

General

Assessment of the Relationship between Mental Health and Academic Achievement among Students in Kazakhstan

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Background

This study aimed to assess the relationship between mental health and academic achievements among 576 students from Astana and Aktobe, Kazakhstan. To achieve this goal, the following objectives were pursued: to evaluate the level of mental health and motivation within the studied sample, and to determine the level of correlation between the indicators. Additionally, deeper insights were attained by assessing the correlation between the indicators within the context of the field of study, age, nationality, gender, pre-university education level, and academic performance.

Methods

The study involved 576 students from L.N. Gumilyov Eurasian National University, Astana, and K. Zhubanov Aktobe Regional University, Aktobe. They were randomly selected for measuring the correlation between the two variables. Achievement motivation was measured using the Herman Achievement Motivation Test. Mental health was assessed using the 12-item General Health Questionnaire (GHQ-12). Potential predictors within the domains of the field of study, age, nationality, gender, pre-university education level, and academic performance were identified for the correlational analysis of the two indicators.

Results

The study revealed a significant negative correlation between students' achievement motivation and their mental health ($r = 0.0038$, $p < 0.05$). This implies that as the level of achievement motivation increases, the value of students' mental health decreases. Analysis of the correlational relationship with sample characteristics identified substantial differences in motivation and mental health depending on specialization, age, gender, pre-university education level, and academic performance. The variables most strongly correlated were motivation and mental health with age ($p = 0.004$ and $p = 0.001$), as well as gender with mental health ($p = 0.003$) and academic performance with motivation ($p = 0.009$).

Conclusions

The results deepen the community's understanding regarding the influencing factors and potential interactions with students' mental health and motivation.

INTRODUCTION

Education, encompassing various aspects of personality development, is recognized not only as a means of knowledge transmission but also as a critical element in shaping individual and collective paths of development.¹ Understanding the role of motivation in the educational process becomes even more pertinent as it pertains to the potential enhance-

ment of specific elements directly influencing the educational context.²

Motivation for learning is determined by a combination of internal and external factors that drive and sustain learning.³ In general, two types of motivation can be identified: intrinsic (interest, self-development) and extrinsic (grades, rewards). Factors influencing motivation encompass personal aspects (age, abilities), pedagogical influ-

ences (content and teaching methods), and the social environment (family expectations, peer influence).^{4,5} It is relevant to mention Abraham Maslow's theory of motivation, which defines the sequential formation of needs satisfaction: starting with the lowest level and only then can higher-level needs be activated.⁶ In this context, it should be noted that the attainment of higher levels of motivational hierarchy becomes significantly more complex at the level of the educational process, with psychological influences on motivation holding substantial importance in the educational domain.⁷ Reflection on academic motivation entails a deep analysis of psychological states during academic activities.⁸ This underscores the importance of implementing practices of interaction not only at the level of motivation but also in the context of the psychological well-being of learning subjects.⁹

Mental health is defined as an individual's psychological and emotional state, encompassing resilience to stressful situations, problem-solving efficiency, and positive relationships with others. It also implies the absence of mental disorders and the ability to socially adapt.^{10,11}

The COVID-19 pandemic has significantly negatively impacted the mental health of students, leading to heightened anxiety, depression, stress, and loneliness due to school closures, limited social interaction, uncertainty, and economic difficulties.¹² The closure of schools and universities resulted in a transition to distance learning, thereby defining a new format of interaction between teachers and students.¹³ Distance learning has posed challenges in terms of fostering students' intrinsic motivation.¹⁴ The lack of direct contact with instructors and peers may decrease the level of interest and self-discipline, thereby affecting the quality of learning and mental well-being.¹⁵ Furthermore, modern students constantly face various psychological stressors. Decreased mental well-being may influence students' motivation and learning effectiveness. Loss of interest, fatigue, and stress can lead to a decline in the desire to achieve high results.^{16,17} Copeland et al.¹⁸ identify the need for further research to better understand the pandemic's impact on students' mental health and to develop effective intervention strategies. The article also calls for immediate action, particularly from universities, governments, and other organizations, to support students' mental health by expanding access to mental health services and developing support programs within the educational environment.

