International Journal of Research in Medical Sciences
Dilshan JWS et al. Int J Res Med Sci. 2024 Nov;12(11):4034-4039
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20243349

Original Research Article

Motivation for self-study among medical university students

Jayakodi Waththage Sithija Dilshan[1]*, Dzmitry Karnialiuk[2], Tatsiana Lakotka[2], Fawzer Khan Akil Ahamed Khan[1]

[1]Faculty of Foreign Students, Grodno State Medical University, Belarus
[2]Department of Internal Diseases, Grodno State Medical University, Belarus

Received: 26 July 2024
Revised: 30 September 2024
Accepted: 15 October 2024

***Correspondence:**
Dr. Jayakodi Waththage Sithija Dilshan,
E-mail: jayakodisithija@321@gmail.com

ABSTRACT

Background: Motivation is a key driver of academic success, especially in rigorous disciplines like medicine. Recognizing what motivates students to engage in self-study can provide essential insights for enhancing educational practices.
Methods: The study employed the academic motivation scale (AMS). The survey was administered online through Google forms, targeting 4th-year students from both the domestic faculty of medicine and the faculty of foreign students. The AMS assesses several components of internal motivation (such as the desire to gain knowledge) and external motivation (such as motivation due to external rewards or pressures). A comparative analysis was conducted to highlight differences in motivation between the two student groups.
Results: The findings demonstrated, that foreign students consistently exhibited higher levels of internal motivation, including a greater desire to understand medical content and achieve academic success. They also scored higher on most external motivational factors, such as motivation stemming from rewards or recognition. These results indicate that foreign students tend to be more academically motivated than domestic students at Grodno State Medical University.
Conclusions: The study underscores the critical role of both internal and external motivation in promoting academic performance, especially in medical education. The greater motivation observed among foreign students suggests that cultural, environmental, or personal factors might contribute to their stronger drive for self-study. Future research could investigate these factors more deeply and develop targeted approaches to enhance motivation among all students. Implementing strategies to improve intrinsic motivation among domestic students could help reduce the observed disparity.

Keywords: Academic motivation, External motivation, Faculty of medicine, Foreign students, Grodno State Medical University, Internal motivation, Medical students, Self-study

INTRODUCTION

In recent decades, researchers' interest in learning motivation has not waned, which is explained by the role played by students' motivation in effective learning activities. The influence of motivation not only on the corresponding achievements of students, but also on the effectiveness of constructing the educational process has been proven. Research in recent decades has made a significant contribution to the understanding of certain types of learning motivation, their sources and consequences.[1,2] In addition, a number of researchers believe that the contribution of motivational variables in the academic achievements of students is comparable to the contribution of intelligence indicators and sometimes even exceeds it.[1,2]

The motivation of educational activity is a multidimensional structure. It includes motives, goals, perseverance, options for responding to failures, cognitive components and mechanisms.[3] The initial structure of motivation was presented in the form of an opposition of two types of educational motivation: internal (interest in the educational activity itself) and external (the desire to receive rewards and incentives). This concept has been revised in the theory of self-determination, on the basis of which four types of extrinsic motivation are distinguished from each other: external, introjected, identified and integrative.[4] At the lowest level is external regulation, which is based on the control of student behavior through the use of rewards and threats of punishment.[5-7] At the next level, the regulation of the behavior of a child or teenager begins to be carried out through partially appropriated rules and requirements related to feelings of guilt and shame, which corresponds to introjected motivation.[8] The identified regulation is associated with an understanding of the importance of the educational activity performed for the student himself. Integrative regulation is a generalization and integration of all previous options; however, it is often not evaluated in motivation questionnaires due to the complexity of its brief verbalization.[5]

Internal learning motivation is based on basic human needs for cognition, achievement and self-development. They are the basis for achieving certain learning outcomes, in particular, making efforts in learning (achievement motivation), striving to understand the material being studied (cognition motivation), setting yourself and achieving more difficult goals, bringing what you started to the end (self-development motivation).[9-11] In addition, the importance of internal educational motivation as an important condition for the effectiveness of the educational process has been proved, and according to Galperina, it is internal motivation that is the determining condition that stimulates cognitive activity, strengthening and development of cognitive interest.[12]

Along with external and internal motivation, there is amotivation (the least self-determined type of motivation), which is characterized by the lack of meaning in the subject of the educational activity performed. Amotivation is based on feelings of incompetence, helplessness and expectations of uncontrollability of performance results.[13]

