

**STRESS, SLEEP QUALITY AND MINDFULNESS OF ADULT STUDENTS**

N. Polyvyannaya\*  <sup>1</sup> N. Akhtayeva  <sup>1</sup>

<sup>1</sup> KazNU, Al-Farabi ave., Almaty, Kazakhstan,

\*e-mail: natpolymat@gmail.com

**Abstract**

Last pandemic years brought stressful experience for the population which in some cases became chronic. Perceived stress can negatively impact on learning engagement and academic outcomes of students while mindfulness can become a significant regulator that can help to reduce the level of perceived stress and improve well-being.

**Description.** The purpose of this study is to determine if stress interconnects with mindfulness among adult students during pandemic times.

**Methods.** In autumn 2021 we examined 106 adult students with the next scales. MAAS (Mindful Attention Awareness Scale) was used to explore mindfulness. MLQ (Meaning of Life Questionnaire) was used to extract its subscale ‘presence’ as a part of mindfulness. PSS (Perceived Stress Scale) and subscales ‘overstrain’ and ‘resistance’ were used to explore perceived stress. Sleep Quality Questionnaire was used to deepen understanding of stress condition via the objective part of psychological and physical well-being - sleep quality.

Pearson criteria was used for the correlation analysis between scales and their subscales.

**Results.** Analysis shows some significant correlations ( $p < 0.01$ ). Mindfulness shows notable negative correlation with perceived stress and moderate negative correlation with ‘overstrain’ and ‘resistance’. Mindfulness shows moderate positive correlation with sleep quality. Perceived stress shows notable negative correlation with sleep quality.

**Value and significance.** This paper contributes into the body of knowledge of psychology of stress, well-being and mindfulness. It covers gap in understanding how perceived stress, sleep quality and mindfulness with its quality of presence are interconnected with each other among adult students during pandemic times. The results can be used for further researches in specified fields. In a practical sense results can be helpful in formation of modern stress management trainings, educational activities, psychological interventions for those who would like to improve their well-being using mindfulness as regulation mechanism.

**Key words:** *chronic stress, perceived stress, sleep quality, well-being, mindfulness, presence*

# ЕРЕСЕК СТУДЕНТТЕРДЕГІ СТРЕСС, ҰЙҚЫ САПАСЫ ЖӘНЕ САНАДАН ӨТКІЗУ

Н. Польшьянная\*<sup>1</sup> , Н. Ахтаева<sup>1</sup> 

<sup>1</sup> ҚазҰУ, Әл-Фараби даңғ., 71, Алматы, Қазақстан,  
\*e-mail: natpolymat@gmail.com

## Аннотация

Пандемияның соңғы жылдары көптеген адамдарға стресстік тәжірибе әкелді, ол кейбір жағдайларда созылмалы түрге айналды. Қабылданатын стресс оқуға қатысуға және академиялық нәтижелерге теріс әсер етуі мүмкін, ал зейінділік стресс деңгейін төмендетуге және әл-ауқатты жақсартуға көмектесетін маңызды реттеуші болуы мүмкін.

**Сипаттама.** Бұл зерттеудің мақсаты - пандемия кезінде ересек студенттерде стресстің зейінмен байланыстылығын анықтау.

**Әдістері.** 2021 жылдың күзінде біз 106 ересек студенттер келесі шкала бойынша тексердік. Зейінді зерттеу үшін MAAS (Mindful Attention Awareness Scale) пайдаланылды. MLQ (Meaning of Life Questionnaire) хабардар болу бөлігі ретінде «бар болу» ішкі шкаласын шығару үшін пайдаланылды. PSS (Perceived Stress Scale) және «шамадан тыс жүктеме» және «қарсылық» ішкі шкалалары қабылданған стрессті зерттеу үшін пайдаланылды. Ұйқының сапасы туралы сауалнама психологиялық және физикалық әл-ауқаттың осы объективті бөлігін - ұйқының сапасын қарастыру арқылы стрессті түсінуді тереңдету үшін пайдаланылды.



Тандалған шкалалар мен ішкі шкалалар арасындағы корреляцияны талдау үшін Пирсон критерийлері пайдаланылды.

**Нәтижелер.** Талдау бірқатар маңызды корреляцияны көрсетеді ( $p < 0,01$ ). Зейінділік сезілетін күйзеліспен айқын теріс корреляцияны және «шамадан тыс жүктемемен» және «қарсылықпен» орташа теріс корреляцияны көрсетеді. Зейінділік ұйқы сапасымен қалыпты оң корреляцияны көрсетеді. Қабылданатын стресс ұйқы сапасымен айтарлықтай теріс корреляцияны көрсетеді.

