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Academic Motivation and Quality of Life of Polish Medical Students

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Abstract: Background: The skills and attitudes of medical staff affect the quality of the healthcare system, hence the study of academic motivation and quality of life of medical students.
Materials and Methods: The study involved 203 students of the Jagiellonian University Medical College. Academic motivation was assessed using the Academic Motivation Scale and quality of life using the World Health Organization Quality of Life-BREF questionnaire. Academic Motivation Scale is based on the Self-Determination Theory, which distinguishes several dimensions of motivation arranged along self-determination continuum from amotivation, through extrinsic, controllable motivation, to intrinsic, autonomous motivation.
Results: For our students, the main reason for taking up studies was identified regulation, it means that they perceive studying as something important for them, giving more opportunities in the future. Next was intrinsic motivations to know, where gaining knowledge is a value in itself. The third was external regulation, which indicate that the choice of studies was regulated by the dictates of the environment or the desire to obtain a reward. Female students showed a more intrinsically motivational profile than male students. Motivation became less autonomous as the years of study progressed. Most students rated their quality of life as good or very good. There was weak correlation between students' good quality of life and more self-determined academic motivation.
Conclusions: Our students are mainly intrinsically motivated, most of them positively assess the quality of life. A more autonomous approach to learning coexisted with a positive assessment of quality of life.

Keywords: healthcare, well-being, learning, medical schools.

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Introduction

For many decades, there has been a discussion about the direction in which medical education should go in order to best support students in gaining knowledge and skills that determine the quality of patient care [1, 2]. Currently, the health care system requires physicians to have excellent biomedical competencies and to provide health care in a humanistic manner, emphasizing the understanding of patient's needs [1–3]. Research suggests that shaping humanistic approach and ensuring excellent biomedical skills can be achieved by supporting an autonomous model of motivation to learn among medical students [1]. The Self-Determination Theory (SDT) developed by Edward Deci and Richard Ryan (1985) [4] distinguishes between two types of academic motivation: autonomous and controlled. According to SDT, the behavior can be amotivated, extrinsically motivated, or intrinsically motivated [5]. These dimensions can be placed along the self-determination continuum from amotivation, through extrinsic, controllable motivation, to intrinsic, autonomous motivation [5].

Amotivation is defined as the lack of intention to perform an action, occurs when people do not see a connection between action and its result and believe that their behavior and actions are caused by factors beyond their control [5, 6]. Extrinsic motivation refers to performing an action out of a sense of obligation or as a means to an end [5, 6]. It is divided into three types organized along the continuum of self-determination [5, 6]. The lower form is external regulation, in which students participate because of the opinion of the environment, in order to receive a reward or avoid punishment. In introjected regulation subjects begins to internalize the reasons for their actions; however, their behavior is still governed by external demands or requirements of the environment to avoid internal conflict. Identification is the most self-determined type of extrinsic motivation, in this dimension, an individual has identified with the personal value of the behavior and accepted its regulation as their own [5, 7].

Intrinsic motivation, at the top of the continuum, describes an activity performed for one's own pleasure, for its inherent satisfactions, not because of external pressure or for rewards [5, 7]. Comparisons between people who are motivated or supported by themselves and those whose actions are controlled only from the outside reveal that the former are more productive, persistent, have higher self-esteem and overall well-being [5]. On the other hand, it is known that medical studies often cause intense mental stress in medical students, manifested by depression, anxiety, burnout and low quality of life [8–10].

Therefore, we decided to investigate what type of academic motivation dominates among students of the medical faculty of our university, whether it depends on such factors as gender or year of study, and to examine the level of quality of life and

determine whether there is a relationship between the level of quality of life and the type of motivation to learn.

The aim of our work was to investigate:

1. Which type of academic motivation is dominant among Jagiellonian University Medical College students?
2. Does the type of motivation differ significantly depending on gender and year of study?
3. How do students of the Jagiellonian University Medical College assess the quality of their lives?
4. Is there a correlation between the academic motivation and perceived quality of life?