There are various methods for evaluating indicators of internal and external motivation, in particular, based on the theory of self-determination. The most well-known and frequently used are two scales: SRQ-A (designed to assess the motivation of elementary and middle school students) 4 and AMS (to assess the internal and various types of external motivation of high school students).[14] In addition, developed by Vallerand and colleagues, the AMS technique is a popular scale for diagnosing educational motivation in Canada, the USA, France and other European countries but it has also been tested on Russian samples of university students.[3,15]

In connection with the above, to describe the types of regulation of educational activities and to understand their mechanisms, it is useful to study various types of internal and external motivation according to the autonomy parameter.

METHODS

The study was conducted on the basis of the Grodno State Medical University (Belarus) in the period from April to May 2022. 68 4th year students took part in the survey. All subjects participated in the study voluntarily after receiving informed consent. All ethical requirements have been met.

The cluster sampling technique was used to form study groups. The survey participants were divided into 2 groups: group 1 consisted of 34 students of the medical faculty with the Russian language of instruction (average age 21 years), group 2- 34 students of the faculty of foreign students with the English language of instruction (average age 23 years). The groups were comparable in average score (group 1- 8.3 (7; 8.7); group 2- 8 (7.7; 8.5).

In order to measure the type and severity of motivation to study, we used the academic motivation scale developed by Gordeeva et al based on the Vallerand Academic Motivation Scale. This technique has 7 scales: three scales of internal motivation (motivation of cognition, achievement and self-development), three scales of external motivation (motivation of self-esteem, introjected and external), as well as a scale of amotivation.[7] Students were asked to answer the questions posed by the above scale, presented in Google form.

The scale was a set of questions related to the learning process at the university. An instruction with a description of the values in the proposed questionnaire was placed in front of the scale. It was necessary to read each statement, and using a scale from 1 to 5, indicate the answer that best corresponds to what the interviewee thinks about the reasons for his involvement in the activity. The following answer options were offered: does not match at all to- 1; rather doesn't match to- 2; something in between- 3; rather matches to- 4; quite matches to- 5. And then it was suggested to answer the question: "What is the reason you are currently taking classes at the university?" in relation to the 28 proposed statements presented in the table below.

Table 1: Academic motivation scale (with consent of Gordeeva et al).[16]

Assertion	1	2	3	4	5
1. I am interested in learning					
2. Studying gives me pleasure, I like to solve difficult problems					
3. Because I enjoy excelling myself in academic achievement					
4. Because I want to prove to myself that I am capable of doing well in university					
5. Because I am ashamed to study poorly					
6. I have no other choice as attendance is noted					
7. I don't know. It seems to me that I'm just wasting my time here					
8. I like to study because it is interesting					
9. I feel satisfied when I am in the process of solving complex learning problems					
10. Studying gives me the opportunity to feel satisfaction in my cultivation					
11. Because when I study well, I feel like a significant person					
12. Because my conscience makes me learn					
13. To avoid problems with the dean's office and during the session					
14. At last I understood why I was studying, but now I'm not sure if I should continue					
15. I just like to study and learn new things					
16. I like to solve difficult problems and put in intellectual effort					
17. I study for the pleasure that brings me the achievement of new academic success					
18. I study to prove to myself that I am a smart person					
19. Because studying is my duty, which I cannot neglect					
20. Because those close to me will condemn if I start to study poorly					
21. I visit classes, but I'm not sure that I really need it					
22. I really enjoy learning new material in class					
23. I just love learning, solving complex problems and feeling competent					
24. I am pleased to realize how my competence and my knowledge is growing					
25. I want to show myself that I can be successful in my studies					
26. Having entered the university, I have to attend classes and study					
27. I have no choice, otherwise I will not be able to have a sufficiently prosperous life in the future					
28. I visit classes out of habit, why, frankly, I don't know for sure					

When evaluating the results, internal and external motivation was diagnosed. Additionally, seven separate motivation scales were analyzed: cognitive motivation, achievement motivation, self-development, self-esteem, introjected, external motivation and amotivation, using the appropriate key.

The data obtained in the course of the work were processed using nonparametric statistical methods. The Mann-Whitney U test was used to compare differences between two independent groups. Spearman Correlation was used to assess the strength and direction of the relationship between two variables. The data in the work are presented in the form of Me (25%; 75%). The level at $p<0.05$ was taken as reliable.