Understanding the interrelationship between motivation, mental health, and the quality of education becomes particularly pertinent in contemporary conditions, as education and mental health emerge as key factors in educational transformations.¹⁹ In the context of motivation, it is important to consider intrinsic interest in learning, the desire to achieve high goals, and resilience to setbacks. The increase in anxiety and stress when transitioning to a new form of education can significantly impact student motivation.²⁰

In the educational context of Kazakhstan, rapid transformation underscores the necessity to examine the interplay between the motivational component of student suc-

cess and their mental health.²¹ New educational programs are geared towards developing critical thinking, 21st-century skills, and competencies essential for success in life. Changes in the education system, driven by significant global trends and challenges associated with the approaching pandemic, render this study particularly relevant.²² Hence, this current study is highly pertinent and innovative within the framework of the Kazakhstani educational system. It investigates the correlation between students' achievement motivation at L.N. Gumilyov Eurasian National University in Astana and K. Zhubanov Aktobe Regional University in Aktobe and their levels of mental health. Moreover, it transcends the boundaries of conventional academic achievement research, aiming to elucidate the psychological aspects of students' academic performance.

One of the primary reasons for its relevance is the contemporary period of global changes in the fields of education and social psychology, triggered by the COVID-19 pandemic. The new realities of the learning process and stressful conditions may influence students' mental health and motivation, thereby rendering this study even more imperative. Acknowledging the swift modernization of education in Kazakhstan, it is essential to consider new approaches to learning, necessitating a new level of student motivation and adaptation to new conditions. These transformations, aimed at fostering flexibility and autonomy, also exert certain psychological pressures on students.^{23,24}

This study aims to determine the relationship between achievement motivation among students at L.N. Gumilyov Eurasian National University in Astana and K. Zhubanov Aktobe Regional University in Aktobe and their levels of mental health. Within this framework, the following objectives were set:

- To measure the level of achievement motivation among students in the selected universities.
- To determine the level of mental health in the sample.
- To explore the relationship between students' mental health and their motivation for success.
- To investigate the correlation of these indicators within the context of field of study, age, nationality, gender, pre-university education level, and academic performance.

However, within the experimental framework, the following statistical hypothesis was formulated:

H0: The level of achievement motivation among students correlates with their mental health.

This statistical hypothesis introduces a unique element, emphasizing the existence of a correlation between motivation and mental health. Such an approach represents an important step towards understanding the underlying mechanisms interacting in the realm of psychological well-being and student learning. Studies of this nature contribute to the implementation of more effective approaches to supporting students in higher educational institutions in Kazakhstan.

Thus, this study aimed to assess the relationship between mental health and academic achievements among 576 students from the Aktobe region, Kazakhstan.

LITERATURE OVERVIEW

MOTIVATION FOR SUCCESS

Motivation is an internal state or force that sustains, directs, and preserves an individual's activity toward achieving a specific goal or satisfying a particular need.³ Motivation for learning is determined by a combination of internal and external factors that drive learning and determine its persistence. In general, two types of motivation can be distinguished: intrinsic (interest, self-development) and extrinsic (grades, rewards). Factors influencing motivation encompass personal aspects (age, abilities), pedagogical influences (content and teaching methods), and social environment (family expectations, peer influences).⁴ Motivation theories are considered to understand why people behave as they do and how this can be applied in the educational environment.⁵ According to Abraham Maslow's theory, individuals have a hierarchy of five basic needs: physiological, and safety needs, social needs, needs for belongingness and love, and needs for self-esteem and self-actualization. Motivation is initially stimulated by the lowest level, and only after satisfying these needs can higher-level needs be activated.⁶ In this context, educational programs can consider different levels of students' needs. For example, providing comfortable conditions for physiological needs, a safe learning environment for safety needs, facilitating interaction and communication for social needs and providing opportunities for self-development and self-expression for needs in self-esteem and self-actualization.⁷

On the other hand, Richard Ryan and Edward Deci's Self-Determination Theory posits that motivation is dependent on three basic needs: the need for competence, autonomy, and relatedness. Educational institutions can support student motivation by providing them with opportunities for choice, and skill development, and recognizing their autonomy in learning. Promoting the development of competence, autonomy, and social interaction can contribute to more sustainable student motivation.²⁵⁻²⁷

