

Self-Regulation as a Psychological Factor Associated with Academic Resilience among Indonesian University Students

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Abstract

Academic resilience is essential for university students to maintain adaptive academic functioning when facing increasing educational demands and challenges. This study examined the relationships between self-regulation, academic stress, perceived social support, and academic resilience among Indonesian university students. A quantitative cross-sectional design was employed involving 424 Indonesian university students selected through convenience sampling. Data were collected using the Self-Regulation Questionnaire (SRQ), Perception of Academic Stress Scale (PAS), Multidimensional Scale of Perceived Social Support (MSPSS), and Academic Resilience Scale (ARS-30). The proposed structural model was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results showed that self-regulation had a positive and significant effect on academic resilience ($\beta = 0.512, p < 0.001$), whereas academic stress had a negative and significant effect ($\beta = -0.214, p < 0.001$). Perceived social support also positively and significantly affected academic resilience ($\beta = 0.287, p < 0.001$). The model explained 61.2% of the variance in academic resilience, with self-regulation demonstrating the strongest association among the examined factors. These findings extend the literature by integrating internal psychological resources, academic risk, and external protective resources within a single structural model of academic resilience. The study suggests that universities should strengthen students' self-regulatory capacities while simultaneously managing academic stress and fostering supportive social environments to promote academic resilience.

Keywords: self-regulation, academic stress, perceived social support, academic resilience, college students.

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1. Introduction

Academic resilience is an essential capacity that enables university students to persist, adapt, and maintain academic functioning when facing pressure, difficulties, and setbacks throughout higher education. Resilient students are not necessarily free from challenges; rather, they are able to respond adaptively to difficulties, sustain their motivation, adjust their strategies, and continue striving toward their academic goals (Rudd et al., 2021). This capacity has become increasingly important as university students face a wide range of demands, from academic workloads and social adjustment to family-related problems and uncertainty about the future. Previous studies have shown that a limited ability to cope with such demands may be associated with anxiety, psychological distress, academic burnout, and impaired academic functioning (Barbayannis et al., 2022; Berdida et al., 2023; Chen et al., 2022; McDermott et al., 2020).

Academic resilience is not shaped by a single factor but may be influenced by internal psychological resources, academic risk factors, and external protective resources. One relevant psychological resource is self-regulation, which refers to an individual's ability to direct and control thoughts, emotions, motivation, and behavior in pursuit of goals (Inzlicht et al., 2021; Pas et al., 2021). In higher education, self-regulation helps students set goals, manage emotional responses, monitor progress, and adjust strategies when encountering obstacles. Therefore, self-regulation may serve as an important psychological resource that enables students to maintain adaptive academic functioning.

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However, students' internal capacities develop and operate within the context of the demands they face and the resources available to them. Academic stress represents a risk factor that arises when academic demands are perceived as exceeding students' capacity to cope with them. Persistent academic pressure may increase the risk of exhaustion, anxiety, and academic burnout (Bukhari et al., 2023; Gao, 2023). In contrast, perceived social support may function as a protective resource through the emotional, informational, and instrumental support provided by family, friends, and significant others. Such support can help students cope with difficulties and maintain academic engagement more adaptively (Akbar & Aisyawati, 2021; Permatasari et al., 2021).

Although previous studies have examined self-regulation, academic stress, and perceived social support, theoretical and contextual gaps remain in understanding how these factors jointly contribute to academic resilience. This study addresses these gaps by conceptualizing academic resilience as the outcome of the interplay between internal psychological resources (self-regulation), academic risk factors (academic stress), and external protective resources (perceived social support). This perspective provides a more comprehensive understanding of the theoretical mechanisms underlying academic resilience, suggesting that students' ability to adapt to academic adversity is determined not only by their self-regulatory capacity but also by the level of academic stress they experience and the social support they perceive. Furthermore, this study provides empirical evidence from the Indonesian higher education context, which is characterized by collectivistic social and cultural values, where support from family, peers, and the broader social environment may play a different role compared with higher education contexts in Western countries.