RESULTS

When analyzing the data on the answers to questions about the preparation for the educational process, there were no significant differences in the time that students spent on this. In both groups, this indicator was: in the first group- 3.5 (1.5; 3.5) and in the second group- 3.5 (1.5; 5.5).

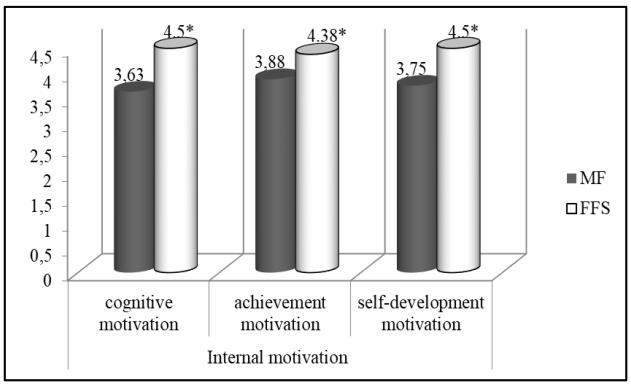

Figure 1: Components of internal motivation.

The indicators obtained during the work reflecting internal motivation are shown in Figure 1.

As can be seen from the above diagram, students of the faculty of foreign students had significantly higher values

for all components of internal motivation: cognitive, achievement and self-development motivations. This indicates that students of this faculty have a desire to learn new things, achieve the highest possible results and understand the subject being studied, as well as the expression of the desire to develop their learning abilities and achieve a sense of mastery and competence is expressed to a greater extent compared to Russian-speaking students.

The indicators reflecting external motivation are shown in Figure 2.

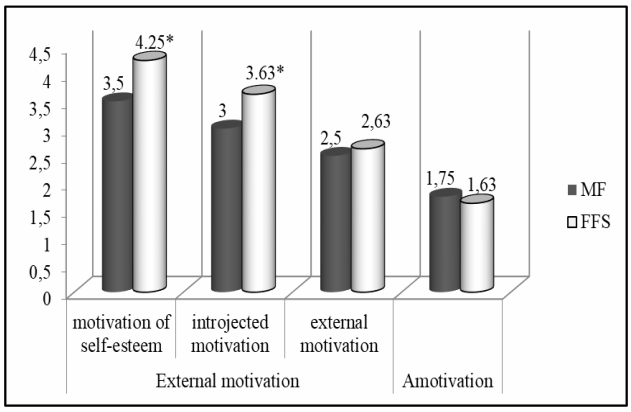

Figure 2: Components of external motivation.

The presented diagram demonstrates that students of the faculty of foreign studies had significantly higher values for such components of external motivation as introjected and self-esteem motivation. This indicates that students of this faculty have a higher desire to study for the sake of feeling their own importance and self-esteem, as well as an incentive to study due to a sense of shame and a sense of duty to themselves or others.

In addition, to determine the relationship between the components of internal and external motivation, we calculated the Spearman correlation coefficient. At the same time, it was found that the students of group 1 had a positive average correlation between the indicators of self-esteem motivation with cognitive motivation (r=0.56), with achievement motivation (r=0.46) and a strong relationship with self-development motivation (r=0.71). In addition, a negative medium-strength relationship of amotivation with all components of internal motivation (r=-0.52--62), a positive one with external motivation (r=0.53) and a negative medium-strength relationship of external motivation with cognitive motivation (r=-0.41) were revealed.

When calculating the Spearman correlation coefficient, the students of group 2 found a positive average correlation between the indicators of self-development motivation with self-esteem motivation (r=0.46) and with introjected motivation (r=0.49). In addition, a positive average correlation of amotivation with external motivation was revealed (r=0.58).

The above data indicate a more pronounced dependence of the components of internal and external motivations among students of group 1 compared with students of group 2. At the same time, it is interesting that there are links between motivation and intrinsic motivation (the more students learn, achieve and set new goals, the more they see the meaning in the chosen training). Students of the second group, unlike the first, have a connection between the presence and nature of the goals they set for themselves and the desire to achieve them with the presence of a sense of duty and shame. Along with the existing differences, both groups noted, on the one hand, the influence of understanding the importance of learning activities on setting appropriate goals and striving to achieve them, and on the other hand, the negative impact of studying “for the sake of good grades and avoiding problems” on understanding the meaning of learning.

DISCUSSION

The study highlights the importance of individualized motivational support and instructional strategies for different student populations in medical schools.