However, there exists a significant aspect of achievement motivation that plays a crucial role in the educational process. This implies students' striving for success, primarily involving the academic component. In this context, it is worth considering Attribution Theory, which examines how individuals explain their successes and failures, attributing causes to their outcomes.⁸ According to this theory, individuals tend to seek to understand why they achieved certain outcomes, known as attribution. Three main attributional dimensions determine how individuals interpret information about their achievements. Locus of control indicates whether a person believes they control their outcomes due to internal factors or they are dependent on external circumstances. Stability determines whether the causes remain constant over time or can change. Control-

ability indicates whether the causes of their outcomes can be altered or not.⁸

The article by Anderman²⁸ examines Achievement Motivation Theory and determines that individuals either strive for success or avoid it depending on their level of achievement motivation. The core tenets of the theory include the need for achievement, the expectation of success, and the value of success itself. Scholars establish that different individuals have varying levels of motivation, which may be influenced by both personal factors (such as abilities, self-esteem, and anxiety levels) and situational factors (task complexity, expectations from others, and support). A high level of achievement motivation can lead to improved performance in work and study, while a low level may result in avoidance of challenges and accomplishments.¹⁴ Moreover, the relationship between achievement motivation and other variables depends on various factors, particularly cultural and specialized ones.

MENTAL HEALTH IN EDUCATION

Mental health is defined as an individual's psychological and emotional state, encompassing resilience to stressful situations, problem-solving effectiveness, and positive relationships with others. It also involves the absence of mental disorders and the ability to socially adapt.¹⁰ Mental health encompasses various aspects such as emotional resilience, self-acceptance, self-realization ability, as well as the capacity to manage one's own emotions and relationships with others. This concept is a crucial element of overall physical and psychological well-being.¹¹

The COVID-19 pandemic has had a significant negative impact on student's mental health, leading to increased anxiety, depression, stress, and loneliness due to school closures, limited social interaction, uncertainty, and economic difficulties.¹² Copeland et al.¹⁸ identify the need for further research to better understand the pandemic's impact on students' mental health and to develop effective intervention strategies. The article also calls for immediate action, particularly from universities, governments, and other organizations, to support student mental health by expanding access to mental health services and developing supportive programs in the educational environment.

The quality of education has emerged as a key factor as it contributes to the development of stress management skills and other aspects of mental health.²⁹ The findings of the study by Jiang et al.³⁰ indicate that individuals with higher education levels have higher levels of mental health compared to those with lower levels of education. The mechanisms through which education influences mental health include the development of cognitive skills, enhancement of self-esteem, reduction of stress levels, and expansion of social connections. However, the level of achievement motivation in the context of this relationship remains insufficiently researched. The use of additional incentives to improve mental health often involves the integration of cutting-edge technologies or methods.³¹ One such influence is the impact of cinema interventions on adolescent mental health, based on a systematic review of research. The review findings establish that cinema interventions ef-

fectively influence adolescents' knowledge, skills, and attitudes toward mental health. Various types of cinema interventions have been explored, including watching films and creating their own. Factors influencing effectiveness include the adolescents' age, the film's theme, format, and the presence of a facilitator.³²

PROBLEM STATEMENT

This study is highly relevant and innovative in the context of the Kazakhstani educational system as it aims to explore the relationship between students' achievement motivation at the L.N. Gumilyov Eurasian National University in Astana and the Aktobe Regional University K. Zhubanova in Aktobe with their level of mental health. It transcends conventional academic achievement studies by aiming to uncover the psychological aspects of student success.

One of the main reasons for its relevance is the current period of global changes in the field of education and social psychology, brought about by the COVID-19 pandemic. The new realities of the educational process and stressful conditions may impact students' mental health and motivation, making this study even more significant.

The study adopts an innovative approach by employing a comprehensive methodology. By not only assessing the levels of motivation and academic performance but also considering mental health, the research expands beyond the traditional boundaries of evaluating student experiences.

Thus, the current study aims to determine the relationship between achievement motivation among students at the L.N. Gumilyov Eurasian National University in Astana, and the Aktobe Regional University K. Zhubanova in Aktobe, and their level of mental health. Within this framework, the following objectives were set:

- To measure the level of achievement motivation among students in the sample university.
- To determine the level of mental health within the sample.
- To examine the correlation between students' mental health and their motivation for success.
- To explore the correlation of these indicators within the context of their field of study, age, nationality, gender, pre-university education level, and academic performance.

However, within the framework of the experiment, the following statistical hypothesis was formulated:

H0: The level of achievement motivation among students correlates with their mental health.

