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RESEARCH ARTICLE

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Mediation of the influence of mindfulness on academic buoyancy by academic hope: A two-wave longitudinal study

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Abstract

Educational activities are significant in that they have an important place in the life of the individual and support mental health. In this study, the relationship between mindfulness and academic buoyancy and the mediating role of academic hope were examined in a longitudinal research study. Data were collected from 287 Turkish university students who participated in the study at 4-month intervals. An autoregressive analysis of the cross-lagged panel model for a half-longitudinal design was used to test the role of academic hope as a mediator in the relationship between mindfulness and academic buoyancy. The results revealed the direct effect of mindfulness on academic hope and academic buoyancy. In addition, academic hope was found to have a mediating effect on the relationship between mindfulness and academic buoyancy. It was, therefore, concluded that improving mindfulness practices may benefit people from both an academic and spiritual perspective.

KEYWORDS

academic buoyancy, academic hope, cross-lagged panel model, longitudinal study, mindfulness

Practitioner Points

- Mindfulness has a direct effect on academic hope and academic buoyancy.

- Academic hope has a longitudinal mediating effect on the relationship between mindfulness and academic buoyancy.
- Mindfulness is recommended to be practiced regularly, as it will have a positive influence on students in the educational context.

1 | INTRODUCTION

For as long as humans have existed, education has been a significant process in furthering knowledge. It is crucial for people to survive both individually and socially. Education is considered to boost psychological wellbeing and mental health by fostering social harmony among people (Holopainen et al., 2012; Martin & Marsh, 2020; Rueger et al., 2010; Van Petegem et al., 2007). These studies reveal that the academic wellbeing of individuals is a noteworthy indicator of any educational activity. In addition, the process of education has various positive effects on individuals. Gains such as building a good professional career, starting up new hobbies and interests, gaining new perspectives, and strengthening communication may be considered to be some of the positive influences of education. However, students must have a successful academic and vocational education to attain these outcomes. In addition, in order for students to be successful, they must be able to persevere when faced with challenges throughout the course of their education (Korhonen et al., 2014). The concept of academic buoyancy, which is connected to academic wellbeing, is argued to have potential utility in educational processes.

Academic buoyancy is the capacity of students to deal with challenges they may face during their educational journeys (Martin & Marsh, 2009). In other words, it is the state of being able to overcome difficulties like challenging activities, performance anxiety, or poor performance that any student may experience. It has been reported that individuals with high academic buoyancy levels have low academic anxiety (Martin et al., 2010; Martin et al., 2013), increase their school engagement (Bostwick et al., 2022; Ursin et al., 2021) and enjoyment of education (Bostwick et al., 2022; Granziera et al., 2022; Martin & Marsh, 2009), and decrease their stress levels (Hirvonen et al., 2019; Putwain et al., 2012). These research findings demonstrate the significance of academic buoyancy in educational processes. It is predicted that activities designed to boost academic buoyancy may reduce school dropout by improving students' adaptation to school (Martin & Marsh, 2020). In addition, it is possible that high academic buoyancy will increase the efficiency of education and positively influence academic achievement. From a wider perspective, it can be inferred that an individual's mental health will improve via the development of coping skills (Luthar & Cicchetti, 2000; Martin et al., 2010; Nogueira et al., 2023).

Individuals with high academic buoyancy need to be able to focus on the present moment. Academic buoyancy provides the ability to cope with the difficulties of educational life, but students need to be aware of the moment they are experiencing to acquire this skill. They may benefit from it even more effectively by focusing on the here and now. In this sense, mindfulness can be defined as the ability to stay in the moment or focus on the here and now rather than the past or the future (Baer et al., 2006). The concept of mindfulness helps people cope more effectively by enhancing their overall wellbeing (Brown & Ryan, 2003). Previous research shows that mindfulness increases life satisfaction as well (De Vibe et al., 2018; Kütük et al., 2023; Sarıçalı & Satıcı, 2017). This means that the academic buoyancy levels of individuals will increase alongside with mindfulness. Although various studies have been carried out to determine the effect of mindfulness on academic processes, the scarcity of studies on academic buoyancy is evident. In one of these limited contributions to the literature, Ziaian et al. (2015) reported that mindfulness practices increase academic wellbeing. In the study of Bóo et al. (2019), it was further concluded that mindfulness practices increase academic performance. The only research finding regarding academic buoyancy was

