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Original Article

Resilience and Self-Leadership as Moderators of Academic Stress and Burnout Among Thai University Students

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Abstract

Many students grapple with high levels of stress and anxiety are result of the rigorous demands of their academic pursuits. Prolonged exposure to these stressors can result in academic burnout. This study addresses a critical issue in the academic context by exploring the protective roles of resilience and self-leadership, shedding light on how these psychological attributes can alleviate the adverse effects of stress and burnout. Utilizing an anonymous survey, the research involved 601 undergraduate students from Thai universities and employed four distinct scales: an academic stress scale, an academic burnout scale, a resilience scale, and a self-leadership scale. A comprehensive evaluation of the measurement model demonstrated the validity and reliability of all constructs. Hypotheses regarding moderating effects were evaluated using SPSS Program with the PROCESS macro (Model 2). The findings revealed a significant positive correlation between academic stress and burnout (b = 1.12, p < .01). Furthermore, the results indicated that heightened levels of resilience (b = -.09, p = .03) and self-leadership (b = -.09, p = .05) had a mitigating impact on the relationship between academic stress and burnout. This study holds substantial implications for educational institutions, emphasizing the importance of implementing resilience training programs, integrating self-leadership principles into educational frameworks, and launching mentorship initiatives to cultivate these essential qualities among students. By harnessing the moderating potential of resilience and self-leadership, universities can actively contribute to the well-being and academic success of their students, creating a more supportive and empowering educational environment.

The pursuit of higher education at the university level is a prevalent aspiration among the majority of students. However, upon entering university, a notable proportion of students face considerable levels of stress and anxiety due to the demanding nature of their academic pursuits. This stress primarily stems from the comprehensive academic curriculum, which requires them to acquire profound knowledge (Karyotaki et al., 2020). Additionally, the large workload with strict deadlines, frequent evaluations such as examinations and quizzes, familial pressures, and the competitive atmosphere among peers all contribute to this stress (Kaggwa et al., 2021). Continuous exposure to these stressful circumstances significantly contributes to heightened levels of stress among students and, if prolonged, can lead to academic burnout (Liu et al., 2023).

Academic burnout is characterized by a loss of motivation and enthusiasm for learning, feeling detached from fellow students, a lack of perceived academic achievement, and a negative attitude towards

studying. This condition is primarily a result of prolonged academic pressure (Liu et al., 2023). Research demonstrated that academic burnout has a negative impact on academic performance (Pholchan & Chuangchum, 2018) and is also a significant predictor of suicidal ideation (Dyrbye et al., 2014). A meta-analytic research study, encompassing 55 studies and a total sample of 27,940 individuals from 24 low- to middle-income countries, revealed that 27.80% of university students experienced academic burnout (Kaggwa et al., 2021). In Thailand, the COVID-19 pandemic has mandated remote learning for students, significantly impacting their mental well-being. According to a survey by the Department of Mental Health (2021), 29.29% of Thai students reported high stress levels, while 16.67% experienced academic burnout. A recent study encompassing 9,050 undergraduate students from 15 universities nationwide found that nearly 40% of Thai students claimed they always under stress, about 30% stating they always unhappy or depressed. The study also revealed that 4% of respondents had contemplated suicide, and 1.30% had harmed themselves more than once (Chulalongkorn University Social Research Institute, 2023). Consequently, it is crucial to identify appropriate measures to alleviate this academic-related mental problem.

Scholars have provided a comprehensive summary of the causes of academic burnout, highlighting both internal and external factors. Internal factors include individual personalities such as harm-avoidance, self-directedness (Chae et al., 2020), resilience, cognitive style (Yaghoobi et al., 2019), emotional intelligence and goal orientation (Supervia et al., 2020). While external factors encompass academic pressure, the learning environment, and interpersonal relationships (Lin & Yang, 2021), workload (Woranetipo & Chavanovanich, 2021), family environment (Luo et al., 2020). However, extensive research has consistently demonstrated that academic stress serves as a major contributing factor to the development of academic burnout (Liu et al., 2023). Academic stress refers to the emotional state experienced by students, indicating discomfort, mental distress, or a sense of pressure resulting from various factors encountered during their educational journey.

From a psychological perspective, it is plausible that specific positive characteristics among students could alleviate the detrimental impact of academic stress on academic burnout. While existing research has recognized various moderating factors, including self-esteem, self-efficacy, and the quality of peer and family relationships (Wen & Hu, 2023), this study aims to narrow the focus to resilience and self-leadership. This deliberate focus aims to make meaningful contributions to behavioral science by providing insights into the mechanisms through which academic burnout can be alleviated. It also can inform interventions designed to prevent burnout among students. Importantly, the present study addresses a notable gap in the existing literature related to the factors influencing academic stress and burnout among Thai university students. As previous studies predominantly concentrated on the factors contributing to academic burnout, our investigation uniquely explores mitigating factors, shedding light on how resilience and self-leadership play a crucial role in preventing academic burnout among this specific demographic.