Materials and Methods

Participants

The study was conducted at Jagiellonian University Medical College in Krakow, Poland, which offered a six-year, full-time undergraduate medical program. The study was part of a larger project assessing the educational environment and the student's motivation to work. The questionnaires were distributed among registered students from all six years of study, during classes, and an electronic version was subsequently disseminated, too. Participation was voluntary, and the questionnaires were collected anonymously.

Methods

To examine the dominant type of motivation, we used the polish version of the Academic Motivation Scale (AMS) validated by Ardeńska *et al.* (2019) [7]. To assess the quality of life among the participants, we used abbreviated form of World Health Organization Quality of Life questionnaire (WHOQOL-BREF) [11]. A detailed description of both research tools can be found in the "Appendix" section. Ethical approval to conduct the study was obtained from the Ethics Committee of Jagiellonian University. The AMS, the WHOQOL-BREF and demographic questionnaire were administrated to the students after obtaining written informed consent.

Data analysis

All statistical analyses were performed using IBM SPSS 28.0.1.0. Statistical data analysis was carried out by performing descriptive statistics for the entire group of respondents (mean, standard deviation, dominant, median, skewness), broken down

by gender (mean, standard deviation), and by year of study (mean, standard deviation). The normality of the distributions was checked with the Shapiro–Wilk test. Due to the nature of the distribution of variables, non-parametric Mann–Whitney U test were used (significance of differences in the level of motivation by gender and by the group of basic sciences vs clinical sciences, as well as the significance of differences in WHOQOL-BREF domains by gender) and the Kruskal–Wallis test (significance of differences in the level of motivation by year of study and significance of differences in WHOQOL-BREF domains depending on the year of study). HOCHBERG's GT2 post-hoc test made it possible to compare each year of study with each other. In order to examine the correlation between individual subscales of the AMS scale and domains of the WHOQOL-BREF scale, r-Pearson's correlation coefficients were calculated. The significance level was <0.05.

Results

Basic psychometric properties

There were 203 medical students who fully completed the AMS questionnaire (93.5% response rate), with 117 females (58%) and 86 males (42%) and 192 medical students who fully completed the WHOQOL-BREF questionnaire, with 55% females and 45% males. The correlation coefficient between AMS and WHOQOL-BREF was calculated for 182 students.

The dominant type of academic motivation

The highest average (on a seven-point Likert scale) was obtained by the identified regulation (EID) with the highest value of the dominant frequency. Next was intrinsic motivation to know (IMK) with the third largest dominant. External regulation (ER) also ranked high with the second largest dominant. The lowest average was obtained by amotivation (AM), with the smallest value of the dominant frequency (Table 1).

The impact of gender on the type of academic motivation

Between AMS subscales and gender was observed significant interaction. Female students had higher scores for intrinsic motivation to know (IMK) ($p = 0.006$) and intrinsic motivation toward accomplishments (IMA) ($p = 0.033$), while male students had higher scores for external regulation (ER) ($p = 0.037$) (Table 2).

The influence of the length of study on the type of academic motivation

After determining how strongly a given dimension affects the academic motivation of students in each year of study (Table 3), using post hoc tests, we checked whether there are statistically significant differences between the years of study (Table 4). Statistically significant differences concerned the subscale of amotivation (AM) — distinctions occurred between the sixth and the first, sixth and the second, sixth and the third, and sixth and the fourth year. Another subscale, in which changes were found between the sixth and the first year and the sixth and the second year, as well as the sixth and fourth year, was intrinsic motivation to know (IMK). Statistically significant differences were also found in identified regulation (EID) between the sixth and first year (Table 4). Due to the low number of students in some years of study, we decided to examine the dominant level of motivation, distinguishing years first and second as definitely theoretical years (basic science) and years third to sixth as definitely practical (clinical science). Statistically significant difference in the type of motivation occurred for amotivation (AM), identified regulation (EID), intrinsic motivation to know (IMK) and intrinsic motivation toward accomplishments (IMA). In the clinical years, the share of the identified regulation subtype decreased ($p = 0.015$), similar intrinsic motivation to know ($p = 0.045$) and intrinsic motivation toward accomplishments ($p = 0.049$), the share of the amotivation increased ($p = 0.008$) (Table 5).