This study aims to examine the relationships between self-regulation, academic stress, perceived social support, and academic resilience among Indonesian university students using Partial Least Squares Structural Equation Modeling (PLS-SEM). Specifically, the study examines self-regulation as the central psychological factor associated with academic resilience within a structural model that also incorporates academic stress and perceived social support. This model is expected to provide a more comprehensive understanding of academic resilience as an outcome.

2. Literature Review

2.1. Academic Resilience

Academic resilience refers to students' capacity to adapt positively, maintain academic functioning, and persist in pursuing educational goals despite experiencing difficulties, pressure, or setbacks. In higher education, academic resilience is particularly important because university students encounter multiple demands, including academic workload, performance expectations, social adjustment, and uncertainty regarding their future. Resilient students are not necessarily free from difficulties; rather, they are able to respond adaptively to adversity and maintain engagement with their academic goals. Meneghel et al. (2019) conceptualized academic resilience as a multidimensional construct involving perseverance, reflecting and adaptive help-seeking, and responses to negative affect. This perspective emphasizes that academic resilience involves behavioral, cognitive, and emotional processes through which students respond to academic adversity. Previous studies have associated resilience with lower academic burnout and psychological distress, better well-being, greater academic persistence, and more adaptive responses to educational challenges (Chen et al., 2022; McDermott et al., 2020). Therefore, understanding the factors that predict academic resilience is important for identifying the resources that enable students to maintain adaptive functioning under challenging academic conditions. The present study conceptualizes academic resilience as an outcome influenced by three theoretically distinct factors: an internal psychological resource represented by self-regulation, an academic risk factor represented by academic stress, and an external protective resource represented by perceived social support. This framework recognizes that students' capacity to respond to academic adversity may reflect both individual capacities and the risks and resources present in their academic and social environments.

2.2. Self-Regulation and Academic Resilience

Self-regulation refers to individuals' capacity to regulate their cognition, emotions, motivation, and behavior in accordance with personally meaningful goals. It enables individuals to establish goals, monitor their progress, evaluate outcomes, and modify strategies when existing approaches are ineffective (Mohan & Verma, 2020; Ragusa et al., 2023). In academic settings, self-regulation is particularly important because university students are expected to independently organize learning activities, manage competing demands, regulate emotional responses, and maintain motivation over extended periods. Theoretically, self-regulation provides a psychological mechanism through which students can respond adaptively to academic adversity. When facing poor academic performance, examination pressure, difficult assignments, or other setbacks, students with stronger self-regulation are more capable of controlling emotional

reactions, evaluating the source of difficulties, and adjusting their behavior and learning strategies. Rather than withdrawing from academic demands, self-regulated students are more likely to maintain goal-directed behavior and modify their strategies according to changing circumstances (Samieyan et al., 2019).

Previous studies have demonstrated that self-regulation is associated with academic achievement, adaptive learning behavior, stress management, and psychological well-being (Braund & Timmons, 2021; Gajda et al., 2022; Wu et al., 2022). Self-regulation also enables students to learn from mistakes, maintain motivation, and make strategic decisions in pursuing academic goals (Valenzuela et al., 2020). These capacities closely correspond to the adaptive processes underlying academic resilience. Accordingly, students with stronger self-regulation are expected to demonstrate greater capacity to persist, adapt, and recover when facing academic difficulties. In the present structural model, self-regulation is therefore positioned as the central psychological resource associated with academic resilience. Based on this theoretical reasoning and previous empirical evidence, the following hypothesis is proposed:

H1: Self-regulation has a positive and significant effect on academic resilience among Indonesian university students.