Resilience has been described as the human capacity for facing adversity and overcoming or bouncing back from difficulties, with positive outcomes. Individuals with resilience demonstrate a positive attitude towards stress and effectively manage it. They also possess the ability to adapt and cope with diverse adverse circumstances (Polizzi & Lynn, 2021). Given these characteristics, it is plausible that resilience may serve as a moderator in the connection between academic stress and burnout. Previous studies have discovered a negative correlation between resilience and academic burnout (Janatolmakan et al., 2021). Furthermore, resilience has been identified as a moderating variable in the relationship between job stress and burnout among social service professionals (Stanley et al., 2021), as well as in the relationship between burnout and mental health among nurses (García-Izquierdo et al., 2017).

Self-leadership refers to the processed by individuals to establish direction and motivation within themselves to enhance performance and attain predetermined goals (Neuhaus & Houghton, 2023). Previous research has indicated that self-leadership plays a pivotal role in supporting individuals in achieving their objectives (Neuhaus & Houghton, 2023). This is because self-leadership stimulates individuals to prepare

themselves, enhancing their readiness to navigate diverse situations, address personal shortcomings, cultivate appropriate behaviors, eliminate undesirable characteristics, and set a course for personal growth. Studies have shown that self-leadership can alleviate academic stress among students (Maykrantz & Houghton, 2018). Additionally, self-leadership serves as a moderating variable in the relationship between excessive workload and emotional exhaustion (Junça-Silva et al., 2022).

In essence, resilience and self-leadership offer pathways for students to manage academic stress and prevent burnout. This study uniquely contributes to behavioral science by examining how these traits moderate the relationship between stress and burnout, providing insights for interventions that promote students' well-being and academic success. The findings hold significant value for universities, guiding the development of targeted interventions to address challenges related to academic stress and burnout, and fostering students with essential qualities for successful learning and future endeavors.

Literature Review

In this section, relevant literature and previous studies are presented. In addition, the relationships among the study variables are reviewed to formulate the research hypotheses.

Academic Burnout

The job demands-resources theory (Bakker & Demerouti, 2017) serves as a widely recognized theoretical framework for understanding burnout. According to this theory, burnout arises when there is an inequilibrium between job demands and personal resources necessary for achieving job success. Job demands encompass factors such as task complexity, workload, and various pressures associated with the job, while personal resources pertain to individual factors like knowledge, skills, social support from others, and self-confidence in one's abilities. When job demands surpass available personal resources, individuals may experience exhaustion. If this imbalance persists, it can ultimately lead to burnout (Bakker & Demerouti, 2017). Research indicates that burnout primarily stems from prolonged exposure to high work demands and excessive workload, perceptions of unfair treatment, lack of control and decision-making authority, absence of recognition or rewards, and poor interpersonal relationships (Maslach et al., 2001).

Burnout is characterized by emotional exhaustion and a decline in motivation to work (Edú-Valsania, 2022). It can be divided into three components as proposed by Maslach et al. (2001). First, exhaustion refers to feelings of fatigue, boredom, and a lack of enthusiasm for work. Second, cynicism involves a lack of interest, a desire to distance oneself from work, and a disregard for others. Lastly, reduced professional efficacy represents the belief that one is unable to achieve success in their work. However, some scholars have suggested that the core components of burnout are exhaustion and cynicism, as research has indicated a weaker relationship between reduced professional efficacy and the other two components, and reduced professional efficacy is more reflective of personality characteristics than burnout itself. Consequently, some researchers have chosen to focus on these two components when studying burnout (Kotzé, 2018). Burnout leads to a cascade of detrimental effects on individuals, encompassing both psychological and behavioral dimensions. Psychologically, burnout manifests as feelings of exhaustion, insomnia, digestive issues, diminished self-worth, depression, and anxiety. Behaviorally, it manifests as job dissatisfaction, absenteeism, reduced job performance, and voluntary turnover (Edú-Valsania et al., 2022).

In an academic perspective, academic burnout refers to a state in which students experience exhaustion, depletion of energy, negative attitudes towards learning, and a sense of inadequacy in their academic abilities, resulting from prolonged academic stress (Jagodics & Szabó, 2022). A recent study found that 27.80% of university students experience academic burnout (Kaggwa et al., 2021). Furthermore, studies have also demonstrated that academic burnout leads to reduced performance (Pholchan & Chuangchum, 2018), mental health problems (Oloidi et al., 2022), and even suicidal ideation (Dyrbye et al., 2014). Several important factors influence academic burnout, including study-related stress caused by heavy workloads, challenging course content, and insufficient time for content review and relaxation (Kiliç

et al., 2021). Additionally, individual characteristics and the attributional style of students also contribute to its occurrence (Lin & Yang, 2021).

