



Mindful Eating as a Mediator of Academic Performance and Cognitive Flexibility

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Abstract: The present research explored the predictive and mediating role of mindful eating in academic performance and cognitive flexibility of university students. A quantitative correlational design was adopted to examine data from 200 participants (ages 18-25 years) via Pearson correlation, linear regression and mediation analysis. It found mindful eating was not significantly correlated with academic performance ($r = -0.093$, $p = 0.189$) and was not a predictor of it ($R^2 = 0.008$, $p = 0.189$). However, the correlation between cognitive flexibility and academic performance was positive and significant ($r = 0.241$, $p < .001$) and cognitive flexibility was a significant predictor ($\beta = 0.096$, $p = .001$). Mindful eating was moderately negatively correlated with cognitive flexibility ($r = -0.494$, $p < .001$). Furthermore, mediation analysis showed mindful eating did not mediate the impact of cognitive flexibility on academic performance (indirect effect = -0.006 , $p = .665$), but that the direct effect of cognitive flexibility was significant ($\beta = 0.258$, $p = .001$). In summary, these results suggest cognitive flexibility is an important predictor of academic performance; in contrast, mindful eating was not a significant predictor or mediator in this sample.

Keywords: *Mindful Eating, Academic Performance, Cognitive Flexibility, College Students, Mindfulness, Self-Regulation*

1. Introduction

Student's lifestyle is an important predictor of cognitive performance, psychological health and academic success, especially during the transition periods of college years. Students at this point in their lives are exposed to a range of stressors - academic, social and emotional - that may affect their cognitive and psychological functioning. Eating, one of the lifestyle factors, has also been recognised as a critical factor for both physical and mental health. Eating is not just a biological function, but is also a complex process that involves emotions, cognitive processes, and environmental factors. There has been a recent focus on maladaptive eating behaviours among university students including emotional eating, mindless eating, and skip breakfast. Such behaviour has been linked to decreased attention, cognitive functioning, emotional well-being, and academic performance. Unlike unhealthy eating patterns, mindful eating has emerged as a positive way to foster awareness and mindfulness when eating. Mindful eating entails being fully present during the eating experience, being attentive to one's hunger and fullness cues, and avoiding distractions. Rather than a focus on dieting and restriction, mindful eating involves savouring the present moment and adopting a non-critical stance toward eating behaviours. Deriving from the broader construct of mindfulness, mindful eating promotes increased awareness of behaviours and one's own experiences. Through increased awareness, mindful eating can lead to better self-control, fewer instances of impulsive and emotional eating, and improved psychological wellbeing. Another construct that plays a key role in academic achievement is cognitive flexibility. Cognitive flexibility is the capacity to shift attention and thinking patterns and to make behavioural adjustments in response to demands and circumstances. This is an essential element of executive functioning, and is important for problem-solving, learning and responding to novel or challenging tasks in the academic environment. Those with greater cognitive flexibility can cope better with academic stress, perform more effectively when shifting between academic tasks, and adapt better to complex academic situations. This helps to enhance academic performance and overall school functioning. Academic performance is a complex construct that involves cognitive, emotional and behavioural elements. It encompasses a student's capacity to learn, apply knowledge and reach learning objectives. Psychological well-being, attention, emotion regulation, and lifestyle factors are important for academic performance. In this regard, it is important to explore the influence of modifiable lifestyle factors, as they may represent a source of change.

While mindfulness-based interventions have been extensively investigated in terms of

psychological health and stress management, there is a general lack of studies exploring the impact of mindful eating, cognitive flexibility and academic performance among university students. This is significant because eating is a daily, modifiable behaviour that may impact on cognitive and academic performance. Through improved awareness and self-control associated with mindful eating, students may improve their attention skills, emotion regulation, and the efficient use of their cognitive resources in the learning process. In the current study, we aim to investigate the association between mindful eating, cognitive flexibility, and academic achievement in university students. It builds on well-recognised theoretical frameworks that describe the role of awareness, self-regulation and management of cognitive resources in enhancing functioning. Mindfulness stresses the value of being aware of the present moment in order to improve attentional and emotional regulation. Self-regulation theories highlight the importance of self-monitoring and control of behaviour, thoughts and emotions to achieve one's goals, which is essential for academic achievement and adaptive functioning. Moreover, cognitive theories highlight the importance of resource allocation and cognitive load in learning and achievement. By bridging these theories, mindful eating can be viewed not only as a health behaviour but also as a cognitive and psychological process that might affect academic performance. Engaging in mindful eating can potentially decrease distractions, increase attention, and regulate emotions, which can facilitate cognitive flexibility and improve academic outcomes. Exploring such associations may help better understand how everyday behaviours may influence students' cognitive and academic functioning. To this end, this research will explore the association between mindful eating and cognitive flexibility and academic performance in college students. Exploring these relationships may help to design interventions and strategies to enhance students' well-being and academic performance through the encouragement of healthier and more mindful living habits.