Thereby, enhancing the design of student support systems and curriculum. Rather, the SMMS questionnaire provides evidence for the reliability and validity which could be a useful tool for measuring and studying the motivation of medical students. This validation work could have implications for the motivation for self- study among medical students, as the SMMS questionnaire could potentially be used to assess the motivation of medical students in different cultural and linguistic contexts, such as the comparison between Russian-speaking and English-speaking students. In the research it found out significant differences in academic motivation between the Russian-speaking and English-speaking medical students, with the latter group exhibiting higher levels of both intrinsic and certain extrinsic motivation. These findings suggest that factors such as language of instruction and cultural/educational background may influence the motivation profiles of medical students, which is an important consideration for the potential use of the SMMS questionnaire in diverse populations. The limitations identified in the SMMS questionnaire such as the need for further validation in diverse samples beyond the Netherlands, could be addressed by collaborative research efforts involving the SMMS questionnaire and the comparison of motivation between different student populations, as demonstrated in motivation for self-study among medical students. Combining the expertise in questionnaire validation and the understanding of cross-cultural differences in academic motivation could lead to more comprehensive and robust research in the area.[17]

In SMMS questionnaire, the authors found a 3-factor structure for the SMMS (willingness to sacrifice, readiness to start, persistence) which was theoretically sound, though the first factor alone could explain 26% of the variance. The reliability of the willingness to sacrifice

and readiness to start subscales was acceptable (0.70 and 0.67 respectively), while the persistence subscale had lower reliability (0.55) but was still considered acceptable for group comparisons. The full SMMS-R scale had higher reliability (Cronbach's alpha =0.79), similar to other studies. The SMMS showed good construct validity, with the expected pattern of correlations with the academic motivation scale (AMS) and a negative correlation with academic exhaustion.[17]

Motivation for self-study among medical students' questionnaire, identifies differences in the correlations between internal and external motivation components between the two student groups. For local medical students, external motivation was negatively correlated with internal cognitive motivation, suggesting a potential conflict or undermining of intrinsic interest. For foreign students, external motivations like introjected regulation were positively correlated with self-development, hinting at a more integrated external regulation. Analyzing these relationships provides clues about the quality and integration of different motivational drivers. The analysis found a positive correlation between self-esteem motivation and cognitive motivation (r=0.56), as well as between self-esteem motivation and self-development motivation (r=0.71). This indicates an interrelationship between these motivational components. The data also revealed a negative medium-strength relationship between amotivation and all components of internal motivation (r=-0.52 to -0.62), as well as a negative medium-strength relationship between external motivation and cognitive motivation (r=-0.41). The Spearman correlation analysis for group 2 found a positive average correlation between self-development motivation with self-esteem motivation (r=0.46) and with introjected motivation (r=0.49), as well as a positive average correlation of amotivation with external motivation (r=0.58).

The meta-analysis summarizing 13 years of research on the factors associated with university students' grade point averages (GPAs). Meta-analysis examined over 400 papers and 241 data sets on correlates of university GPA. Found traditional cognitive measures (SAT, ACT, high school GPA) had medium-sized positive correlations with university GPA. Strongest non-intellective correlates were self-efficacy, goal setting, effort regulation. Smaller correlates included personality traits, learning approaches, and psychosocial factors.

Prospective designs found smaller associations than cross-sectional studies for some factors. Motivation for self-study among medical students, the foreign students had higher levels of both internal (e.g. cognitive, achievement) and certain external (e.g. introjected, self-esteem) motivation. For medical students, amotivation negatively correlated with internal motivation. For foreign students, amotivation positively correlated with external motivation. As the researchers mention different aspects of academic performance and motivation, as they represent distinct research studies in different contexts, but concludes about causality and longitudinal motivational changes among medical students.

Exploring additional factors like academic performance (GPAs), learning strategies, and demographic variables could provide a more comprehensive picture. Qualitative investigations like GPAs, could offer deeper insights into the motivational experiences and perspectives of these student groups.[18]

Overall, the study highlights the value of examining academic motivation through the lens of self-determination theory, and how motivational profiles can vary across different student populations.