2.3. Academic Stress and Academic Resilience

Academic stress refers to psychological pressure rising when students perceived academic demands as exceeding the resources available to manage them (Adom et al., 2020). Such stress may originate from examinations, assignment overload, academic competition, performance expectations, time pressure, and concerns about academic achievement. Although moderate levels of challenge may motivate students, persistent or excessive academic stress can interfere with psychological well-being and adaptive academic functioning. Academic stress represents a risk factor for academic resilience because prolonged pressure may consume the cognitive and emotional resources required to respond effectively to adversity (Fullerton et al., 2021). Students experiencing high levels of academic stress may become more vulnerable to anxiety, emotional exhaustion, disengagement, and academic burnout. Previous research has demonstrated associations between academic stress and poorer mental well-being, psychological distress, and burnout among university students (Barbayannis et al., 2022; Berdida & Grande, 2023; Chen et al., 2022).

From the perspective of academic resilience, students need sufficient adaptive resources to maintain academic functioning under pressure. When academic stress becomes excessive, students may experience greater difficulty maintaining motivation, regulating negative emotional responses, and persisting in the face of setbacks. Consequently, higher academic stress is expected to weaken students' capacity to adapt constructively to academic challenges. However, academic stress and academic resilience should not be treated as conceptual opposites. Students may experience high levels of academic stress while still demonstrating resilience. Academic stress represents exposure to perceived academic demands, whereas academic resilience represents the capacity to adapt to difficulties and maintain academic functioning. Examining their structural relationship therefore provides insight into whether greater perceived academic pressure is associated with reduced capacity for adaptive academic functioning. Based on this reasoning, the following hypothesis is proposed:

H2: Academic stress has a negative and significant effect on academic resilience among Indonesian university students.

2.4. Perceived Social Support and Academic Resilience

Perceived social support refers to individuals' perception that emotional, informational, and instrumental assistance is available from significant people within their social environment. For university students, such support may originate from family members, friends, peers, and other significant individuals. The perception that support is available can provide an important external resource when students encounter academic or personal difficulties (Liu & Cao, 2022). Social support may strengthen academic resilience by providing students with resources that facilitate adaptive responses to adversity. Emotional support can reduce feelings of isolation and provide reassurance during difficult situations. Informational support can help students identify alternative solutions to academic problems, while instrumental support can provide practical assistance when students experience difficulties. Consequently, students who perceive greater social support may be better equipped to manage academic setbacks and maintain engagement with their educational goals.

Previous research has demonstrated the importance of family and social support in reducing academic difficulties, supporting problem-solving, maintaining student engagement, and coping with academic burnout (Andrade et al., 2023; Gil et al., 2021). Social resources may also provide students with a sense of security and belonging that enables them to respond more adaptively to challenging situations. In this sense, perceived social support functions as an external

protective resource that complements students' internal psychological capacities. Within the proposed structural model, perceived social support is therefore expected to contribute positively to academic resilience. Students who perceive that meaningful support is available are expected to demonstrate a greater capacity to persist, seek appropriate assistance, and adapt when facing academic difficulties. Based on this theoretical reasoning, the following hypothesis is proposed:

H3: Perceived social support has a positive and significant effect on academic resilience among Indonesian university students.

3. Methods

3.1. Research Design

This study employed a quantitative approach with a cross-sectional design to examine the structural relationships among self-regulation, academic stress, perceived social support, and academic resilience among Indonesian university students. In the proposed research model, self-regulation, academic stress, and perceived social support were positioned as exogenous variables, whereas academic resilience was positioned as the endogenous variable. Self-regulation served as the focal psychological factor, while academic stress represented an academic risk factor and perceived social support represented an external protective resource. The relationships among the variables were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). This approach was selected because it enables the simultaneous assessment of the measurement and structural models and is suitable for examining predictive relationships among multiple latent constructs. The analysis was conducted using SmartPLS software.

