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Prediction of Academic Engagement Based on Mindfulness and Perceived Academic Motivation with the Mediating Role of Academic Burnout and Academic Self-Handicapping

Elham. Mostafavi[1], Hamidreza. Vatankhah[2*], Javad. Khalatbari[2]

[1] PhD student, Department of Psychology, North Tehran Branch, Islamic Azad University, Tehran, Iran
[2] Assistant Professor, Department of Psychology, North Tehran Branch, Islamic Azad University, Tehran, Iran

*** Corresponding author email address**: ham_vatankhah@yahoo.com

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A B S T R A C T

Objective: Students in every society are an efficient and future-building class, a group that constitutes a significant portion of the planning and budget of each country. Their academic progress is crucial for their future success. The present study aimed to predict academic engagement based on mindfulness and perceived academic motivation with the mediating role of academic burnout and academic self-handicapping among students at Islamic Azad University.

Methods and Materials: This research utilized a descriptive-correlational methodology. The statistical population included all students of Islamic Azad University in Tehran who were studying in the academic year 2020-2021. A random sampling method was used to select a sample of 350 students. Data analysis was conducted using structural equation modeling and factor analysis through AMOS software. The instruments used included the Academic Engagement Questionnaire by Reeve (2013), the Freiburg Mindfulness Inventory (FMI-SF), Harter's Standard Perceived Academic Motivation Questionnaire, the Academic Burnout Questionnaire by Pekrun, Goetz, and Perry (2020), and the Academic Self-Handicapping Questionnaire by Jones and Rodault (2020). The factor analysis and Cronbach's alpha results confirmed their validity and reliability.

Findings: The results indicated that academic motivation and mindfulness directly and positively predict academic engagement, while academic self-handicapping and academic burnout directly and negatively predict academic engagement. Additionally, the proposed research model demonstrated good fitness.

Conclusion: It can be concluded that mindfulness and academic motivation, considering the mediating role of academic burnout and academic self-handicapping, have a significant impact on students' academic engagement.

Keywords: *Academic Engagement, Mindfulness, Academic Motivation, Academic Burnout, Academic Self-Handicapping.*

1. Introduction

Students in every society represent an efficient and future-building class, a group that occupies a significant portion of each country's planning and budget. Their academic progress is crucial for their future success (Finn, 1989). In any educational system, the level of academic progress among students is one of the indicators of success in scientific activities (Finn, 1989). Assessing academic progress and the factors influencing it are among the major issues that have attracted the attention of various researchers and is a key indicator in evaluating the educational system. All efforts and pulls of this system are to put this into practice (Jose, 2013).

One of the factors affecting academic progress and one of the concepts that have been challenged by researchers in recent years is the concept of academic engagement (Nicholls, 1984). Academic engagement is a construct first introduced to understand and explain academic failure and dropout. It has been considered a foundation for reform efforts in the field of education, being a crucial factor in achieving a learning experience that indirectly guarantees students' academic success (Sadat Mousavi & Ebrahimi, 2024; Slåtten et al., 2023; Ulubey & Alpaslan, 2022). Academic engagement encompasses behavioral, cognitive, and motivational dimensions. The behavioral dimension refers to observable academic behaviors, such as effort and persistence when facing difficulties while doing academic tasks and seeking help from instructors or peers to learn and understand academic material (Lyu & Wehby, 2023).

The emotional dimension of engagement refers to the learner's emotional and affective reactions in class and university. Emotional engagement includes intrinsic interest in academic content and tasks, valuing the material, having positive emotions, and the absence of negative emotions such as hopelessness, anxiety, and anger when doing academic tasks and learning (Pintrich, 2000; Pintrich & De Groot, 1990; Sadat Mousavi & Ebrahimi, 2024). Cognitive engagement includes various processing methods that students use for learning and comprises cognitive and metacognitive strategies. It should be noted that learners do not engage in learning per se, but rather in tasks, activities, and experiences that lead to learning; this engagement signifies the active involvement of an individual in a task or activity (Lee et al., 2010).

In other words, academic engagement can be examined from the meaning that the task holds for the learner. When a task has meaning and value for a student, it captures the student's attention, and the student feels a sense of commitment to this task and activities. This sense of commitment causes the student to strive to complete the task (Marks, 2000).

Academic engagement is a construct first introduced to understand and explain academic failure and dropout and has been considered a foundation for reform efforts in education (Bråten & Strømsø, 2004). Cognitive engagement includes various processing methods that students use for learning and comprises cognitive and metacognitive strategies (Casuso-Holgado et al., 2013). Cognitive strategies are actions that prepare new information to be linked and combined with previously learned information and stored in long-term memory, including three general categories: rehearsal, elaboration, and organization. Metacognitive strategies are a form of cognition that monitors cognitive processes (Fooladvand et al., 2009).

