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STRUCTURE OF ACADEMIC MOTIVATION OF FIRST-YEAR MEDICAL UNIVERSITY STUDENTS

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ABSTRACT. Learning in higher education institutions is a process of obtaining specialized knowledge, skills and abilities on the basis of a secondary education. Nowadays the problem of lack of motivation of learners to receive a definite education becomes actual. A large number of works are aimed at finding a system for assessing motivation and tools for adapting the learner to a qualitatively different method of acquiring knowledge, which is characteristic for higher education. It is proved that motivation is connected not only with intelligence, but also with the personal maturity of university entrants. The aim of the study was to analyze the structure of motivation of medical students who are the freshes using a standardized questionnaire of the Wallerand academic motivation scale, adapted by T.O. Gordeeva. The results of the answers of 254 students with an average age of 18.3 years were included in the analysis. Among general population, the average indicators of intrinsic motivation of students were revealed with higher indicators in girls. The analysis of extrinsic and intrinsic motivation, as well as amotivation, fixed lack of interest in the students to the learning process while maintaining motivation to obtain knowledge and form professional competencies. Thus, the dominance of intrinsic motivation parameters allows to make the independent and conscious choice of students in determining the place of study. Insufficient social maturity of 1st year students causes the need for adaptation programs.

KEYWORDS: academic motivation, motivation to learn, medical education

СТРУКТУРА АКАДЕМИЧЕСКОЙ МОТИВАЦИИ ПЕРВОКУРСНИКОВ МЕДИЦИНСКОГО УНИВЕРСИТЕТА

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РЕЗЮМЕ. Обучение в высших учебных заведениях представляет собой процесс получения специальных знаний, умений и навыков на основе имеющегося среднего образования. В настоящее время актуальной становится проблема отсутствия мотивации обучающихся получать образование. Большое количество работ направлено на поиск системы оценки мотивации и инструментов адаптации обучающегося к качественно иному методу получения знаний, которым отличается обучение в вузе. Доказанной является связь мотивации не только с интеллектом, но и с личностной зрелостью абитуриентов. Цель исследования — анализ структуры мотивации студентов, поступивших на первый курс медицинского университета, с помощью анкеты шкалы академической мотивации Валлеранда, адаптированной Т.О. Гордеевой. В анализ включены результаты 254 студентов, средний возраст которых составил 18,3 года. В общей популяции выявлены средние показатели внутренней мотивации обучающихся с более высокими показателями у девушек. Анализ внешней и внутренней мотивации, а также амотивации показал отсутствие интереса у обучающихся к процессу обучения при сохранении мотивации к получению знаний и формированию профессиональных компетенций. Таким образом, доминирование параметров внутренней мотивации позволяет оценить самостоятельный и осознанный выбор студентов при определении места обучения. Недостаточная социальная зрелость студентов 1-го курса определяет необходимость проведения программ адаптации.

КЛЮЧЕВЫЕ СЛОВА: академическая мотивация, мотивация к обучению, медицинское образование

INTRODUCTION

Motivation of any activity, including special education, is a complex, multidimensional structure, which is determined not only by the goal and desires, but also by the search for strategies for implementation, reactions to failures, as well as by the cognitive component [1, 2]. Productive cognitive activity and active learning of the curriculum is a pressing problem among students of various educational institutions [3]. The study of processes, methods, and means of motivating students to educational activity in recent years has been given an important role in understanding modern problems of the learning process and their correction. Many researchers, discussing the desire to get special education, pay attention not so much to intellectual abilities as to the characteristics of motivational variables [4]. At the same time, a direct relationship between intelligence indicators and the motivation to obtain education is logical [4, 5–8]. Motivation is influenced by a large number of factors, including social maturity and comorbidity [9–13]. Validated scales and questionnaires are used for screening determination of leading motives [14, 15]. It is fundamentally important

to establish the motives of learning in students studying in the specialties of the category “human-human”, including medical [1, 10]. Taking into account the transformation of society with the increase of consumer attitude, including to the process of education, the number of cases of academic “dishonesty” increases [16, 17]. The academic motivation scale has been adapted for medical students [18, 19].

