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Published in the USA

European Journal of Contemporary Education  
E-ISSN 2305-6746  
2023. 12(2): 509-516  
DOI: 10.13187/ejced.2023.2.509  
<https://ejce.cherkasgu.press>

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**European Journal of  
Contemporary Education**



ELECTRONIC JOURNAL

## Comparative Analysis of Self-Assessment of Life Quality Among Medical University Students

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### Abstract

Purpose of research: Conduct a comparative evaluation of the quality of life based on physical and psychological health of medical university students. Methods and materials of research: quality of life, health-related, were studied using questionnaires the SF-36 questionnaire from 333 students 1 and 5 courses, (1 year – 133 respondents, the average age 18.02 + 0.5, 5 year – 200 students, average age 22.4+0.8;). Results: The Level of physical functioning of 5th year students was significantly higher (PF 97.7+10.8) than that of first year students (PF 81.5+24.86)  $p < 0.001$ . Decrease of role physical functioning at students of 1 course (RF 70.11+29.7) against (RF 88.21+23.19) at respondents of 5 course is established. Average pain intensity and General health have proved to be lower (BP 82,83+17,56; GH 69.85+15.03) compared with those of senior students (BP 87.57+16.12; GH 79.37+15.95),  $p < 0.001$ . The novelty of the research: An assessment of the gender characteristics of the self-assessment of the quality of life of students showed that female 5th-year students, compared with men, showed statistically significant high values of the variable of role-based physical functioning due to physical condition ( $p < 0.03$ ), while among the interviewed first-year students, the components of physical and psychological components of health did not demonstrate a significant dependence on gender ( $p > 0.05$ ).

**Keywords:** life quality, students, health, respondents, gender differences, correlation.

### 1. Introduction

One of the priority directions of the development of modern society is the protection of the health of citizens. Today public health is assessed not by the prevalence of infectious epidemics, but by the quality of life of the population. An individual's good health and well-being in life reflect the satisfaction of his needs and adaptation in the physical, psychological and social spheres of life (Kausova, 2004; 2006; Novik, Ionova, 2007; Belousova et al., 2023).

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In recent years, there has been an increase in interest in the problems of the quality of life of student youth (Aleshkov et al., 2022; Moreva, Skitnevskaya, 2023). The quality of life of students can be impacted by a variety of factors, including academic stress, financial difficulties, social isolation, and health issues (Zaitseva, Krikunov, 2022; Babina et al., 2022). These problems can have a negative effect on students' well-being and academic performance, leading to lower levels of engagement, motivation, and achievement. Academic stress, for example, can result from a high workload, unrealistic expectations, and lack of support, leading to anxiety, depression, and burnout (Batrymbetova, 2007; Medik, 2004). The quality of life of student youth is closely linked to their mental health. Addressing the challenges that affect their well-being, such as academic and social pressures, is critical for promoting their mental health and academic success (Batrymbetova, 2007; Aghajanyan, Radysh, 2009; Baklykova, 2010). Fascination in the student environment with high-tech means for teaching and entertainment (computers, mobile phones, etc.) leads to physical inactivity, fatigue, visual impairment, which are additional risk factors (Berdiev i dr., 2017).

Analysis of the scientific literature on the problem of student health shows that during their studies at the university, the health of students does not improve, and a number of authors note its deterioration (Baklykova, 2010; Proskuryakova, 2007; Shagina, 2010). This is often attributed to factors such as academic pressure, lack of exercise, poor diet, sleep deprivation, and high levels of stress. Medical university students may be particularly vulnerable to these health risks, given the demanding nature of their studies and the pressure to perform well in their academic and clinical work (Kaliyev et al., 2023; Sakenov et al., 2023). Working capacity of student youth, many issues remain unresolved and require a detailed assessment of the state of health of students.

#### Purpose of research

The purpose of this research is to conduct a comparative evaluation of the quality of life based on physical and psychological health of 1st and 5th-year medical students at the NAO ZKMU named after M. Ospanov Medical University.

## **2. Materials and methods**

The quality of life related to health was studied in a comparative aspect using a questionnaire method based on the use of the international validated questionnaire "MOS SF-36 Health Status Survey", which allows assessing the physical, psychological and social well-being of a person (Ware et al., 1993; Salek, Luscombe, 1992).