One variable related to academic engagement is mindfulness, which is awareness achieved through purposeful attention to the present moment, accompanied by compassionate and non-judgmental curiosity (Etemadi & Saadat, 2015). By cultivating awareness, we learn to live in the present moment and set aside thoughts about the past and worries about the future. If a student needs to engage in studies, they must focus on the reality of the present and be realistic (Greene & Miller, 1996). In today's busy world, our minds constantly shift from one topic to another. Our thoughts and emotions scatter, causing stress, perceived threats, and sometimes severe anxiety. When a student wants to focus on studies and progress, mindfulness can be extremely effective (Kajbaf et al., 2003).

To increase academic engagement, one effective factor is academic motivation. Without motivation, academic engagement is significantly reduced (Pintrich, 2000; Pintrich & De Groot, 1990). Motivation is the driving force behind human behavior and actions. If an individual lacks sufficient motivation to perform an activity, they will abandon it. Motivations are divided into two categories: intrinsic and extrinsic. Generally, when aiming for lasting and continuous changes and when sufficient time is available to implement programs, working with the intrinsic motivation system yields more beneficial results (Hejāzi et al., 2008). Long-term programs use principles related to intrinsic motivation. Conversely, for achieving rapid and intense changes, extrinsic motivational factors, such as external rewards that the individual enjoys, can be used (Dupeyrat & Mariné, 2005; Dweck, 1986; Furrer & Skinner, 2003; Pourseyed et

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al., 2019; Shidel et al., 2013; Ugwu FO, 2014; Zulalie & Ghorbani, 2014).

The education process is a major flow involving the motivational system. Activating and strengthening intrinsic motivation in students will fulfill their learning-based goals and ensure their durability and persistence (Fredricks et al., 2004; Golabchi et al., 2024). A student with strong intrinsic motivation does not act merely based on achieving high grades, awards, and special privileges but operates based on their intrinsic motivations (Datu & Yang, 2021). Often, individuals who pursue their goals despite various hardships and difficulties use their intrinsic motivation as a driving and reinforcing force (Karaman et al., 2020; Mikhak & Moradi, 2022). Self-motivated individuals or those with intrinsic motivation do not require constant use of extrinsic motivators. Although these incentives make them more active and motivated, the reduction or absence of such incentives does not significantly impact their motivation to engage in activities and, consequently, their performance (Hung & Blauw, 2017; Hussein, 2021).

Another variable that affects academic engagement is academic burnout. The feeling of burnout or tedium is one of the progressive emotions always experienced in academic contexts, and students constantly report varying degrees of it (Bahreini Moghim Jiroft et al., 2023; Sofyan et al., 2023; Zhang et al., 2023). Burnout relates to progressive activities such as attending classes, studying, or completing assignments (Lee et al., 2010). Burnout is a negative and passive emotion associated with unpleasant feelings, low-level physiological arousal, perceived lack of cognitive stimulation, task-unrelated thoughts such as daydreaming, subjective prolongation of time, and impulses to escape the situation inducing burnout through non-engagement (Meece et al., 1988).

In Pekrun's social-cognitive approach to achievement emotions, burnout is assumed to negatively impact motivation, activation of cognitive resources, self-regulated learning, and achievement outcomes (Pajares & Miller, 1994). Research evidence has shown that burnout has harmful effects on learners' academic engagement (Shirdel K, 2018), and is associated with poor academic performance (Nicholls, 1984), dropout from university (Zimmerman & Martinez-Pons, 1990), and juvenile delinquency.

The final variable addressed in this research is academic self-handicapping. In recent decades, academic self-handicapping has been recognized as a prevalent psychological impairment and the greatest obstacle to coping with the sense of self-efficacy among learners in educational systems, attracting the attention of educational psychology researchers (Sirin & Rogers-Sirin, 2005). Using self-handicapping strategies to justify potential future academic failure has become common among learners, and research results both domestically and internationally indicate the negative impact of these strategies on critical educational processes and academic performance (Ahmadi & Amoopour 2023; Poure et al., 2023).

According to Berglas and Jones, self-handicapping involves any action or context that allows an individual to attribute failure to external factors as an excuse and success to internal factors for gaining credit. Self-handicapping has been described as a causal attribution along with behaviors or defensive mechanisms and includes any action or choice that allows an individual to attribute failure externally and success internally (ANLI, 2019; Ghadampour et al., 2018). Self-handicapping should not be confused with attribution. Attribution explains the causal reason for performance following success and failure, while providing an excuse to justify potential poor performance in the future is a self-handicapping strategy (Hejāzi et al., 2008).