Quality of life of medical students

Mean score of the overall quality of life of students in the subjective assessment, on a five-point Likert scale, was 4.23 ± 0.65. 55.7% of students rated their quality of life as good and 34.4% as very good (Table 6).

Students' self-assessment of their health was on average 3.99 ± 0.79 on a five-point Likert scale, 80.8% of students were satisfied or very satisfied with their health (Table 7).

Next, we performed calculations of how students assess their quality of life in particular domains (Table 8). The environmental domain had the highest mean score at 15.66 ± 1.99, followed by the social relationship domain at 14.78 ± 3.08, the psychological domain at 14.22 ± 2.01, and finally the physical health domain at 12.48 ± 1.69. After taking into account gender, no significant differences were found in any of the domains, while taking into account the year of study showed significant differences in each of the domains, especially physical health domain and social relationship domain.

Correlation assessment

Correlation analyses between AMS and WHOQOL-BREF for 182 students demonstrated that there is a weak correlation between the physical health domain and IMK — intrinsic motivation to know (r = 0.226), IMES — intrinsic motivation to experience stimulation (r = 0.214) and ER — external regulation (r = –0.178) (Table 9).

For the intrinsic motivation to know (IMK) and intrinsic motivation to experience stimulation (IMES) subscales, it had a positive direction, which means that the better a person assessed their quality of life in the physical health domain, the more autonomous their motivation was. The correlation between the physical health domain and the external regulation (ER) subscale had a negative direction, i.e. the worse a person assessed their quality of life in this domain, the more they were externally motivated. The correlation was also found between the psychological domain and the three AMS subscales, namely identified regulation (EID) (r = 0.202), intrinsic motivation toward accomplishments (IMA) (r = 0.166) and intrinsic motivation to experience stimulation (IMES) (r = 0.147). Intrinsic motivation toward accomplishments (IMA) and intrinsic motivation to experience stimulation (IMES) are components of intrinsic motivation, while identified regulation (EID) is the most autonomous subtype of extrinsic motivation, all correlations had a positive direction, which means that the better a person assessed their quality of life in the psychological domain, the more autonomous their motivation was. The WHOQOL-BREF's environmental domain correlated weakly with the EID — identified regulation (r = 0.284) and IMK — intrinsic motivation to know (r = 0.162), both of which were positive. No correlation was found between the social relationship domain and the subtypes of the AMS scale.

Discussion

The aim of the study was to identify the academic motivation profiles of our students and to verify whether there is a relationship between the academic motivation level and gender, year of study and quality of life.

The conducted study showed that for our students the main reason for studying was identified regulation which is the most self-determined type of extrinsic motivation, intrinsic motivations to know followed immediately behind them. Referring to the assumption in the introduction, according to which the autonomous type of academic motivation of students is related to the development of a humanistic approach to the patient and the achievement of perfect biomedical competences, the results obtained by us are satisfactory. It should be noted, however, that external regulation also ranked high, and this type of motivation means taking up a given field of study as a result of pressure from the environment or waiting for a reward both material or non-material e.g. in the form of a well-paid job in the future or praise

[7, 12]. Amotivation, which is associated with a lack of willingness to take action, scored the lowest.

The same results (identified regulation in the first place, followed by intrinsic motivation to know and external regulation in the third place, and the smallest influence of amotivation) were obtained by Atalay *et al.* (2016) [13] and Del-Ben *et al.* (2013) [14], among students of medical faculties. Similar results was presented by Orsini *et al.* (2015) [15] in population of dental students and Sobral (2004) [16] among medical students, the dominant type of motivation was identified regulation followed by intrinsic motivation to know, while the third place was taken by intrinsic motivation towards accomplishment; amotivation was the least endorsed subscale. Ballmann and Mueller (2008) [17] described the academic motivation of students at the College of Health Sciences from eight health care disciplines (clinical laboratory science, health information management, nuclear medicine technology, nursing, nutrition and dietetics, occupational therapy, physical therapy and physician assistant education), found that the strongest form of motivation was identified and external regulation, and amotivation was the last. Usán *et al.* (2022) [18] in the study of on primary school students indicated that the strongest subtypes of motivation to learn were identified regulation, followed by external regulation and intrinsic motivation to know. In Poland, Ardeńska and Tomik (2014) [12] conducted a study on the type of academic motivation among students of the Academy of Physical Education, who study tourism and recreation, physical education, sport management and tourism management. The most common type of motivation was external regulation, followed by identified regulation and intrinsic motivation to know. The lowest average was achieved by amotivation. Based on this review, it can be concluded that the dominant types of motivation of our students are similar to students of other medical and non-medical schools.

