University from Africa, Asia and the CIS countries from 18 to 20 years old (n=247). The study was conducted following the principles of voluntariness, personal rights and freedoms guaranteed by Articles 21 and 22 of the Constitution of the Russian Federation. The main methods of the study include interviewing, questioning, psychodiagnostics (Doskin, Lavrentyeva, Miroshnikov, & Sharay, 1973), instrumental methods of assessment of a functional state (life index, adaptation potential) (Baevsky & Berseneva, 1997), analysis of results and generalization. The validity of obtained results is ensured by variety and adequacy of used research methods, sufficient volume and representativeness of sampling. Statistical processing of obtained data was carried out via computer-based tests in EXCEL. The reliability of results is confirmed by correct use of the Student's t-test (Borovikov, 2003). The difference in arithmetic mean values was considered valid at 95% probability threshold ($p < 0.05$).

6. Findings

Adaptation of international students to the system of higher education has its features related to education and acquisition of ever increasing volume of training material, i.e. accumulation of knowledge and development of intellectual and emotional potential.

Domestic (Shapoval, 2010; Krivtsova, 2011; Sevryukova, Nastinova, Tovmasyan, & Sevryukova, 2018, etc.) and foreign (Brisset, Safdar, Lewis, & Sabatier, 2010; Wilson, 2011; Lee & Ciftci, 2014; Ng, Wang, & Chan, 2017) authors claim that international students with their national and psychological

characteristics are forced to overcome diverse psychological, moral, social and religious barriers, master new types of activity and forms of behavior in order to adapt to unfamiliar conditions.

The need to adapt to new living conditions in a different sociocultural and climatic-geographical environment, to build interpersonal relations with classmates and teachers make international students face new tasks, which solution causes tensions of regulatory body systems.

In terms of the nature of the influence on a human body the environmental factors can be divided into two groups: 1) living conditions and 2) influencing factors. Each factor of the environment is characterized by qualitative specifics and quantitative amplitude or range that is reflected in individual responses. The most critical of them include structurally functional changes of blood circulatory and respiratory systems, i.e. life support systems. The life index and level of adaptation potential as integrated indicators of a functional condition of a human body allow estimating the level of general performance capacity, readiness of an organism of international students for intellectual and physical activities in new living and educational conditions in general.

The study shows quite ambiguous nature of distribution of the life index among international students (Fig. 1).

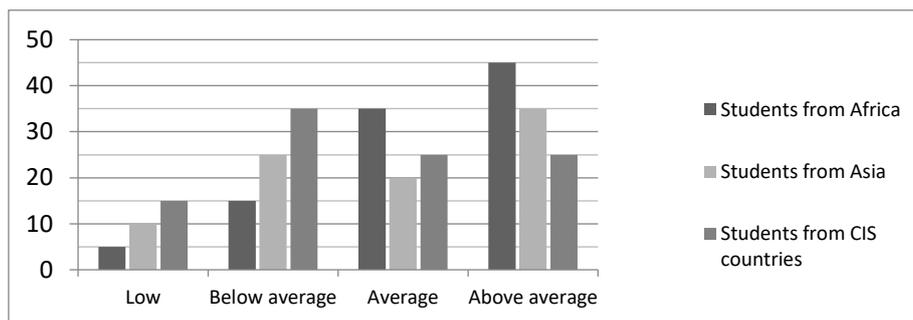


Figure 01. Distribution of international students according to life index, %

Thus, students from Africa demonstrate the highest indicators of the life index (average and above average), this indicator is slightly lower among students from Asia. Students from CIS countries constitute the biggest group with low indicators of the life index (low and below average).

The adaptation potential, which demonstrates unconditional ability of an organism to adapt to new living and educational conditions, ensures accurate information on the degree of perfection and functioning of cardiorespiratory system as the basis for human life support system.

The data demonstrate that the vast majority of students from Africa (80%) and Asia (70%) have satisfactory adaptation potential. It is intense among half of the students from CIS countries and satisfactory among only 40% (Fig. 2).

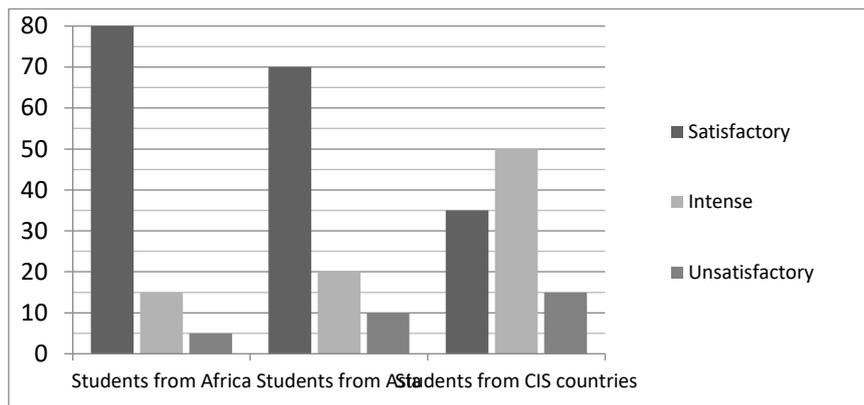


Figure 02. Distribution of international students according to adaptation potential, %

It was shown earlier that the screening of the first-year students at the beginning of the academic year revealed cardiac rhythm disorder among a considerable part of students from CIS countries. Their quantity in 2017-2018 academic year made about 12% of the total number of the examined students (n=400), whereas in 2016-2017 it was 8%. The relevance of screening is caused by the need to ensure adequate physical activity of these students at physical education classes. Such students attended physical education classes with full exercise load (Nastinova, 2018).