Academic Stress

Psychological studies on stress have focused on "perceived stress", which refers to the level at which individuals evaluate events in their lives as stressful, unpredictable, and beyond their control (Phillips, 2013). Despite experiencing similar negative life events, individuals may appraise the impact or severity of these events differently due to factors such as personality, coping resources, and support. Therefore, stress arises from individuals' evaluations of whether a situation is demanding or not. As a result, two individuals facing the same situation may experience different levels of stress. In the present study, academic stress is the result of individuals' perceptions and evaluations of stress-inducing factors in the academic context. The level of stress depends on individuals' assessments of the situation or the factors causing stress (Phillips, 2013). Academic stress can arise from various factors, such as curriculum regulations, academic workload, and the difficulty of course content. In Thailand, a study conducted among medical students by Phanhan et al. (2018) found that teaching and learning factors had the most significant impact on students' stress levels. The main contributing factors were excessively difficult and extensive course content, overly challenging exams, insufficient time for exam preparation, lack of understanding from instructors, and an overwhelming number of activities in the clinical setting.

Previous research has consistently shown that academic stress is a significant contributing factor to academic burnout (Liu et al., 2023). As students progress to higher academic levels, they encounter increased levels of stress, leading to more severe instances of academic burnout. Moreover, studies conducted among medical students, nursing students, and the general student population have found that academic stress positively influences the occurrence of academic burnout (Lin & Huang, 2013). Thus, this study hypothesizes that:

H1: Academic stress has a positive effect on academic burnout among Thai university students.

Resilience

Currently, arriving at a consensus regarding the definition of resilience in the realm of psychological research poses a significant challenge. Scholars have presented three prominent viewpoints on resilience (Gong et al., 2021). The first perspective defines resilience by its outcomes, emphasizing the importance of contextualizing it within developmental achievements. It contends that resilience emerges as individuals positively adapt while navigating challenging, high-risk environments. The second perspective views resilience as an inherent trait or capacity signifying the ability to effectively cope with adverse life events, such as stress, frustration, and trauma. The third perspective characterizes resilience as a dynamic process involving positive adaptation amid significant adversity. However, scholars are increasingly recognizing resilience as an individual attribute marked by both variability and stability. This viewpoint underscores resilience as an indicator of an individual's capacity to actively confront adversity and swiftly recover from its effects (Gong et al., 2021).

The present study, however, aims to provide a concise evaluation of an individual's capacity to overcome adversity, essentially measuring their resilience. Thus, resilience can be defined as an individual's capacity to respond to and even thrive in the face of either negative or positive stressful circumstances or as the ability to recover from stressful events (Polizzi & Lynn, 2021). Individuals who possess resilience often exhibit self-regulatory abilities, an optimistic outlook, a positive attitude, confidence in their competencies, and a perspective that interprets obstacles as opportunities (Grant & Kinman, 2014). Consequently, they are capable of effectively addressing work-related challenges, achieving their goals, and demonstrating adaptability in the presence of unforeseen obstacles. Regarding assessment, a singular comprehensive score derived from an outcome assessment is significant in gauging the overall tendency to rebound from challenging situations (Polizzi & Lynn, 2021).

Resilience is paramount importance for students as it empowers them to navigate the challenges of academic pressure effectively. As an attribute, resilience enhances positive adaptation to the stressful situations encountered by students. Previous research consistently demonstrates negative correlations between resilience and burnout. Conversely, positive associations have been found that resilience and good mental health (Zou et al., 2016). Moreover, professionals experience elevated job stress but possess low levels of resilience are particularly susceptible to developing depression and burnout (Simpkin et al., 2018). The findings from various studies underscore the significant role of resilience as a critical attribute that can protect individuals from the negative effects of work-life imbalance and work-life conflict (Bernuzzi et al., 2022).

The Moderating Role of Resilience

According to the meta-model for stress, emotions, and performance (Fletcher & Arnold, 2017), stressors originate in an individual's environment and their effects are mediated by the processes of perception, appraisal, coping, and consequently manifest in positive or negative responses, emotional states, and outcomes. Resilience, according to this model, influences the stress process at various levels, including the evaluation of stressors, metacognition in response to emotions, and the selection of coping strategies (Fletcher & Arnold, 2017). In other words, resilience empowers individuals to perceive stressful situations as manageable challenges and enables them to choose appropriate strategies, such as problem-focused approaches, to effectively cope with these challenges.

According to the job demands-resources theory (Bakker & Demerouti, 2017), burnout occurs due to an imbalance between job demands and an individual's personal resources required for job success. As a result, possessing resilient traits provides individuals with the necessary resources to effectively manage job demands, thereby reducing the risk of experiencing physical and psychological health issues (Bakker & Demerouti, 2017). Previous research has consistently shown that resilience is a significant predictor of well-being (Padmanabhanunni et al., 2023). Additionally, studies have also indicated that resilience plays a moderating role in the relationship between job stress and burnout, particularly among social workers (Stanley et al., 2021). Based on these findings, this study posits the following hypothesis:

H2: Resilience moderates the positive relationship between academic stress and academic burnout among Thai university students, indicating that the impact of academic stress on academic burnout is attenuated with higher levels of resilience.