The statistical hypothesis introduces a unique element, emphasizing the existence of a correlation between motivation and mental health. Such an approach represents an important step towards understanding the underlying mechanisms that interact in the realm of students' psychological well-being and learning. Research of this nature may contribute to the implementation of more effective approaches to supporting students in Kazakhstani higher education institutions.

METHODS

SAMPLE

The study involved 576 students from the L.N. Gumilyov Eurasian National University, located in Astana, and Aktobe Regional University K. Zhubanova in Aktobe. The sample was selected randomly, taking into account an equal number of students from 12 different faculties: Natural Sciences, Economics, Philology, Law, Social Sciences, Mechanical-Mathematical, Journalism and Political Science, Transport and Energy, Architectural and Construction, International Relations, Physical-Technical, and Historical. This ensured the differentiation of results and the investigation of dependencies considering the students' majors. A detailed overview of the sample is presented in [Table 1](#).

All students underwent psychological screening conducted by a student medical officer.

Academic performance data for the students were based on certification results for the 2nd semester of the 2022-2023 academic year.

The adequacy of the sample was verified using the Cochran test ($n = (z^2 * p * q) / e^2$) with a confidence level of 95% and a margin of error of 5%, where $p=0.7$.

RESEARCH DESIGN

The study was conducted in February-March 2023.

It aimed to investigate the correlation between the variables of academic achievement motivation and the mental health of students. The experiment proceeded through several stages ([Figure 1](#)).

Initially, an appropriate sample and methodological foundations for the research were prepared. Subsequently, respondents were tested using two questionnaires assessing their level of motivation and psychological well-being. This involved approximately 1 week of work. The results were then interpreted and analyzed using statistical tools.

All stages were gradual and mutually dependent, rendering the implementation of one without the other impossible. For the analysis of factors, all characteristics from [Table 1](#) were considered. Before the study, respondents completed a personal questionnaire. The level of academic success was determined based on the average grade obtained from the results of the final session of the first semester (2022-2023 academic year).

The testing was conducted within university courses on standardizing learning time and conditions. The questionnaires were in the format of Google Forms with personalized access for research participants. Both questionnaires were administered on the same day, sequentially. However, all respondents completed the questionnaires simultaneously.

Students underwent testing within their academic groups. To oversee and assist students in each group, one mentor was assigned. Since the study involved 5 faculties, comprising 20 academic groups, 20 mentors were allocated. They performed supervisory functions for these groups during the educational process.

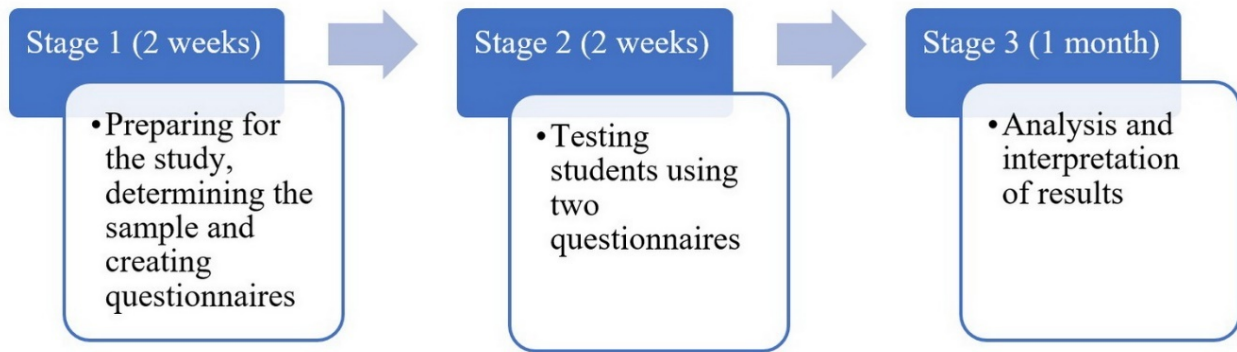


Figure 1. Sample Characteristics.

Source: Own development

Analysis and interpretation of the work were anticipated to take 3 weeks.

SURVEY

All stages were gradual and made it impossible to implement one without the other. For analysis of the factors, all indicators from [Table 1](#) were taken. Before the commencement of the study, respondents filled out a personal-ity questionnaire.

