

Conscious Self-Regulation and Psychological Well-Being in Students Experiencing Stress: A Cross-Sectional Study

Связь осознанной саморегуляции и психологического благополучия студентов в условиях стресса: поперечное исследование

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Original research

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ABSTRACT

BACKGROUND: Stress-induced mental disorders have been increasingly reported in young people worldwide. This trend highlights the need to assess stress levels in students and to identify resources to overcome stress. The role of conscious self-regulation in this process remains insufficiently studied.

AIM: To evaluate the role of conscious self-regulation in maintaining the psychological well-being of students in relation to acute, chronic, and perceived stress.

METHODS: Students from secondary vocational and higher education institutions participated in the survey. V.I. Morosanova's Self-Regulation Profile Questionnaire, the Well-Being Manifestations Measurement Scale, the Acute and Chronic Stress questionnaire, and the Perceived Stress Scale questionnaire were used.

RESULTS: The sample comprised 2,189 students in 13 cities. The conscious self-regulation score was found to be negatively correlated with the scores for all types of stress (r ranged from -0.13 to -0.48 , $p \leq 0.001$) and positively correlated with psychological well-being ($r=0.55$, $p \leq 0.001$). In a multivariate regression analysis, conscious self-regulation was associated with higher psychological well-being ($\beta=0.26$) after the model included indicators of acute, chronic, and perceived stress (β values ranged from -0.26 to -0.13).

CONCLUSION: Conscious self-regulation mitigates the negative impact of acute, chronic, and perceived stress on students' psychological well-being.

АННОТАЦИЯ

ВВЕДЕНИЕ: Рост распространенности психических расстройств стрессовой этиологии среди молодежи отмечается повсеместно. В этих условиях существует запрос на оценку стресса у студентов и выявление значимых ресурсов его преодоления. При этом роль осознанной саморегуляции в данном контексте изучена недостаточно.

ЦЕЛЬ: Изучение роли осознанной саморегуляции и психологического благополучия у студентов в связи с острым, хроническим и воспринимаемым стрессом.

МЕТОДЫ: В исследовании приняли участие студенты средних специальных и высших учебных заведений. Использованы опросники «Стиль саморегуляции поведения», «Шкала проявлений психологического благополучия», «Острый и хронический стресс» и «Шкала воспринимаемого стресса».

РЕЗУЛЬТАТЫ: Опрошено 2189 студентов в 13 городах. Выявлена отрицательная корреляция оценки осознанной саморегуляции с оценками всех видов стресса (r от $-0,13$ до $-0,48$, $p \leq 0,001$) и положительная — с оценкой психологического благополучия ($r=0,55$, $p \leq 0,001$). По данным многофакторного регрессионного анализа осознанная саморегуляция была связана с более высокой оценкой психологического благополучия ($\beta=0,26$) даже при включении в модель показателей острого, хронического и воспринимаемого стресса (β от $-0,26$ до $-0,13$).

ЗАКЛЮЧЕНИЕ: Осознанная саморегуляция достижения целей ограничивает негативное воздействие стресса (острого, хронического, и воспринимаемого) на психологическое благополучие студентов.

Keywords: *students; conscious self-regulation; psychological well-being; perceived stress; acute stress; chronic stress*

Ключевые слова: *студенты; осознанная саморегуляция; психологическое благополучие; воспринимаемый стресс; острый стресс; хронический стресс*

INTRODUCTION

Contemporary society is marked by high uncertainty, instability, and tension. In this context, the problem of stress and limited resources to overcome it becomes particularly important. Both Russian [1] and foreign [2] researchers report an increase in stress levels in young people, especially among students. Academic stress has been shown to exceed students' coping capacity [3], which negatively affects the quality of life [4], physical and mental health [5], academic performance [6, 7], and psychological well-being [8, 9]. In addition to academic stressors, students are exposed to a wide range of economic and political factors and difficulties in forming personal relationships [10]. As a result, the prevalence of psychological and emotional disorders, suicidal behavior, and somatic diseases among young people is increasing steadily [11, 12].

An important psychological resource for achieving life goals is conscious self-regulation, defined as a high-level regulatory mechanism and a reflexive mechanism by which a person initiates, organizes, and sustains their activity in order to solve problems [13]. Conscious self-regulation is realized through cognitive-operational competencies (planning a goal, identifying key conditions for its achievement, programming a sequence of actions, evaluating the result, and comparing it with the planned one) and personality-regulatory competencies (flexibility, reliability, perseverance, responsibility, initiative), for

planning goals, modeling significant conditions for their achievement, planning action sequences, evaluating and adjusting their results [13]. The system of these competencies is a mechanism for the mobilization and integration of all the cognitive, emotional, personal resources of the individual aimed at achieving set goals [10]. Their development level has a considerable impact on the success, consistency, productivity, and the outcomes of actions a person trying to achieve goal-directed behavior [10]. It has also been shown that the higher the level of self-regulation, the more effectively individuals cope with self-organization challenges when solving various tasks and overcoming anxiety caused by situations involving uncertainty [14, 15].