So far, techniques and philosophies for increasing academic engagement have been slow and often yielded disappointing results. These methods mainly rely on causation. Therefore, it seems that an immediate and successful method for increasing academic engagement is needed under current conditions. It appears that the primary focus of this approach should be on rapid results (Dogan, 2015; Dupeyrat & Mariné, 2005; Fredricks et al., 2004; Ugwu et al., 2013). Given the necessity of the discussed points, further research in this area is required. Thus, the subject of this research is the structural relationship of academic engagement based on mindfulness and perceived academic motivation with the mediating role of academic burnout and academic self-handicapping among students at Islamic Azad University. Based on the discussed points and the variables presented in the research model, the conceptual model is outlined below, which uses multiple variables to predict academic engagement.

2. Methods and Materials

2.1. Study Design and Participants

The research method used in this study, given the research objectives, is descriptive and correlational. The statistical population of this study comprised all students of Islamic Azad University in Tehran who were studying during the academic year 2020-2021. A random sampling

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method was used to select a sample of 350 students. To administer the questionnaires to the target population, initially, after visiting Tehran North Islamic Azad University, a list of faculties and university disciplines was prepared. Data collection was conducted based on the number of students in each faculty and discipline. Due to the COVID-19 pandemic, students were not physically present at the university, so the questionnaire was administered online through a Google link. To encourage student participation in the study, it was mentioned that upon returning the completed questionnaire, the results of one of the questionnaires would be interpreted and emailed to them. This incentive resulted in a positive response from students. Additionally, necessary assistance was provided by the academic and postgraduate education departments of each faculty to complete the questionnaires.

After completing the questionnaires, reviewing, coding the options, and extracting the data, the data were entered electronically. The data were recorded in the SPSS software, and some statistical operations were performed using this software. The scores for each questionnaire and sub-test were calculated. After obtaining the reliability of each subscale, checking the relevant assumptions, obtaining descriptive indicators for each variable, and eliminating some outliers, the sub-models and the final model were calculated using AMOS software and path analysis to arrive at the final model. Model fit indices were also examined.

2.2. Measures

2.2.1. Academic Engagement

The Academic Engagement Questionnaire was designed and developed by Reeve in 2013 to measure academic engagement. This questionnaire contains 17 questions and 4 components: behavioral engagement, agentic engagement, cognitive engagement, and emotional engagement. It is measured on a seven-point Likert scale with items such as "When studying, I try to combine different opinions to derive meaning." Validity or construct validity pertains to how well an instrument measures what it is intended to measure. The Cronbach's alpha coefficients for the subscales were calculated to be 0.86, 0.84, and 0.85, respectively (Hejāzi et al., 2008).

2.2.2. Academic Self-Handicapping

This questionnaire was designed and validated by Jones and Rodault. The original version of the self-handicapping questionnaire contains 23 items, measured on a 5-point Likert scale (from 1 = strongly disagree to 5 = strongly agree). This instrument was administered by Heydari et al. (2018) on a sample of 650 undergraduate students from universities across Iran, and the construct validity of this scale was examined using exploratory factor analysis. Additionally, the questionnaire was validated in the research by Jalili (2014), with a Cronbach's alpha coefficient of 0.78 (Soltannejad et al., 2015).

2.2.3. Mindfulness

This questionnaire has been widely studied and assessed for psychometric properties in various cultures. Buchheld et al. initially designed the original 30-item Freiburg Mindfulness Inventory. Later, a 14-item short form, more suitable for the general population, was designed by Walach et al. The long form of the Freiburg Mindfulness Inventory is more suitable for groups familiar with Buddhist culture and meditation practices. In contrast, the short form is more appropriate for groups less familiar with the Buddhist context of mindfulness and can be used across different cultures, effectively covering all aspects of mindfulness. To examine the validity and reliability of the short form of the Freiburg Mindfulness Inventory, 400 students were selected through multi-stage cluster sampling. Reliability was assessed using Cronbach's alpha, ordinal theta, and test-retest methods. Validity was examined through concurrent validity and confirmatory factor analysis. To assess the concurrent validity of the short form of the Freiburg Mindfulness Inventory, the short form of the Tangney Self-Control Scale and the Emotion Regulation subscale of the Schutte Emotional Intelligence Scale were used. The correlations between the short form of the Freiburg Mindfulness Inventory and the self-control (r = 0.69) and emotion regulation scales (r = 0.68) were reported as appropriate at the 0.01 significance level (Salah et al., 2024).