Testing was conducted within the framework of university courses to standardize the time and conditions of the study. The questionnaires were in Google Forms format with personalized access for research participants. Both questionnaires were implemented on the same day, sequentially.

Students underwent testing within their academic groups. For the control and assistance of the students in each group, one mentor was assigned. Since the study involved 5 faculties comprising 20 academic groups, 20 mentors were provided. They acted as supervisors for these groups during the learning process.

To assess the level of mental health in the study, the General Health Questionnaire consisting of 12 items (GHQ-12) was utilized. This tool serves as a rapid screening instrument for mental health, comprising 12 questions that evaluate levels of stress and emotional discomfort. The questions pertain to aspects such as anxiety, depression, attentional focus, and overall well-being. GHQ-12 is widely employed in clinical and research settings to detect symptoms of mental disorders and assess general mental state.

Additionally, we determined the level of motivation using the Herman Test. This psychological instrument is designed to assess an individual's level of aspiration towards success and achievement of set goals, which is particularly optimal within the educational domain. The test comprises 30 tasks aimed at identifying the degree of motivation associated with achievements and success in various life spheres.

DATA ANALYSIS

Both questionnaires were checked for reliability using Cronbach's alpha criterion.³³ For this, each questionnaire was tested with four repeated measurements. Hermans' Test: 0.86; 0.79; 0.85; 0.81. Thus, the average score is 0.8275. GHQ-12 measurements: 0.91; 0.88; 0.83; 0.83; 0.83. Therefore, 0.905. Thus, both questionnaires are reliable for the current study.

The relationship between variables was measured using the Pearson criterion to determine the relationship between the investigated indicators. Additionally, parametric tests such as ANOVA and the t-test were used to investigate the factors.

STATISTIC TOOLS

The analysis was conducted using Microsoft Excel and SPSS.

ETHICAL ISSUES

The study was conducted following the requirements of the ethics committee of the institution under investigation (ethics committee code: 3527/21). The ethics committee reviewed and approved the research protocol according to established standards, ensuring the ethical aspect of this work. All participants in the experiment were informed of their rights, and signed consent forms for participation and data processing, thereby ensuring their informed participation in the research. In accordance with defined principles of confidentiality, the provided data are confidential and will be used solely within the scope of the research.

LIMITATIONS

A limitation of the study is the sample from only two educational institutions in Kazakhstan, which renders the results contextualized and insufficiently universal for generalization to other regions. The research focuses solely on a limited set of factors, ignoring marital status, socioeconomic status, and other potentially influential variables. The research sample is limited in size, thereby hindering its

Table 1. Sample Characteristics (N=576).

Characteristics	N	%
Faculty		
Faculty of Natural Sciences	48	8.33
Faculty of Economics	48	8.33
Faculty of Philology	48	8.33
Faculty of Law	48	8.33
Faculty of Social Sciences	48	8.33
Faculty of Mechanical-Mathematical Sciences	48	8.33
Faculty of Journalism and Political Science	48	8.33
Faculty of Transport and Energy	48	8.33
Faculty of Architecture and Construction	48	8.33
Faculty of International Relations	48	8.33
Faculty of Physical-Technical Sciences	48	8.33
Faculty of History	48	8.33
Age		
18-20 years	132	22.92
21-23 years	87	15.10
24-26 years	140	24.31
26+ years	217	37.67
Ethnicity		
Kazakhs	495	85.76
Russians	73	12.67
N/A	8	1.39
Gender		
Female	261	45.31
Male	315	54.69
Pre-university education level		
Secondary education (complete)	258	44.79
With work experience (1-2 years)	128	22.22
Specialized secondary education	150	26.04
N/A	40	6.94
Level of academic achievement		
From A to A-	196	34.03
From B+ to B-	248	43.06
From C+ to C-	102	17.71
N/A	30	5.21

application to broader populations or the scalability of results. The dependency identified in the study does not account for external factors that may influence the outcomes and may necessitate further investigation for a comprehensive understanding of the context. It is important to note that the lack of representation of various geographical, cultural, and socioeconomic contexts restricts the overall generality of the findings.

Table 2. Results of Hermans' Test and GHQ-12.