A high level of self-regulation mitigates the negative impact of stressors on coping strategies and academic performance [16, 17]. Self-regulation has been shown to mediate the effects of stress on well-being: under high stress, the ability to self-regulate helps maintain well-being and reduces its adverse effects [18–20]. Stress levels also affected the relationship between self-regulation and psychological well-being in students. Moderate stress can be associated with a more objective assessment of factors that support coping, while high or low stress levels lead to underestimating or overestimating the difficulties [21]. However, the mediating role of self-regulation has been studied in relation to perceived [18–20] and self-imposed

stress [22], which increase tension through behaviors such as procrastination, perfectionism, excessive self-criticism, problem-solving avoidance, negative thinking, and creating excessive demands and obligations. Self-regulation of eating behavior [23] and mindfulness practices implemented through mobile applications [24] have also been identified as mediators in maintaining well-being during stress.

No studies were found on the relationship between self-regulation and psychological well-being in students experiencing acute and chronic stress. Previous studies of these types of stress have demonstrated their impact on students' quality of life, particularly regarding aspects of physical health [21, 25]. We hypothesized that high levels of acute and chronic stress are associated with difficulties in self-regulation, which leads to impairment of psychological well-being.

This study aimed to evaluate the role of conscious self-regulation in maintaining the psychological well-being of students in relation to acute, chronic, and perceived stress. The following objectives of the survey were identified:

- to analyze the relationship of conscious self-regulation and psychological well-being with the experience of acute, chronic, and perceived stress;
- to compare the levels of conscious self-regulation and psychological well-being in groups of students with different stress levels;
- to study the relationship of conscious self-regulation with the psychological well-being of students when controlling stress levels.

METHODS

Study design

The study was conducted using a cross-sectional design.

Setting

The survey was conducted in November 2024 across 13 Russian cities in 9 secondary vocational and 10 higher education institutions (Appendix 1 in the Supplementary). The survey sample was assembled according to the state project assignment and in collaboration with regional educational organizations. First, cities were selected to ensure broad geographical representation — from the western region of Kaliningrad to the Far East (Petropavlovsk-Kamchatsky and Khabarovsk) — and to include both megacities and medium-sized cities. Such a territorial distribution minimizes the risk of systematic error resulting

from the local context. Then, in each city, educational institutions were chosen within a wide range of profiles and specializations, from culture and the humanities to engineering, medicine, and pedagogy.

Sample characteristics

The survey included first-, second-, and third-year students of secondary vocational and higher education institutions who attended classes on the day of the survey and completed the questionnaires in full. No formal exclusion or non-inclusion criteria were predefined.

The selection of junior students of the higher education institutions and students of secondary vocational institutions for participation in the survey was because of their difference from older students in the maturity of psychological and personal resources. This manifests itself in greater vulnerability, difficulties in adaptation, and difficulties in dealing with educational and life situations [26]. Junior students demonstrate lower levels of psychological well-being compared to senior students. This can be seen in lower satisfaction with life, less developed self-regulation, personal growth, and environmental management skills; and less clear goals in life [27].

Data collection methods

The survey used questionnaires with screening forms in Russian and validated on student samples.

Assessment of conscious self-regulation

The initial version of the V.I. Morosanova's Self-Regulation Profile Questionnaire developed in Russian comprises an instruction and a set of 28 statements [28]. Respondents express their attitude to the statements using five responses (Appendix 2 in the Supplementary). These are then processed on seven subscales (four for each scale): "Planning of goals", "Modeling of significant conditions for achieving goals", "Programming actions", "Evaluating results", "Flexibility", "Reliability", and "Perseverance". The total conscious self-regulation score is achieved by summing up the scores for all subscales. Scores may range from 28 to 140. Cronbach's alpha for the questionnaire reaches 0.85 for the total scale score and ranges from 0.64 to 0.78 across the subscales [28].

Assessment of psychological well-being

The Well-Being Manifestations Measurement Scale assessed the hedonistic and eudemonistic aspects of students' psychological well-being [29]. The scale was adapted in

Russian and validated on a sample of Russian students [30]. The incentive version of the questionnaire comprised an instruction and a set of 25 statements. Respondents were asked to assess their condition over the past month using four statement options. Responses were processed on the following six subscales: "Control of self and events" (4 statements), "Happiness" (5 statements), "Sociability" (4 statements), "Social involvement" (4 statements), "Self-esteem" (4 statements), and "Mental balance" (4 statements). The total psychological well-being score is calculated by summing up the scores for all subscales. Scores may range from 25 to 125. Cronbach's alpha for the subscales of the adapted questionnaire ranges from 0.77 to 0.88, and is 0.95 for the total well-being score [29].

Assessment of acute and chronic stress

The presence and severity of stress was assessed using the Acute and Chronic Stress questionnaire developed in Russian (Appendix 3 in the Supplementary). The questionnaire included two scales: "Acute stress" and "Chronic stress" [31]. For the acute stress scale, the initial version of the questionnaire comprised an instruction and 12 statements forming six subscales (two statements for each subscale): "Physiological discomfort", "Cognitive tension", "Emotional tension", "Difficulties in communication", "Difficulties in behavior/performance", and "Overall well-being". Respondents were offered four options. The total acute stress score was calculated by totaling the scores for all subscales. Scores may range from 12 to 48. Cronbach's alpha ranges from 0.57 to 0.75 for the questionnaire subscales and is 0.83 for the total acute stress score [31].

For the chronic stress scale, the initial version of the questionnaire comprised an instruction and 18 statements forming six subscales (three statements for each subscale): "Anxiety", "Depression", "Aggression", "Asthenia", "Physiological discomfort", and "Sleep disorders". Respondents were offered four options. The total chronic stress score was calculated by summing up the scores for all subscales. Scores may range from 18 to 72. Cronbach's alpha ranges from 0.68 to 0.76 for the questionnaire subscales and is 0.89 for the total chronic stress score [31].

