



Mindfulness Practices: A Correlational Study of Its Relationship with Academic Performance and Stress Levels among University Students in Peshawar

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Abstract

The prevalence of excessive academic stress and extreme competition among students has been noted as crucial contributors to intensified stress, adversely affecting one's academic performance. Mindfulness practices have proved to be an effective approach for mitigating these challenges, reducing stress, and enhancing attentiveness. However, there has been no study related to its significance in university students of Peshawar. This correlational study design surveyed a sample (n=342 with 36.8% male and 63.2% female) of university students in Peshawar aged 18-25 through online forums and questionnaires. Variables assessed included Mindfulness, Stress-levels and Academic Performance. The data analysis was done by using SPSS Statistics (v25). Mean Measurements for Mindfulness was $M= 58.2$, $SD= 13.45$, for Stress was $M= 23.4$, $SD= 5.5$ with $P= 0.05$, and for academic performance was $M= 24.99$, $SD= 7.03$. Frequency of good to high academic performance is 52.33% and moderate to high stress is 97.07% in university students. Mean values indicate that the results were significant. Correlation between mindfulness and stress, ($r= -0.36$, $P<0.05$) shows negative correlation and among academic performance and mindfulness ($r= -0.21$, $P<0.05$) shows negative correlation. The study supports the hypothesis that mindfulness practices can reduce stress levels, positively influencing academic performance. Implementing these practices in universities is recommended to create a supportive learning environment conducive to mental health and academic success.

Keywords: Mindfulness, Academic Performance, Psychological Stress



BACKGROUND AND OBJECTIVES

Background:

There is a universality of mental disorders that affect both genders equally. A recent systematic review of prevalence stress among university students was carried out which showed the prevalence of stress was 64.72% indicating that nearly two-third of the students are affected. This figure is significantly high and leads to poor mental health disorders among these students (Hussen et al., 2025).

In the West, the prevalence of stress remains high. A multinational survey that was conducted in 2023 across 12 western countries found that 37% of the undergraduate students had moderate to severe perceived stress (Turkoglu et al., 2025). In a cross-sectional study, female university students were reported to have significantly higher levels of perceived stress and lower mental well-being than their male counterparts, suggesting that women may experience greater psychological distress in academic environments (Zhu, Liang, Jiang, et al., 2025). A cross-sectional study in Egypt found that 88.9% of medical students experienced perceived stress compared with 83.5% of non-medical students which shows that medical students are more stressed as compared to non-medical students (El-Gilany & Hamed, 2019). Studies in Pakistan have reported relatively high levels of stress among university students, with prevalences ranging from approximately 31.2% in South Punjab to as high as 91.92% during the COVID-19 pandemic (Ijaz et al., 2023; Ul Haq & Ullah, 2022; Arshad et al., 2024).

Psychological stress not only directly affects the academic performance of students, but also reduces their self-efficacy (Ma, X, 2025). There is a negative correlation between academic performance and psychological stress (Ahmady et al, 2021). Stress has been found to negatively affect academic performance among higher institution students (Abdullah, Shah, & Idaris, 2020). In Pakistan, academic stress has been seen to have a negative impact on academic performance and there is a negative correlation among them (Bibi et al., 2025)

In recent years, mindfulness has emerged as a promising and widely recognized approach for mitigating stress across diverse demographic cohorts and professional domains. Mindfulness interventions consistently lower perceived stress and anxiety levels among students. A meta-analysis indicates that regular mindfulness practice can reduce cortisol levels, physiological stress markers, and subjective stress perception. (Creswell, 2017). A longitudinal investigation was conducted to examine the effects of mindfulness practices over an extended period that showed heightened well-being was associated with greater enhancements in dispositional mindfulness and problem-focused coping, even with low adherence to formal mindfulness practices (de Vibe et al., 2018). Mindfulness engagement was positively correlated with self-reported academic achievement among medical students (Safdar et al., 2025). Mindfulness may influence academic performance through mechanisms such as compassion and engagement (Miralles-Armenteros, Chiva-Gómez, Rodríguez-Sánchez, & Barghouti, 2019).

Mindfulness has been shown to be associated significantly with lower levels of perceived stress among university students, as it improves and enhances present-moment awareness and emotional regulation, thereby reducing stress reactivity; recent studies indicate that students engaging in mindfulness practices experience reduced academic stress, burnout, and psychological distress compared to those with lower mindfulness levels (Zhang et al., 2024; Chen & Qi, 2025; Alvarado-García & Soto-Vásquez, 2025).