Variables	Mean	SD
Hermans' Test	78.6	10.93
GHQ-12	21.2	7.18

$p < .05$

RESULTS

MOTIVATION AND MENTAL HEALTH: LEVEL

After measuring students' motivation for success and their mental health within the educational process, the following data were obtained (Table 2).

MOTIVATION AND MENTAL HEALTH: CORRELATION

In the context of motivation, the average score among student achievements tends towards a higher value while remaining at an intermediate level. However, the dispersion of scores amounts to approximately 11 points. Additionally, the assessment of students' mental health is also determined to be at a sufficiently average level, indicating potential for improvement. Concurrently, the standard deviation approaches nearly 8 points, which, in conjunction with the overall grade range, is relatively high. The data exhibit a greater dispersion around the mean value.

The correlation between indicators is presented in Table 3.

MOTIVATION AND MENTAL HEALTH: RELATIONSHIP WITH OTHER VARIABLES

The demonstrated calculations indicate a significant relationship between the investigated changes ($r = 0.0038$, with $p < 0.05$). In this context, a negative nature of the association is noted. Therefore, with an increase in motivation for success, the values of respondents' mental health decreases. Conversely, this is associated with the peculiarity of the chosen methodological approach for assessing indicators, where a high level of mental health is represented by lower scores. However, it is worth delving into the factorial correlation values in more detail (see Table 4).

The data indicate heterogeneity independence according to the points outlined. Generally, speaking of a strong association between the two indicators, it is noteworthy to mention the demographic data of age and specialty. Moreover, while the association weakens somewhat with increasing age overall, it still demonstrates a strong value. However, the data regarding specialties are lower, yet they imply a correlation with both variables (motivation for success - $r = 0.017$, mental health - $r = 0.046$). Regarding gender differences, the variable of mental health also correlates to a sufficient degree, thereby establishing a connection. Nonetheless, sufficiently high correlation coefficients ($r = 0.009$) are demonstrated within the analysis of academic performance, albeit when analyzing mental health, such a

Table 3. Pearson correlation for motivation for success and mental health.

		Motivation for success	Mental health
Motivation for success	Pearson correlation	1	-.839
	Sig. (2-tailed)	.	.0038
	N	576	576
Mental health	Pearson correlation	-.839	1
	Sig. (2-tailed)	.0038	.
	N	576	576

$p < .05$

strong association is not excluded, though it remains significant at the level of $p < 0.05$.

Variables minimally correlated with nationality and pre-university education level.

Considering the specific outcomes, it can be asserted that there is a high correlation between students' motivation for success and their mental health. Hence, there are sufficient grounds to reject the null hypothesis.

DISCUSSION

The obtained results indicate a high correlation between the values of students' motivation for success and their mental health. The obtained results also indicate correlations with other variables, such as age, gender, academic performance, etc., where the strongest correlations are observed with academic performance and age. Mental disorders are prevalent among college students, typically onset before college entry, with preschool-onset disorders linked to college dropout and usually left untreated. According to such studies, Anderman²⁸ emphasize the relevance of examining the psychological well-being of students. Engaging in consistent screening and replicating results contributes to enhancing students' confidence in their well-being and promotes better learning outcomes. In addition to the current findings, highlighting the high correlation between psychological health and academic success, achievements should be mentioned.¹⁴ Considering their observations, it was particularly noted that deteriorating mental health conditions in the first semester of university education significantly implied an increased risk of poor academic performance. This opens up a new area of research, reinforcing the importance of automating psychological health monitoring not only during education but also prior to university enrollment.

Comparing the current results with the work of Copeland et al.,¹⁸ overall, increased stress may have intensified the correlation of this indicator with other variables and underscores the relevance of its investigation for future researchers. Perhaps, prioritizing vectors for automating testing should be determined or focusing attention on other derivatives of imbalance.

Similar findings were reported in a study conducted by Iranian scholars. Mahdavi et al.³⁴ determined that students with a high level of motivation engage more in their studies, attend classes more actively, participate in discussions,

and set high goals. They exhibit better mental health and are happier, more optimistic, and emotionally resilient. Similar results were obtained within the framework of the current study, albeit with a Kazakhstani sample. Of particular interest are the findings regarding the association between mental health and academic performance, partially explained by the level of motivation. This article also reflects a significant correlation with academic performance. However, it should be noted that in this context, more extensive analyses of dependencies should be conducted. The current study analyzes a diverse set of factors that may correlate. In this context, the influence of pre-university education level was further delineated.