Assessment of perceived stress

Perceived stress was assessed using the Perceived Stress Scale (PSS-10) [32]. The questionnaire was adapted in Russian and validated on a sample of adults (aged 18–78

years) [33]. The initial version of the PSS-10 questionnaire comprised an instruction and 10 statements forming two subscales: "Distress" (6 statements) and "Stress coping level" (4 statements). Respondents were offered five options. The total overall perceived stress score was calculated by totaling the scores on the subscales. Scores may range from 0 to 40. Cronbach's alpha values were 0.85 for the distress scale, 0.76 for the stress coping level scale, and 0.83 for the total score [33].

Survey administration

The survey was conducted on the Testograh platform¹ during the time allocated for scheduled activities, under the supervision of a teacher. No special training or instruction was given to the teachers. Access to the questionnaires was provided individually, via a direct link to the project page. The page could be accessed from any device available to the participants (smartphone, tablet, laptop). The survey was cross-sectional. To exclude repeated completion of the survey, the algorithms of the Testograh platform did not allow survey completion via the same link twice. The completion time was not limited. Completing the questionnaires took about 20 minutes (the actual completion time was not recorded).

Questionnaires were presented in the following sequence: V.I. Morosanova's Self-Regulation Profile Questionnaire, the Well-Being Manifestations Measurement Scale, the Acute and Chronic Stress questionnaire, and the Perceived Stress Scale. After the questionnaires were completed, the Testograh platform system carried out automatic verification of the completeness of the entered data to ensure that all questionnaire items were completed. If missing responses were detected, the system returned the respondent to this point. After the survey, the received responses were automatically saved in the protected Testograh platform cloud database.

Statistical analysis

Analysis of distribution normality, basic statistical calculations, and cluster analysis were performed using JASP 0.19.3 (The JASP Team, The Netherlands), and regression analysis was conducted using STATISTICA version 8.0 (StatSoft, USA).

The distribution normality test was performed using the Shapiro-Wilk test. The distribution of all quantitative parameters was non-normal. As a result, the quantitative characteristics are described using the arithmetic mean

¹ Available from: <https://www.testograf.ru/>

(standard deviation), median (Q1; Q3), minimum and maximum values.

The relationship of quantitative characteristics was studied using correlation analysis with the calculation of the Spearman correlation coefficient (r). Correlation coefficients in the range from 0 to ± 0.30 indicated a weak correlation; ± 0.31 – 0.69 , a moderate correlation; ± 0.70 – 1.00 , a strong correlation [34].

The total sample was divided into stress groups using k-means cluster analysis. Clusters were formed based on calculated Euclidean distances to minimize intra-cluster variance and maximize inter-cluster differences. The total acute, chronic, and perceived stress scores were selected as variables for clustering. Based on the results of the analysis of variance, a three-cluster solution was selected, with each stress type contributing significantly ($p \leq 0.001$); the clusters were formed over three iterations. The ANOVA test was used to compare self-regulation and psychological well-being scores between clusters.

A stepwise linear regression analysis was performed to examine the relationship between conscious self-regulation and students' psychological well-being while accounting for stress levels. The psychological well-being of students (the total score) was used as the dependent variable. The following parameters were independent variables (predictors): the total conscious self-regulation score, as well as the total acute, chronic, and perceived stress scores. Regression analysis was carried out in stages: in the first stage, only one predictor (the most significant one) was included in the model; at each subsequent stage, new variables were added to the model. The selection of predictors was carried out automatically, using the stepwise selection algorithm, which made it possible to determine the contribution of each of the variables to the explanation of the variance of the dependent variable. This approach ensured consistent model construction, starting with the most relevant predictors and allowing comparison of results across different combinations.

Adjusted R^2 was used for model estimation and comparison, because simple R^2 always increases when new variables are added. Due to the correlation of independent variables, a multicollinearity test was performed with the calculation of the variance inflation factor (VIF) and tolerance. At $VIF < 5$, we assumed that multicollinearity was absent or minimal and the variable was acceptable for inclusion in the model; $VIF 5$ – 10 meant that multicollinearity was possible and caution was required when interpreting the results;

$VIF > 10$ indicated strong multicollinearity, which required exclusion of the variable. Threshold values for tolerance: < 0.1 showed a strong multicollinearity, the predictor was excluded; 0.1 – 0.2 meant that inclusion of the variable in the model was acceptable, but the interpretation required caution; > 0.2 indicated low multicollinearity [35, 36].

Ethical considerations

The survey was approved by the Commission on Research Ethics of the Federal Research Center of Psychological and Interdisciplinary Studies (Minutes No. 7 dated January 31, 2024). Potential survey participants were informed about the aim of the survey and that the survey was anonymous (anonymization is performed by the Testograph platform system by replacing data with digital IDs) and voluntary. Before starting the survey, consent was required to proceed to the survey page.

RESULTS

Respondent characteristics

The survey sample included 2,189 people (who completed all questionnaires in full), including 1,289 students from 9 secondary vocational institutions, with a mean age of 17.66 (SD 1.32) years, 56.1% of whom were females, including first- ($n=521$, 23.8%), second- ($n=541$, 24.7%), and third-year students ($n=227$, 10.5%). The remaining 900 students from 10 universities, with a mean age of 19.56 (SD 1.62) years, 65.1% of whom were females, including first- ($n=285$, 13.0%), second- ($n=592$, 27.0%), and third-year students ($n=23$, 1.1%).

