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Exploring the Role of Mindfulness in University Students' Academic Well-being: Mediating Role of Emotional Resilience

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ABSTRACT

Objective: This study aims to explore the role of mindfulness in enhancing the academic well-being of university students, with a focus on the mediating role of emotional resilience. Understanding how mindfulness and resilience interact can inform strategies for improving students' academic experiences.

Methods: A cross-sectional survey design was employed, involving 300 university students aged 18-25 from various disciplines. Data were collected using the Five Facet Mindfulness Questionnaire (FFMQ), the Connor-Davidson Resilience Scale (CD-RISC), and the Student Well-being Questionnaire (SWQ). Pearson correlation analysis assessed the relationships among mindfulness, emotional resilience, and academic well-being. Structural Equation Modeling (SEM) was conducted to evaluate the mediating role of emotional resilience, using bootstrapping methods to test indirect effects.

Results: The results indicated a significant positive correlation between mindfulness and academic well-being ($r = 0.47$, $p < 0.001$), as well as between mindfulness and emotional resilience ($r = 0.56$, $p < 0.001$). SEM analysis showed that emotional resilience partially mediated the relationship between mindfulness and academic well-being, with a significant indirect effect ($\beta = 0.26$, 95% CI = [0.15, 0.38]). The model demonstrated a good fit (CFI = 0.93, RMSEA = 0.06).

Conclusions: Mindfulness positively influences academic well-being among university students, and this effect is partly mediated by emotional resilience. These findings suggest that interventions aimed at fostering both mindfulness and resilience may be effective in supporting students' academic success. Future research should consider longitudinal designs to further validate these relationships and assess the long-term impacts of mindfulness practices on academic outcomes.

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Introduction

Mindfulness, defined as the awareness and focus on the present moment without judgment, has gained increasing attention in educational psychology due to its impact on students' well-being and academic performance. Research has consistently shown that mindfulness can improve cognitive functions such as attention, memory, and problem-solving, making it particularly beneficial in academic settings (MacKenzie et al., 2019). Among university students, the ability to remain mindful is crucial for managing academic stress and enhancing overall well-being, which directly influences their academic success (Shapiro et al., 2007).

The relationship between mindfulness and academic outcomes can be partially explained by its role in fostering emotional resilience. Emotional resilience is the ability to adapt positively to stress and adversity, which is often a challenge for university students dealing with demanding coursework and transition phases in life (Vidal-Meliá et al., 2022). When students practice mindfulness, they develop better emotional regulation, allowing them to cope with academic pressures more effectively (Garland et al., 2015). This capacity to remain composed during challenging situations not only supports mental health but also contributes to improved focus and persistence in their studies.

Studies indicate that mindfulness can lead to enhanced academic performance through improved concentration, reduced mind-wandering, and better management of academic stress (Mrazek et al., 2013). For example, research by Schutte and Malouff (2019) highlighted a positive correlation between mindfulness practices and academic performance, suggesting that mindful students tend to perform better in exams and maintain higher grade point averages. This is largely because mindfulness practices enhance metacognitive awareness, which enables students to better manage their learning processes and stay engaged in their academic tasks (Davis & Hayes, 2011).

Moreover, mindfulness has been shown to directly impact emotional resilience, which in turn supports academic achievement. Emotional resilience helps students to recover from setbacks and remain focused on their long-term goals despite immediate challenges. A study exploring the role of resilience as a mediator between mindfulness and academic performance found that students with higher resilience levels, fostered through mindfulness practices, tended to achieve better academic results (Vidal-Meliá et al., 2022). This suggests that resilience acts as a bridge between the mental clarity provided by mindfulness and the tangible outcomes in academic performance.

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Further, mindfulness can also promote a sense of autonomy and control among students, helping them to navigate the complexities of academic life with greater ease. By enhancing self-awareness, mindfulness practices allow students to recognize stressors early and adopt healthier coping strategies, thereby reducing symptoms of anxiety and depression, which are common in university settings (Hofmann et al., 2010). This improvement in emotional well-being is crucial for maintaining a balanced approach to academic responsibilities and social life.

Despite the promising evidence, more research is needed to fully understand the mechanisms through which mindfulness and resilience interact to influence academic outcomes. Investigating specific mindfulness interventions tailored for university students could provide valuable insights into how these practices can be integrated into educational programs for better student support. Additionally, longitudinal studies may help clarify how sustained mindfulness practices impact academic performance over time, offering deeper insights into their long-term benefits.

In summary, the role of mindfulness in university students' academic well-being is multifaceted, involving direct cognitive benefits as well as an indirect effect through the enhancement of emotional resilience. The interplay between these factors suggests that fostering mindfulness in educational settings could be a valuable strategy for improving both mental health and academic success among students.