**Құндылығы мен маңызы.** Бұл мақала стресс психологиясы, әл-ауқат және зейінділік туралы білімдер жиынтығына ықпал етеді. Ол пандемия кезінде ересек студенттер арасында қабылданған стресс, ұйқы сапасы және оның қатысу сапасымен зейінділік қалай өзара байланысты екенін түсінудегі олқылықты қамтиды. Нәтижелерді осы салаларда одан әрі зерттеу үшін пайдалануға болады. Практикалық тұрғыдан алғанда, нәтижелер реттеу механизмі ретінде хабардарлықты пайдалана отырып, өз әл-ауқатын жақсартқысы келетіндер үшін стрессті басқару, білім беру қызметі, психологиялық араласу бойынша заманауи тренингтерді қалыптастыруда пайдалы болуы мүмкін.

**Түйінді сөздер:** созылмалы стресс, қабылданатын стресс, ұйқы сапасы, әл-ауқат, зейінділік, қатысу.

# СТРЕСС, КАЧЕСТВО СНА И ОСОЗНАННОСТЬ ВЗРОСЛЫХ СТУДЕНТОВ

Н. Польшанная\*<sup>1</sup> , Н. Ахтаева<sup>1</sup>   
<sup>1</sup> КазНУ, пр. Аль-Фараби, Алматы, Казахстан,  
\*e-mail: [natpolymat@gmail.com](mailto:natpolymat@gmail.com)

## Аннотация

Последние годы пандемии принесли многим людям стрессовый опыт, который в ряде случаев приобрел хронический характер. Воспринимаемый стресс может негативно влиять на вовлеченность в процессе обучения и академические результаты, в то время как осознанность может стать важным регулятором, который может помочь снизить уровень воспринимаемого стресса и улучшить благополучие.

**Описание.** Цель этого исследования — определить, связан ли стресс с осознанностью у взрослых студентов во время пандемии.

**Методы.** Осенью 2021 года мы обследовали 106 взрослых студентов по следующим шкалам. MAAS (Mindful Attention Awareness Scale) использовалась для изучения осознанности. MLQ (Meaning of Life Questionnaire) использовался для извлечения субшкалы «присутствие» как части осознанности. PSS (Perceived Stress Scale) и подшкалы «перенапряжение» и «сопротивление» использовались для изучения воспринимаемого стресса. Опросник качества сна был использован для углубления понимания стрессового состояния через рассмотрение этой объективной части психологического и физического благополучия - качества сна.

Критерии Пирсона использовались для корреляционного анализа между выбранными шкалами и субшкалами.

**Результаты.** Анализ показывает ряд значимых корреляций ( $p < 0,01$ ). Осознанность показывает заметную отрицательную корреляцию с воспринимаемым стрессом и умеренную отрицательную корреляцию с «перенапряжением» и «сопротивлением». Осознанность показывает умеренную положительную корреляцию с качеством сна. Воспринимаемый стресс показывает заметную отрицательную корреляцию с качеством сна.

**Ценность и значимость.** Эта статья вносит свой вклад в совокупность знаний о психологии стресса, благополучия и осознанности. Он охватывает пробел в понимании того, как воспринимаемый стресс, качество сна и осознанность с его качеством присутствия взаимосвязаны друг с другом среди взрослых студентов во время пандемии. Результаты могут быть использованы для дальнейших исследований в указанных областях. В практическом плане результаты могут быть полезны при формировании современных тренингов по управлению стрессом, образовательных мероприятий, психологических интервенций для тех, кто хотел бы улучшить свое самочувствие, используя осознанность как механизм регуляции.

**Ключевые слова:** хронический стресс, воспринимаемый стресс, качество сна, благополучие, осознанность, присутствие.

## **1. Introduction**

The period of the COVID-19 pandemic has a stressful effect on the learning process and well-being of university students [1,2]. Perceived stress can negatively impact learning engagement and academic outcomes. At the same time, mindfulness as a process and a skill can become a regulator that helps to reduce the level of perceived stress [3,4] and improve well-being.