In addition to the significant correlation, Kotera and Ting³⁵ also identify specific predictors of the correlation between the variables under investigation. Students with high levels of engagement, motivation, and well-being demonstrate better mental health. Well-being emerged as the strongest predictor of mental health, followed by engagement and motivation. Well-being mediates the relationship between self-well-being and mental health. Students with high self-well-being coped better with stress, anxiety, and depression.

Thus, it should be noted that correlational dependence is observed in several studies. Moreover, investigating regional predictors that are relevant to enhancing and correlating with variables of motivation or mental health is important. Potential links between variables are influenced by the external environment, particularly concerning the COVID-19 pandemic. Transitioning to remote learning, students reported decreased motivation and emotional involvement and began to worry about possible unfairness during assessment. However, no significant correlation was found between achievements and time spent learning at home. Within the framework of the current study, it can be asserted that it is important to consider the limited sample and the lack of consideration of additional factors, such as individual differences or support from teachers, for a more objective understanding of the impact of remote learning on students.³⁶

In their study, Gueldner et al.³⁷ discovered that social-emotional learning (SEL) programs are marked by a significant influence on students' mental health and academic performance. Specifically, SEL enhances emotional self-awareness, self-control, social awareness, interpersonal skills, and responsible decision-making. Additionally, they

Table 4. Relationship between Hermans' Test, GHQ-12, and demographic profiles.

Variables	Hermans' Test (mot.)			GHQ-12 (ment.)		
	Mean	SD	p	Mean	SD	p
Faculty						
Faculty of Natural Sciences	96.74	15.15	.017	28.14	6.16	.046
Faculty of Economics	88.37	6.98		21.93	1.98	
Faculty of Philology	71.35	11.34		22.9	2.05	
Faculty of Law	69.44	13.25		26.18	7.1	
Faculty of Social Sciences	83.13	5.44		19.53	3.83	
Faculty of Mechanical-Mathematical Sciences	81.22	3.56		18.16	4.77	
Faculty of Journalism and Political Science	79.09	9.03		22.83	6.01	
Faculty of Transport and Energy	83.25	5.98		21.47	4.99	
Faculty of Architecture and Construction	73.44	15.33		20.36	4.53	
Faculty of International Relations	77.69	12.84		19.88	3.95	
Faculty of Physical-Technical Sciences	80.71	2.78		24.31	8.49	
Faculty of History	91.34	16.93		25.04	10.11	
Age						
18-20 years	99.45	10.9	.004	34.3	14.3	.001
21-23 years	85.09	6.74		26.58	3.96	
24-26 years	66.37	12.19		19.89	4.66	
26+ years	63.28	15.21		15.36	12.08	
Ethnicity						
Kazakhs	74.33	2.12	.933	20.76	1.45	.842
Russians	79.17	2.72		22.47	3.03	
N/A	75.84	0.61		22.04	3.94	
Gender						
Female	81.97	4.13	.281	25.82	6.73	.003
Male	73.71	8.31		18.14	4.22	
Pre-university education level						
Secondary education (complete)	64.58	2.94	.714	23.48	8.78	0.294
With work experience (1-2 years)	56.72	5.03		21.22	10.34	
Specialized secondary education	68.04	8.16		20.17	11.39	
N/A	74.39	9.99		20.86	12.45	
Level of academic achievement						
From A to A-	103.56	24.11	.009	31.26	9.44	.0283
From B+ to B-	105.23	29.72		26.85	1.89	
From C+ to C-	61.39	10.69		25.14	2.59	
N/A	52.78	12.27		21.61	3.76	

p < .05

reduce students' levels of anxiety and depression and increase their motivation, engagement, and academic achievement. An important feature is that SEL programs have proven effective for students of different ages and socioeconomic statuses. It is also noteworthy that these programs can be implemented by teachers without specialized training, making them accessible to a wide range of educators. We see potential for further research into the impact on the variables under study from diverse interventions. On the other hand, the application of external stimuli

indicates the use of non-conventional methods to enhance mental health and motivation. It is indicated that the use of humor in mathematics instruction significantly impacts students with learning difficulties. Bishara³⁸ confirms that incorporating humor leads to increased motivation and improved academic achievement in mathematics among this group of students. It is also important to note that the use of humor contributed to reduced anxiety and improved attention during mathematics lessons for the researched audience. Thus, in further research, attention should be paid

to opportunities for strengthening the connection between variables. The article by Vaknin-Nusbaum and Tuckwiller³⁹ points to a positive association between motivation to read and reading success. It is also found that school well-being correlates with reading achievement. Motivation to read partially explains the link between school well-being and reading success, emphasizing the importance of psychological state and motivation in reading achievement.