AIM

The aim is to analyze the motivation structure of students who entered the first year of medical university in 2023 using academic motivation scale questionnaire.

MATERIALS AND METHODS

A single-center prospective observational study using a formatted questionnaire was conducted. The questionnaire was conducted anonymously and voluntarily among 1st year students who entered St. Petersburg State Pediatric Medical University in 2023 using the questionnaire “Wallerand Academic Motivation Scale” adapted by T.O. Gordeeva. All study participants

were informed about the need to answer questions truthfully, based on true feelings and sensations. The obtained data were exported to a Microsoft Office Excel spreadsheet and processed using StatTech 4.1.5 statistical package. Quantitative indicators were evaluated for conformity to normal distribution using the Kolmogorov–Smirnov criterion, independent samples were compared using the Mann–Whitney U-criterion. The direction and closeness of correlations between quantitative indicators were evaluated using Spearman rank correlation coefficient, prognostic models were developed using linear regression method. Differences at $p < 0.05$ were considered statistically significant.

The Academic Motivation Scale (AMS) is based on the theory of self-determination by E. Deci and R. Ryan [20, 21]. The questionnaire was developed by R. Vallerand et al. in 1989 and is currently used not only for high school students, but also for junior students of specialized secondary and higher educational institutions of various profiles. The study used a questionnaire consisting of 28 questions with the possibility of answering on a 7-point Likert scale [20, 22]. The average values of answers were calculated by subscale separately and in the total sum of scores. The profile of dominant types of students' academic motivation was determined by analyzing the results of subscale and their totals.

In accordance with the structure of AMS, students' motivation is presented as a combination of intrinsic (autonomous) motivation, aimed at obtaining pleasure, and extrinsic motivation. Intrinsic motivation represents a number of related parameters: cognitive motivation, achievement motivation, and self-development motivation. Cognitive motivation (CM) determines the student's aspiration to search for new knowledge, understanding of the studied material, accompanied by the experience of interest and pleasure in the learning process. Achievement motivation (AM) determines a person's desire to achieve high results in learning activities. Self-development motivation (SDM) determines a person's aspiration to develop inherent abilities and realize potential within the framework of education, to form professional competencies [21, 23]. In this regard, autonomous motivation is defined as the most important component of the guarantee of quality learning, contributing, in the presence of appro-

priate cognitive properties of personality, to the reduction of academic failure and increase of psychological adaptation to learning [24, 25]. At the same time, it is proved that intrinsic motivation is dynamic and dependent on various social and cultural parameters, including educational parameters [26].

External motivation explains human activity in accordance with specific reasons organized into two groups consisting of two subgroups each. The first group (controlled motivation) includes external and introjected regulation, which help to exert control over external events beyond the individual's action. The second group (sensory motivation) includes identified and integrated regulation, in which a person feels control over his or her actions [23]. In the AMS questionnaire, extrinsic motivation is represented by three subscales: self-esteem motivation, introjected motivation, and externalized motivation. Self-esteem motivation (SEM) assesses the desire to learn in order to increase one's own importance and self-esteem through success in learning. Introjected motivation (IM) assesses the desire to learn under the influence of a sense of duty and shame for unjustified expectations of social institutions. Externalized motivation (EM) is opposite to the idea of personal autonomy and is associated with the desire to learn under the influence of the requirements of society. Amotivation (Am), which is a parameter of the absence of intrinsic and extrinsic motivation and is defined as a decrease in aspirations for purposeful behavior, is separately distinguished [20].

RESULTS AND DISCUSSION

The study included 254 questionnaires from students, of which 53 were males (20.87%). The average age of respondents was 18.3 years. The criterion for inclusion was completion of all fields of the questionnaire while maintaining anonymity. Descriptive statistics of motivation components assessed within the Academic Motivation Scale, depending on the gender of the students are presented in Table 1.