The 36 questions of the SF-36 questionnaire form eight scales: physical functioning (PF); role-based functioning due to physical condition (RP); pain intensity (BP). general health (GH), vital activity (VT), social functioning (SF), role-based functioning due to emotional state (RE), mental health (MH). The scales form two indicators: PH ("physical component of health") and MH ("psychological component of health"):

The physical component of health (PH), is a broad term that refers to the various factors of an individual's physical well-being. This includes the individual's physical functioning – their capacity to perform everyday tasks and activities; role-based functioning due to one's physical condition – this in its turn reflects how well an individual can perform their roles in life, such as work or familial responsibilities, based on their physical health. Other key aspects of PH include the intensity of pain experienced by an individual and their overall perception of their health condition.

The psychological component of health (MH), focuses on the mental and emotional aspects of well-being. Mental health is a crucial part of this component, encompassing conditions like depression, anxiety, and other psychological disorders. It also includes role-based functioning due to emotional state, which refers to how an individual's emotional health impacts their ability to fulfill their social roles. Furthermore, social functioning is a critical part of MH, highlighting how well an individual interacts with others and fits into their social environment. Lastly, life activity refers to the individual's ability to engage in activities that make life meaningful and fulfilling.

These eight indicators are significant for a comprehensive assessment of an individual's health. They provide a holistic view of the person's well-being, taking into account both their physical and mental health (Table 1).

These 8 scales represent composite health characteristics, including function and dysfunction, stress and well-being, objective and subjective assessments, positive and negative self-assessments of overall health.

**Table 1.** The scales are grouped into two indicators

<b>Physical health – PH</b>	<b>Mental Health – MH</b>
physical functioning;	mental health;
role-based functioning due to physical condition;	role-based functioning due to emotional state;
pain intensity;	social functioning;
general state of health.	vital activity.
physical functioning;	mental health;

The values of the scale indicators can be from 0 to 100 points. 100 points indicate the greatest well-being, 0 points indicate the maximum restriction of vital activity according to the corresponding indicator. Therefore, the higher the scale values, the better the score on the selected scale.

Statistical processing of the results of the study was carried out using the program Statistica version 10.0. The following indicators were calculated: sample size, average value, minimum, maximum, standard deviation. Quantitative variables in two independent groups were compared nonparametrically using the Mann-Whitney U test.  $P < 0.05$  was taken as the level of statistical significance. The correlation of variables was analyzed using Spearman's method ( $r$ ). The relationship between the indicators was estimated as strong at  $r > 0.7$ , medium strength – at  $r$  from 0.3 to 0.7, weak – at  $r < 0.3$ .

The study was conducted on the basis of a non-commercial Joint-Stock Company of the West Kazakhstan Medical University named after Marat Ospanov.

333 1st and 5th year students took part in the survey, including 133 first-year respondents (average age 18.02 +\_ 0.5] and 200 5th year students.

Among the surveyed 1st year students, 82 % were girls, 18 % were boys, 72 % and 28 % were 5th year students. The quality of self-completion of the SF-36 questionnaire by respondents met the generally accepted requirements for the analysis of quality of life indicators.

### 3. Results

The respondents of the two study groups showed statistically significant differences on all scales of physical and psychological components of health. Among the components of the physical component of health in the group of 5th-year students surveyed, the variable of physical functioning was the highest (94.1+10.8). ( $p < 0.01$ ) When analyzing the variables of role functioning due to physical condition, pain intensity and general health, a decrease in the scores of general health (79.4+15.9) was noted, characterizing the student's self-assessment of his condition at the moment. The overall indicator of the physical component of health was 54.8 + 4.9 points.