Mindfulness practices have shown promise in reducing stress and enhancing cognitive functioning in various contexts. To our knowledge their specific application and effectiveness within the universities of Peshawar required further investigation. By examining the effects of mindfulness on stress reduction, this study aimed to provide empirical evidence to support the implementation of mindfulness interventions in universities, thereby promoting student well-being and academic success.

Objectives:

- 1) To assess the current levels of stress among university students of Peshawar.
- 2) To examine the effect of mindfulness practices on stress level and academic performance of university students of Peshawar.
- 3) To investigate the relationship between mindfulness practice and stress levels among university students.
- 4) To find the correlation between mindfulness practices and academic performance.

METHODS AND RESULT:

Methodology:

This correlational study was done in Peshawar. Data was collected from university students of diverse academic disciplines between ages of 18 to 25 to ensure comprehensive representation. The population size of the university students included in this study is 3060. Roast Software was used to determine the sample size. By setting the margin of error at 5% and a confidence interval of 95%, the software generated a recommended sample size of 342 participants. The participants were chosen using convenient sampling technique. The data was collected through online and physical questionnaires. Data was collected at one point in time (December 2024). Written consent was taken from the participating candidate at the beginning of the questionnaire. Mindfulness of students was assessed using Mindfulness Attention Awareness Scale (MAAS). It is a 15-item scale that assesses the core characteristic of Mindfulness namely Attentive to one's surroundings. Grading is done on a 1- 6 scale (with 1 being "almost always" to 6 being "almost never"). The MAAS reported Cronbach's alpha values typically range from 0.80 to 0.90 with the original validation study reporting an alpha of approximately 0.82-0.87 in student and adult samples. Test-retest reliability has also been found to be satisfactory. The MAAS shows strong construct and convergent validity, evidenced by positive associations with well-being, emotional regulation, and self-esteem, and negative associations with stress, anxiety, depression, and psychological distress (Brown & Ryan, 2003; Brown et al., 2011). Academic performance of students was assessed using the Academic Performance Scale (APS). Responses are recorded on a Likert-type scale, with higher scores indicating better academic performance and more effective study habits. The APS has demonstrated acceptable to good internal consistency, with reported Cronbach's alpha values ranging from approximately 0.70 to 0.85 across student populations. Validity studies have supported its construct validity, showing significant associations with academic outcomes such as grades and learning engagement. Factor analyses have indicated that the scale reliably measures core academic performance behaviors, supporting its use in educational and psychological research (Khan et al., 2014; Robbins et al., 2004). Psychological stress of students was assessed using the Perceived Stress Scale (PSS). The scale consists of 10 or 14 items (most commonly the 10-item version) that ask respondents to rate how often they experienced stress-related thoughts and feelings during the past month. Responses are scored on a Likert scale, with higher scores



indicating greater perceived stress. The PSS has shown strong psychometric properties across diverse populations. Reported Cronbach's alpha values range from 0.78 to 0.91, indicating good to excellent internal consistency. The scale demonstrates good construct and convergent validity, with positive correlations with anxiety, depression, and psychological distress, and negative correlations with coping and well-being measures. Factor analytic studies generally support a two-factor structure (perceived helplessness and perceived self-efficacy), confirming its reliability and validity as a measure of perceived stress (Cohen et al., 1983; Cohen & Williamson, 1988). The Pearson product moment correlation analysis was performed to analyze quantitative data collected through surveys to identify the relationship, patterns, significant connections, and trends between the datasets of two variables (mindfulness with stress and academic performance). Considering students' gender and mindfulness, a χ^2 test for independence was used and then the frequencies at which male and female students using mindfulness practice using the formula for the χ^2 test were compared. Data Analysis was done through SPSS (v25). Physical Questionnaires have been kept safe with the Principal Investigator while online forums have been secured in the personal laptop with secured password. Additionally, the information provided by the students has been kept completely confidential.

RESULTS:

Demographics:

Our research sample consisted of 342 university students with a response rate of 96% from all academic years. Their demographic information is given in table 1. About one-third of the respondents were male while two-third were females with mean age of 20.8 years (SD 1.3 years). Moderate Academic Performance was seen in 36.3% of our respondents while Good and Excellent Academic Performance was seen in 26.5% and 15.8% of the respondents respectively, while 11.7% of the respondents reported to be struggling academically. The stress level among university students of Peshawar is alarmingly high. Only 2.9% of the respondents had low psychological stress while 97.1% had moderate to high psychological stress. The mean score for Mindfulness was 58.2 (SD 13.4) suggesting moderate levels of mindfulness.

Table 1: Demographics and Descriptive statistics of Mindfulness, academic performance and stress, N= 342.