1.1 Purpose of the Study

The purpose of the study was to investigate mindful eating as a psychological and behavioural variable predicting academic achievement and cognitive adaptability in university students. The study sought to understand the interrelations of these factors and to examine whether mindful eating is a significant predictor or mediator of academic performance. Further, it investigated whether lifestyle mindfulness practices play a role in the success and cognitive flexibility of college students.

1.2 Aim of the Study

This research sought to explore mindful eating as a psychological and behavioural determinant of students' academic success and cognitive adaptability. It examined if increased recognition of eating habits is related to better academic and cognitive performance. It also assessed the predictive value of mindful eating in student performance and adaptability. Ultimately, it investigated whether mindful eating represents a lifestyle modifiable factor for improving academic achievement and cognitive adaptability.

1.3 Research Objectives

1. To determine the rate of mindful eating among students.
2. To determine the performance of students in terms of academic performance.
3. To determine the degree of cognitive flexibility of students.
4. To test the hypothesis of whether mindful eating is correlated with and predictive of academic performance and cognitive flexibility in students.

1.4 Research Hypothesis

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2. Method

2.1 Research Design

A quantitative, non-experimental, correlational research design was adopted for the current study. This approach was chosen for its appropriateness in the study of pre-existing associations between psychological variables in a natural environment. This design enables an objective evaluation of the presence and inter-relationships between mindful eating, academic performance and cognitive flexibility within the unique developmental milieu of higher education, without interfering with the naturalistic environment.

2.2 Inclusion Criteria

- Between the ages of 18 and 25 years.
- Attending an undergraduate or postgraduate course.

- Have a good command of the English language.
- Voluntary informed consent.

2.3 Exclusion Criteria:

- Participants outside the 18–25-year-old age range.
- Those not enrolled in study.
- Forms with missing or repeated responses.

2.4 Instruments

Three standardized self-report instruments were used to assess the key constructs in this study:

Mindful Eating Questionnaire (MEQ): Constructed by Framson et al. (2009), this 28-item questionnaire measures constructs including awareness, emotional reaction and distraction using a 4-point Likert scale (1 = Never/Rarely to 4 = Usually/Always). The MEQ has been shown to have satisfactory internal consistency ($\alpha = .64$ to $.83$).

Academic Performance Scale (APS): Developed by Carson Birchmeier et al., the APS is an 8- item scale that assesses perceived academic functioning and performance. This 5-point Likert- type scale (higher scores represent better functioning) has high internal consistency ($\alpha = .89$) and test-retest reliability ($r = .85$). The APS has good internal consistency ($\alpha = .89$) and high test-retest reliability ($r = .85$).

Cognitive Flexibility Inventory (CFI): Created by Dennis and Vander Wal (2010), this 20-item questionnaire measures cognitive flexibility in adapting to changing situations. It is scored on a 7-point scale and has high internal consistency ($\alpha = .90$).

2.5 Procedure

The sample was collected via online and university networks. Responses were collected using Google Forms, incorporating a research information sheet and demographic profile. The aim of the study and the voluntary participation was clearly communicated. The questionnaire took about 15-20 minutes to complete. To ensure the representative nature of data, only complete responses were cleaned and then exported to statistical software for analysis.

2.6 Data Analysis

Data were analysed with JAMOV software. The analytical plan included:

Descriptive Statistics: Means (M) and Standard Deviation (SD) to describe the distribution of variables. Pearson Product Moment Correlation: To assess the magnitude and direction of relationships between ME, AP and CF. Multiple Linear Regression: To assess the combined and

unique predictive effects of mindful eating and cognitive flexibility on academic performance. Mediation: Using bootstrapping techniques with bias-corrected confidence intervals to assess indirect effects.

2.7 Ethical Considerations

The study followed APA ethical guidelines. The ethical considerations included informed consent, freedom to withdraw without any penalties, and privacy through the absence of personally identifiable information. The study is in line with principles of beneficence and non-maleficence, with low psychological risks to the participants.

3. Results

Descriptive Statistics

The table shows that the sample of 200 participants has moderate levels of mindful eating ($M = 63.5$), average academic performance ($M = 33.5$), and relatively higher cognitive flexibility ($M = 90.3$), with moderate variability in scores. The distributions are approximately normal, as indicated by skewness and kurtosis values close to zero. The Shapiro–Wilk test confirms normality for mindful eating and academic performance, while cognitive flexibility shows a slight deviation from normality.