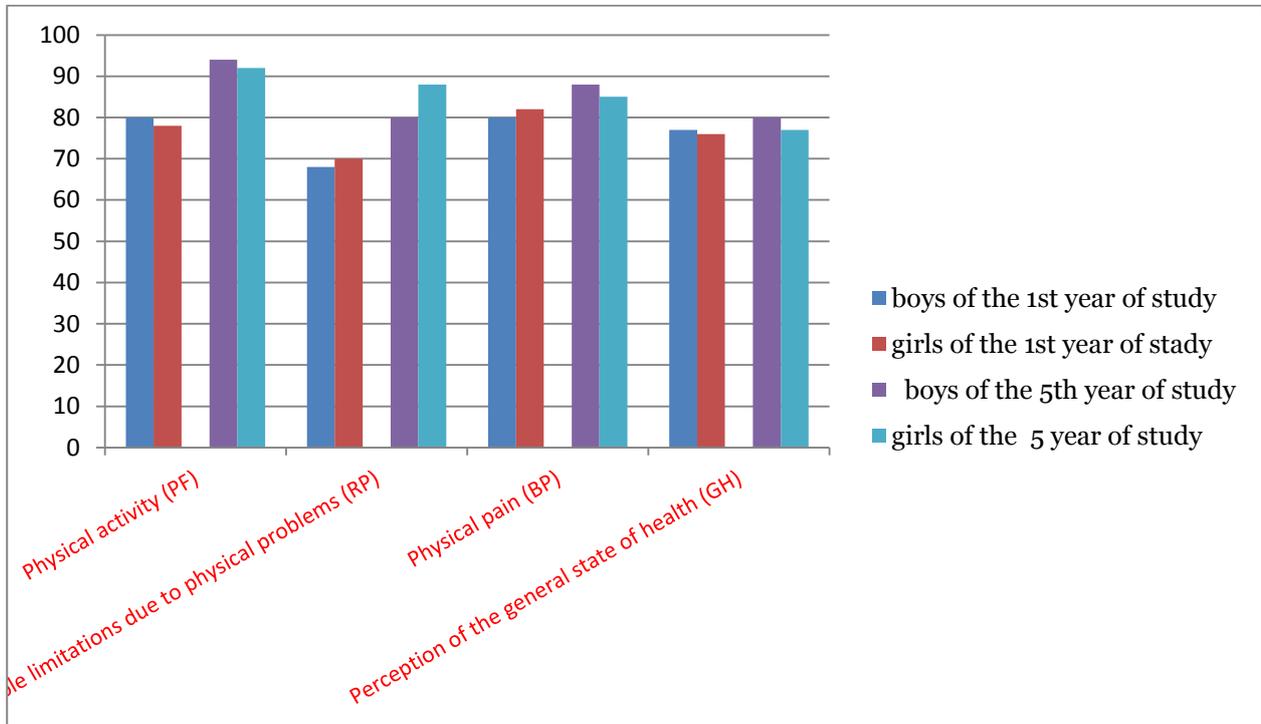
The study of the indicator of the psychological component of health, along with higher values of emotional role (87.2+27.1) and social functioning (80.1+18.6) revealed a decrease in the variables of vital activity (64.5+15.7) and mental health (73.2+13.7). The overall indicator of the psychological component of health was at the level of 48.6 +4.9 points ( $p < 0.01$ ).

In the group of 1st year students, the average values of indicators of both physical and psychological components of health showed a significant decrease in the components of both indicators in comparison with the data of 5th year students in the range of 8-18 points. This was especially evident in relation to the variables: physical (81.1+24.9) and role functioning related to physical condition (70.1+29.7), general health (69.1+15.9), role emotional state (63.6+37.0), social functioning (75.1+22.2) and mental health (65.3+16.5).  $p < 0.01$ .