One of the main limitations in this study is the small sample size which may affects the results. Therefore, with a limited number of participants from both the faculty of foreign students and faculty of medicine, the results may not fully represent the broader student population at Grodno State Medical University or other medical institutions. In addition, the use of self-reported data through the academic motivation scale might introduce bias, as students may not always accurately show their true levels of motivation. Cultural differences between foreign and domestic students could also affect how the they observe and report their motivation, which may lead to subjective responses. Moreover, this cross-sectional study gathered motivation at a single point in time, without accounting for possible changes in motivational throughout the academic year or in different stages of medical education. Lastly, use of online survey such as google forms might limit participation from students who are less comfortable with digital tools, further limiting the diversity of the results.

CONCLUSION

Using the academic motivation scale allows you to evaluate the main components of internal and external motivation, as well as calculate the relationship between these parameters. Based on the foundations of the theory of self-determination, the external type of motivation is associated with a low level of interest in cognition (as evidenced by a negative relationship with indicators of cognitive motivation). There are visible differences in academic motivation between students of the medical faculty and faculty of foreign studies both in the severity of internal and external motivation, and the relationships between these parameters, which should be taken into account when organizing the educational process at various faculties, analyzing and correcting academic performance, designing student motivation systems to increase their satisfaction with the educational process.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Yuldashev JG. Internal and external motivation in providing educational activities. Econ Soc. 2021;9(88):871-6.
2. Richardson M, Abraham C, Bond R. Psychological correlates of university students' academic performance: a systematic review and meta-analysis. Psychol Bull. 2012;138(2):353-87.
3. Guay F, Morin AJS, Litalien D, Valois P, Vallerand RJ. Application of exploratory structural equation modeling to evaluate the academic motivation scale. J Exp Educ. 2015;83(1):51-82.
4. Morris LS, Grehl MM, Rutter SB, Mehta M, Margaret L. Westwater ML. On what motivates us: a detailed review of intrinsic versus extrinsic motivation. Psychol Med. 2022;52(10):1801-16.
5. Gordeeva TO. Motivation: new approaches, diagnostics, practical recommendations. Siber Psychol J. 2016;62:38-53.
6. Deci EI, Ryan RM. Facilitating optimal motivation and psychological well-being across life's domains. Canad Psychol. 2008;49:14-23.
7. Fin G, Moreno-Murcia JA, León J, Baretta E, Ju´nior RJN. Interpersonal autonomy support style and its consequences in physical education classes. PLoS One. 2019;14(5).
8. Ryan RM. Deci EL. Self-determination theory: Basic psychological needs, in motivation, development and wellness. 1st edn. Guilford Publishing; 2017:191-193.
9. Kusurkar R, Croiset G, Kruitwagen C, ten Cate O. Validity evidence for the measurement of the strength of motivation for medical school. Adv Health Sci Educ. 2011;16:183-95.
10. Genova TN. Motivation for the educational activity of a modern student. Young Sci. 2022;47(442):488-90.
11. Urhahne D, Wijnia L. Theories of motivation in education: an integrative framework. Educ Psychol Rev. 2023;35(2).
12. Murad M, Tufail M. Academic motivation of elementary school students: unearthing the role of teachers. Acad Educ Soc Sci Rev. 2024;4(1):82-93.
13. Zeng YA, Yao D. Literature review of the academic motivation scale (AMS) and its reliability and validity. Int J Educ Humanit. 2023;8(3):43-6.
14. Ratelle CF, Guay F, Vallerand RJ, Larose S. Autonomous, controlled, and amotivated types of academic motivation: a person-oriented analysis. J Educ Psychol. 2007;99(4):734-46.
15. Gizhitsky VV, Gordeeva TO, Gavrichenkova TK. Development of a questionnaire of educational persistence and constancy of educational interests. Modern psychodiagnostics of Russia. Overcoming the crisis: a collection of materials of the III All-Russian Conference on Psychological diagnostics. Chelyabinsk, SUSU Publishing Center; 2015:66-74.
16. Gordeeva TO, Sychov OA, Osin EN. Questionnaire Academic: scales of motivation. Physiological J. 2101;35(4):98-109.
17. Kusurkar R, Croiset G, Kruitwagen C, ten Cate O. Validity evidence for the measurement of the strength of motivation for medical school. Advances in health sciences education. 2011;16:183-95.
18. Richardson M, Abraham C, Bond R. Psychological correlates of university students' academic performance: a systematic review and meta-analysis. Psychol Bull. 2012;138:353-87.

Cite this article as: Dilshan JWS, Karnialiuk D, Lakotka T, Khan FKAA. Motivation for self-study among medical university students. Int J Res Med Sci 2024;12:4034-9.