2.2.4. Academic Motivation

Harter's Standard Academic Motivation Questionnaire: This questionnaire consists of 33 items and aims to assess academic motivation among students. It is a revised version of Harter's scale, designed to measure academic motivation. As stated, Harter's original scale assesses academic motivation using bipolar questions, where one pole represents intrinsic motivation and the other represents extrinsic motivation, and the respondent's answer can only include one of the two reasons. Since both intrinsic and

extrinsic motivations play roles in many academic topics, Lepper modified Harter's scale into a more conventional format where each question considers only one reason for intrinsic or extrinsic motivation. Reliability or consistency of an instrument refers to the degree to which it consistently measures whatever it measures under the same conditions. The reliability of this questionnaire was obtained by Zohiri and Rajabi (2019) using Cronbach's alpha, which was 0.77 (Sadat Mousavi & Ebrahimi, 2024).

2.2.5. Academic Burnout

This is one of the subscales of Pekrun's Academic Emotions Questionnaire. This 22-item scale is designed to measure students' levels of burnout during class and learning. In studies, typically 5 or 6 items related to class burnout or learning burnout are used to measure these two aspects of academic burnout. In both scales, respondents answer on a 5-point Likert scale (from 1 = strongly disagree to 5 = strongly agree). The psychometric properties of the Academic Burnout Scale have been confirmed in various studies. Pekrun used exploratory factor analysis to confirm the construct validity of this factor as one of the subscales of the Academic Emotions Questionnaire. They reported reliability of 0.92 for the two aspects of this subscale. Other studies have also shown good internal reliability for this scale. Pekrun also reported favorable psychometric properties for the learning-related burnout scale in Chinese and Canadian cultures. In recent research, the reliability and stability of this scale were confirmed. In Iran, Nikdel, Kadivar, Farzad, and Karimi (2020) validated the questionnaire and the burnout subscales (class burnout and learning-related burnout) in a sample of 600 high school students. Confirmatory factor analysis demonstrated the construct validity of the burnout scale. The reliability of this scale was calculated using Cronbach's alpha method, with coefficients of 0.84 and 0.86 for the two subscales, respectively. In the present study, the reliability of this scale was obtained by calculating Cronbach's alpha coefficients of 0.88 and 0.90, respectively (Bahreini Moghim Jiroft et al., 2023).

2.3. Data analysis

The methods used in this research for analysis are divided into descriptive and inferential statistics. In the descriptive statistics section, using tables and measures of central tendency and dispersion, the obtained data were descriptively analyzed. Then, inferential data analysis was performed. To discover and formulate the causal model of academic engagement, the correlation matrix of all research variables was prepared and organized. To examine the model fit, structural equation modeling in AMOS software was used. Data analysis in this research was conducted using SPSS and AMOS software. SPSS software was used for describing and analyzing raw data and creating the correlation matrix, while AMOS was used to determine the fit of the proposed model with observed data.

3. Findings and Results

The present study aimed to investigate the structural relationship of academic engagement based on mindfulness and perceived academic motivation with the mediating role of academic burnout and academic self-handicapping among students at Islamic Azad University. An examination of the demographic characteristics showed that the research sample consisted of 350 students from Islamic Azad University, with 40% male and 60% female. The majority (73%) were aged 19-22, and the minority (6%) were aged 27-30.

In the sample under study, 30 individuals were examined in two groups: control and experimental. In the examined group, 46% (14 individuals) were in the first stage of secondary education, and 54% (16 individuals) were in the second stage of secondary education. In the examined group, 33% were the first child, 50% the second child, and 17% the third child. Table 1 presents the descriptive statistics of the study variables.

Table 1

Descriptive Statistics of the Study Variables

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Behavioral Engagement	9.41	2.47	0.18	-0.33
Agentic Engagement	7.32	2.86	0.32	-0.20
Cognitive Engagement	8.32	2.86	-0.64	0.40
Emotional Engagement	7.27	2.46	-0.43	-0.36
Emotional Exhaustion	10.32	2.86	-0.70	1.67

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Academic Disinterest	10.65	3.79		-0.07	-0.61
Academic Inefficiency	11.98	3.94		-0.31	-0.84
Intrinsic Motivation	25.23	4.25		-0.42	-0.86
Extrinsic Motivation	24.77	4.75		1.23	0.28
Academic Self-Handicapping	53.41	14.36		-0.11	-0.50
Mindfulness				-0.24	0.52

Using Pearson correlation tests, the relationships between variables were examined, yielding the following results.