Aksu and Ayar⁴⁰ identify the positive influence of visualization meditation on the mental health and motivation of medical students. The study revealed that this practice reduces levels of depression, anxiety, and stress, while also increasing achievement motivation. Students who incorporated visualization meditation also reported improvements in sleep, concentration, and emotional state, with this practice being safe and free of side effects. Other research emphasizes the presence of a link between mental health symptoms and academic performance. Symptoms of anxiety and depression have been found to negatively affect academic outcomes, reducing test scores and increasing the likelihood of absences and dropouts. Factors that may exacerbate this impact include lack of family and friends support, stigma surrounding mental illness, and limited access to assistance. Proposed strategies to support such students include early detection and treatment, psychosocial support, and adaptation of the learning environment. It is important to note that research in this area is ongoing, and further studies are needed for a deeper understanding of the complex relationships between mental health and academic performance.^{41,42}

A limitation of the study is the sample from only two educational institutions in Kazakhstan, which renders the results contextualized and insufficiently universal for generalization to other regions. The research focuses solely on a limited set of factors, ignoring marital status, socioeconomic status, and other potentially influential variables. The research sample is limited in size, thereby hindering its application to broader populations or the scalability of results. The dependency identified in the study does not account for external factors that may influence the outcomes and may necessitate further investigation for a comprehensive understanding of the context. It is important to note that the lack of representation of various geographical, cultural, and socioeconomic contexts restricts the overall generality of the findings.

CONCLUSION

The study revealed a significant negative correlation between students' achievement motivation and their level of mental health ($r = 0.0038$, $p < 0.05$). The average achievement score of students, measured by Hermans' Test, was 78.6 with a standard deviation of 10.93, indicating a moderate level of motivation. The results of the GHQ-12 showed a mean value of students' mental health at 21.2, with a standard deviation of 7.18.

Analysis of the correlation with sample characteristics revealed significant differences in motivation and mental health depending on specialization, age, gender, pre-university

education level, and academic achievement. For instance, psychology and social pedagogy students had an average Hermans' Test score of 96.74, indicating a high level of motivation, while mechanical-mathematical faculty students had a lower score of 69.44. The average GHQ-12 score for law faculty students was 21.93, whereas for social sciences faculty students, it was 22.9.

Through Pearson correlation coefficients, it has been established that as achievement motivation increases, there is a negative correlation with students' mental health ($r = -0.839$, $p = 0.0038$), indicating that increasing motivation may affect a reduction in their mental well-being.

Theoretically, the obtained results help to elucidate the psychosocial aspects of the interaction between achievement motivation and mental health in the educational environment. Practically, this study may serve as a basis for developing programs and strategies for psychosocial support for students aimed at balanced development and support of their mental state.

For further research, it is recommended to conduct a more detailed examination of the correlation between achievement motivation and various psychosocial or academic variables, such as stress level, social support, or quality of student life. This may help gain a deeper understanding of the influence of different factors on students' mental health.

Regarding digital tools, the use of online surveys and monitoring platforms for data collection and studying the dynamics of students' mental health is recommended. Developing mobile applications for psychological support and increasing self-awareness regarding one's motivation can be an effective tool for improving the mental well-being of the student community.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interest.

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DATA AVAILABILITY

All data generated or analysed during this study are included in this published article.

AUTHORS' CONTRIBUTIONS

Conceptualization; Data curation – G.Y.; Formal analysis Investigation; Methodology – B.B.; Project administration Resources – U.T.; Software; Supervision – L.K.; Validation; Writing – original draft – G.J.; Visualization; Writing – review and editing – B.Z.

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ETHICAL CONSIDERATIONS

The study was conducted following the requirements of the ethics committee of the institution under investigation (ethics committee code: 3527/21 as of 01.09.2022). All participants in the experiment were informed of their rights, and signed consent forms for participation and data pro-

cessing, thereby ensuring their informed participation in the research.

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