## **2. Methods**

### **2.1. Study Design and Participant Sample**

First, we wanted to determine how the level of perceived stress interconnects with the level of mindfulness among students. For this purpose, we examined 106 students, aged 18-20 years. The sample consisted of students of various specialties in the humanities who are Russian and Kazakh speaking but were all in group who study all their university courses in English. Males 23, females 83. Participation was voluntary and participants did not receive remuneration in any form. Data was collected in October-November 2021 in Almaty; participants were students of 3 different institutions.

To measure mindfulness two questionnaires were used: Mindful Attention Awareness Scale (MAAS) [5,6]. To deepen understanding of the phenomena we also used Meaning in Life Questionnaire (MLQ) [7, 8] and its subscales 'presence' and 'search'. We were mostly interested in 'presence' as it presumably might show connection with mindfulness. To measure level of perceived stress we used Perceived Stress Scale (PSS) [9, 10] and its subscales 'overstrain' and 'resistance'. To deepen understanding of stress condition via the objective part of psychological and physical well-being - we used Sleep Quality Questionnaire [11] to measure sleep quality.

Short demographic questionnaire about gender, age and specialization was also part of the whole questionnaire that was realized in Google Forms.

Students answered to almost all questionnaires in English via Google Forms, except Sleep Quality, as this one was originally created in Russian. None of students has problems in understanding questions well both in English and Russian. All students expressed consent to participate in the study understanding their personal data remain anonymous.

For data analysis the SPSS 23 program was used, Pearson's correlation criteria was used between chosen scales and subscales.

### **2.2. Measures**

#### **Mindfulness**

We used English version of Mindful Attention Awareness Scale (MAAS). The scale consists of 15 items (e.g. "I could be experiencing some emotion and not be conscious of it until some time later"). Each question has 1 to 6 points Likert scale "1=almost always" to "6=almost never". The Cronbach's alfa for this study was 0.75, which is sufficient.

#### **Presence**

To deepen understanding of the mindfulness phenomena we also used Meaning in Life Questionnaire (MLQ) and were interested in its subscales 'presence' and 'search'. The scale consists of 10 items (e.g. "I understand my life's meaning"). Each question has 1

to 7 points Likert scale “1=absolutely true” to “6= absolutely untrue”. The Cronbach’s alfa for this study was 0.72, which is sufficient.

### Perceived stress

To measure level of perceived stress we used Perceived Stress Scale (PSS) and its subscales ‘overstrain’ and ‘resistance’. The scale consists of 10 items (e.g. “In the last month, how often have you been upset because of something that happened unexpectedly”). Each question has 1 to 5 points Likert scale “1=never” to “5=very often”.

This scales also can be divided into diagnostical sub groups. Scores are disturbed from 0 to 40 with higher scores showing higher perceived stress. 0-13 understood as low stress. 14-26 understood as moderate stress. 27-40 is high perceived stress.

The Cronbach’s alfa for this study was 0.75, which is sufficient.

### Sleep Quality

To deepen understanding of stress that can be connected with sleep quality we used Sleep Quality Questionnaire. This questionnaire was in Russian none of students has problems in understanding questions. The scale consists of 6 items (e.g. “Duration of sleep” or “Nocturnal awakenings”). Each question has 1 to 5 points Likert scale suitable for the current question (e.g. “1-instant”, “2-short”, “3-medium”, “4-long”, “5-very long” for the first example or “1-no”, “2-rarely”, “3-often”, “4-infrequently”, “5-very often” for the second example). The Cronbach’s alfa for this study was 0.71, which is sufficient.

## 3. Results

The correlations between variables are shown in Table 1.

**Table 1. Pearson’s correlations between Mindfulness (MAAS), Life Meaning (MLQ), Perceived Stress (PSS) and Sleep Quality, N=106**

	MAAS	MLQ	presence	search	sleep	PSS	overstrain	resistance
Mindfulness (MAAS)	1	,072	,303**	-,111	,359*	-,520*	-,419**	-,381**
Life Meaning (MLQ)	,072	1	,653**	,858**	,014	,049	,087	-,051
MLQ (presence)	,303**	,653*	1	,170	,177	-,249*	-,151	-,275**
MLQ (search)	-,111	,858*	,170	1	-,103	,233*	,215*	,120
Sleep quality	,359**	,014	,177	-,103	1	-,465*	-,424**	-,248*

<b>Percieved stress (PSS)</b>	-,520**	,049	-,249**	,233*	-,465*	1	,895**	,564**
<b>PSS (overstrain)</b>	-,419**	,087	-,151	,215*	-,424*	,895*	1	,137
<b>PSS (resistance)</b>	-,381**	-,051	-,275**	,120	-,248*	,564*	,137	1