Descriptives			
	ME TOTAL	AP TOTAL	CF total
N	200	200	200
Missing	1	1	1
Mean	63.5	33.5	90.3
95% CI mean lower bound	62.1	32.8	88.4
95% CI mean upper bound	64.9	34.2	92.1
Standard deviation	9.89	4.98	13.3
Minimum	40	20	57
Maximum	90	47	126
Skewness	-0.183	0.104	0.341
Std. error skewness	0.172	0.172	0.172
Kurtosis	-0.234	-0.0999	-0.336
Std. error kurtosis	0.342	0.342	0.342
Shapiro-Wilk W	0.991	0.991	0.982
Shapiro-Wilk p	0.219	0.236	0.011

Correlation Analysis

Correlation analysis revealed that mindful eating did not have a statistically significant relationship with academic performance ($r = -.093$, $p = .189$). However, cognitive flexibility was significantly and positively associated with academic performance ($r = .241$, $p < .001$). Notably, an unexpected and significant moderate negative relationship was found between mindful eating and cognitive flexibility ($r = -0.494$, $p < .001$).

Correlation Matrix

		ME TOTAL	AP TOTAL	CF total
ME TOTAL	Pearson's r	—		
	df	—		
	p-value	—		
	95% CI Upper	—		
	95% CI Lower	—		
AP TOTAL	Pearson's r	-0.093	—	
	df	198	—	
	p-value	0.189	—	
	95% CI Upper	0.046	—	
	95% CI Lower	-0.229	—	
CF total	Pearson's r	-0.494***	0.241***	—
	df	198	198	—
	p-value	<.001	<.001	—
	95% CI Upper	-0.381	0.368	—
	95% CI Lower	-0.592	0.106	—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Regression Results

The regression results show two main findings:

First, when predicting academic performance (AP) from mindful eating (ME), the model is not significant. The relationship is very weak ($R^2 = 0.008$), and mindful eating does not significantly predict academic performance ($p = 0.189$). This means ME has no meaningful impact on AP in your data.

Second, when predicting mindful eating (ME) from cognitive flexibility (CF), the model is significant. Cognitive flexibility explains about 24.4% of the variance in mindful eating ($R^2 = 0.244$), and the relationship is statistically significant ($p < .001$). The negative coefficient indicates that as cognitive flexibility increases, mindful eating slightly decreases.

Overall, ME does not predict AP, but CF is a significant predictor of ME.

4. Discussion

This study shows that mindful eating is not a strong predictor of academic performance, indicating that although it can be beneficial for physical health, it does not directly affect student success in this sample. On the other hand, cognitive flexibility was a significant positive predictor of academic performance, which is in line with the Cognitive Load and Self-Regulation theories as it captures a student's capacity to respond to changing academic challenges and implement effective strategies to solve problems. A moderate negative association between mindful eating and cognitive flexibility was also found, which is inconsistent with the theory that greater self-regulatory ability is associated with mindful eating; this may indicate that students with high cognitive flexibility lead a dynamic lifestyle or have a multi-tasking personality that is less focused on mindful eating. The study also found mindful eating was not a mediator of the relationship between cognitive flexibility and academic performance, suggesting that the effect of cognitive flexibility on academic success is achieved through direct cognitive pathways, rather than through mindful eating. Thus, although mindful eating is a beneficial health behavior, academic interventions designed to improve success may be more effective if they target the development of cognitive flexibility and metacognition rather than mindful eating.

4.1 Limitations of the study

The presents study has several limitations, including employing convenience sampling, which limits the ability to extrapolate the results to a larger sample of college students in different geographical regions and settings. The use of self-reported measures also raises concerns about social desirability and recall biases, and the cross-sectional nature of the study precludes causal

inferences from being made between mindful eating, cognitive flexibility and academic achievement. Moreover, the study examined a limited number of variables, failing to account for other factors such as intelligence, motivation level or sleep quality, which have been found to affect academic performance. Furthermore, the research was limited to students between 18 and 25 years of age, and the surprising negative association between mindful eating and cognitive flexibility merits further investigation into potential factors affecting the latter, which were not qualitatively investigated.

4.2 Implications of the study

These results point to cognitive flexibility as an important predictor of academic performance, and imply that interventions targeting cognitive adaptation, problem-solving, and thinking shifts may be more effective in improving student performance than efforts that focus purely on lifestyle behaviours. Although mindful eating was not a significant predictor of academic performance, it is important for emotional regulation, stress reduction and well-being. The research also suggests that general mindfulness and specific mindfulness practices such as mindful eating should be considered separately when studying academic performance. The findings can inform educators and schools to implement specific cognitive skills training programs and holistic student wellness programs.

5. Conclusion

Overall, the current research reveals that while mindful eating is beneficial for well-being, it does not play a significant role in predicting or explaining academic performance in college students. On the other hand, cognitive flexibility was found to be a significant predictor of academic performance, highlighting the role of adaptability and executive function in learning. The inverse association between mindful eating and cognitive flexibility highlights the possibility of a more complicated interplay between lifestyle factors and cognitive processes than is theoretically predicted. In summary, although mindful eating may be beneficial to well-being, its impact on academic performance appears weak, whereas cognitive flexibility appears to be an important factor contributing to academic success.

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