from the study of Ramasubramanian (2017) who designed a mindfulness-based communication course for first-year university students and tested the change in the participants' ability to cope with stress by comparing the pre- and posttest scores. The findings of the afore-mentioned research showed that mindfulness practices increased academic buoyancy as well as the ability to cope with stress.

2 | ACADEMIC HOPE AS A MEDIATOR

Hope is the belief that an individual can accomplish his/her objectives and the motivation to test various strategies in support of this conviction (Snyder et al., 2002a). Early studies show that hope is a significant component of mental health and a unique variable in predicting wellbeing (Gallagher & Lopez, 2009; Vacek et al., 2010). In addition, it can be argued that individuals with high levels of hope are mentally healthier (Rawdin et al., 2013; Satici, 2020). In a similar vein, academic hope is associated with the attainment of academic goals and an increase in academic performance (Feldman et al., 2009; Rand, 2009). It can therefore be argued that students with high levels of academic hope are more motivated to achieve success. In addition, it is claimed that these individuals develop various strategies to reach their goals and have the necessary motivation to implement these strategies (Snyder et al., 2008).

Individuals may direct their attention to the present moment as a means to attain their objectives. It is anticipated that individuals exhibiting elevated levels of mindfulness will be able to concentrate more easily on their academic pursuits. This circumstance has the potential to bolster individuals' motivation towards their academic objectives and aspirations. Individuals with a high level of mindfulness are, therefore, expected to have high levels of academic hope. This relationship between mindfulness and hope has been elucidated in various studies (Azila-Gbettor et al., 2021; Munoz et al., 2018; Sears & Kraus, 2009). The study conducted by Snyder et al. (2002b), for instance, reported that students with a high level of academic hope showed improved coping skills and demonstrated a decrease in school refusal. As expounded earlier, the construct of academic buoyancy exerts positive influence on coping skills, academic motivation, and school adjustment. From this perspective, it is posited that academic buoyancy and academic hope may have a positive relationship since the latter augments academic buoyancy by fortifying individual coping mechanisms and fostering school adjustment. In short, engagement in activities that increase academic hope can result in increased academic buoyancy among individuals, which is supported by a recent study by Dong et al. (2022) as well.

In summary, predicated on the foregoing discussion, mindfulness appears to have the potential to augment academic hope, subsequently fostering an elevation in the level of academic buoyancy. While extant literature offers a finite number of studies elucidating the interplay among these variables and substantiating the proposed conceptual framework (Azila-Gbettor et al., 2021; Dong et al., 2022; Ramasubramanian, 2017), a comprehensive examination encompassing all variables concurrently is notably missing. Moreover, it is noteworthy that longitudinal inquiries into these constructs are imperative when evaluating the corpus of existing research. Therefore, developing a better understanding of the link between these variables can help researchers and practitioners to increase students' academic accomplishments and academic performance. The present longitudinal investigation, therefore, holds the promise of elucidating the causal relationship between the aforementioned constructs. Therewithal, these research findings may also shed light on dynamic processes in students' academic lives that have not yet been explored or adequately addressed. In a long-term perspective, it is crucial to follow the influence of mindfulness on individuals' academic buoyancy levels via academic hope. This follow-up may provide clues to support the educational lives of individuals. Finally, the existing research into academic buoyancy lacks profound research findings since the majority of the studies are cross-sectional (Datu & Yang, 2021; Martin, 2013). The present research, therefore, stands out as a distinctive contribution to the literature by bridging a notable void in the scholarly discourse.