Table 2

Correlation Matrix of the Research Variables

Variables	1	2	3	4	5	6	7	8	9
1. Behavioral Engagement	1								
2. Agentic Engagement	0.38*	1							
3. Cognitive Engagement	0.17*	0.29*	1						
4. Emotional Engagement	0.28	0.19*	0.22	1					
5. Emotional Exhaustion	-0.29*	-0.18*	-0.22	-0.19	1				
6. Academic Disinterest	-0.23*	-0.23*	-0.19*	-0.22*	0.23	1			
7. Academic Inefficiency	-0.21*	-0.19*	-0.19*	-0.18*	0.21*	0.23	1		
8. Intrinsic Motivation	0.23*	0.32*	0.29	0.21*	-0.21*	-0.12	-0.25*	1	
9. Extrinsic Motivation	0.21*	0.27*	0.21	0.18*	0.15*	0.19	-0.17*	0.21	1

*p<0.05

Table 2 shows the correlation between each variable and the correlation between subscales. As observed, the subscales of emotional exhaustion, academic disinterest, and academic inefficiency have negative correlations with other subscales, while the other subscales have positive and significant correlations with each other.

The measurement model specifies the hypothesized relationships between latent and observed variables. Table 3 shows the latent and observed variables of the model. This model includes five variables: self-efficacy, social support, mood and anxiety symptoms, happiness, and optimism.

Table 3

Latent and Observed Variables of the Model

Latent Variables	Variable Role	Observed Variables
Academic Engagement	Endogenous	Behavioral Engagement, Agentic Engagement, Cognitive Engagement, Emotional Engagement
Academic Burnout	Mediator	Emotional Exhaustion, Academic Disinterest, Academic Inefficiency
Academic Motivation	Exogenous	Intrinsic Motivation, Extrinsic Motivation
Mindfulness	Exogenous	Mindfulness
Academic Self-Handicapping	Mediator	Academic Self-Handicapping

To evaluate the hypothesized measurement model, confirmatory factor analysis (CFA) models of the latent variables are separately presented.

Table 4

Confirmatory Factor Analysis of Latent Variables

Latent Variable	Observed Variable	B	β	S.E.	C.R.	P
Academic Engagement	Behavioral Engagement	1	0.73	0.13	7.16	0.001
	Agentic Engagement	1.27	0.68	0.11	8.23	0.001
	Cognitive Engagement	0.59	0.55	0.09	8.42	0.001
	Emotional Engagement	0.49	0.64	0.17	9.02	0.004

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Academic Burnout	Emotional Exhaustion	1.27	0.81	0.10	10.11	0.001
	Academic Disinterest	1.19	0.59	0.08	9.89	0.001
	Academic Inefficiency	1.12	0.71	0.11	9.08	0.002
Academic Motivation	Intrinsic Motivation	1.07	0.84	0.07	12.22	0.001
	Extrinsic Motivation	1.09	0.65	0.09	11.55	0.001
Mindfulness		1.39	0.67	0.11	13.15	0.003
Academic Self-Handicapping		1.26	0.58	0.08	16.75	0.001

As evident in Table 4, all coefficients are positive, significant, and aligned with the researcher's expectations. Thus, it can be concluded that the confirmatory factor analysis of the latent variables of mood and anxiety symptoms and happiness is acceptable.

Table 5

Overall Model Fit Indices

Measure	X^2/df	CFI	NFI	GFI	AGFI	RMSEA	PCLOSE
Value	2.90	0.97	0.96	0.97	0.93	0.05	0.11
Criterion	1 to 3	>0.90	>0.90	>0.90	>0.90	<0.05	>0.05

The results in Table 5 indicate that this measurement model fits well. Therefore, the structural model of the research can be examined.

The results of Levene's test showed that the significance level is less than 0.05, indicating heterogeneity in the distribution of the body image variable.

Table 6

Direct Effects and Path Coefficients in the Overall Model (after accounting for measurement error)

Direct Effects	Standardized Coefficient	Unstandardized Coefficient	Standard Error	t	P
Effect of Academic Motivation on Self-Handicapping	0.226	0.363	0.147	3.45	<0.05
Effect of Academic Motivation on Academic Engagement	0.526	0.964	0.209	4.10	<0.05
Effect of Mindfulness on Academic Burnout	0.383	0.323	0.088	3.68	<0.05
Effect of Mindfulness on Academic Engagement	0.253	0.381	0.103	3.11	<0.05
Effect of Self-Handicapping on Academic Engagement	0.295	0.325	0.156	5.63	<0.05
Effect of Academic Burnout on Academic Engagement	0.244	0.271	0.105	5.89	<0.05

Based on the information in Table 6, regarding the direct effect of academic motivation on self-handicapping, the t-value is 3.45 ($p < 0.05$), indicating a significant relationship between academic motivation and self-handicapping.