The description of the results of the conscious self-regulation, psychological well-being, and stress assessments in students is presented in Table 1.

Main findings

The results of the correlation analysis indicate significant relationships between the stress, self-regulation, and psychological well-being scores (Table 2). Of particular interest is the moderate negative correlation between self-regulation scores and both chronic and acute stress, as well as the positive correlation with psychological well-being. The strongest relationship was found between the psychological well-being score and the acute stress score. A correlation analysis of the "Conscious self-regulation" and "Psychological well-being" subscales with the acute, chronic, and perceived stress subscales showed that all psychological well-being subscales were negatively correlated with all

Table 1. Characteristics of conscious self-regulation, psychological well-being, and perceived, chronic and acute stress in students

Parameters	Mean value (SD)	Median (Q1; Q3)	Min, score	Max, score
Conscious self-regulation	90.4 (15.0)	90 (80; 100)	42	140
Psychological well-being	93.0 (20.0)	94 (78; 108)	25	125
Perceived stress	22.2 (7.3)	22 (17; 27)	6	40
Chronic stress	31.5 (10.5)	22 (23; 37)	18	72
Acute stress	19.6 (6.7)	18 (14; 23)	12	48

Note: SD — standard deviation.

Table 2. Correlation of self-regulation, psychological well-being, and stress scores in students

Parameters	1	2	3	4	5
Conscious self-regulation	—	—	—	—	—
Perceived stress	-0.13	—	—	—	—
Chronic stress	-0.46	0.53	—	—	—
Acute stress	-0.47	0.44	0.78	—	—
Psychological well-being	0.55	-0.23	-0.53	-0.62	—

Note: For all correlation coefficients (r), $p < 0.001$.

chronic stress subscales and with the “Distress” perceived stress subscale, and positively correlated with the “Stress coping level” subscale. All self-regulation subscales were negatively correlated with the stress subscales across all types, except for the Programming actions subscale, which was found to be unrelated to anxiety and depression scores (Appendix 4 in the Supplementary).

Conscious self-regulation and psychological well-being in relation to stress level

At the next stage of data analysis, cluster analysis was used as an additional method to study the sample. The total acute, chronic, and perceived stress scores were used as variables for clustering. According to the results of cluster analysis for the variable “Acute stress”, the intergroup variance was 55,762.2 (df=2) and the intragroup variance was 29,471.7; the F-test value was 1,827.7; $p = 0.001$. For the variable “Chronic stress”, the intergroup variance was 166,787.1 (df=2) and the intragroup variance was 41,927.5; $F = 3,842.7$; $p = 0.001$. For the variable “Perceived stress”, the intergroup variance was 63,060.2 and the intragroup variance was 39,662.6; $F = 1,535.9$; $p = 0.001$. Three clusters were identified. To determine the similarities and differences between the clusters, Euclidean distances between the centers of the clusters were calculated. The minimum distance was observed between Cluster 2 and Cluster 3:

Euclidean distance=8.4 (the square of the distance is 71.2). The distance between Cluster 1 and Cluster 2 was 11.4 (the square of the distance is 129.1). The most pronounced difference was found between Cluster 1 and Cluster 3: Euclidean distance=19.6 (the square of the distance is 383.8). Thus, Cluster 1 and Cluster 3 represent the most distinct groups in terms of stress scores, while Cluster 2 is between them. On this basis, clusters were designated according to the stress level as “low” (Cluster 1), “medium” (Cluster 2), and “high” (Cluster 3) (Table 3). Students with high stress levels had lower self-regulation and psychological well-being scores (Table 4).

Relationship between conscious self-regulation and psychological well-being under stress

In the first stage of the regression analysis, the “Chronic stress” variable was included in the model, which explains 47% of the variance (R^2) in psychological well-being. In the second stage, the “Acute stress” variable was added, which increased the explained variance to 52%. Adding the “Perceived stress” variable to the model increased the R^2 value to 54%. In the fourth stage, the “Conscious self-regulation” variable was added, which increased the explained variance to 58%. Thus, each added variable contributed significantly to explaining the variance of the dependent variable. For all independent variables, the

Table 3. Stress scores in the clusters

Parameters	Stress levels (clusters) , mean (SD)		
	Low (Cluster 1)	Medium (Cluster 2)	High (Cluster 3)
Perceived stress	15.1 (4.7)	23.1 (3.7)	31.4 (4.3)
Chronic stress	22.8 (3.9)	30.9 (6.2)	46.6 (8.0)
Acute stress	14.6 (2.4)	19.2 (4.5)	28.4 (6.4)

Note: SD — standard deviation.

Table 4. Distribution of conscious self-regulation and psychological well-being scores in groups of students with different stress levels