Next we indicated that in our sample female students display a more self-determined motivational profile than male students. Similar results have already been obtained by the creators of the scale [6]. Other researchers also found differences in the type of motivation to study by gender, in the paper by Orsini *et al.* (2015) [15] female students scored significantly higher on all subscales, except for intrinsic motivation to experience stimulation (higher, but not significant) and amotivation (male scored significantly higher). Sobral (2004) [16] indicated that female students had higher scores for regulation by identification, while male students showed higher scores for external regulation and amotivation. A higher value of amotivation in men was also found by Ardeńska and Tomik (2014) [12] and Ardeńska *et al.* (2019) [7].

The results of our study showed as well that the type of motivation changes depending on the years of study. With the years of study, the motivation becomes less self-determined, the share of intrinsic motivation to know and the most autonomous subscale of extrinsic motivation, i.e. identified regulation has decreased significantly, the share of amotivation has increased. Similar trends was observed when

the course of study was divided on basic vs clinical years. Also in this case, congruous results were obtained by other researchers. Orsini *et al.* (2015) [15] showed that first-year students scored higher on intrinsic motivation than senior students. Del-Ben *et al.* (2013) [14] found that first-year medical students at the end of the academic year showed decreased share of all three subscales of intrinsic motivation and identified regulation. In medical professions, it is important to constantly improve, acquire new knowledge and skills, which is why the results obtained are not favorable. Amotivation is characterized by a lack of self-efficacy and lack of control over the action. Activities are not undertaken or are performed thoughtlessly. Amotivated students ask themselves why study at all, they may also stop attending classes [5, 6]. Hence the field for discussion and further research why amotivation increases during studies and what preventive measures can be introduced. SDT is not the only theory of motivation that has been used in education, in addition, the theory of locus of control and the theory of self-efficacy are mentioned [1]. The distinguishing features of SDT are the distinction of types of motivation, the promotion of autonomous motivation and to present how supports academic motivation. SDT assumes that the teacher, taking into account the point of view of others, transfers the appropriate amount of knowledge and assists the student in taking responsibility for his own development, and by setting boundaries and providing feedback in a way that allows for choice, supports autonomy [1].

Most of our study group described their quality of life as good or very good, and a correlation study found a link between students' good quality of life and more self-determined motivation to learn. Higher score of quality of life in the physical health, psychological, and environmental domains was associated with more autonomous academic motivation.

Research shows that the intensity of medical study programs is the cause of stress, professional burnout and a low assessment of the quality of life of medical students, and this affects the motivation to learn and well-being both during studies and in postgraduate career, combined with poorer quality of patient care and greater number of medical errors [9, 10, 19–21]. The results of our study confirm the relationship between the quality of life and the type of motivation to learn. Various interventions are described in the literature, the aim of which is to reduce the stress of medical students, improve their quality of life, and thus influence their motivation and academic achievement, examples of such interventions are participation in regular group fitness classes [22] or the introduction of a revised curriculum [23].

Conclusions

Our students were motivated to learn both intrinsically and extrinsically, with a predominance of intrinsic motivation, which means that they acquire knowledge and necessary qualifications not only out of fear of failure in learning or environmental

assessment, but above all from the need for personal development. A more autonomous approach to learning coexisted with a positive assessment of quality of life.

The quality of health care depends, among other things, on the attitudes of medical staff. People who feel the need for continuous personal improvement, acquiring new skills, updating knowledge seem to be good candidates. Hence the need to study the academic motivation and the quality of life of medical school students.

Acknowledgements

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Conflict of interest

None declared.