For the direct effect of academic motivation on academic engagement, the t-value is 4.10 ($p < 0.05$), indicating a significant relationship between academic motivation and academic engagement.

Regarding the direct effect of mindfulness on academic burnout, the t-value is 3.68, indicating a significant relationship between mindfulness and academic burnout.

For the direct effect of mindfulness on academic engagement, the t-value is 3.11, indicating a significant relationship between mindfulness and academic engagement.

For the direct effect of self-handicapping on academic engagement, the path coefficient ($p < 0.05$) and the t-value is 5.63, indicating a significant relationship between self-handicapping and academic engagement.

For the direct effect of academic burnout on academic engagement, the path coefficient ($p < 0.05$) and the t-value is 5.89, indicating a significant relationship between academic burnout and academic engagement.

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Table 7

Indirect Effects of Variables

Indirect Effects	Standardized Coefficient	Unstandardized Coefficient	Standard Error	t	p
Effect of Academic Motivation on Self-Handicapping on Academic Engagement	0.285	0.255	0.122	3.15	<0.05
Effect of Mindfulness on Academic Burnout on Academic Engagement	0.475	0.421	0.174	3.39	<0.05

Based on the results in Table 7, there is a significant indirect relationship between the research variables academic motivation and self-handicapping on academic engagement. Additionally, there is a significant relationship between the variables mindfulness and academic burnout on academic engagement.

4. Discussion and Conclusion

The aim of this study was to develop and test a structural model of academic engagement based on mindfulness and perceived academic motivation, with the mediating role of academic burnout and academic self-handicapping among students at Islamic Azad University. The results showed that mindfulness and academic motivation significantly influence students' academic engagement, considering the mediating roles of academic burnout and academic self-handicapping. The obtained indices indicated that the model has an acceptable fit.

Academic engagement is an ideal state that students achieve under specific conditions in connection with educational activities. This important role necessitates a precise and systematic study of academic engagement (Fredricks et al., 2004). Academic engagement is a psychological concept, and its core is active and enjoyable learning (Zulalie & Ghorbani, 2014). Numerous studies over the past decades have ultimately linked learning with academic engagement (Casuso-Holgado et al., 2013; Dogan, 2015; Dupeyrat & Mariné, 2005; Fredricks et al., 2004; Furrer & Skinner, 2003; Hejāzi et al., 2008; Lyu & Wehby, 2023; Meece et al., 1988; Pintrich & De Groot, 1990; Sadat Mousavi & Ebrahimi, 2024; Slåtten et al., 2023; Ugwu et al., 2013; Ulubey & Alpaslan, 2022; Zulalie & Ghorbani, 2014). In this study, mindfulness had a significant impact on academic engagement. It appears that the logic behind this is that with increased mindfulness, individuals distance themselves from past academic and life memories, focus more on the present and current events, which opens up the students' mental space and allows them to tackle academic challenges and engagements more effectively (Azhdari & Yousefi, 2021; Evans, 2018).

Although various studies indicate that mindfulness, self-handicapping, academic motivation, and academic burnout each alone can increase or decrease academic engagement, the researcher found no study that examined the combined effect of these variables. The results of this study align with those of other researchers on the impact of mindfulness and academic motivation on academic engagement (Azhdari & Yousefi, 2021; Evans, 2018; Melgaard et al., 2022; Özhan & Kocadere, 2020; Reeve, 2013; Sadat Mousavi & Ebrahimi, 2024; Samareh S. & Kezri Moghadam N., 2016; Sheikhi et al., 2019; Talebi et al., 2014; Tuominen-Soini & Salmela-Aro, 2014; Tuominen et al., 2020), as they all pointed to the effect of mindfulness or academic motivation on students' academic engagement. Additionally, it aligns with studies on the effect of self-handicapping on students' academic engagement (Ahmadi & Amoopour 2023; ANLI, 2019; Dehghani & Hekmatiyan Fard, 2020; Ghadampour et al., 2018; Habibikaleybar, 2021; Jensen & Deemer, 2020; Keramati, 2021; Poure et al., 2023).