Self-Leadership

Self-leadership is a multifaceted concept that has gained prominence in the fields of psychology and organizational behavior. At its core, self-leadership refers to the process by which individuals guide and motivate themselves to enhance their performance and achieve their goals (Neuhaus & Houghton, 2023). Self-leadership is closely related to concepts like self-regulation, self-motivation, and self-efficacy, which collectively contribute to an individual's ability to excel in both personal and professional domains (Neuhaus & Houghton, 2023). In essence, self-leadership represents a proactive and empowered approach to personal growth, decision-making, and the pursuit of excellence, with far-reaching effects in various aspects of an individual's life and within organizational settings.

Individuals who possess self-leadership employ three types of strategies to enhance their job performance, which involve fostering effective behaviors, intrinsic motivation, and positive thinking. These strategies can be summarized in three categories, described further.

(1) Behavior-focused strategies: This strategy involves identifying ineffective behaviors and replacing them with behaviors that lead to desirable outcomes. Individuals must engage in self-observation, set personal goals, self-reward, self-correct, and self-prompt.

(2) Natural reward strategies: This strategy allows individuals to seek intrinsic satisfaction from their activities, leading to a sense of competence, self-control, and purpose in their work. Self-rewarding can be achieved by enhancing features that bring enjoyment to the task, thus creating a sense of personal fulfillment.

(3) Constructive thought pattern strategies: This strategy aims to modify one's thinking processes to foster positive thinking and a positive outlook on the world. It may involve identifying and eliminating erroneous beliefs and assumptions, as well as engaging in positive self-talk and constructing positive mental imagery.

Maden-Eyiusta and Alparslan (2022) revealed that self-leadership exerts a positive influence on work performance among individuals. Additionally, other studies have found positive associations between self-leadership and various important outcomes. For instance, self-leadership has been linked to enhanced life satisfaction, self-esteem (Uzman & Maya, 2019), and improved physical health (van Dorssen-Boog et al., 2021). Conversely, self-leadership has demonstrated negative associations with burnout (Sjöblom et al., 2022). Moreover, research has highlighted the beneficial effects of self-leadership in academic settings. It has been found to alleviate academic stress among students and mitigate the detrimental impact of excessive workload on feelings of exhaustion (Maykrantz & Houghton, 2018). Additionally, a recent meta-analysis conducted by Knotts et al. (2022) synthesized findings from 57 studies and found positive relationships between self-leadership and job performance, creativity/innovation, self-efficacy beliefs, work engagement, and job satisfaction.

The Moderating Role of Self-Leadership

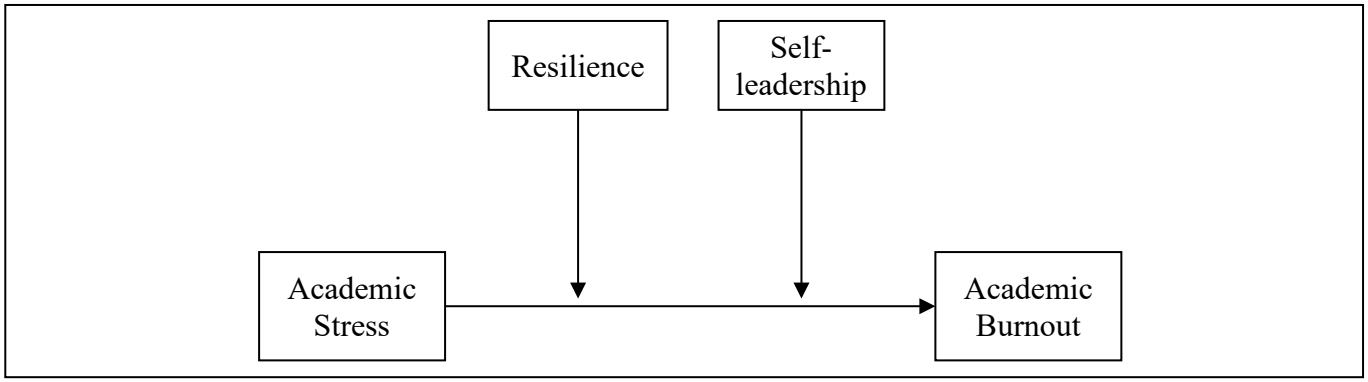
According to the job demands-resources theory, self-leadership can be considered a personal resource that acts as a buffer against the impact of job demands, leading to reduced levels of stress and burnout (Bakker & Demerouti, 2017). Research has shown that individuals with sufficient personal resources are better able to cope with job demands effectively (Bakker & Demerouti, 2017). Furthermore, personal resources, including self-leadership, have been found to promote well-being and job performance (Mihalca et al., 2021). Previous studies have also indicated that self-leadership plays a moderating role in the relationship between excessive workload and emotional exhaustion (Junça-Silva et al., 2022). Based on these findings, this study hypothesizes the following:

H3: Self-leadership moderates the positive relationship between academic stress and academic burnout among Thai university students, indicating that the impact of academic stress on academic burnout is attenuated with higher levels of self-leadership.