VARIABLE	M	S.D	LEVEL	F	%
Age	20.8	1.3	-	-	-
Gender	1.6	0.4	Male	125	36.8%
			Female	217	63.2%
Study Year			1 st year	49	14.3%
			2 nd year	65	19%
			3 rd year	187	54.5%
			4 th year	38	11.1%
			5 th year	3	0.9%
Academic Performance	24.9	7.03	Moderate	124	36.3%
			Good	125	26.5%
			Excellent	64	15.8%
Stress	23.4	5.5	Low	10	2.9%



Mindfulness	58.2	13.4	Moderate	244	71.4%
			High	87	25.4%
			Less	42	12.2%
			Moderate	253	73.9%
			Most	47	13.7%

Association of Mindfulness with Academic Performance and Stress:

The correlation between mindfulness and stress was $r = -0.36$, $p < 0.05$ that showed moderate negative correlation. The correlation between mindfulness and academic performance was $r = -0.21$, $p < 0.05$ that shows weak negative correlation. The significance was determined from regression analysis which showed a significance of 0.34 between academic performance and mindfulness ($>p=0.05$), hence there is no significant relationship between the two.

Although the significance between stress and mindfulness was 0.034 ($<p=0.05$) which shows a significant relationship. The correlation between stress and academic performance was $r = 0.24$, $p < 0.05$ which shows a positive correlation. Standardized Coefficient (Beta) for Stress and Mindfulness is (-0.11). The magnitude (-0.21) represents the strength of the relationship. As mindfulness increases by one standard deviation, stress decreases by 0.21 standard deviation. The Standardized Coefficient (Beta) for Stress and Academic Performance is (-0.06) though the impact is insignificant.

Table 2: Correlation Coefficient of Mindfulness

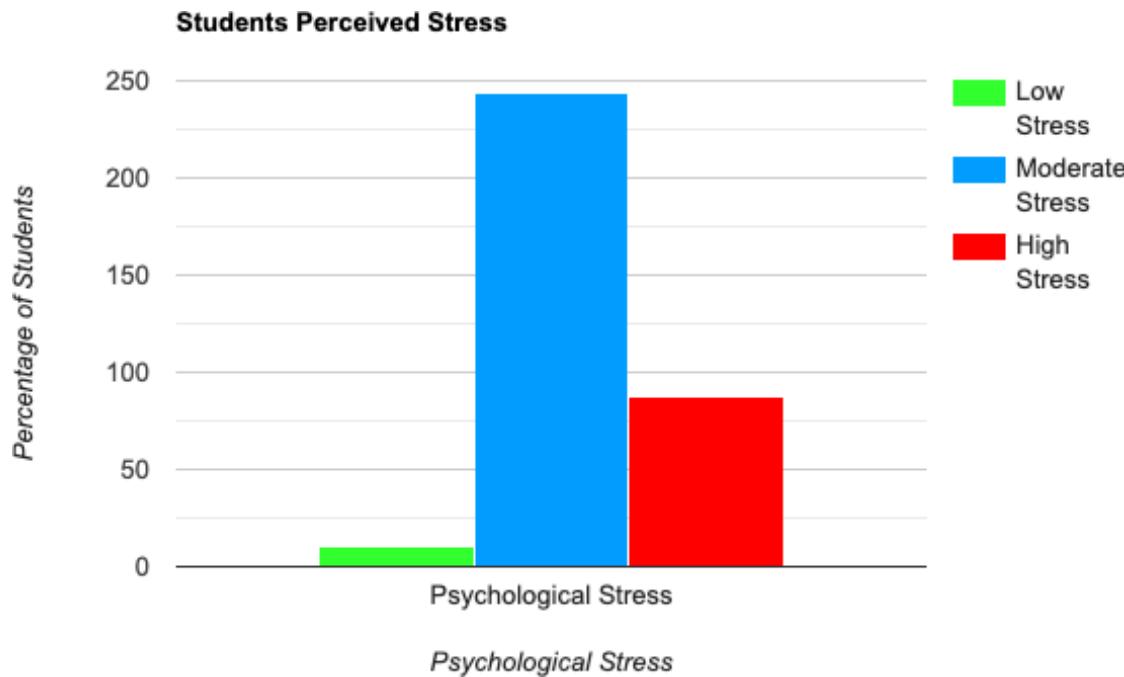
VARIABLES	MINDFULNESS		
	F	PEARSON CC	PEARSON P VALUE
Academics Performance	44	-0.21	<0.05
Stress Level	44	-0.34	<0.05

Prevalence of Stress:

The Perceived Stress Scale (PSS) used for measurement of psychological stress categorized it into 3 categories as low, moderate, and high levels. According to this, among the 342 surveyed students, 11 students (3.2 %) had low stress levels, 244 students (71.3%) had moderate levels of stress while 87 (25.4%) had high stress levels. This is depicted in **Graph 1** below.