3 | METHOD

3.1 | Participants

The participants of the study were determined using the convenience sampling method. In Wave 1 (February 2022), a total of 305 university students attended, and their levels of mindfulness, academic hope, academic buoyancy, and demographic information (age, gender, and class) were assessed. We then re-assessed this sample after a 4-month interval. Two hundred ninety-nine participants completed the questionnaires for Wave 2 (June 2022). After matching, the final sample consisted of 287 university students, ranging from 18 to 24 years old (M_{age} = 21.24 years; SD = 1.61 years). Among them, 162 were female (56.4%) and 125 were male (43.6%). Of the participants, 54 (18.8%) were freshman, 76 (26.5%) were sophomores, 85 (29.6%) were juniors, and 72 (25.1%) were seniors.

3.2 | Procedures

Data was collected by sending participants' social media accounts via a web-based form. Since this research had a longitudinal design, personal codes were obtained from the participants to enable matching. These personal codes consisted of a nickname, the first three letters of the mother's name, the first three letters of the father's name, and the city of residence, respectively. Thus, data were collected from the same participants 4 months apart. Only participants who matched on two measurements based on the personal codes were included in the study's analyses. In addition, the only criterion for determining the sampling in this research was that the adults who were already enrolled in an undergraduate academic program at the time of this study were recruited for research purposes in this research. Participation was on a voluntary basis, and no fee was paid. All participants were informed about the research before taking part in the study, and their informed consent was obtained. Participants were first asked to provide descriptive data about their age, gender, and class in both measurements. Then, psychometric measurements were made regarding the three variables of the study. For both measurements, the online form was designed so that participants could leave at any time and submit the form only after all questions were answered.

3.3 | Measures

3.3.1 | Academic buoyancy scale (ABS)

The scale developed by Martin and Marsh (2009) was adapted into Turkish by Aydın and Michou (2020). There are four items in all on the scale. It is a five-point Likert scale with a score ranging from 1 (*totally disagree*) to 5 (*totally agree*). The participants' academic buoyancy scores increase as the scale score increases. It was reported that the ABS had an acceptable reliability coefficient. In the study, the Cronbach's alpha value of the scale was reported as .77 (Aydın & Michou, 2020).

3.3.2 | Academic hope scale (AHS)

AHS was developed by Shorey and Snyder (2004) to rate people's degrees of academic hope. By Satıcı and Beşaltı (2022), the scale was translated into Turkish. It is a Likert-type scale, with scores ranging from 1 (*definitely false*) to 8 (*definitely true*). The scale consists of nine items and two factors: agency and pathways. The higher the scores to be obtained from the scale, the higher the academic hope level. It was reported that the AHS had an acceptable

reliability coefficient. Satıcı and Beşaltı (2022) stated the Cronbach alpha values of AHS as .82 for the pathways sub-dimension, .86 for the agency sub-dimension and .91 for the total.

3.3.3 | Mindful attention awareness scale (MAAS)

MAAS was developed by Brown and Ryan (2003) to rate people's degrees of mindfulness. According to Özyeşil et al. (2011), the scale was translated into Turkish. It is a Likert-type scale, with scores ranging from 1 (*almost always*) to 6 (*almost never*). There are 15 items overall in its one-dimensional structure. Higher scores in the scale indicate higher level of mindfulness. The MAAS was reported to have an acceptable reliability coefficient, and the Cronbach alpha value was calculated by Özyeşil et al. (2011) as .80.

3.4 | Data analysis

Firstly, descriptive statistics (mean, SD, skewness, kurtosis, and reliability coefficients) and bivariate correlations between all study variables were computed. Then, the hypothetical longitudinal mediation model (the mediating role of academic hope in the relationship between mindfulness and academic buoyancy) was tested by using an autoregressive analysis of a cross-lagged panel model for a half-longitudinal design (Cole & Maxwell, 2003; Preacher, 2015) via AMOS 24. Model fit was evaluated using several indices, including standardized root mean square residual (SRMR), goodness of fit (GFI), comparative fit index (CFI), normed fit index (NFI), and incremental fit index (IFI). The model is acceptable if GFI, CFI, NFI, and IFI > 0.90 and SRMR < 0.08 (Hu & Bentler, 1999).