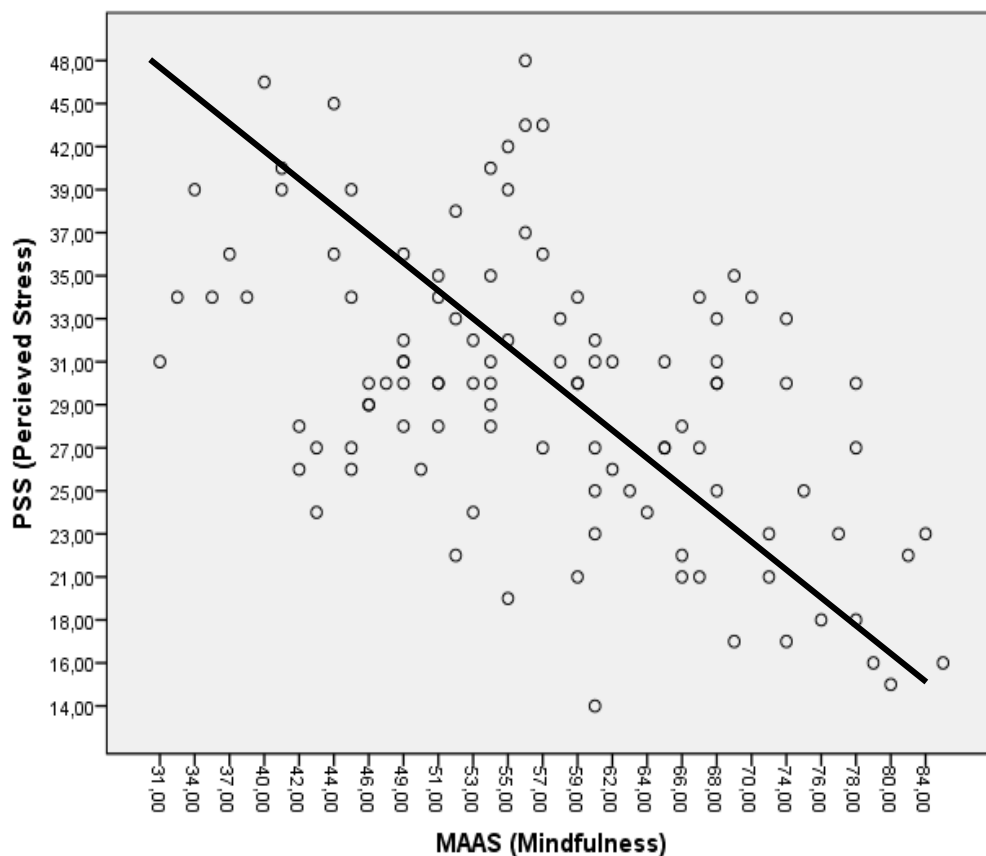
\*\* . The correlation is significant at the 0.01 level (two-tailed).

\* . The correlation is significant at the 0.05 level (two-tailed).

### *Mindfulness*

The results indicate that mindfulness (MAAS) has positive moderate correlations with presence, sleep quality and negative noticeable correlation with perceived stress ( $p < 0.01$ ).

In Picture 1 you can see scatter diagram with a trend showing negative moderate correlation between Mindfulness and Perceived Stress. The higher mindfulness the lesser perceived stress is. This can happen due to high coping abilities that mindfulness brings.