Graph 1: Overall prevalence of stress



Disciplinary Difference:

Among the 342 students surveyed, 195 were medical students while 147 were non-medical students. Upon assessment, it was seen that non-medical students were more stressed than medical students with 28.5% of students reporting high psychological stress while 23% of medical students had high psychological stress. Additionally, 74.8% of medical students and 66.6% of non-medical students showed moderate levels of stress.

Gender Difference:

Out of the 342 students surveyed, 216 were females and 126 were males. Upon analysis, moderate stress was found in 73.0% males and 70.3% females while high levels of psychological stress were found in 22.2% males and 27.3% females. Excellent academic performance was found only in 11% females while 23.8% males have excellent academic performance while good academic performance was found in 32.80% females and 42.8% males.

Additionally moderate academic performance was found in 43.0% females and 24.6% males. Higher levels of Mindfulness were found in males. The frequency of high levels of mindfulness were seen in 18.2% males and 10.1% females, while moderate levels of mindfulness were seen in 77.2% females and 68.2% males.

DISCUSSIONS:

The high prevalence of stress found in our study sample facilitates and reinforces the local and international databases. on the prevalence of stress among university students. A systematic review of prevalence stress among university students showed the prevalence of stress was 64.72% indicating that nearly two-third of the students are affected. (Hussen et al., 2025). A study showed that the prevalence of Stress among University Students of Pakistan is 84.4% (Asif et al., 2020). A local study in Peshawar was also conducted to assess the frequency of stress showing that the prevalence of moderate to severe stress was 91.5% and 89.4% among Engineering and Medical Students of Peshawar respectively showing engineer students being more stressed as compared to Medical Students (Musa, Nigat,



2019) All these findings coincide with our findings with the prevalence of moderate to high psychological stress being 97.7% among university students of Peshawar and for the fact that non-medical students had more stress than Medical Students.

We also considered the gender differences and found out that female students had higher levels of psychological stress as compared to the male students. This is following the study conducted on college students suggesting females having higher stress as compared to their male counterparts (Graves et al., 2021). We also found out that males were doing academically better than females (considering good to excellent academic frequencies). Both males and females had an almost equal prevalence of mindfulness with males being more mindful than females.

Our study revealed that the average total Mindfulness score is 60. The average mean score of Mindfulness was computed to be 4 among most candidates, which lies at the mid-point of MAAS score. Moderate levels of Mindfulness were found to exist among university students of Peshawar. Our study showed that 73.9% and 13.7% of the students had moderate to high levels of mindfulness respectively. Interestingly it means that mindfulness among students have increased over the course of years among university students of Peshawar following a study that used the same MAAS scale and computed the frequency of mindfulness being 42.9% among university students of Peshawar (Ali et al., 2019).

There is a negative correlation between Mindfulness and Psychological Stress. Numerous studies on the relationship of mindfulness and stress levels show this. A four-week online mindfulness breathing meditation intervention produced significant reductions in self-reported perceived stress levels, indicating effectiveness of brief online mindfulness programs (Nature Scientific Reports, 2025). An experimental study with nursing students showed that mindfulness interventions improved subjective well-being and are associated with reduced psychological stress indicators, supporting benefits in health-care education (Karakurt & Durmaz, 2025). A study conducted in the College of Medicine of KSU in Riyadh, Saudi Arabia revealed an inverse relationship between the two as well (Alzahrani et al., 2020). In conclusion, our findings coincide with all these findings. With limited access to information, we contemplated using Academic Performance Scale (APS). By using that we found out that mindfulness had an insignificant relationship with academic performance. A similar study observing the effects of academic performance and mindfulness also attained such results (Alzahrani et al., 2020).

Limitations:

Our study sample, being small, could not cover a wider population. Moreover, reliance on self-report measures introduces the potential for response bias and subjectivity, thus limiting the robustness of our findings.

Recommendations:

We recommend using GPA instead of Academic Performance Scale, which could offer a better insight into academic performance of the students and using a more experimental approach to this study rather than a qualitative approach.

CONCLUSIONS:

Research has shown a clear association between mindfulness and decreased psychological stress. By incorporating mindfulness into their routine, students can experience a reduction in stress levels, potentially leading to enhanced cognitive abilities and improved academic performance. Our study aligns with existing medical literature in affirming this



relationship. Therefore, we advocate for the implementation of mindfulness practices within university environments to cultivate a supportive learning atmosphere that prioritizes mental well-being and fosters academic success.

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