Parameters	Stress levels (clusters), mean (SD)			F	p*
	Low, n=769 (35.1%)	Medium, n=956 (43.7%)	High, n=464 (21.2%)		
Conscious self-regulation					
Planning of goals	13.9 (3.7)	12.3 (3.6)	10.9 (3.9)	71.1	0.001
Programming actions	14.6 (3.4)	14.1 (3.1)	13.9 (3.5)	6.8	0.001
Modeling of significant conditions for achieving goals	14.8 (2.5)	12.9 (2.8)	11.6 (2.9)	180.6	0.001
Evaluation of results	12.4 (4.2)	11.3 (3.8)	10.7 (3.8)	24.7	0.001
Flexibility	14.3 (3.0)	13.0 (3.2)	11.8 (3.6)	80.6	0.001
Reliability	13.5 (3.5)	10.2 (3.3)	7.9 (3.3)	363.2	0.001
Perseverance	16.0 (2.9)	14.4 (2.9)	12.9 (3.5)	150.4	0.001
Total conscious self-regulation score	99.4 (13.9)	88.2 (12.4)	80.0 (13.7)	291.4	0.001
Psychological well-being					
Self-esteem	17.4 (2.9)	14.4 (2.9)	11.7 (3.4)	533.2	0.001
Mental balance	17.1 (2.9)	14.0 (3.0)	10.7 (3.4)	612.2	0.001
Social involvement	16.7 (3.5)	14.0 (3.0)	11.9 (3.7)	345.3	0.001
Sociability	17.7 (2.8)	15.8 (2.9)	14.3 (3.2)	219.4	0.001
Control of self and events	17.3 (2.9)	14.1 (2.8)	11.7 (3.2)	589.4	0.001
Happiness	21.5 (3.8)	17.6 (3.7)	13.1 (4.2)	715.0	0.001
Total well-being score	107.6 (16.1)	90.0 (14.7)	73.4 (16.2)	787.3	0.001

Note: *p-value calculated using the ANOVA test. F — Fisher’s F-test; SD — standard deviation.

estimated VIF multicollinearity varied in the range from 1.3 to 3.0 and the tolerance varied from 0.26 to 0.74 (Table 5).

DISCUSSION

The severity of stress symptoms in students was found to be associated with the level of conscious self-regulation and a decrease in psychological well-being. Conscious self-regulation was shown to mitigate stress (acute, chronic, and perceived) on the psychological well-being of Russian students.

The issue of severe stress among students remains relevant due to the increase in emotional and academic

pressure, as well as changes in the social environment. Monitoring by the Institute of Psychology of the Russian Academy of Sciences revealed a high level of anxiety and depression among young people aged 18-24 years amid ongoing military conflict [37], and a survey involving more than 21,000 students showed that about a fifth of students face emotional and behavioral problems related to stress [38]. In the reported survey, stress manifestations were observed in one in four students (high-stress cluster), which is comparable to the results of other studies [39, 40].

We found a negative correlation between conscious self-regulation, psychological well-being scores and chronic

Table 5. Association of stress and conscious self-regulation scores with the psychological well-being of students: results of regression analysis

Stage	Predictor	β	Standard error	t	p	Statistics of multicollinearity	
						Tolerance	VIF
1	Adjusted R²=0.47 (p<0.001), F(1, 2)=1,702.3						
	Intercept	—	—	130.8	<0.001	—	—
	Chronic stress	-0.69	0.01	-41.3	<0.001	—	—
2	Adjusted R²=0.52 (p<0.001), F(2, 2)=1,020						
	Intercept value	—	3.01	33.6	<0.001	—	—
	Chronic stress	-0.43	0.03	-16.2	<0.001	0.38	2.42
	Acute stress	-0.35	0.02	-13.4	<0.001	0.38	2.42
3	Adjusted R²=0.54 (p<0.001), F(3, 2)=844.3						
	Intercept	—	—	36.6	<0.001	—	—
	Chronic stress	-0.30	0.03	-9.9	<0.001	0.37	2.66
	Acute stress	-0.33	0.03	-12.9	<0.001	0.38	2.64
	Perceived stress	-0.16	0.03	-6.6	<0.001	0.75	1.31
4	Adjusted R²=0.58 (p<0.001), F(4, 2)=651.8						
	Intercept	—	—	37.3	<0.001	—	—
	Chronic stress	-0.26	0.03	-8.9	<0.001	0.26	3.03
	Acute stress	-0.26	0.02	-10.6	<0.001	0.37	2.68
	Perceived stress	-0.13	0.02	-5.7	<0.001	0.69	1.44
	Conscious self-regulation	0.26	0.02	15.0	<0.001	0.74	1.35

Note: β — standardized beta coefficient; F — Fisher's F-test; R² — coefficient of determination; t — t statistic for the regression coefficient; VIF — variance inflation factor.

and acute stress scores. This result is consistent with results obtained in other studies of students from different countries [16, 41]. They showed that students with a high level of self-regulation experience less stress, and psychological interventions aimed at developing self-regulation skills reduce stress manifestations [42]. In addition, a high level of self-regulation predicts a decrease in the perception of both stress and its symptoms, and low self-regulation acts as a vulnerability factor, increasing the risk of stress manifestations [16]. Self-regulation decreases the severity of stress both directly and indirectly through various moderators: self-efficacy of students [43] and perceived social support [24].

The results obtained in the survey are consistent with the data reported [18–20]. In particular, self-regulation and self-compassion were shown to mediate the association between academic stress and psychological well-being, decreasing the negative impact of perceived stress [18]. Self-regulation mediates the impact of perceived stress on the psychological well-being of young people: the

higher the level of self-regulation, the weaker the negative correlation between stress and well-being [20]. Students with low self-regulation skills are more likely to have psychological well-being problems, especially in the context of high stress and poor mental health [19]. Thus, the results obtained regarding perceived stress fully coincide with the conclusions of these studies on the important role of self-regulation in minimizing the negative effects of stress on the psychological well-being of students. With regard to acute and chronic stress, the survey demonstrated for the first time that conscious self-regulation limits the negative impact of these types of stress on the well-being of students.