Figure 1 represents the relationships between the variables assessed in this study.

Figure 1

Proposed Model of The Study



Method

Research Design and Sample

This study employs a correlational research design with the aim of investigating relationships among the specified variables within the conceptual framework of the research. Given that the objective of this research is to test the relationships between various variables, convenience sampling can be used without adversely affecting the research findings (Sternthal et al., 1994). To ascertain the appropriate sample size for this study, G*Power 3.0.10 software (Faul et al., 2007), was employed. The analysis indicated that a minimum sample size of 395 participants would be necessary to detect a medium effect size with statistical significance at the .05 level, taking into account the inclusion of five predictor variables. However, the dataset for this research comprises responses collected from a total of 601 individuals.

Data collection for this study was executed during September, 2023 via an online survey instrument employing Google forms. The sample consisted of 37.10% male and 62.90% female respondents, with a mean age of 20.17 years. Of the participants, 26.20% were enrolled as first-year students, 20.20% were classified as second-year students, 34.50% represented third-year students, while the remaining 19.10% comprised fourth and fifth-year students. Regarding their field of study, 56.60% pursued degrees in the humanities and social sciences, 23.30% were enrolled in science and technology programs, and 20.10% pursued degrees in health sciences. The participants had a mean grade point average (GPA) of 3.19.

Instruments

All research instruments used in the present study, except an academic stress scale and a demographic information sheet, were translated from English into Thai with back-translation to ensure language equivalence. Translation and back-translation were performed by language proficiency experts.

(1) Academic burnout. The Maslach burnout inventory-general survey for students-MBI-GS (S) (Schaufeli et al., 2016) was used to assess academic burnout. In this study, the core dimensions of burnout, namely emotional exhaustion and cynicism, were selected, and a total of 9 items were included in the questionnaire. Respondents were asked to rate each item on a 5-point scale ranging from 1 (Never) to 5 (Always). Sample items are: "I feel burned out from studying" and “I have become less enthusiastic about my studies.” The scale's overall reliability coefficients were calculated to be .86. Additionally, for the dimensions of emotional exhaustion and cynicism, the reliability coefficients were .84 and .76, respectively.

(2) Academic stress. The development of the scale was grounded in the domain sampling model (Shum et al., 2017), which posits that a measure should encompass a random selection of items from a hypothetical concept domain containing all possible items. To construct such a measure, a theoretical definition of the concept domain of academic stress was formulated, and its critical attributes were identified. Subsequently, items that adequately represented and captured the unique aspects of the concept domain were translated into a measurement tool. The content validity of the generated items was assessed by a panel of five qualified experts. Items with an index of item objective congruence (IOC) exceeding 0.6 were retained for further analysis. Ultimately, the final measurement instrument consisted of 20 items, utilizing a 5-point Likert scale ranging from 1 (Not at all true) to 5 (Completely true). Sample items are: "I feel stressed about exams/tests" and “I feel stressed because I don't understand the course content.” Internal consistency reliability of the scale was .89.

(3) Resilience. The 6-item scale developed by Smith et al. (2008) was used to assess resilience. Respondents were asked to rate each item on a 5-point scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Sample items are: “It does not take me long to recover from a stressful event” and "I tend to bounce back quickly after encountering a stressful event." Internal consistency reliability of the scale was .79.

(4) Self-leadership. The abbreviated self-leadership questionnaire (ASLQ) developed by Houghton et al. (2012) was used to assess self-leadership. The scale comprises 9 items, rated on a 5-point scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Sample items are: "I visualize myself successfully performing a task before I do it" and "I establish specific goals for my own performance." Internal consistency reliability of the scale was .80.

(5) Personal information sheet. The personal information sheet asked participants to reveal their gender, age, and academic year.

Ethical Considerations

This research was approved and ethically certified by the Chiang Mai University Research Ethics Committee, Chiang Mai University, Thailand. Certificate of approval No. 068/66, dated June, 12 2023.