Explaining the findings of this study, it can be stated that mindfulness is among the issues that can influence students' learning and academic engagement, allowing them to understand issues in the present without any preconceptions or judgments. Mindfulness teaches individuals how to break out of inflexible habitual patterns and direct information processing resources towards neutral attentional goals, such as breathing or sensory awareness, preparing conditions for change (Azhdari & Yousefi, 2021).

In this method, physical exercises reshape the schema model. Additionally, having a moderate attitude towards the past, present, and future indicates mental health, whereas extreme attitudes reflect biases leading to unhealthy living methods. The goal is for individuals to learn from yesterday, enjoy today, and manage tomorrow (Azhdari & Yousefi, 2021; Evans, 2018). Academic engagement is learned and altered through personal, social, and institutional impacts and varies from individual to individual. It plays a crucial role in shaping perceptions, expectations, attentional biases,

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achieving social goals, motivation, and a sense of control. Therefore, the impact of mindfulness on academic engagement is undeniable. Additionally, academic motivation is a vital and strategic personal trait because a motivated individual is resourceful, adaptable, and quickly recovers after stressors (Azhdari & Yousefi, 2021; Evans, 2018).

Motivation also plays a significant role in enhancing psychological well-being and quality of life under stressful and pressured conditions for students. Academic engagement provides an idea and vision of a desirable future for students, and the right perspective can generate energy, helping students use their skills, talents, and resources to achieve it (Furrer & Skinner, 2003; Meece et al., 1988; Melgaard et al., 2022; Özhan & Kocadere, 2020). Students often endure stress beyond their capacity due to their age and gender, sometimes suffering harm, but their outlook on time can shield them in dealing with life's challenges. Academic motivation means the ability to cope with difficult conditions and respond flexibly to life pressures. It does not limit stress or erase life problems but empowers individuals to cope healthily, overcome difficulties, and flow with life. Many factors are necessary for motivation to be dynamic and continuous in students' lives, with academic motivation being one of the critical factors (Tuominen-Soini & Salmela-Aro, 2014; Tuominen et al., 2020; Zulalie & Ghorbani, 2014).

Indeed, if a student is mired in past academic problems with a negative past outlook, motivation towards life's issues diminishes. However, with a positive motivation, they can demonstrate resilience in overcoming academic challenges even in adverse and challenging conditions. Moreover, in balanced academic engagement, individuals have a goal-oriented approach towards life. Therefore, the meaningful relationship between academic motivation and dimensions of academic engagement is explainable. In essence, a well-motivated student has good planning, goal orientation, discipline, and perseverance and resists temptations to achieve their goals (Furrer & Skinner, 2003; Meece et al., 1988; Reeve, 2013).

The present study's findings also demonstrated the destructive impact of self-handicapping on academic engagement. These results somewhat align with research by Dweck et al. (1986), indicating that self-handicapping reduces both individuals' mental health and wisdom, leading to lower academic engagement (Dweck, 1986). It also aligns with studies on the impact of self-handicapping on academic engagement by Finn (1989). Explaining the findings on self-handicapping and academic engagement, it can be stated that self-handicapping strategies are preconditions individuals create, hoping they substitute factors that might cast doubt on their competence in the future (Finn, 1989). It is clear that if a student deliberately does not put effort into university and postpones studying until the last moment, they will perform poorly and consequently have low academic progress. Academic engagement has significant cognitive, emotional, and behavioral outcomes for individuals (Zulalie & Ghorbani, 2014). Students with high academic engagement find learning challenges inherently interesting and attractive, valuing learning itself. Research evidence indicates that these individuals do not use self-handicapping strategies as they seek mastery and competence, finding no benefit in self-handicapping, which contradicts academic engagement and effort (Bråten & Strømsø, 2004).

Researchers have shown that students with high academic engagement levels perform better in university-related topics, sports, health maintenance, problem-solving, and psychological well-being. Academic engagement effectively influences many life domains, as these individuals can set effective goals and make appropriate decisions regarding these goals (Elliot et al., 1999). Research findings show that higher academic engagement is positively related to self-esteem and perceived competence and negatively related to signs of academic burnout. Concerning future time orientation, individuals with high academic engagement were more optimistic and focused more on success rather than failure when pursuing goals, emphasizing the reciprocal relationship between academic engagement and academic burnout variables.

Additionally, as academic engagement strategies focus on problem-oriented efforts to change stressful situations and target factors creating stress to reduce or eliminate burnout, it seems to have an inverse relationship with academic burnout. This means that individuals with high academic engagement have low academic burnout, and conversely, those with high academic burnout and emotion-focused and avoidant behaviors are more susceptible to burnout. Research findings confirmed this (Furrer & Skinner, 2003).