**Picture 1** – Scatter diagram of Mindfulness (MAAS) and Perceived Stress (PSS), N=106

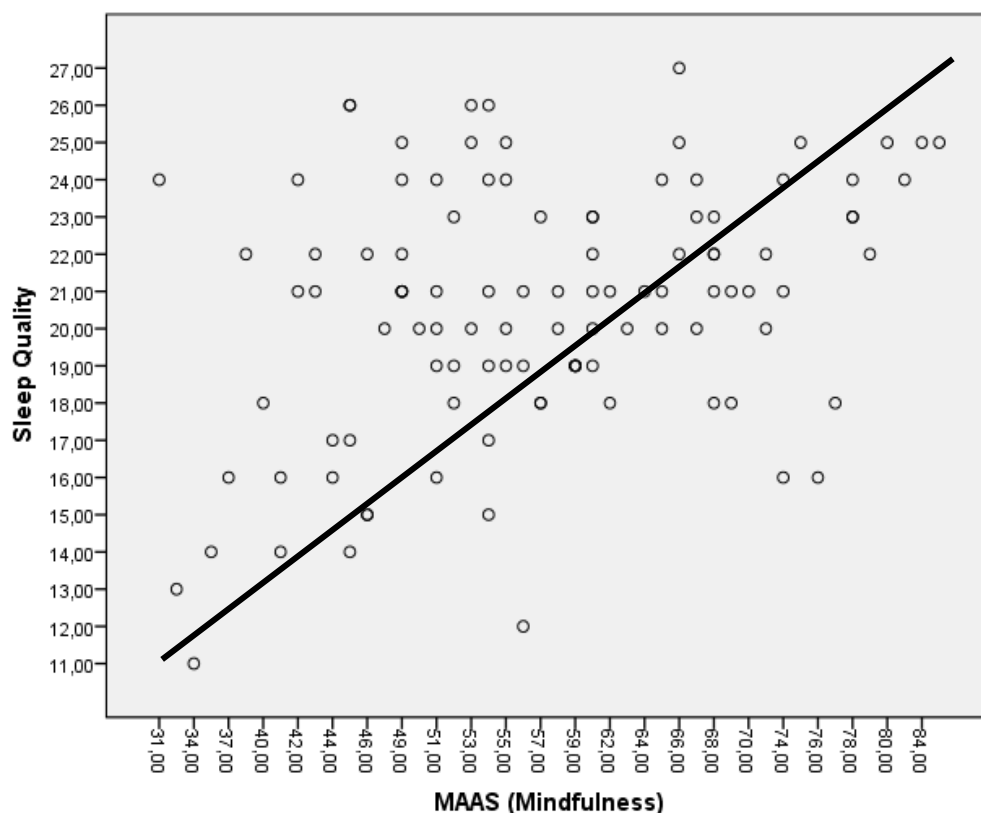
Both perceived stress subscales – overstrain and resistance – showed negative moderate correlations with mindfulness ( $p < 0.01$ ).

Indicators of Life meaning scale (MLQ) didn't show any significant correlations with other variables except its own subscales.

Still the subscale 'presence' as it was said above has positive moderate correlation with mindfulness, also it has negative weak correlation with perceived stress and its subscale 'resistance' ( $p < 0.01$ ).

The subscale 'search' has positive weak correlation with perceived stress and it's another subscale 'overstrain' ( $p < 0.05$ ).

In Picture 2 you can see scatter diagram with a trend showing positive moderate correlation between Mindfulness and Sleep Quality. The higher mindfulness the better sleep quality is, but it happens not for most of the cases.



**Picture 2** – Scatter diagram of Mindfulness (MAAS) and Sleep Quality, N=106

### *Stress*

Sleep quality has positive moderate correlations with mindfulness, perceived stress and overstrain ( $p < 0.01$ ). Negative weak correlation was also found out with subscale 'resistance' ( $p < 0.05$ ).

Perceived stress (PSS) has negative noticeable correlation with mindfulness (MAAS) ( $p < 0.01$ ) as was said above. It also has weak correlations with subscales 'presence' – negative ( $p < 0.01$ ) and 'search' positive ( $p < 0.05$ ).