No significant gender differences in intrinsic motivation indicators were found when comparing the results obtained, which may indicate high intrinsic motivation of first-year students to study in medical school. At the same time, the average indicators of the sums

Table 1

Descriptive statistics of quantitative variables according to gender

Таблица 1

Описательная статистика количественных переменных в зависимости от пола

| Показатели / Indicators Me [IQR] | Пол / Sex | | P |
|---|----------------------|----------------------|--------|
| | женский / female | мужской / male | |
| Возраст (лет) / Age (years) | 18,00 [18,00; 18,00] | 18,00 [18,00; 18,00] | 0,858 |
| Сумма баллов по субшкалам внутренней мотивации / Sum of scores on the subscale of intrinsic motivation | 50,00 [43,00; 56,00] | 47,00 [43,00; 53,00] | 0,120 |
| МП / CM | 17,00 [15,00; 19,00] | 16,00 [15,00; 19,00] | 0,253 |
| МД / AM | 15,00 [12,00; 18,00] | 15,00 [13,00; 17,00] | 0,563 |
| МСП / SDM | 18,00 [16,00; 20,00] | 16,00 [15,00; 18,00] | 0,011 |
| Сумма баллов по субшкалам внешней мотивации / Sum of scores on the subscale of extrinsic motivation | 39,00 [34,00; 42,00] | 36,00 [30,00; 40,00] | 0,003 |
| МСУ / SEM | 18,00 [15,00; 20,00] | 15,00 [12,00; 17,00] | <0,001 |
| ИМ / IM | 15,00 [12,00; 17,00] | 14,00 [11,00; 16,00] | 0,166 |
| ЭМ / EM | 5,00 [4,00; 9,00] | 5,00 [4,00; 9,00] | 0,510 |
| Ам / Am | 13,00 [11,00; 15,00] | 12,00 [10,00; 14,00] | 0,437 |

Note: Am — amotivation; IM — introjected motivation; AM — achievement motivation; CM — cognitive motivation; SDM — self-development motivation; SEM — self-esteem motivation; EM — externalized motivation

Примечание: Ам — амотивация; ИМ — интроецированная мотивация; МД — мотивация достижений; МП — мотивация познания; МСП — мотивация саморазвития; МСУ — мотивация самоуважения; ЭМ — экстернальная мотивация.

of scores of the internal motivation block exceed the similar indicators of the external motivation block in both sexes, but without statistical difference, which may indicate the immaturity of students' personality and lack of independence in choosing a profession. A statistically significant difference in the motivation of self-development in girls ($p=0.011$) may indicate greater awareness in the choice of profession and place of study. M.D. Shamilov and M.V. Noskova obtained similar data with the dominance of intrinsic motivation indicators in studies conducted in other medical universities in Russia [19, 27].

The Mann–Whitney U-criterion revealed statistically significant differences in the sum of scores of external motivation subscale scores depending on gender ($p=0.003$). Significant differences were also revealed in the group of self-esteem motivation with a significant increase in the mean values of the indicator in girls ($p<0.001$). The obtained results indicate the desire of girls in training to emphasize their own importance and increase their self-esteem.

Taking into account the high role of intrinsic motivation in the formation of the desire to acquire knowledge and professional competencies, we evaluated the mean values of the

Table 2

Analysis of intrinsic motivation depending on gender

Таблица 2

Анализ внутренней мотивации в зависимости от пола

| Показатели / Indicators | Категории / Categories | Пол / Sex | | | P |
|-------------------------|------------------------|-----------|--------------------------------|-----|--------|
| | | Me | Q ₁ –Q ₃ | N | |
| МП / CM | Женский / Female | 17,00 | 15,00–19,00 | 201 | 0,253 |
| | Мужской / Male | 16,00 | 15,00–19,00 | 53 | |
| МД / AM | Женский / Female | 15,00 | 12,00–18,00 | 201 | 0,563 |
| | Мужской / Male | 15,00 | 13,00–17,00 | 53 | |
| МСП / SDM | Женский / Female | 18,00 | 16,00–20,00 | 201 | 0,011* |
| | Мужской / Male | 16,00 | 15,00–18,00 | 53 | |
| Сумма / Sum | Женский / Female | 50,00 | 43,00–56,00 | 201 | 0,120 |
| | Мужской / Male | 47,00 | 43,00–53,00 | 53 | |

Примечание: МД — мотивация достижений; МП — мотивация познания; МСП — мотивация саморазвития.