Other research results showed that academic burnout variables have a positive relationship with self-handicapping and a negative relationship with academic motivation and mindfulness. Academic engagement is one of the most important motivations in humans, being the source of dynamism and progress in life. If someone has hope, they will achieve it and prepare the means to reach that goal.

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Reviewing studies on academic engagement indicates that high levels of effort are related to physical and psychological health, high self-worth, positive thinking, and excellent social relationships. One of the most important motivational factors for students is their level of academic motivation (Fredricks et al., 2004). Academic motivation reduces academic failure and leads to better performance in educational activities. The more students' academic motivation towards the future, the more positively they view academic activities, showing greater interest and effort in classroom and scientific activities, which can enhance their progress and academic engagement. Self-handicapping reduces self-efficacy (Dogan, 2015).

This might explain why self-handicapping individuals often report negative emotional experiences. Since the goal of self-handicapping individuals in using these strategies is to maintain self-worth, they seem engaged in emotion-focused rather than problem-focused coping. In other words, they aim to protect themselves rather than improve performance. Evidence shows that highly self-handicapping individuals, compared to those with low self-handicapping, use emotion-focused strategies such as denial, cognitive disengagement, and behavioral disengagement, focusing more on negative emotions and less on positive coping strategies like positive reappraisal and emotional improvement (Fooladvand et al., 2009).

Self-handicapping behavior appears associated with outcomes such as reduced achievement motivation, emotional exhaustion, being caught in a cycle of avoidance of achievement, feelings of incapability and inefficacy, reduced expectation of success, internalizing failure, and forming false beliefs about abilities, seeing effort and hard work as signs of personal inability. These outcomes suggest that self-handicapping can lead to reduced performance and decreased achievement motivation.

Evidence indicates that academic burnout and academic performance have reciprocal effects, reinforcing each other, where self-handicapping leads to poor performance, which in turn leads to more self-handicapping. Academic burnout is associated with poor study habits, such as spending little time and effort preparing for exams. Some researchers believe that academic burnout occurs in two forms: claimed burnout and behavioral burnout (Kajbaf et al., 2003). Claimed burnout refers to situations where individuals claim incapacitating factors like fatigue, psychological stress, or exam anxiety. Behavioral burnout refers to situations where individuals actively create obstacles to reduce their chances of success. In other words, those with burnout have weaker academic engagement compared to normal individuals. Since academic success is a reliable indicator of economic and job stability, it can be predicted that individuals with academic burnout will face poor job and economic conditions after graduation (Linnenbrink & Pintrich, 2003).

Based on the research results, it is suggested that the educational system prioritize reducing learners' academic burnout in its policy-making and seek multidimensional coping strategies aimed at various elements of curricula and teaching methods to counteract learner demotivation. Multiple studies indicate that providing opportunities for collaborative learning, moderating competitive environments and evaluation systems in universities, reducing student control, and creating flexibility in assignments can reduce student demotivation and increase their control over situations, self-determination, perceived competence, and ultimately enhance their academic vitality.

5. Limitations & Suggestions

This study has several limitations that should be considered when interpreting the results. The sample was limited to students from Islamic Azad University in Tehran, which may limit the generalizability of the findings to other universities or regions. Additionally, the data were collected using self-report questionnaires, which could introduce response biases. The cross-sectional design of the study also prevents the determination of causal relationships between the variables. Finally, the study did not account for potential confounding variables such as socio-economic status or prior academic performance that might influence the observed relationships.

Future research should aim to replicate this study in different educational settings and among diverse student populations to enhance the generalizability of the findings. Longitudinal studies are recommended to better understand the causal relationships between mindfulness, academic motivation, academic burnout, and academic self-handicapping. Future studies should also explore additional mediating and moderating variables, such as social support, resilience, and academic stress, to provide a more comprehensive understanding of the factors influencing academic engagement. Experimental designs could be employed to investigate the effectiveness of specific interventions aimed at enhancing mindfulness and reducing self-handicapping behaviors.

The findings of this study have several practical implications for educators and policymakers. Universities

should consider integrating mindfulness training programs and academic motivation enhancement strategies into their curricula to promote students' academic engagement. Developing support systems to help students manage academic burnout and reduce self-handicapping behaviors could lead to improved academic outcomes. Additionally, creating a more flexible and supportive learning environment that reduces competitive pressures and encourages collaborative learning can foster a positive academic experience and enhance student engagement. Implementing these strategies could ultimately contribute to better academic performance and well-being among students.

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Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors contributed equally.

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