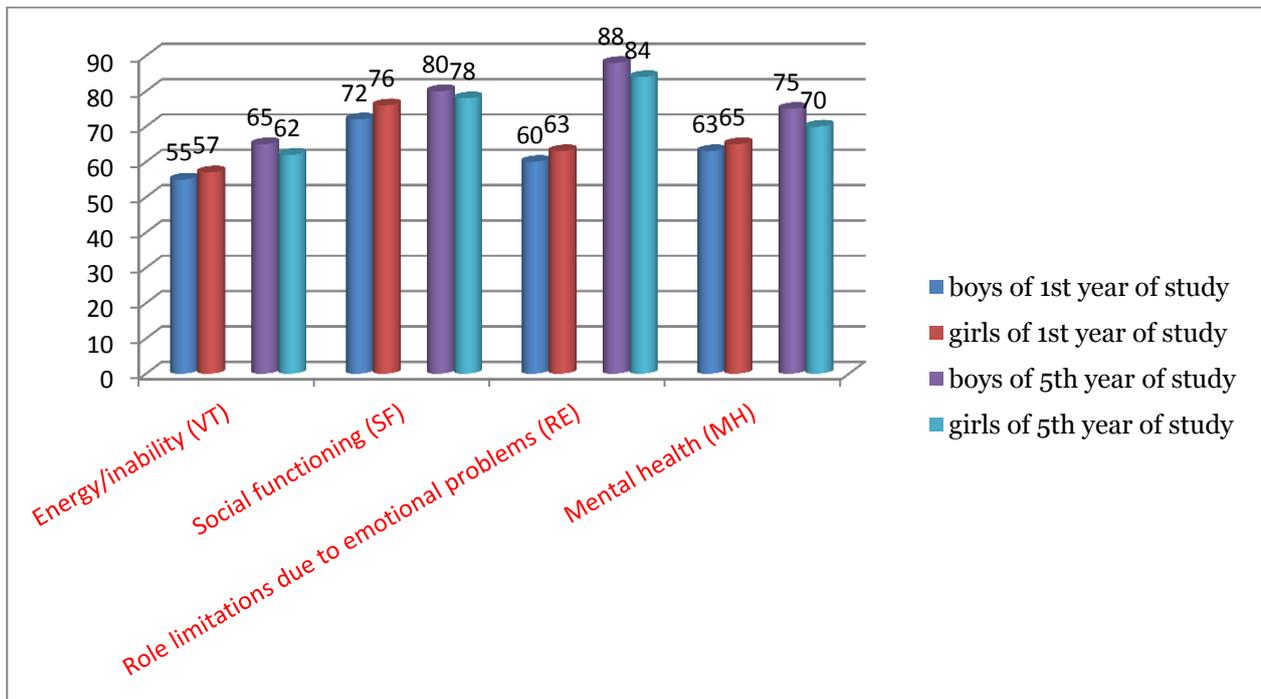
**Table 2.** Indicators of students' quality of life variables

<b>1 year of study</b>		<b>5 year of study</b>		
<b>variable</b>	<b>M +/-SD</b>	<b>variable</b>	<b>M +/- SD</b>	<b>P</b>
Physical activity (PF)	81,5+/-24,86	PF	94,07+/-10,80	0,001
Role limitations due to physical problems (RP)	70,11+/-29,70	RP	88,20+/-23,19	0,001
Physical pain (BP)	82,83+/-17,56	BR	87,51+/-16,12	0,015
Perception of the general state of health (GH)	69,05+/-15,93	GH	79,37+/-15,95	0,001

PH1	50,97+/-6,36	PH1	54,79+/-4,86	0,001
Energy/inability (VT)	56,80+/-15,39	VT	64,48+/-15,70	0,001
Social functioning (SF)	75,07+/-22,17	SF	80,14+/-18,60	0,05
Role limitations due to emotional problems (RE)	63,64+/-37,04	RE	87,23+/-27,06	0,001
Mental health (MH)	65,29+/-18,53	MH	73,24+/-13,71	0,001
MH1	44,08+/-8,69	MH1	48,56+/-7,40	0,001



a) The physical component of health



b) Psychological component of health

**Fig. 1.** Indicators of physical and mental health of 1st and 5th year students by gender differences

When assessing the gender characteristics of the self-assessment of the quality of life of medical university students among the first-year students surveyed, the components of the physical and psychological components of health did not undergo significant deviations ( $p > 0.05$ ). It should be noted that female 5th-year students, in comparison with male, have higher values of the variable of role-based physical functioning due to physical condition (RP 90.4+21.7 and 82.6+26.1. These differences were statistically significant ( $p < 0.03$ ). Consequently, girls of the 5th year, unlike men, do not experience the limitations of daily role-playing activities due to physical condition. According to the general health scale, respondents' self-assessment of their health had only a tendency to sexual differences ( $p = 0.08$ ). Other indicators of physical and psychological components of health did not show significant differences by gender.

#### **4. Discussion**

The results obtained on the study of quality of life indicators in the group of 1st year students prove the existence of differences in the compared indicators of physical and psychological health between the respondents of the 1st and 5th courses. The average values of the variables in the surveyed first-year students were significantly lower than the data of the assessment of the quality of life of undergraduates.