Abbreviations

AM	—	amotivation
AMS	—	Academic Motivation Scale
EID	—	identified regulation
EIN	—	introjected regulation
ER	—	external regulation
IMA	—	intrinsic motivation toward accomplishments
IMES	—	intrinsic motivation to experience stimulation
IMK	—	intrinsic motivation to know
SDT	—	Self-Determination Theory
WHOQOL-BREF	—	World Health Organization Quality of Life questionnaire

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Appendix

The AMS scale, which was created by Robert Vallerand *et al.* (1992) [6], based on SDT, consists of 28 items assigned to seven subscales (four items per each subscale): amotivation, extrinsic motivation (external regulation, introjected regulation, identified regulation), and three subtypes of intrinsic motivation (intrinsic motivation to know, intrinsic motivation toward accomplishments, intrinsic motivation to experience stimulation) [7]. The division of intrinsic motivation into three categories was proposed by Vallerand *et al.* (1989) [24], who recognized that the previous descriptions of intrinsic motivation revealed its complex structure. Motivation to know describes a situation in which a subject feels satisfaction from learning something new [6, 7]. We talk about motivation toward accomplishments when an individual focuses primarily on the process of achieving goals, the result recedes into the background [6, 7]. Motivation to experience stimulation has been described as engaging in an activity intended to stimulate the sensations (e.g., sensory pleasure, aesthetic experiences) that derive from that activity [6, 7]. All items were assessed on a 7-point Likert scale: 1 — strongly disagree, 2 — disagree, 3 — slightly disagree, 4 — don't know, 5 — slightly agree, 6 — agree, 7 — strongly agree [7]. The number of points awarded means the value the importance of a given motivational factor for the respondent — the more points, the more greater importance of the factor. The score for each subscale is calculated by adding each subject's responses to four separate statements [12].

The WHOQOL-BREF is a self-administered questionnaire, two questions independently examine the individual's overall perception of quality of life and health, the remaining 24 questions allow to obtain a quality of life profile in four areas: physical health, psychological, social relations, and environment. The tool follows a scoring system, where each question is rated on a 5-point Likert scale. Domain scores are scaled in a positive direction, with higher scores indicating better QoL [25]. The reliability of the tool has been confirmed by Kowalska *et al.* (2012) [26] among economically active adults in Poland.

Table 1. Descriptive statistics derived from AMS (N = 203).

AMS subscales	Mean	Median	Dominant	Quantity of modal value*	SD	Skewness
AM	2.21	1.75	1.00	56	1.29	1.152
ER	5.23	5.50	6.50	19	1.24	–0.669
EIN	4.17	4.25	3.50	16	1.49	–0.111
EID	5.68	5.75	6.75	24	0.94	–0.968
IMK	5.48	5.75	6.25	22	1.12	–1.065
IMA	4.69	5.00	5.00	21	1.40	–0.664
IMES	3.94	4.25	4.75	19	1.37	–0.223

* There are many modal values, the largest is given.
AM — amotivation; extrinsic motivation: ER — external regulation, EIN — introjected regulation, EID — identified regulation; intrinsic motivation: IMK — intrinsic motivation to know, IMA — intrinsic motivation toward accomplishments, IMES — intrinsic motivation to experience stimulation; abbreviations based on Ardeńska and Tomik (2014) [12].

Table 2. Means (standard deviations) for females and males derived from AMS.

AMS subscales	Females (N = 117)		Males (N = 86)		p
	Mean	SD	Mean	SD	
AM	2.07	1.21	2.40	1.37	0.072
ER	5.09	1.22	5.42	1.25	0.037*
EIN	4.26	1.35	4.06	1.66	0.373
EID	5.74	0.90	5.60	1.00	0.354
IMK	5.68	0.99	5.22	1.23	0.006*
IMA	4.90	1.25	4.40	1.55	0.033*
IMES	4.01	1.36	3.85	1.39	0.538

* $p < 0.05$ — statistically significant differences.
AM — amotivation; extrinsic motivation: ER — external regulation, EIN — introjected regulation, EID — identified regulation; intrinsic motivation: IMK — intrinsic motivation to know, IMA — intrinsic motivation toward accomplishments, IMES — intrinsic motivation to experience stimulation; abbreviations based on Ardeńska and Tomik (2014) [12].