According to our data, the contribution of self-regulation to the psychological well-being of students under acute and chronic stress is twice as high as that of perceived stress. These findings suggest that conscious self-regulation can be regarded as a mechanism for coping with acute and chronic stress, along with other psychological factors such as optimism, self-efficacy, and vitality [44]. It has been

previously shown for perceived stress that effective self-regulation strategies [16] and feedback [45] helped to overcome anxiety, deficits in self-control, and burnout in students [46]. However, these effects have not been sufficiently studied in the Russian sample, since the focus of Russian studies has traditionally been on stress-coping styles [41, 47]. The possible decrease in self-regulation due to the impact of stress and the efforts made to overcome it should be taken into account as well [48]. This is termed “ego depletion” [49]. In this case, psychological well-being can become a resource for self-regulation. It was demonstrated that students with high well-being (as opposed to those with low well-being) used positive reappraisal, support-seeking, and planning strategies [50].

Considering conscious self-regulation as a factor limiting the negative impact of stress (acute, chronic, and perceived) on the psychological well-being of Russian students extends the scope of the analysis of psychological resources that contribute to overcoming stress states and maintaining well-being. This is because the self-regulation construct covers not only cognitive competencies, such as the planning of goals, modeling of significant conditions, programming actions, and evaluation of results, but also personality properties (flexibility, reliability, perseverance, responsibility). The latter are important contributors to effectively overcoming negative emotional states and ensuring progress towards goals [13].

The cross-sectional survey design does not allow for the establishment of causal relationships between the analyzed variables, although it provides grounds for hypotheses about the impact of conscious self-regulation on psychological well-being under stress.

The representativeness of the survey sample and, as a result, the generalizability of the findings also need to be considered in the context of possible limitations. One of them is the use in the survey of a “convenience” sample of junior students, which limits the generalizability of the obtained findings.

Another limitation of this survey is that only self-report tools were used for data collection. This approach creates difficulties in differentiating anxiety from objective stress indicators. There are no scales in the tools used to assess socially desirable responses, which is also a limitation of this survey. Statistical intervals for “low”, “medium”, and “high” values were employed for assessing the level of stress in students. The tools used in the survey have not been used in clinical practice and do not have criteria.

The method of regression analysis used in this survey helps assess the association of independent variables with a dependent variable, but longitudinal studies are required to draw conclusions about causal relationships. Interpretation of the multicollinearity diagnostics is somewhat ambiguous. Some sources suggest strict criteria for its assessment, such as the JASP guidelines, while others recommend considering milder thresholds for VIF and tolerance [36]. This should be considered when interpreting the results.

CONCLUSION

The survey revealed and clarified the relationship between the indicators of acute, perceived, and chronic stress with that of psychological well-being and conscious self-regulation in Russian students. Stress is negatively correlated with students’ psychological well-being, as well as with conscious self-regulation. The positive relationship between self-regulation and psychological well-being was confirmed. Significant differences were demonstrated in the levels of self-regulation and psychological well-being in students with different stress levels. Conscious self-regulation and the three types of stress studied were found to make significant oppositional contributions to the psychological well-being of students, with self-regulation making a positive contribution and stress having a negative one. The role of conscious self-regulation as a resource for maintaining psychological well-being under different types of stress was demonstrated in students.

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Supplementary data

Supplementary material to this article can be found in the online version:

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References

1. Fomina TG, Filippova EV, Burmistrova-Savenkova AV, Morosanova VI. [Stress in the educational environment and its impact on academic success and psychological wellbeing of students]. *Nacional'nyj psihologicheskij zhurnal*. 2024;19(4):148–160. Russian. doi: 10.11621/npj.2024.0410
2. Ibda H, Wulandari TS, Abdillah A, et al. Student academic stress during the COVID-19 pandemic: a systematic literature review. *Int J Publ Health Sci*. 2023;12(1):286–295. doi: 10.11591/ijphs.v12i1.21983
3. Cobo-Rendón R, Pérez-Villalobos MV, Páez-Rovira D, Gracia-Leiva M. A longitudinal study: Affective wellbeing, psychological wellbeing, self-efficacy and academic performance among first-year undergraduate students. *Scand J Psychol*. 2020;61(4):518–526. doi: 10.1111/sjop.12618
4. Dela Cruz PJ, Aquino AM, Curioso M, et al. The impact of stress to the quality of life of the college students during the COVID-19 pandemic. *Psychol Educ Multidisc J*. 2022;2(3):196–211. doi: 10.5281/zenodo.662615
5. Ruthig JC, Hanson BL, Pedersen H, et al. Later life health optimism, pessimism and realism: psychosocial contributors and health correlates. *Psychol Health*. 2011;26(7):835–853. doi: 10.1080/08870446.2010.506574
6. Konrad T, Lisnyj KT, Gillani N, et al. Factors associated with stress impacting academic success among post-secondary students: A systematic review. *J Am Coll Health*. 2023;71(3):851–861. doi: 10.1080/07448481.2021.1909037
7. Alsalhi AH, Almigbal TH, Alsalhi HH, Batais MA. The relationship between stress and academic achievement of medical students in King Saud University: A cross-sectional study. *Kuwait Med J*. 2018;50(1):60–65.
8. Ribeiro IJS, Pereira R, Freire IV, et al. Stress and quality of life among university students: A systematic literature review. *Health Professions Education*. 2018;4(2):70–77. doi: 10.1016/j.hpe.2017.03.002
9. Popova TA, Semerikova PA. [Subjective well-being, psychological safety and strategies for overcoming students' stress]. *Vestnik Permskogo gosudarstvennogo gumanitarno-pedagogicheskogo universiteta. Serija No. 1, Psihologicheskie i pedagogicheskie nauki*. 2023;(1):51–57. Russian. doi: 10.24412/2308-717X-2023-1-51-57
10. Morosanova VI, Bondarenko IN, Dolivec SS. [Academic stress and psychological resources for achieving educational goal]. *Obrazovanie i nauka*. 2025;27(2):108–134. Russian. doi: 10.17853/1994-5639-2025-2-108-134
11. Lew B, Huen J, Yu P, et al. Associations between depression, anxiety, stress, hopelessness, subjective well-being, coping styles and suicide in Chinese university students. *PLoS One*. 2019;14(7):e0217372. doi: 10.1371/journal.pone.0217372
12. Blinnikova IV, Matiushin VV, Gushchin MV, Lange MD. [Contribution of trait mindfulness in countering acute and chronic stress in medical professionals during COVID-19 pandemic]. *Nacional'nyj psihologicheskij zhurnal*. 2022;4(48):53–64. doi: 10.11621/npj.2022.0406
13. Morosanova VI. [Conscious self-regulation as a metaresource for achieving goals and solving the problems of human activity]. *Vestnik Moskovskogo universiteta. Serija 14, Psihologija*. 2021;(1):3–37. Russian. doi: 10.11621/vsp.2021.01.01
14. Zinchenko YuP, Morosanova VI, Kondratyuk NG, Fomina TG. Conscious self-regulation and self-organization of life during the COVID-19 pandemic. *Psychology in Russia: State of the Art*. 2020;13(4):168–182. doi: 10.11621/pir.2020.0411
15. Garcia D, Jimmefors A, Mousavi F, et al. Self-regulatory mode (locomotion and assessment), well-being (subjective and psychological), and exercise behavior (frequency and intensity) in relation to high school pupils' academic achievement. *PeerJ*. 2015;3:e847. doi: 10.7717/peerj.847
16. de la Fuente J, Amate J, González-Torres MC, et al. Effects of levels of self-regulation and regulatory teaching on strategies for coping with academic stress in undergraduate students. *Front Psychol*. 2020;11:22. doi: 10.3389/fpsyg.2020.00022
17. Hadwin AF, Sukhawathanakul P, Rostampour R, Bahena-Olivares LM. Do self-regulated learning practices and intervention mitigate the impact of academic challenges and COVID-19 distress on academic performance during online learning? *Front Psychol*. 2022;13:813529. doi: 10.3389/fpsyg.2022.813529