The detection of a decrease in the self-esteem of the physical component of health in 1st year students indicates some limitation of their physical activity and the fulfillment of the scope of their daily duties. According to various authors, the decrease in the physical component of health in the initial period of study at a medical university is due to the need to adapt to new living conditions, high mental and psychological stress, frequent violations of the diet, work and rest, which are accompanied by a significant strain on the adaptive capabilities of the body and a decrease in the quality of life (Feizuldayeva et al., 2018; Berdiev et al., 2017; Shagina, 2010; Tishchenko et al., 2011).

The 5th-year students surveyed subjectively rate their physical and role functioning highly, which is currently not limited by the state of health. An increase in the values of the indicator indicates the ability to perform more physical activity and the absence of health problems that limit daily activities. These data differ from some of the results of earlier scientific research on the study of the quality of life of medical students, demonstrating a decrease in the quality of life as they move to senior courses. what is associated with the development of various chronic diseases in senior students (Gorbach i dr., 2007; Grebnyak, Grebnyak, Mashinistov, 2007; Zelezinskaya i dr., 2005; Kovyneva, 2006; Koichubekov, 2014; Kretova i dr., 2014).

During the analysis of the total measurements of the variables of the psychological component of health, statistically significant differences in health-related quality of life indicators were revealed. 5th year students showed higher indicators of social functioning (SF 80.14+-18.60), role-based functioning due to emotional state (RF 87.23+-27.06), mental health (MN 73.24+-13.71) and vital activity (VT 64.5+15.7)  $p < 0.001$ . At the same time, among the first-year respondents, the proportion of people with low self-esteem of these variables of the psychological component of health significantly prevailed (SF 75.1+-22.17; RF 63.69+-37.04; MN 65.3+37.04; VT 56.8+15.4, respectively).

A comparison of the components of the psychological component of health proves that first-year students do not feel full of strength and energy, are limited in social contacts, performing daily work due to a decrease in physical and emotional health. Low indicators may indicate the presence of feelings of anxiety, depression, fatigue, psychological distress and a decrease in the quality of life (Tretyakova et al., 2023). It is quite natural to assume that a decrease in the quality of life will negatively affect the educational process and the acquisition of professional skills by first-year students (Latyshevskaya i dr., 2009; Mukhanova, 2013; Sadvakasov i dr., 2015; Semenova, Vasilevskaya, 2015; Shilovskaya, 2004; Shkarin, 1991; Frank et al., 2006).

When analyzing correlational relationships in a group of first-year students, a direct correlation was found between the variables of physical functioning and the physical component of health ( $r = 0.75$ ;  $p = 0.007$ ). This relationship between variables for 1st year students is positive and suggests an improvement in the indicator of the physical component of health with an increase in physical functioning.

In the group of 5th year students, there is a strong correlation between the mental health variable and the integral indicator of the psychological component of health ( $r = 0.81$ ). Therefore, the less pronounced the feeling of anxiety and depression, mental distress, the higher the psychological comfort and quality of life.

## 5. Conclusion

The quality of life of medical university students is an important area of study that can provide insights into the well-being of future healthcare professionals. In the study, authors conclude that:

1. The analysis of the results of the research on the SF 36 questionnaire indicates a significant decrease in the values of the components of the physical and psychological components of health in 1st-year students in comparison with the indicators of 5th-year students of the medical university ( $p < 0.01$ ).

2. When assessing the gender characteristics of self-assessment of the quality of life, 5th-year female students in comparison with male showed statistically significant high values of the variable of role-based physical functioning due to physical condition ( $p < 0.03$ ), while among the interviewed first-year students, the components of the physical and psychological components of health did not demonstrate a significant dependence on gender ( $p > 0.05$ ).

3. A direct correlation was established between the variables of physical functioning and the physical component of health in the group of first-year respondents and a strong direct relationship between the variable of mental health and the integral indicator of the psychological component of health in undergraduates ( $r = 0.81$ ).

4. The research results obtained by us indicate the need for further in-depth study of the quality of life of medical university students using physiological and hygienic methods of health assessment to obtain information about the features of the quality of life of medical university students. Such methods can provide a more comprehensive understanding of the health status and needs of medical students and inform strategies to improve their quality of life.

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