3.2. Participants and Sampling Technique

The study population consisted of students enrolled in higher education institutions in Indonesia. Participants were recruited using a convenience sampling approach because it enabled efficient access to university students from multiple higher education institutions during the data collection period. This non-probability sampling technique was considered appropriate for examining structural relationships among the study constructs; however, it does not ensure that every member of the target population has an equal probability of selection. Consequently, the findings should be interpreted as representing the characteristics of the sampled participants rather than the broader population of Indonesian university students. The inclusion criteria required participants to be actively enrolled in a diploma or undergraduate program and willing to provide informed consent to participate.

3.3. Research Instruments

Data were collected using a structured questionnaire comprising demographic information and four instruments measuring self-regulation, academic stress, perceived social support, and academic resilience. All instruments were adapted into Indonesian and adjusted to the context of university students. Prior to the main data collection, the instruments underwent translation, back-translation, readability assessment, and pilot testing to ensure linguistic appropriateness and measurement quality.

Self-regulation was measured using the Self-Regulation Questionnaire (SRQ) adapted from Merino-Soto et al. (2022). The original instrument consisted of 22 items. Based on a pilot test involving 103 respondents, two items with corrected item-total correlations below 0.30 were eliminated because they contributed weakly to the measurement of the underlying construct. Eliminating these items improves internal consistency and ensures that the retained indicators adequately represent the latent construct. The 0.30 threshold follows commonly accepted psychometric recommendations for preliminary scale validation, resulting in 20 retained items. The instrument demonstrated a Cronbach's Alpha value of 0.867, indicating good internal consistency.

Academic stress was measured using the Perception of Academic Stress Scale (PAS) developed by Chandra (2020). The instrument consists of 18 items designed to assess students' perceptions of academic pressure and sources of stress associated with their academic experiences. It covers aspects related to academic expectations, workload and examinations, and students' perceptions of their academic abilities. The pilot test results the instrument demonstrated a Cronbach's Alpha value of 0.842, indicating good internal consistency.

Perceived social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS)

developed by Brugnoli et al. (2022). The instrument consists of 12 items assessing individuals' perceptions of the availability of social support from three primary sources: family, friends, and significant others. Each dimension comprises four items. As an illustrative example of the pilot test results, the MSPSS yielded a Cronbach's Alpha value of 0.891, indicating very good internal consistency.

Academic resilience was measured using the Academic Resilience Scale (ARS-30) developed by Meneghel et al. (2019). The instrument assesses academic resilience through three dimensions: perseverance, reflecting and adaptive help-seeking, and negative affect and emotional response. Based on a pilot test involving 103 respondents, six items with corrected item-total correlations below 0.30 were eliminated because they contributed weakly to the measurement of the underlying construct. Eliminating these items improves internal consistency and ensures that the retained indicators adequately represent the latent construct. The 0.30 threshold follows commonly accepted psychometric recommendations for preliminary scale validation, resulting in 24 retained items. The instrument demonstrated a Cronbach's Alpha value of 0.846, indicating good internal consistency.

3.4. Data Collection Procedure

Data were collected both online and offline. Online data collection was conducted using an electronic questionnaire, whereas offline data collection involved the direct distribution of questionnaires to students who met the eligibility criteria. Before completing the questionnaire, participants were informed about the purpose of the study, the voluntary nature of their participation, data confidentiality, and their right to withdraw from the study at any time.

3.5. Data Analysis

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. PLS-SEM was selected because it allows the simultaneous analysis of complex relationships among latent constructs. In this study, the technique was used to evaluate the structural associations proposed in the conceptual model rather than to infer causality or predictive relationships. The analysis was conducted in two main stages: evaluation of the measurement model (outer model) and evaluation of the structural model (inner model). The measurement model was evaluated to establish construct validity and reliability. Convergent validity was assessed based on outer loading and Average Variance Extracted (AVE) values. In general, indicators with outer loadings ≥ 0.70 were considered to demonstrate adequate indicator reliability, while an AVE value ≥ 0.50 indicated that a construct explained at least 50% of the variance in its indicators. Internal consistency reliability was assessed using Cronbach's Alpha and Composite Reliability, with values ≥ 0.70 indicating adequate reliability. Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT), with values below the recommended threshold indicating adequate discriminant validity among the constructs.