Table 3. Means and standard deviations of AMS subscales depending on the year of study.

AMS subscales	Year of study											
	First (N = 15)		Second (N = 65)		Third (N = 46)		Fourth (N = 50)		Fifth (N = 15)		Sixth (N = 12)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
AM	1.92	0.98	1.87	1.01	2.26	1.39	2.24	1.23	2.68	1.54	3.56	1.62
ER	5.48	1.04	5.24	1.25	5.52	1.08	5.06	1.39	4.67	1.27	5.13	1.02
EIN	4.63	1.85	4.15	1.46	4.43	1.34	3.99	1.32	3.47	1.82	4.40	1.74
EID	6.27	0.67	5.79	0.84	5.62	1.00	5.67	0.89	5.37	0.93	5.04	1.30
IMK	5.87	0.77	5.63	1.08	5.26	1.18	5.69	0.87	5.30	1.33	4.44	1.43
IMA	5.23	1.51	4.86	1.30	4.46	1.49	4.71	1.15	4.15	1.98	4.60	1.49
IMES	4.22	1.79	4.13	1.32	3.55	1.35	3.93	1.32	4.00	1.40	4.04	1.30

AM — amotivation; extrinsic motivation: ER — external regulation, EIN — introjected regulation, EID — identified regulation; intrinsic motivation: IMK — intrinsic motivation to know, IMA — intrinsic motivation toward accomplishments, IMES — intrinsic motivation to experience stimulation; abbreviations based on Ardeńska and Tomik (2014) [12].

Table 4. Differences in motivational profiles by year of study.

Subscales	AM	ER	EIN	EID	IMK	IMA	IMES
Year of study	p						
1 vs 2	1.00	1.00	0.99	0.67	1.00	1.00	1.00
1 vs 3	1.00	1.00	1.00	0.24	0.59	0.61	0.80
1 vs 4	1.00	0.98	0.89	0.35	1.00	0.97	1.00
1 vs 5	0.76	0.66	0.38	0.11	0.91	0.41	1.00
1 vs 6	0.01*	1.00	1.00	0.01*	0.01*	0.98	1.00
2 vs 3	0.80	0.98	1.00	1.00	0.66	0.88	0.37
2 vs 4	0.83	1.00	1.00	1.00	1.00	1.00	1.00
2 vs 5	0.28	0.81	0.81	0.81	0.99	0.69	1.00
2 vs 6	0.00*	1.00	1.00	0.14	0.01*	1.00	1.00
3 vs 4	1.00	0.64	0.89	1.00	0.55	1.00	0.95

Table 4. cont.

Subscales	AM	ER	EIN	EID	IMK	IMA	IMES
Year of study	**p**						
3 vs 5	0.98	0.26	0.35	1.00	1.00	1.00	0.99
3 vs 6	0.02*	1.00	1.00	0.55	0.26	1.00	0.99
4 vs 5	0.97	0.99	0.98	0.99	0.98	0.94	1.00
4 vs 6	0.02*	1.00	1.00	0.40	0.01*	1.00	1.00
5 vs 6	0.65	1.00	0.81	1.00	0.46	1.00	1.00

* p <0.05 — statistically significant differences.
AM — amotivation; extrinsic motivation: ER — external regulation, EIN — introjected regulation, EID — identified regulation; intrinsic motivation: IMK — intrinsic motivation to know, IMA — intrinsic motivation toward accomplishments, IMES — intrinsic motivation to experience stimulation; abbreviations based on Ardeńska and Tomik (2014) [12].

Table 5. Means and standard deviations of the AMS subscales between definitely theoretical (basic science) and definitely practical (clinical science) years.