Thus, students from CIS countries have problems with somatic health that may affect their adaptation to the educational environment at the university. Compared to students from CIS countries the vast majority of students from Africa and Asia are characterized by better physical fitness and good somatic health.

Adaptation as a form of response of an organism to external influence represents a set of various physiological (adaptation) reactions of an organism being in close relation to mental features of a personality. This allows referring to psychophysiological adaptation. Level and opportunities of psychophysiological adaptation of students substantially define the success of a new type of activity – study at a higher educational institution, preparation for professional activity.

In psychodiagnostics the self-assessment (health, activity, mood) represents the qualitative and operational evaluation of psychoemotional state of a human body due to environmental factors. The average level of these indicators in total reflects adaptation opportunities of international students to new living environment. Thus, the level of students' *health* at the beginning of the academic year was only 3.91, *activity* (3.11) and *mood* (3.98) were quite low (Tab. 1).

The survey showed that the main reasons for low level of health of international students at the beginning of the academic year were household and language difficulties, new educational requirements and mode of study at the university, need of acquire large amounts of information, incomplete conceptual framework within the studied disciplines, etc. Among factors positively influencing the psychoemotional state of students in new living and educational conditions students refer to favorable climate, healthy foods, low living expenses and tolerance of the multinational population of the region. Dynamic assessment of psychoemotional state showed the growth of adaptation potential among students from Africa and Asia already in six months of training (after the exam session), and among students from Asia only by the end of the academic year.

Table 01. Assessment of health, activity and mood in the course of adaptation of international first-year students to educational conditions (average score) ($M_{av} \pm m$)

Indicators	Period of study		
	1 st month	6 th month	10 th month
Health	3.91±0.19	5.32±0.22	6.81±0.21
Activity	3.11±0.20	5.17±0.20	6.91±0.21
Mood	3.98±0.20	4.98±0.21	6.98±0.22

Educational outreach at the university is aimed at successful adaptation of international students to educational conditions. Democratic style of relations between teachers and students are based on business cooperation patterns. During workshops and practical classes students and teachers are engaged into a dialogue, compare and analyze different, but initially equal approaches to the solution of specific objectives. During such dialogue both domestic and international students realize their importance, feel acceptance of their way of thinking, worldview. The important aspect aimed at improvement of the educational process at the university is implemented by strengthening the activity approach to education of students. This significantly increases self-motivation and maximum realization of abilities, opportunities and interests of both domestic and international students. The university developed a fine content for educational objectives. The portal of open educational network (www.kalmsu.ru) includes sections that contain resources accumulating meaningful data and useful links to relevant resources of the studied professional disciplines. The introduction of modern information and communication technologies to control examinations and the introduction of electronic forms of knowledge assessment increase the efficiency of the educational process. Thus, the education is focused on the development of general educational skills and abilities.

The success of individual adaptation efforts of international students depends on external conditions, the most important of which is racial and national tolerance. There are no interethnic tensions in Kalmykia. Due to tolerance of the multinational population and more comfortable and safe living conditions in Elista, unlike large metropolitan cities of the country, the socialization of international students is much easier (Marzaeva, 2015).

Table 02. Compliance of the quality of professional education at Kalmyk State University to personal expectations of international students, %

Degree of compliance	Students' country		
	Africa	Asia	CIS
Fully complies	90	90	90
Partially complies	3	5	4
Does not comply	5	0	0
Not sure	2	5	6

In view of the above, high degree of satisfaction of international students with the quality of professional education at Kalmyk State University was not surprising (Tab. 2).

The university has the necessary potential to improve the adaptation of international students to educational conditions. The educational process shall consider the interests of international students (level of Russian language knowledge, personal characteristics, level of conceptual framework within the studied

disciplines, somatic and mental health, etc.). It is important to use the principle of individualization to fulfill personal potential of every subject of the educational system. Teachers shall apply individual approach to education of every student by considering their individual cognitive style. If necessary, the university shall offer alignment courses aimed to eliminate gaps in subject domains.

7. Conclusion

The results of the study demonstrate the need for international students to adapt to new living conditions in different sociocultural and climatic-geographical environment, to build interpersonal relations with classmates and teachers, which require the solution of new tasks thus causing tension of psychophysiological regulatory systems of an organism. Students from Africa and Asia show more successful adaptation to new living and educational conditions. They are more ready for intensive and continuous intellectual and physical loads. This is confirmed by the self-assessment of their psychoemotional state. It is more difficult for students from CIS countries to adapt to the university educational environment. There is a need to use the university potential in organizing the educational process for students from CIS countries thus enabling them to overcome difficulties through efficient adaptation mechanism.

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