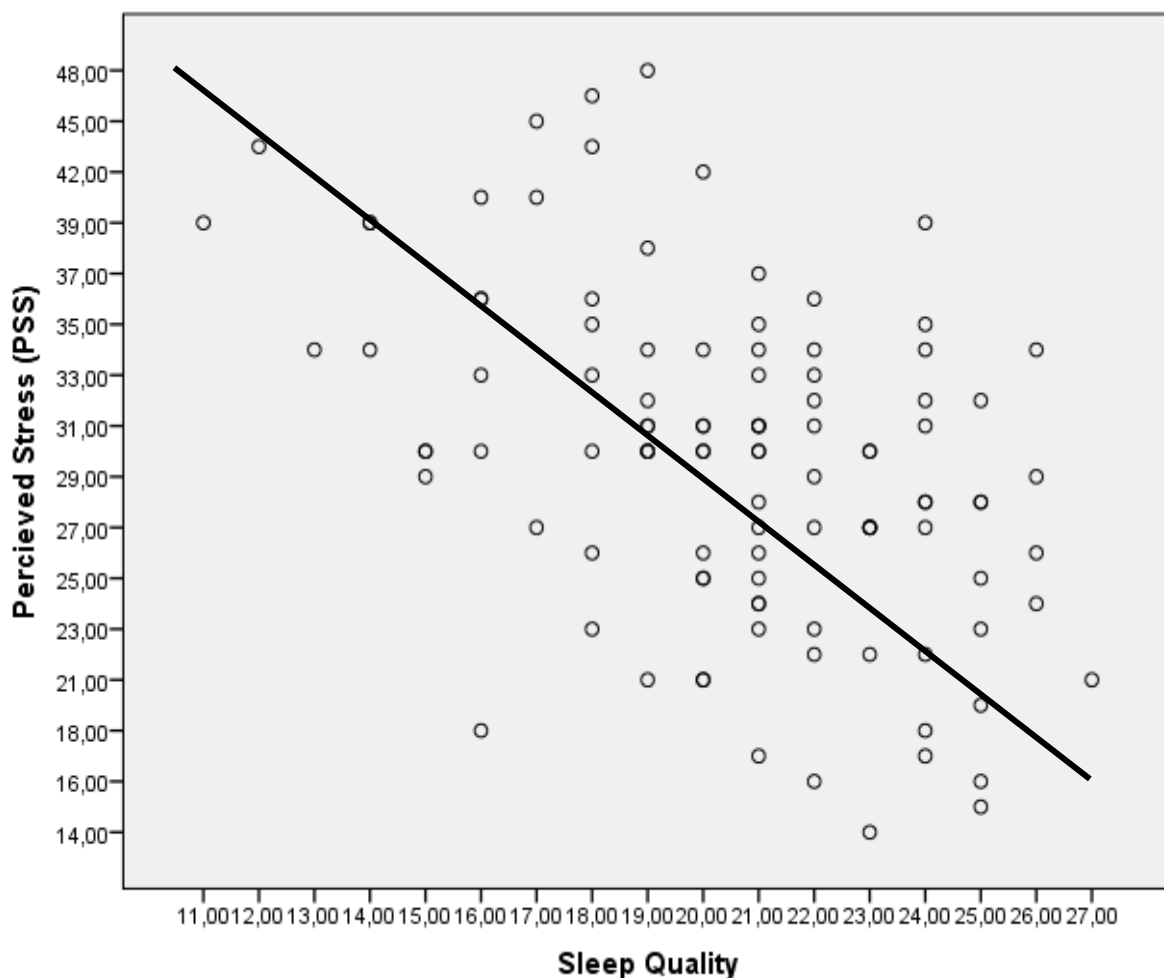
With sleep quality perceived stress has negative moderate correlation ( $p < 0.01$ ).

Both perceived stress subscales – ‘overstrain’ and ‘resistance’ – showed negative moderate correlations with mindfulness ( $p < 0.01$ ). ‘Resistance’ showed negative weak correlation with subscale ‘presence’ ( $p < 0.01$ ). ‘Overstrain’ showed positive weak correlation with subscale ‘search’ ( $p < 0.05$ ).

‘Overstrain’ showed negative moderate ( $p < 0.01$ ) correlation with sleep quality.

‘Resistance’ showed negative weak ( $p < 0.05$ ) correlation with sleep quality.

In Picture 3 you can see scatter diagram with a trend showing negative moderate correlation between Perceived and Sleep Quality. The lower perceived stress the better sleep quality is, but it happens not for most of the cases.



**Picture 3** – Perceived Stress (PSS) and Sleep Quality, N=106

#### 4. Discussion

Pandemic times brought serious challenges into the lives of students. Perceived stress can negatively impact on learning engagement and academic outcomes while mindfulness can become a significant regulator that can help to reduce the level of perceived stress and improve well-being.

With this study we wanted to clarify how the level of perceived stress interconnects with the level of mindfulness among adult university students, age 18-20.



The interconnection between mindfulness and lower level of perceived stress can be defined as noticeable. Also, the lower 'overstrain' and 'resistance' is the higher mindfulness is.

The opposite is also true, the less stress person perceives, the more mindful he or she can be in his or her life.

Mindfulness is slightly connected with presence; it can be determined as a smaller part of it but not the whole.

Better sleep quality is connected with higher mindfulness, it works both ways: the more person cares about sleep the more resources he has from a good sleeping.

The higher presence is slightly connected with lower level of perceived stress and 'resistance'.