Results

Measurement Model Validation

Partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4.0 (Ringle et al., 2022) was used to assess measurement models in order to evaluate their reliabilities and validities. Convergent validity was established by examining the outer loadings (λ) of the indicators and the average variance extracted (AVE), a standard practice in measurement model assessment (Hair et al., 2017). The criteria for evaluating outer loadings necessitate that each reflective measure load significantly on its corresponding construct, with loadings exceeding the conventional threshold of .70. Nevertheless, indicators with loadings between .40 and .70 may be considered for removal from the scale, contingent on whether their exclusion results in an increase in the composite reliability (CR) above the recommended threshold value (Hair et al., 2017). Consequently, one item from the academic stress measure and two items from the self-leadership measure were excluded due to their low loading estimates. The retained items were then subjected to subsequent analyses. The analysis found that the AVE values for academic burnout, academic stress, resilience, and self-leadership factors were observed to fall below the recommended threshold of at least .50. Nevertheless, Fornell and Larcker (1981) contend that if the AVE falls below .50 but the CR exceeds .60, the convergent validity of the construct remains acceptable. The composite reliability estimates for academic burnout, academic stress, and resilience factors were calculated as .89, .90, .85, and .84 respectively. Additionally, these constructs exhibited good internal consistency, as evidenced by the alpha coefficient (α) values of .86, .89, .79, and .80 for academic burnout, academic stress, resilience, and self-leadership factors, respectively. These findings collectively indicate the presence of sufficient convergent validity within the measurement model.

To evaluate the discriminant validity of the constructs in this study, two distinct approaches were employed. The first approach involved the examination of the Heterotrait-Monotrait (HTMT) ratio of correlation, following the method outlined by Henseler et al. (2016). The results of this analysis indicated that all HTMT values fell below the recommended threshold of .85, thus providing evidence of adequate discriminant validity. The second approach is to compare the square root of the average variance extracted (AVE) with the correlation of latent constructs (Fornell & Larcker, 1981). This examination revealed that the square root of the AVE for each construct exceeded the correlations with other latent constructs. Consequently, both methods employed in the assessment of discriminant validity unambiguously affirm that all constructs under investigation demonstrate discriminant validity.

The thorough evaluation of the measurement model served to further substantiate the validity and reliability of all the construct measures under investigation. In light of these findings, the subsequent phase of the research shifted its focus towards a thorough examination of the hypothesized relationships among the constructs.

Hypotheses Testing

As can be seen from Table 1, academic burnout positively correlated with academic stress (r = .55, p < .001), and negatively correlated with resilience (r = -.40, p < .001) and self-leadership (r = -.31, p < .001). Academic stress also negatively correlated with resilience (r = -.40, p < .001) and self-leadership (r = -.13, p < .001).

Table 1

Means, Standard Deviations, and Correlation among the Study Variables

Variable	*M*	*SD*	1	2	3	4
1. Academic burnout	2.64	0.69	-			
2. Academic stress	3.29	0.68	.55**	-		
3. Resilience	3.15	0.73	-.40**	-.40**	-	
4. Self-leadership	3.90	0.58	-.31**	-.13**	.30**	-

Note. n = 601, ** p < .001.

To test whether resilience and self-leadership moderate the relationship between academic stress and academic burnout, a double moderation analysis was conducted using PROCESS 4.2 macro for SPSS (version 27), model 2 (Hayes, 2022). The moderation analysis employed bootstrapping with 5,000 samples and 95% bias-corrected confidence intervals (CIs). Demographic data of the sample were included as covariates; certain covariates, such as gender and field of study, were dummy coded. Table 2 illustrates the results of the moderation analysis.

As expected, academic stress positively influenced academic burnout (b = 1.12, SE = .19, p < .01). In addition, the positive relationship between academic stress and academic burnout was moderated negatively by resilience (b = -.09, SE = .04, p = .03) and self-leadership (b = -.09, SE = .05, p = .05). Both resilience and self-leadership acted as independent moderators. When academic stress was low, academic burnout was also low, regardless of the extent of resilience and self-leadership. However, with increasing academic stress, academic burnout was significantly higher for those who had low levels of resilience and self-leadership. The model was significant at F(11, 589) = 36.64, p < .001. Academic stress, resilience, self-leadership, and demographic factors explained 41% of the variance in academic burnout. The results support all hypotheses of the study.

Table 2

Results of Moderation Analysis

	b	*SE*	*t*	*p*	LLCI	ULCI
Constant	0.77	.80	0.96	.34	-0.80	2.34
Gender	-0.03	.05	-0.57	.57	-0.12	0.06
Age	-0.02	.02	-0.68	.50	-0.06	0.03
Year	0.05	.03	1.64	.10	-0.01	0.11
Field1	0.08	.06	1.38	.17	-0.03	0.19
Field2	-0.02	.07	-0.31	.76	-0.16	0.11
GPA	-0.08	.05	-1.72	.09	-0.18	0.01
Academic stress (IV)	1.12	.19	6.03	.00	0.76	1.49
Resilience (Mod1)	0.17	.15	1.10	.27	-0.13	0.46
Interaction1 (IV*Mod1)	-0.09	.04	-2.14	.03	-0.18	-0.01
Self-leadership (Mod2)	0.06	.16	0.37	.72	-0.25	0.36
Interaction2 (IV*Mod2)	-0.09	.05	-1.99	.05	-0.19	0.00
R^2	0.41**					

Note. n = 601, ** p < .001; Gender and Field of study were encoded as dummy variables and controlled in the model. LLCI = lower limit confidence interval, ULCI = upper limit confidence interval