Material and Methods

The present study adopts a quantitative, cross-sectional research design to explore the relationship between mindfulness, emotional resilience, and academic well-being among university students. This method allows for the examination of the hypothesized mediating role of emotional resilience between mindfulness and academic outcomes. The use of standardized self-report measures ensures the collection of quantifiable data, suitable for statistical analysis, which enables the identification of correlations and mediating effects.

The study sample consisted of 300 university students aged between 18 and 25 years, selected through convenience sampling from various faculties at hormozgan university. Participants were required to be enrolled as full-time students to ensure that their academic experience aligned with the focus of the study. Inclusion criteria included fluency in the language used in the questionnaire and the absence of any reported cognitive or psychological conditions that might affect

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mindfulness practices. The sample size was determined using G*Power analysis to achieve adequate statistical power (0.80) for detecting medium effect sizes in regression analyses.

Instruments

Data were collected using a structured questionnaire, comprising three key sections:

Mindfulness Measurement: The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) was used to assess mindfulness levels among students. The FFMQ includes subscales such as observing, describing, acting with awareness, non-judging, and non-reactivity, measured on a Likert scale ranging from 1 (never true) to 5 (always true). The FFMQ has shown strong reliability and validity in previous research (Davis & Hayes, 2011). The reliability of this scale in the present study was 0.89.

Emotional Resilience: The Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) was employed to measure the emotional resilience of participants. The CD-RISC evaluates an individual's ability to adapt to stress and recover from adversity, using 25 items scored on a scale of 0 (not true at all) to 4 (true nearly all the time). It has been widely used in studies on psychological resilience and demonstrated high internal consistency ($\alpha = 0.89$). The reliability of this scale in the present study was 0.83.

Academic Well-being: Academic well-being was assessed using the Student Well-being Questionnaire (SWQ), which measures students' satisfaction with their academic experience, motivation, and perceived academic success. This questionnaire includes 15 items rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The SWQ has shown good reliability in prior studies with student populations (MacKenzie et al., 2019). The reliability of this scale in the present study was 0.84.

Data were analyzed using SPSS (version 27) and AMOS for structural equation modeling (SEM). Descriptive statistics were first calculated to summarize the demographic characteristics of the sample and the distribution of scores for each variable. Pearson correlation analysis was used to assess the relationships between mindfulness, emotional resilience, and academic well-being .

To test the mediating role of emotional resilience, a mediation analysis was conducted using SEM. The analysis followed the procedures outlined by Hayes (2017) for testing indirect effects, including bootstrapping (with 5000 samples) to determine the confidence intervals of the mediating effect. Fit indices such as the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI),

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and Root Mean Square Error of Approximation (RMSEA) were used to evaluate the model fit. A CFI and TLI above 0.90 and an RMSEA below 0.08 indicated a good fit for the data.

Ethical Considerations

Participation in the study was voluntary, and informed consent was obtained from all participants prior to data collection. The consent form included detailed information about the study's objectives, procedures, and the rights of participants, including the right to withdraw at any time without any consequences. Anonymity and confidentiality were ensured by assigning unique codes to each participant's responses, and the data were securely stored in encrypted files accessible only to the research team. The study adhered to the ethical guidelines outlined in the Declaration of Helsinki for research involving human subjects.

These methods were designed to ensure the reliability and validity of the findings, while also prioritizing the ethical treatment and well-being of the participants throughout the research process.

Results

The final sample consisted of 300 university students, with a mean age of 21.3 years (SD = 1.8), including 55% females and 45% males. The average score on the Five Facet Mindfulness Questionnaire (FFMQ) was 3.42 (SD = 0.55), indicating moderate levels of mindfulness among participants. The mean score on the Connor-Davidson Resilience Scale (CD-RISC) was 69.5 (SD = 10.3), suggesting that most participants possessed a moderate to high level of emotional resilience. For academic well-being, measured through the Student Well-being Questionnaire (SWQ), the mean score was 4.1 (SD = 0.68), reflecting overall positive perceptions of academic satisfaction and motivation among the students.

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Table 1. Mean, standard deviation and correlation coefficients between the variables of the present study

	Variable	Mean	SD	1	2
1	Mindfulness	3.42	0.55	-	
2	Emotional resilience	69.5	10.30	0.56**	-
3	Academic well-being	4.10	0.68	0.47**	0.52**

** p < 0.01

A correlation matrix was generated to explore the relationships among the main study variables. Mindfulness showed a significant positive correlation with emotional resilience ($r = 0.56$, $p < 0.001$) and academic well-being ($r = 0.47$, $p < 0.001$). Emotional resilience was also positively correlated with academic well-being ($r = 0.52$, $p < 0.001$). These initial findings indicate that higher levels of mindfulness and emotional resilience are associated with better academic well-being among university students.