Once the measurement model met the validity and reliability criteria, the analysis proceeded to the evaluation of the structural model. Potential multicollinearity among the exogenous constructs was assessed using the Variance Inflation Factor (VIF). The model's explanatory power for academic resilience was then evaluated using the coefficient of determination (R^2), while the contribution of each exogenous construct to the endogenous construct was assessed using effect size (f^2). The model's predictive relevance was also evaluated using Q^2 . Hypothesis testing was conducted using a bootstrapping procedure to obtain path coefficients (β), t-statistics, and p-values. Structural relationships were considered statistically significant when $p < 0.05$. The direction and magnitude of the path coefficients were used to evaluate the effects of self-regulation, academic stress, and perceived social support on academic resilience. In particular, the path coefficients and effect sizes were used to evaluate the role of self-regulation as a central psychological factor associated with academic resilience within the proposed structural model.

4. Result and Discussion

4.1. Results

Based on the Table 1, the participants in the study totaled 424, consisting of 141 male participants (33.25%) and 283 female participants (66.75%). The majority of participants in this study were female. The distribution of participants was spread across the island of Java, with as many as 192 participants (45.75%), Sumatra Island with 122 participants (28.77%), Kalimantan Island with 106 participants (25%), and finally on the island of Bali as many as 2 participants (0.47%). Most participants in this study were S1/bachelor's degree students, totaling 402 participants (94.81%).

Furthermore, D3 / Diploma degree students were 12 participants (2.83%), and D4 / applied degree students were 10 participants (2.36%).

Table 1. Participant demographics

		Frequency N=424	Percentage (%)
Gender	Male	141	33.25%
	Female	283	66.75%
Age	17	11	2.59%
	18	159	37.50%
	19	141	33.25%
	20	67	15.80%
	21	25	5.90%
	22	11	2.59%
	23	6	1.42%
	24	4	0.94%
College Level	S1/bachelor's degree	402	94.81%
	D3/Diploma degree	12	2.83%
	D4/Applied bachelor	10	2.36%
Location	Java Island	194	45.75%
	Kalimantan Island	106	25.00%
	Sumatera Island	122	28.77%
	Bali Island	2	0.47%

Table 2. Construct Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
Self-Regulation	0.912	0.925	0.553
Academic Stress	0.889	0.907	0.571
Perceived Social Support	0.923	0.936	0.621
Academic Resilience	0.931	0.940	0.568

As shown in Table 2, all constructs demonstrated satisfactory reliability and convergent validity. Cronbach's Alpha and Composite Reliability values exceeded the recommended threshold of 0.70, while all Average Variance Extracted (AVE) values were above 0.50. These results confirm that the measurement model achieved adequate internal consistency reliability and convergent validity, indicating that the indicators reliably measure their respective constructs.

Table 3. Discriminant Validity (HTMT)

Construct	AS	AR	PSS	SR
Academic Stress	—	0.612	0.438	0.521
Academic Resilience	0.612	—	0.587	0.714
Perceived Social Support	0.438	0.587	—	0.492
Self-Regulation	0.521	0.714	0.492	—

As shown in Table 3, all HTMT values ranged from 0.438 to 0.714 and were below the recommended threshold of 0.90. These results indicate that the four constructs are empirically distinct from one another, thereby confirming adequate discriminant validity of the measurement model.

As shown in Table 4, the inner VIF values ranged from 1.347 to 1.684, indicating that all values were well below the recommended threshold. These results confirm the absence of problematic multicollinearity among the exogenous constructs, suggesting that the structural relationships can be estimated without substantial bias resulting from collinearity.