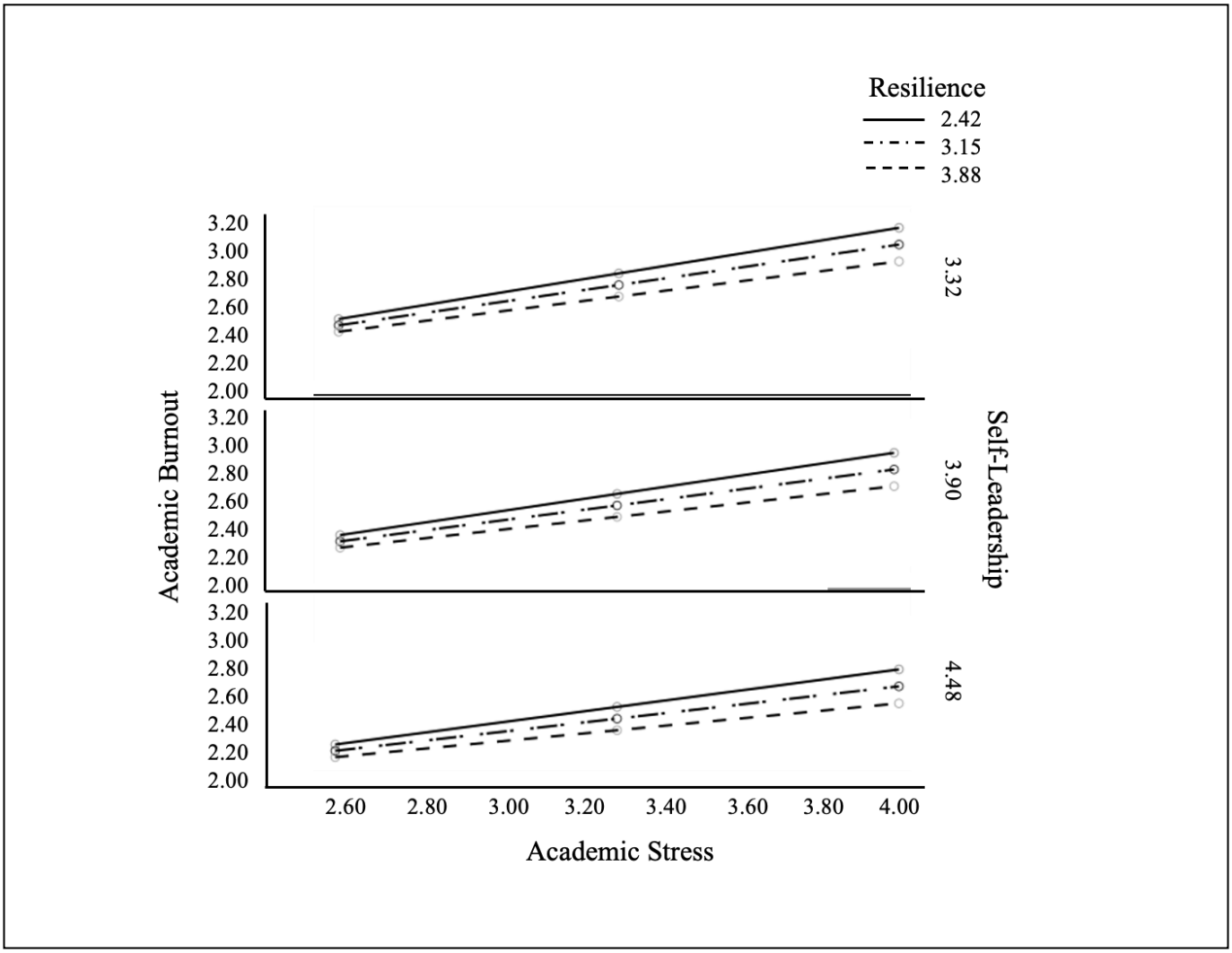
The negative values of the moderator indicates that the association between academic stress and academic burnout became less positive as resilience and self-leadership increased; in other words, the slopes that represent the relationship between academic stress and academic burnout were flattened as resilience and self-leadership improved. This can be clearly seen in Figure 2, which shows the effect of each moderator at different values of the other moderator. The effect of academic stress on academic burnout is significant in all possible combinations, but was attenuated with increased resilience and self-leadership.

Discussion and Conclusion

The aim of this study was to analyze whether resilience and self-leadership moderate the association between academic stress and burnout. The present findings revealed that academic stress positively influences academic burnout. In addition, the findings suggest that higher levels of resilience and self-leadership attenuate the effect of academic stress on students' academic burnout. These findings align with prior research that has demonstrated resilience's capacity to mitigate individuals' stress levels and its moderating influence on the link between job stress and burnout, as highlighted in studies conducted by Stanley et al. (2021). Additionally, the results corroborate the role of self-leadership as a moderator in mitigating emotional exhaustion linked to excessive workload (Junça-Silva et al., 2022).