To test the mediating role of emotional resilience in the relationship between mindfulness and academic well-being, a mediation analysis using Structural Equation Modeling (SEM) was performed. The proposed model included mindfulness as the independent variable, emotional resilience as the mediator, and academic well-being as the dependent variable .

The SEM analysis demonstrated a good fit to the data, as indicated by the following fit indices: Comparative Fit Index (CFI) = 0.93, Tucker-Lewis Index (TLI) = 0.91, and Root Mean Square Error of Approximation (RMSEA) = 0.06. These values suggest that the model adequately represents the relationships among the study variables.

The direct path from mindfulness to emotional resilience was significant ($\beta = 0.57$, $p < 0.001$), indicating that higher mindfulness scores were associated with increased levels of resilience. The direct path from emotional resilience to academic well-being was also significant ($\beta = 0.45$, $p < 0.001$), suggesting that students with higher resilience tend to report better academic well-being. The direct path from mindfulness to academic well-being, without considering the mediator, was positive and significant ($\beta = 0.31$, $p < 0.001$).

When emotional resilience was included in the model as a mediator, the direct effect of mindfulness on academic well-being decreased but remained significant ($\beta = 0.18$, $p < 0.05$), indicating partial mediation. The bootstrapping analysis with 5000 samples confirmed that the indirect effect of mindfulness on academic well-being through emotional resilience was significant

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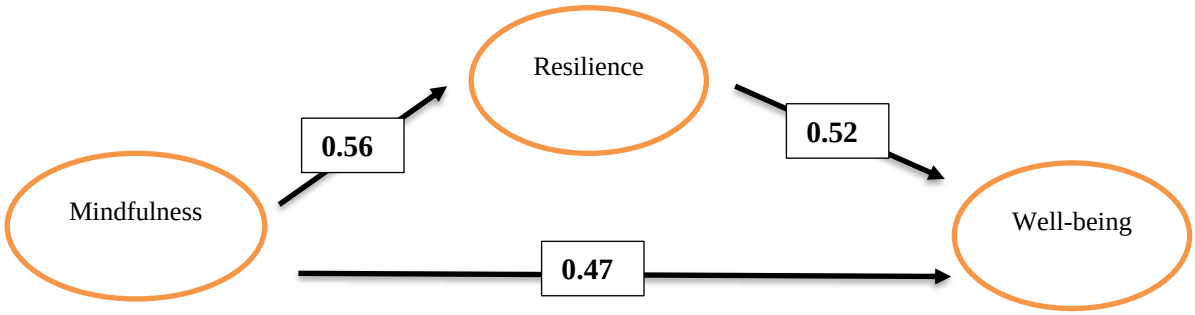
(β = 0.26, 95% CI = [0.15, 0.38]). This supports the hypothesis that emotional resilience partially mediates the relationship between mindfulness and academic well-being.



The results suggest that mindfulness is positively associated with academic well-being among university students, and this relationship is partially mediated by emotional resilience. Specifically, mindfulness enhances students' ability to manage stress and adapt to academic challenges, which in turn leads to better academic outcomes. While mindfulness directly improves academic well-being, a significant portion of its impact is channeled through the development of emotional resilience. This highlights the importance of fostering resilience alongside mindfulness to maximize the academic success and well-being of university students.

Discussion

The present study investigated the role of mindfulness in the academic well-being of university students, focusing particularly on the mediating role of emotional resilience. The findings reveal a significant positive relationship between mindfulness and academic well-being, as well as the partial mediation of this relationship by emotional resilience. This discussion section elaborates on the implications of these findings, their alignment with previous literature, and potential applications for educational practice and future research.

The study's results show that mindfulness is a significant predictor of academic well-being among university students, supporting previous research suggesting that mindfulness contributes to better emotional regulation and cognitive focus (Shapiro et al., 2007; Davis & Hayes, 2011). Mindfulness enables students to remain aware of their thoughts and feelings without becoming overwhelmed by them, which is particularly useful in an academic environment characterized by stress and time pressure (Mrazek et al., 2013). By staying grounded in the present moment, students may better

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manage their workload, remain focused during study sessions, and maintain a balanced perspective on their academic challenges.

The finding that emotional resilience mediates the relationship between mindfulness and academic well-being is consistent with prior studies that have explored similar pathways. Emotional resilience, or the ability to adapt positively to stress and recover from setbacks, has been identified as a key factor in students' ability to handle academic pressures (Connor & Davidson, 2003; Hofmann et al., 2010). Resilience allows students to maintain their motivation and focus even when faced with difficulties, which directly contributes to their academic success. In this study, mindfulness practices appear to foster resilience by helping students develop a more flexible and adaptive mindset, which, in turn, enhances their overall well-being in academic settings.