AMS subscales	Basic science (N = 80)		Clinical science (N = 123)		p
	Mean	SD	Mean	SD	
AM	1.88	1.00	2.43	1.41	0.008*
ER	5.28	1.21	5.19	1.25	0.607
EIN	4.24	1.54	4.13	1.46	0.517
EID	5.88	0.83	5.55	0.99	0.015*
IMK	5.68	1.03	5.36	1.16	0.045*
IMA	4.93	1.34	4.54	1.42	0.049*
IMES	4.14	1.41	3.81	1.34	0.105

* p <0.05 — statistically significant differences.
AM — amotivation; extrinsic motivation: ER — external regulation, EIN — introjected regulation, EID — identified regulation; intrinsic motivation: IMK — intrinsic motivation to know, IMA — intrinsic motivation toward accomplishments, IMES — intrinsic motivation to experience stimulation; abbreviations based on Ardeńska and Tomik (2014) [12].

Table 6. Individual's overall perception of the quality of life according to WHOQOL-BREF (N = 192).

Likert scale	The number of students	[%]
Very poor	0	0.0%
Poor	2	1.0%
Neither poor nor good	17	8.9%
Good	107	55.7%
Very good	66	34.4%

Table 7. Individual's overall perception of health according to WHOQOL-BREF (N = 192).

Likert scale	The number of students	[%]
Very dissatisfied	0	0.0%
Dissatisfied	12	6.2%
Neither satisfied nor dissatisfied	25	13.0%
Satisfied	108	56.3%
Very satisfied	47	24.5%

Table 8. WHOQOL-BREF scores for students per student's characteristics.

Variables	N (%)	DOM1		DOM2		DOM3		DOM4	
		mean ± SD	p-value	mean ± SD	p-value	mean ± SD	p-value	mean ± SD	p-value
Total	100.00%	12.48 ± 1.69	—	14.22 ± 2.01	—	14.78 ± 3.08	—	15.66 ± 1.99	—
Gender									
Females	55.21%	12.61 ± 1.74	0.234	14.14 ± 2.14	0.803	14.70 ± 2.96	0.556	15.10 ± 1.98	0.403
Males	44.79%	12.33 ± 1.62		14.31 ± 1.85		14.88 ± 3.24		15.23 ± 2.02	
Year of study									
First year	7.80%	13.0 ± 21.22	<0.001*	14.73 ± 1.16	0.031*	15.80 ± 2.54	<0.001*	16.27 ± 1.39	0.049*
Second year	29.70%	12.54 ± 1.59		14.56 ± 1.72		15.09 ± 2.45		15.28 ± 1.85	
Third year	22.40%	11.37 ± 1.51		13.37 ± 1.94		12.86 ± 3.04		14.72 ± 1.83	
Fourth year	24.50%	13.13 ± 1.68		14.47 ± 2.11		15.53 ± 3.13		15.17 ± 1.90	
Fifth year	7.80%	12.87 ± 1.77		13.93 ± 2.63		15.53 ± 3.42		15.60 ± 2.92	
Sixth year	7.80%	12.47 ± 1.51		14.33 ± 2.44		15.00 ± 3.42		14.40 ± 2.29	

WHOQOL-BREF scores in range 4–20.
* $p < 0.05$ — statistically significant differences.
DOM1 — physical health domain, DOM2 — psychological domain, DOM3 — social relationship domain, DOM4 — environmental domain.

Table 9. Correlations between AMS subscales and WHOQOL-BREF domains.

Domains	AMS subscales						
	AM	**ER**	**EIN**	**EID**	**IMK**	**IMA**	**IMES**
DOM1	−0.061	−0.178*	−0.128	0.073	0.226**	0.138	0.214**
DOM2	−0.108	−0.020	−0.032	0.202**	0.123	0.166*	0.147*
DOM3	−0.053	−0.072	−0.079	0.098	0.042	−0.007	0.084
DOM4	−0.088	−0.018	−0.007	0.284**	0.162*	0.104	0.145

* The correlation is significant at 0.05 (bilateral).
** The correlation is significant at 0.01 (bilateral).
AM — amotivation; extrinsic motivation: ER — external regulation, EIN — introjected regulation, EID — identified regulation; intrinsic motivation: IMK — intrinsic motivation to know, IMA — intrinsic motivation toward accomplishments, IMES — intrinsic motivation to experience stimulation; abbreviations based on Ardeńska and Tomik (2014) [12].
DOM1 — physical health domain, DOM2 — psychological domain, DOM3 — social relationship domain, DOM4 — environmental domain.