Figure 2

Moderator Effects of Resilience and Self-Leadership on Academic Burnout. Conditional Effects of Academic Stress on Academic Burnout at Different Levels of Resilience and Self-Leadership



Resilience serves as a critical moderator in the relationship between academic stress and academic burnout for several compelling reasons. Firstly, grounded in the framework of the job demands-resources theory (Bakker & Demerouti, 2017), resilience equips individuals with vital resources essential for effectively managing the demands inherent in academic pursuits. In essence, resilient students possess coping mechanisms, cognitive adaptability, and emotional regulation skills. These multifaceted attributes collectively enable them to proficiently handle stressors, thereby mitigating the adverse consequences typically associated with stress, and ultimately tempering the pathway to academic burnout. Furthermore, the construct of resilience is intrinsically linked to a diverse array of psychological resources, including hardiness, a sense of control, emotional intelligence, self-efficacy, and optimism (Grant & Kinman, 2014). These invaluable resources bolster students' capacity to navigate challenging academic environments. As a collective reservoir of cognitive and emotional assets, these resources cultivate a positive outlook and enhance motivation, thus acting as moderators that effectively diminish the trajectory towards academic burnout.

Similarly, self-leadership emerges as a discerning moderator in the context of academic stress and its impact on students' susceptibility to academic burnout. Firstly, the construct of self-leadership encompasses an array of self-regulation strategies, such as setting goals, time management, and self-motivation. According to the job demands-resources theory, these self-regulation strategies can be considered a personal resource that effectively shield against the impacts of academic demands (Bakker & Demerouti, 2017). This proactive approach significantly attenuates stress levels, thereby reducing the likelihood of burnout among students. Secondly, self-leadership endows individuals with an elevated sense of agency and control over their academic experiences. This heightened sense of self-determination enhances their ability to confront and navigate the multifaceted stressors and challenges intrinsic to academic life, exerting a moderating influence on the path to academic burnout.

Limitations

The present study has some limitations. The first limitation is connected to our use of a cross-sectional design to gather data from university students. This approach may raise concerns regarding same-source bias (Spector & Brannick, 2009), which could potentially exaggerate the relationships between our research variables. Therefore, future researchers should consider employing an experimental approach that enables the investigation of causal relationships. Secondly, there might be concerns about the respondents' inclination to provide socially desirable responses. Nevertheless, it's important to note that we collected data anonymously and assured research participants of the confidentiality of their responses.

Implications for Behavioral Science

The results of this study carry significant implications for behavioral science. First, the significant positive relationship between academic stress and academic burnout among Thai university students emphasizes the importance of addressing stress in the academic environment. This finding implies that interventions and strategies designed to alleviate academic stress have the potential to reduce academic burnout, thereby positively impacting students' well-being and academic performance. Second, the study's revelation that higher levels of resilience and self-leadership act as moderators, lessening the impact of academic stress on academic burnout, underscores the potential for implementing resilience-building and self-leadership programs within educational settings. Research has indicated that resilience-building programs improved mental health outcomes such as stress, anxiety, and burnout (Yi-Frazier et al., 2022). Similarly, self-leadership programs improve emotional competence among university students (Montalvo-García et al., 2022). Thus, behavioral scientists and educators can explore the development of interventions aimed at enhancing students' resilience and self-leadership skills to better equip them in dealing with academic stressors. Additionally, universities can further support students by offering mentoring and coaching programs. Scholars have suggested that mentoring and coaching programs improve well-being of educators and students (Kutsyuruba & Godden, 2019). Experienced mentors can assist students in setting and achieving their academic goals, helping them manage their time effectively, and providing guidance

for making informed decisions about their academic paths. Collectively, these measures create a more supportive and empowering environment, ultimately contributing to the holistic well-being and academic success of students.

The present study offers valuable insights for future research in behavioral science. Firstly, researchers could delve into how cultural factors, such as collectivism and social norms, influence the relationship between resilience, self-leadership, and academic stress and burnout among university students. Secondly, future research could focus on developing and implementing resilience and self-leadership programs within the academic context to evaluate their effectiveness in alleviating stress and preventing burnout. Thirdly, future research could examine the efficacy of university support systems, including peer support groups, mentoring, and coaching programs, in mitigating academic stress and burnout among university students.

Conclusion

The present study suggests that resilience and self-leadership play important roles as potential moderators in the relationship between academic stress and academic burnout among Thai university students. These constructs act as supportive factors, helping to alleviate the negative effects of stressors and enhancing students' coping abilities, thus enabling them to navigate their academic challenges more effectively. Consequently, these elements may contribute to a decrease in the probability and severity of academic burnout. While these findings add valuable insights to the field of behavioral science, it's important to note that further research is needed to deepen our understanding. The results propose considerations for educational policies and practices to promote student well-being and success, but the conclusions should be interpreted with caution.

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