4 | RESULTS

4.1 | Preliminary analysis

Table 1 displays means, standard deviations, skewness, and kurtosis of mindfulness, academic hope, and academic buoyancy for students from Time 1 and Time 2. Also, Table 1 shows the relationships among the study variables

TABLE 1 Descriptive statistics and reliabilities for the study variables.

Variable	Correlations					Descriptive statistics and reliabilities						
	1	2	3	4	5	Mean	SD	Skewness	Kurtosis	α	ω	λ6
1. Mindfulness **T1**	–					60.14	13.67	−0.522	−0.203	.901	0.904	0.917
2. Mindfulness **T2**	0.330	–				56.32	15.70	−0.427	−0.048	.934	0.936	0.943
3. Academic hope **T1**	0.299	0.197	–			52.08	10.17	−0.689	0.681	.919	0.919	0.929
4. Academic hope **T2**	0.382	0.193	0.697	–		52.35	10.35	−0.650	1.023	.938	0.938	0.950
5. Academic buoyancy **T1**	0.278	0.208	0.581	0.504	–	14.74	3.40	−0.463	−0.171	.842	0.844	0.809
6. Academic buoyancy **T2**	0.469	0.209	0.582	0.601	.727	14.88	3.62	−0.492	−0.136	.891	0.893	0.867

Note: $^{**}p < .001$.

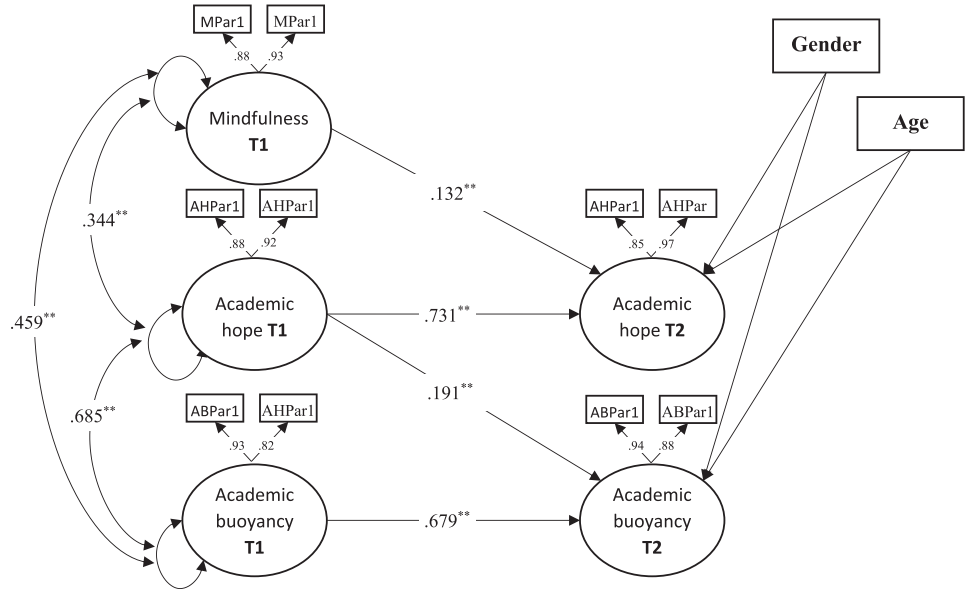

FIGURE 1 Cross-lagged panel model for a half-longitudinal design for testing the indirect association between mindfulness and academic bouyancy via academic hope. *$p < .05$, **$p < .01$.

across two waves. Mindfulness was significantly positively correlated to academic hope and academic buoyancy at Time 1–2. In addition, academic hope was significantly positively correlated with academic buoyancy at Time 1–2.