Note: AM — achievement motivation; CM — cognitive motivation; SDM — self-development motivation.

subscale. The comparative characteristics of subscale values related to intrinsic motivation of students depending on gender are presented in Table 2.

Table 3

Summary values of the correlation analysis of the relationships between the subscales of the AMS

Таблица 3

Сводные значения корреляционного анализа взаимосвязей субшкал ШАМ

| Параметр / Parameter | Возраст / Age | ПМ / CM | МД / AM | МСП / SDM | МСУ / SEM | ИМ / IM | ЭМ / EM |
|----------------------|---------------|-----------|-----------|-----------|-----------|---------|---------|
| МП / CM | 0,101 | | | | | | |
| МД / AM | 0,135 | 0,810*** | | | | | |
| МСП / SDM | 0,079 | 0,783*** | 0,761*** | | | | |
| МСУ / SEM | -0,025 | 0,454*** | 0,477*** | 0,629*** | | | |
| ИМ / IM | -0,038 | 0,152* | 0,071 | 0,166** | 0,453*** | | |
| ЭМ / EM | -0,139 | -0,493*** | -0,397*** | -0,409*** | -0,136* | 0,139* | |
| Ам / Am | 0,082 | 0,983*** | 0,797*** | 0,724*** | 0,441*** | 0,155* | 0,155* |

* $p < 0,05$.** $p < 0,01$.*** $p < 0,001$.

Note: Ам — amotivation; ИМ — introjected motivation; АМ — achievement motivation; CM — cognitive motivation; SDM — self-development motivation; SEM — self-esteem motivation; EM — externalized motivation.

Примечание: Ам — амотивация; ИМ — интроецированная мотивация; МД — мотивация достижений; МП — мотивация познания; МСП — мотивация саморазвития; МСУ — мотивация самоуважения; ЭМ — экстернализованная мотивация.

Despite the increase in the mean scores of girls, no statistically significant differences were found when assessing the sums of internal motivation subscale scores. The demonstrated average scores of each subscale, the leading value of which in respondents of both genders is occupied by the scale of self-development motivation, testify to the desire of students to develop their abilities within the framework of forming professional competencies.

Correlation analysis (Spearman's coefficient) was conducted to assess the interrelationships of the motivation subscale; the summary values are presented in Table 3.

When pairwise assessment of the sum of intrinsic motivation subscale scores with SEM, a significant direct relationship of moderate strength was obtained ($p=0.558$, $p < 0.001$). When comparing measures of the sum of intrinsic motivation subscale scores and EM, a significant inverse relationship of moderate strength was found ($p=0.461$, $p < 0.001$), indicating a predominant desire to acquire knowledge to avoid problems associated with academic failure.

The mean values of the amotivation subscale showed rather low values (13.0 for girls and 12.0 for boys) and did not correlate with each other. At the same time, when pairwise comparing the amotivation subscale with the subscale of intrinsic motivation, correlating values were obtained: with CM ($p=0.983$, $p < 0.001$), AM ($p=0.797$, $p < 0.001$), SDM ($p=0.724$, $p < 0.001$), as well as with the total

sum of scores ($p=0.899$, $p < 0.001$). This, along with rather low average values of intrinsic motivation indicators, indicates the lack of interest in the learning process in students while maintaining motivation to acquire knowledge and form professional competencies.

The established direct connection of moderate strength between CM and SEM indicates the desire for self-actualization, increase in self-esteem when acquiring new competencies. At the same time, the established moderate inverse relationship between all subscales of intrinsic motivation and EM may indicate an increased interest in acquiring knowledge regardless of the potential benefits. Thus, the obtained data testify to the students' desire to acquire knowledge in the absence of interest in the process of education.

CONCLUSION

Currently, it is still relevant to determine the leading model of motivation when students enter educational organizations, including medical education institutions. The revealed dominance of intrinsic motivation parameters allows determining the independent and conscious choice of students in determining the path of professional development. Low average indices of internal motivation subscale parameters determine insufficient social maturity of the 1st year students, which requires adaptation programs. Sociological studies that allow assessing students' motivation can be used to

optimize the adaptation program for first-year students.

ADDITIONAL INFORMATION

Author contribution. Thereby, all authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

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