18. Shirmohammadi Z, Eftekhari SZ, Talebzadeh SM. Mediating role of perceived academic stress in relationships of self-compassion and self-regulation with academic well-being in female students. *Iran J Health Sci.* 2023;11(1):29–36.
19. Durand-Bush N, McNeill K, Harding M, Dobransky J. Investigating stress, psychological well-being, mental health functioning, and self-regulation capacity among university undergraduate students: is this population optimally functioning? *Canadian Journal of Counselling and Psychotherapy.* 2015;49(3):253–274.
20. Demir S, Çelikkaleli Ö. The mediation role of self-regulation in effect of perceived stress on psychological well-being in emerging adults. *International Innovative Education Researcher.* 2023;3(1):66–101.
21. Ioannou M, Kassianos AP, Symeou M. Coping With Depressive Symptoms in Young Adults: Perceived Social Support Protects Against Depressive Symptoms Only Under Moderate Levels of Stress. *Front Psychol.* 2019;9:2780. doi: 10.3389/fpsyg.2018.02780
22. Yuhuan Z, Pengyue Z, Dong C, et al. The association between academic stress, social support, and self-regulatory fatigue among nursing students: a cross-sectional study based on a structural equation modelling approach. *BMC Med Educ.* 2022;22(1):789. doi: 10.1186/s12909-022-03829-2
23. Lin J, Zahry NR. Relationships among perceived stress, emotional eating, and dietary intake in college students: Eating self-regulation as a mediator. *Appetite.* 2021;163:105215. doi: 10.1016/j.appet.2021.105215
24. Schulte-Frankenfeld PM, Trautwein FM. App-based mindfulness meditation reduces perceived stress and improves self-regulation in working university students: A randomised controlled trial. *Appl Psychol Health Well Being.* 2022;14(4):1151–1171. doi: 10.1111/aphw.12328
25. Boldyreva TA, Shcherbinina OA. [Verification of the thesis on the increase in depressive and alarming trends in the 2010–2020s (using the example of a cohort and longitudinal study)]. *Jeksperimental'naja psihologija.* 2025;18(1):119–137. Russian. doi: 10.17759/exppsy.2025180108
26. Tarasova TV, Ionova MS, Ganyukhina YaG, et al. [Dynamics of psychological indicators of adaptation of students at a university]. *Mir nauki. Pedagogika i psihologija [Internet].* 2021[cited 2025 Aug 15];3(9):[12 p.]. Russian. Available from: <https://mir-nauki.com/PDF/13PSMN321.pdf>
27. Samokhvalova AG, Shipova NS, Tikhomirova EV, Vishnevskaya ON. [Psychological well-being of modern students: typology and targets of psychological help]. *Konsul'tativnaya psihologiya i psihoterapiya.* 2022;30(1):29–48. Russian. doi: 10.17759/cpp.2022300103
28. Morosanova VI, Kondratyuk NG. [V.I. Morosanova's "Self-regulation profile questionnaire — SRPQM 2020"]. *Voprosy psihologii.* 2020;4:155–167. Russian.
29. Massé R, Poulin C, Dassa C, et al. The structure of mental health: Higher-order confirmatory factor analyses of psychological distress and well-being measures. *Social Indicators Research.* 1998;45(1):475–504. doi: 10.1023/A:1006992032387
30. Fomina TG, Bondarenko IN. [Validation of the well-being manifestations measurement scale (WBMMs) on a sample of Russian students]. *Vestnik Moskovskogo universiteta. Serija 14, Psihologija.* 2024;47(2):243–264. Russian. doi: 10.11621/LP)-24-2
31. Morosanova VI, Zinchenko YP. [Short questionnaire of acute and chronic stress: development and validation]. *Sibirskiy psikhologicheskij zhurnal.* 2024;(94):6–22. Russian. doi: 10.17223/17267080/94/1
32. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behavior.* 1983;24(4):385–396.
33. Zolotareva AA. [Psychometric properties of the Russian version of the perceived stress scale (PSS-4, 10, 14)]. *Klinicheskaia i spetsial'naja psikhologija.* 2023;12(1):18–42. Russian. doi: 10.17759/cpse.2023120102
34. Dancy CP, Reidy J. *Statistics without maths for psychology.* 4th ed. Harlow: Pearson Prentice Hall; 2007.
35. Kim JH. Multicollinearity and misleading statistical results. *Korean J Anesthesiol.* 2019;72(6):558–569. doi: 10.4097/kja.19087
36. O'Brien RM. A Caution Regarding Rules of Thumb for Variance Inflation Factors. *Quality & Quantity.* 2007;41(5):673–690. doi: 10.1007/s11135-006-9018-6
37. Nestik TA. [The influence of military conflicts on the psychological state of society: promising areas of research]. *Sotsial'naya psihologiya i obshchestvo.* 2023;14(4):5–22. Russian. doi: 10.17759/sps.2023140401
38. Basyuk VS, Malykh SB, Tikhomirova TN. [Federal network of psychological services of educational institutions of higher education: concept, priorities and development resources]. *Psikhologicheskaya nauka i obrazovanie.* 2022;27(6):4–18. Russian. doi: 10.17759/pse.2022270601
39. Ma H, Zou JM, Zhong Y, Li J, He JQ. Perceived stress, coping style and burnout of Chinese nursing students in late-stage clinical practice: A cross-sectional study. *Nurse Educ Pract.* 2022 Jul;62:103385. doi: 10.1016/j.nepr.2022.103385
40. Olson N, Oberhoffer-Fritz R, Reiner B, Schulz T. Stress, student burnout and study engagement - a cross-sectional comparison of university students of different academic subjects. *BMC Psychol.* 2025 Mar 24;13(1):293. doi: 10.1186/s40359-025-02602-6
41. Habibu ML, Lawal US, Zubairu Z, Sain ZH. Effectiveness of Self-Regulation Techniques in Reducing Stress among Nursing Students in Kaduna, Nigeria. *African Journal of Humanities and Contemporary Education Research.* 2024;14(1):307–320. doi: 10.62154/ts051935
42. Hj Ramli NH, Alavi M, Mehrinezhad SA, Ahmadi A. Academic stress and self-regulation among university students in Malaysia: Mediator role of mindfulness. *Behav Sci (Basel).* 2018;8(1):12. doi: 10.3390/bs8010012
43. Arabzadeh M, Nikdel F, Kadivar P, et al. The relationship of self-regulation and self-efficacy with academic stress in university students. *International Journal of Education and Psychology in the Community.* 2012;2(2):102–113.
44. Sabouripour F, Roslan S, Ghiami Z, Memon MA. Mediating role of self-efficacy in the relationship between optimism, psychological well-being, and resilience among Iranian students. *Front Psychol.* 2021;12:675645. doi: 10.3389/fpsyg.2021.675645
45. Bulut O, Cutumisu M, Aquilina AM, Singh D. Effects of digital score reporting and feedback on students' learning in higher education. *Frontiers in Education.* 2019;4:65. doi: 10.3389/educ.2019.00065
46. Ansari S, Khan I, Iqbal N. Association of stress and emotional well-being in non-medical college students: A systematic review and meta-analysis. *J Affect Disord.* 2025;368:200–223. doi: 10.1016/j.jad.2024.09.029
47. Kononov AN, Novikova AS. [Features of experiencing and coping with exam stress of students of psychological and medical fields of study]. *Nauchnyj rezul'tat. Pedagogika i psihologija obrazovanija.* 2023;9(2):129–145. Russian. doi: 10.18413/2313-8971-2023-9-2-0-10
48. Tomas N, Poroto A. The interplay between self-regulation, learning flow, academic stress and learning engagement as

predictors for academic performance in a blended learning environment: A cross-sectional survey, *Heliyon*. 2023;9(11):e21321. doi: 10.1016/j.heliyon.2023.e21321

49. Baumeister RF, André N, Southwick DA, Tice DM. Self-control and limited willpower: current status of ego depletion

theory and research. *Curr Opin Psychol*. 2024;101882. doi: 10.1016/j.copsyc.2024.101882

50. Freire C, Ferradás MD, Valle A, et al. Profiles of psychological well-being and coping strategies among university students. *Front Psychol*. 2016;7:1554. doi: 10.3389/fpsyg.2016.01554
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