4.2 | Longitudinal mediational model

The cross-lagged panel model for a half-longitudinal design for the mediating role of the relationship between mindfulness and academic buoyancy revealed acceptable fit indices: $\chi^2_{(44,\ N = 287)} = 185.61$, $p < .001$; SRMR = 0.046; GFI = 0.913, CFI = 0.939, NFI = 0.923, and IFI = 0.940. In the model (Figure 1), mindfulness at Time 1 significantly predicted higher levels of academic hope at Time 2, controlling for age, gender, and academic hope at Time 1, $\beta = -.115$, SE= 0.058, $p < .05$. In addition, academic hope at Time 1 significantly predicted academic buoyancy at Time 2, controlling for age, gender, and academic buoyancy at Time 1, $\beta = -.113$, SE= 0.056, $p < .05$. These findings indicated that academic hope is a mediator of the longitudinal link between mindfulness and academic buoyancy.

5 | DISCUSSION

Academic buoyancy stands as a pivotal educational construct which is believed to wield substantial influence over the preservation and enhancement of individuals' mental well-being within educational contexts. It is thought that a number of variables may be correlated to the concept of academic buoyancy, denoting the capacity to effectively navigate challenges inherent in educational endeavors (Hirvonen et al., 2019; Martin & Marsh, 2009; Martin et al., 2013). The fact that the research design of the existing studies is generally cross-sectional (Datu & Yang, 2021; Martin, 2013) and that the longitudinal studies (Hoferichter et al., 2021; Martin et al., 2010) evaluating the concept of academic buoyancy are relatively few make it difficult for researchers to understand the cause-and-effect relationship between academic buoyancy and other variables. This study endeavors to address this gap by

subjecting the concept of academic buoyancy, which has been scrutinized across various academic domains, to a longitudinal examination. Within this model, the role of mindfulness, which is defined as the ability to focus on the here and now, and academic hope, which is defined as the motivation to reach goals, on academic buoyancy is mentioned. The findings obtained from the model were discussed in light of the literature.

The study's findings indicate that academic hope plays a mediating role in the relationship between academic buoyancy and mindfulness. It is observed that as mindfulness amplifies, so does academic hope, consequently bolstering academic buoyancy. Accordingly, individuals engaging in practices conducive to heightened mindfulness are likely to exhibit augmented levels of academic hope and academic buoyancy. Despite the scarcity of similar studies in the literature, one significant conclusion that can be made is that our findings are in line with Ramasubramanian's (2017) research, which underscores the association between mindfulness and academic buoyancy, positing that heightened mindfulness levels correspond to increased academic buoyancy. Similarly, existing studies examining the relationship between academic hope, the mediating variable in our analysis, and mindfulness echo the findings of the present study (Azila-Gbettor et al., 2021; Munoz et al., 2018).

Individuals with a high level of mindfulness demonstrate enhanced coping mechanisms and task-focused abilities, facilitating goal concentration through the employment of functional coping strategies. This elevation in coping mechanisms and the ability to focus on a task contribute to one's ability to concentrate on one's goals. In this way, the individuals use more functional coping mechanisms to reach their goals. Likewise, engaging in activities that can boost mindfulness can sharpen one's focus and help one do tasks more successfully. During the daily grind of school, students may encounter difficulties in a variety of areas (Granziera et al., 2022; Martin & Marsh, 2009). Therefore, they may feel nervous from time to time. It might be argued that mindfulness practices reduce personal strain and boost academic buoyancy. Concurrently, as mindfulness increases, academic hope—an aspiration toward academic attainment and performance enhancement—likewise ascends (Azila-Gbettor et al., 2021). Moreover, an escalation in mindfulness corresponds to heightened levels of academic buoyancy, defined as the capability to navigate educational challenges effectively (Ramasubramanian, 2017).