This partial mediation effect suggests that while mindfulness directly improves students' academic well-being, its impact is amplified when students also develop resilience. This finding aligns with the work of Garland et al. (2015), who demonstrated that mindfulness enhances positive reappraisal, a cognitive process central to resilience. By helping students reinterpret stressful situations in a more positive light, mindfulness may serve as a foundational skill that supports resilience and, ultimately, academic well-being. These results emphasize the importance of considering both mindfulness and resilience in efforts to promote student well-being.

The current study contributes to a growing body of literature that explores the role of mindfulness in educational outcomes. Previous research has shown that mindfulness training can lead to improvements in various aspects of student life, such as reduced anxiety, better sleep quality, and improved academic performance (Schutte & Malouff, 2019; MacKenzie et al., 2019). The positive relationship between mindfulness and academic performance has been attributed to the enhancement of cognitive functions like attention and working memory, which are critical for learning and academic achievement (Mrazek et al., 2013).

The study’s findings are also consistent with research highlighting the role of emotional resilience as a mediator in the relationship between mindfulness and well-being. For example, studies by Hollis-Walker and Colosimo (2011) and Hülsheger et al. (2013) suggest that mindfulness practices can lead to increased resilience by reducing negative emotional responses to stress. These researchers argue that mindfulness promotes emotional stability, which is a crucial component of

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resilience. This emotional stability allows students to maintain a positive attitude toward challenges and setbacks, thereby supporting sustained academic effort and achievement.

Moreover, the partial mediation observed in this study aligns with the results reported by Vidal-Meliá et al. (2022), who found that resilience partially mediates the effects of mindfulness on academic performance in higher education settings. Their study suggests that while mindfulness has direct cognitive benefits, such as improved focus, its effects on emotional regulation also play a significant role in enhancing students' ability to persist through academic challenges. This dual pathway highlights the complexity of the mechanisms through which mindfulness influences academic outcomes.

The findings of this study have important implications for educational practice, particularly in the design and implementation of student support programs. Given that mindfulness and resilience are both linked to improved academic well-being, incorporating mindfulness-based training into university curricula could be a valuable approach for supporting students' mental health and academic performance. Mindfulness-based interventions (MBIs), such as Mindfulness-Based Stress Reduction (MBSR), could help students develop the skills necessary to cope with academic pressures and maintain a positive outlook on their educational journey (Hofmann et al., 2010).

Furthermore, the study's results suggest that fostering resilience alongside mindfulness could provide additional benefits. Educational institutions could develop programs that not only teach mindfulness but also explicitly focus on building resilience through activities like problem-solving workshops, reflective exercises, and social support networks. By combining these approaches, universities can help students build a toolkit for managing both the cognitive and emotional demands of academic life.

Additionally, the partial mediation effect suggests that interventions targeting resilience alone may not fully harness the potential benefits of mindfulness. Therefore, integrated programs that address both mindfulness and resilience may be more effective in enhancing students' academic well-being. For example, resilience training could be paired with mindfulness practices that encourage students to focus on the present moment while also developing strategies for overcoming challenges.

While the findings of this study are promising, several limitations should be considered when interpreting the results. First, the study utilized a cross-sectional design, which limits the ability to

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draw conclusions about causality. Although the data suggest a relationship between mindfulness, resilience, and academic well-being, longitudinal studies are needed to determine the long-term effects of mindfulness on resilience and academic outcomes. Future research could track students over an academic semester or year to explore how changes in mindfulness practices influence resilience and well-being over time.

Second, the sample consisted of students from a single university, which may limit the generalizability of the findings. The experiences of students at different institutions or in different cultural contexts might vary, and future research should include more diverse samples to enhance the external validity of the results. Exploring the role of cultural factors in shaping the relationship between mindfulness and resilience could provide a more nuanced understanding of these constructs.

Third, the reliance on self-report measures for mindfulness, resilience, and academic well-being may introduce biases such as social desirability and self-perception bias. Although the measures used in this study are validated and widely accepted in the field, future studies could incorporate more objective measures, such as behavioral assessments of resilience or academic records, to provide a more comprehensive evaluation of the constructs.

Conclusion

The study underscores the significant role of mindfulness in enhancing university students' academic well-being, with emotional resilience serving as a partial mediator. These findings align with previous research and suggest that mindfulness can directly improve students' focus and emotional regulation, while also fostering resilience that further supports academic success. Integrating mindfulness-based practices into educational programs, along with strategies for building resilience, could be a key approach for promoting student well-being. Further research should focus on exploring the long-term effects of mindfulness training and consider diverse student populations to ensure broader applicability of the findings.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the ethics committee of University of Hormozgan. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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