The indicator of 'search' subscale can also slightly affect perceived stress and overstrain state.

Sleep quality and perceived stress have reverse moderate interconnection and possibly can bring influence one to each other. Sleep quality effects on overstrain more than on resistance, both these subscales have negative correlations with sleep quality.

## **5. Conclusion**

We recommend developing mindfulness during and after the pandemic, as our research has showed that mindfulness had negative moderate correlation with perceiving stress thus, we may assume that mindfulness helps to cope with actual and additional stress in life. The study also shows interconnection between mindfulness and sleep quality, as positive moderate correlation was found. We believe good enough sleep supports mindfulness and vice versa.

As Sleep Quality have negative moderate correlation with Perceived Stress this interconnection shows the lower perceived stress is the better sleep quality a person may have in general.

We may influence on our Perceived Stress via mindfulness technics as well as creating better sleep quality where possible. And one will affect another in a positive way.

This study covers gap in understanding how perceived stress, sleep quality and mindfulness with its quality of presence are interconnected with each other among adult students during pandemic times. The results can be used for further researches in specified fields. In a practical sense results can be helpful in formation of modern stress management trainings, educational activities, psychological interventions for those who would like to improve their well-being using mindfulness as regulation mechanism.

### **Data availability statement**

The raw data supporting the conclusions of this article will be made available by the authors, upon request.

### **Gratitude, conflict of interest**

Authors claim that there is no conflict of interest.

## REFERENCES

1. Lu, L., Wang, X., Wang, X. et al. Association of Covid-19 pandemic-related stress and depressive symptoms among international medical students. *BMC Psychiatry* 22, 20 (2022). <https://doi.org/10.1186/s12888-021-03671-8>
2. Sfeir, E., Rabil, JM., Obeid, S. et al. Work fatigue among Lebanese physicians and students during the COVID-19 pandemic: validation of the 3D-Work Fatigue Inventory (3D-WFI) and correlates. *BMC Public Health* 22, 292 (2022). <https://doi.org/10.1186/s12889-022-12733-9>
3. Castillo-Sánchez G, Sacristán-Martín O, Hernández MA, Muñoz I, de la Torre I, Franco-Martín M. Online Mindfulness Experience for Emotional Support to Healthcare staff in times of Covid-19. *J Med Syst.* 2022 Jan 26;46(3):14. <https://doi.org/10.1007/s10916-022-01799-y>.
4. Joy Xu, Helen Jo, Leena Noorbhai, Ami Patel, Amy Li. Virtual mindfulness interventions to promote well-being in adults: A mixed-methods systematic review. *Journal of Affective Disorders*, Volume 300, 2022. Pages 571-585. <https://doi.org/10.1016/j.jad.2022.01.027>.
5. Brown K. W., Ryan R. M. The Benefits of Being Present: Mindfulness and Its Role in Psychological Well-Being // *Journal of Personality and Social Psychology*. 2003 Vol. 84. No. 4. P. 822–848. <https://doi.org/10.1037/0022-3514.84.4.822>
6. Golubev A. M. (2012) *Priroda polnoty soznaniya. Adaptatsiya oprosnika vnimatelnosti i osoznannosti MAAS [The nature of the fullness of consciousness. Adaptation of the MAAS Mindfulness and Mindfulness Questionnaire]*. *Vestnik NGU. Series: Psychology*. V.6. Issue. 2. P. 44–51.
7. Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53(1), 80–93.
8. Elshansky S.P. et al. (2015) *Psikhometricheskie pokazateli russkoyazychnoj versii testa «Oprosnik smysla zhizni» (MLQ) [Psychometric indicators of the Russian version of The meaning in life questionnaire (MLQ)]*. *Psychology, sociology and pedagogy*. No. 10 [Electronic resource]. URL: <https://psychology.snauka.ru/2015/10/6019> (date of access: 01/25/2022).
9. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *Journal of Health and Social Behavior*. 1983;24:385–96.
10. Ababkov V.A. et al. (2016) *Validizatsiya russkoyazychnoj versii oprosnika «Shkala vosprinimaemogo stressa-10» [Validation of the Russian-language version of the questionnaire "Scale of perceived stress-10"]*. *Bulletin of St. Petersburg State University. Series 16: Psychology. Pedagogy*. No. 2.
11. Wayne A. M., Levin Ya. I. Principles of modern pharmacotherapy of insomnia // *Journal of Neurology and Psychiatry*. 1998. No. 5. P. 39–43