In the present study, a longitudinal model was used to analyze the interplay among these variables. The results supported the hypothesis that elevating mindfulness will increase academic hope and buoyancy. It has also been found that increased academic hope strengthens the relationship between academic buoyancy and mindfulness. The absence of comprehensive studies integrating all three variables underscores the novelty of our findings. The longitudinal design of this study facilitates a more robust exploration of the relationships under examination, enhancing the reliability of the results compared to cross-sectional approaches.

5.1 | Implications

The concept of academic buoyancy is widely recognized for its impact on a person's daily life, particularly within educational settings. It would be beneficial to raise academic buoyancy because it is a concept that positively influences academic achievement. Variables that could improve the concept of academic buoyancy were evaluated in the established model. Based on the model, it can be said that mindfulness can increase academic hope and academic buoyancy. Notably, the interplay between mindfulness and academic hope, as well as academic buoyancy, underscores the potential for educational interventions to bolster mindfulness, thereby fostering enhanced academic aspirations and resilience. Engaging in these educational activities designed to cultivate mindfulness is posited to elevate individuals' levels of mindfulness, consequently enhancing their academic hope and buoyancy. By amplifying mindfulness through such programs, individuals achieve both mental and academic gains. It is, therefore, recommended that mindfulness meditation be utilized to improve academic performance when seen in the context of education. It is noteworthy that there are many mindfulness-based educational programs in the literature (Baumgartner & Schneider, 2023; Ramasubramanian, 2017). Activities designed to increase the level of mindfulness through these programs can support individuals' ability to cope with the problems they may encounter in their

educational lives. In addition, it is reported that the activities implemented in mindfulness-based programs can directly influence the academic performance and academic success of individuals (Bóo et al., 2019; McBride & Greeson, 2023; Thierry et al., 2016). Additionally, these practices are argued to play an active role in fostering students' school engagement, academic well-being, and adaptation to the school environment (Felver et al., 2018; Ziaian et al., 2015). Accordingly, it can be argued that mindfulness-based education programs significantly contribute to individuals in their academic endeavors. The outcomes of this study underscore the importance of individuals' capacity to cultivate present-moment awareness and focus within educational contexts.

5.2 | Limitations and future research

It is pertinent to acknowledge that this study is subject to several limitations in the assessment of its findings. First, the sample consisted of undergraduate students. Utilizing data from a specific demographic subset may constrain the generalizability of the study's findings. Hence, future research may benefit from incorporating students across diverse educational tiers to enhance the breadth of the study's insights. At the same time, an intercultural study can be put forward by collecting data from different cultures. Second, the data from the research was collected and analyzed by making two measurements at a 4-month interval. The data collection period and measurement frequency can be increased in future research to assess the longer-term impacts that may take place. Lastly, the fact that the scales used as a data collection tool were developed based on self-reports may be considered another limitation. Qualitative data collection methods such as observation or interview may be used in future research. Additionally, research can be diversified by using alternative quantitative measurement methods. For instance, neuroimaging techniques may be preferred to measure participants' emotional or physiological responses. Moreover, virtual reality and augmented reality technologies may be used.

6 | CONCLUSION

As a result, it has been revealed that academic hope plays a significant mediating role in the relationship between mindfulness and academic buoyancy. A sample group of undergrads was used to test the established model, and both direct and indirect associations were found. The study's findings led researchers to the conclusion that mindfulness had a direct impact on academic hope and academic buoyancy. At the same time, the indirect effect of academic hope on the relationship between mindfulness and academic buoyancy was revealed. Drawing upon these results, it is highly recommended that individuals should engage in mindfulness practices more frequently since these practices are anticipated to yield positive results on individuals within educational contexts. Besides, individuals may benefit from the rise in these behaviors in terms of their mental and academic wellbeing. Subsequent investigations employing diverse methodologies to reevaluate the aforementioned variables across varied sample populations hold the potential to contribute novel insights to the existing body of literature.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

The study was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its following updates.

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