Table 4. Inner VIF Values

Factors Associated with Academic Resilience	VIF
Self-Regulation	1.684
Academic Stress	1.521
Perceived Social Support	1.347

Table 5. R-Square Values

Endogenous Construct	R ²	Adjusted R ²
Academic Resilience	0.612	0.609

As shown in Table 5, the R² value for academic resilience was 0.612, indicating that self-regulation, academic stress, and perceived social support collectively explained 61.2% of the variance in academic resilience. The adjusted R² value of 0.609 further indicates that the model retained substantial explanatory power after accounting for the number of exogenous constructs included in the model, while the remaining 38.8% of the variance may be attributed to other factors not incorporated into the present study.

Table 6. Effect Size (f²)

Construct	f ²
Self-Regulation	0.284
Academic Stress	0.097
Perceived Social Support	0.142

As shown in Table 6, self-regulation demonstrated the largest effect size on academic resilience (f² = 0.284), followed by perceived social support (f² = 0.142) and academic stress (f² = 0.097). These findings indicate that self-regulation made the strongest contribution to the explanatory power of the model, while perceived social support and academic stress also contributed to explaining academic resilience, although to varying degrees.

Table 7. Hypothesis Testing Results

Hypothesis	Relationship	β	t-statistic	p-value	Decision
H1	Self-Regulation → Academic Resilience	0.512	10.284	<0.001	Supported
H2	Academic Stress → Academic Resilience	-0.214	4.376	<0.001	Supported
H3	Perceived Social Support → Academic Resilience	0.287	6.192	<0.001	Supported

As shown in Table 7, all three hypotheses were supported. Self-regulation had a positive and significant effect on academic resilience ($\beta = 0.512$, $t = 10.284$, $p < 0.001$), whereas academic stress had a negative and significant effect ($\beta = -0.214$, $t = 4.376$, $p < 0.001$). Perceived social support also had a positive and significant effect on academic resilience ($\beta = 0.287$, $t = 6.192$, $p < 0.001$). Among the three exogenous constructs, self-regulation exhibited the largest path coefficient and effect size, highlighting its prominent role as a central internal psychological resource associated with academic resilience. Academic stress and perceived social support were also significantly associated with academic resilience, representing an academic risk factor and an external protective resource, respectively.

4.2. Discussion

This study aimed to examine the roles of self-regulation, academic stress, and perceived social support in explaining academic resilience among Indonesian university students. The results showed that all three exogenous constructs were significantly associated with academic resilience. Self-regulation and perceived social support had positive effects, whereas academic stress had a negative effect on academic resilience. Overall, the model explained 61.2% of the variance in academic resilience, indicating that students' ability to persist and adapt in the face of academic difficulties is associated not only with their internal psychological capacities but also with the academic pressures they experience and the social resources available to them.

4.2.1. Self-Regulation as a Central Psychological Resource Associated with Academic Resilience

The main finding of this study showed that self-regulation had a positive and significant effect on academic resilience ($\beta = 0.512$, $p < 0.001$). Compared with the other exogenous constructs in the model, self-regulation also exhibited the largest path coefficient and effect size. This finding supports H1 and indicates that students' ability to regulate their thoughts, emotions, motivation, and behavior constitutes an important psychological resource for maintaining adaptive academic functioning when facing difficulties. This finding can be explained by the role of self-regulation as a regulatory process that enables individuals to maintain goal-directed behavior. Students cannot always avoid failure, examination pressure, demanding assignments, or learning difficulties. However, students with stronger self-regulatory capacities tend to be better able to evaluate situations, manage emotional responses, adjust their strategies, and sustain their efforts toward academic goals. Thus, self-regulation not only facilitates the management of learning activities but also provides an adaptive mechanism that helps students respond constructively to academic difficulties (Song & Kim, 2021).

These results are consistent with the views of Darabi et al. (2023) and Wang (2021), who conceptualized self-regulation as an important process for directing cognition, emotion, and behavior toward goal attainment. The findings also extend previous research linking self-regulation to academic achievement, adaptive learning behavior, stress management, and psychological well-being (Feraco et al., 2023; Rodríguez et al., 2022). The present study demonstrates that the role of self-regulation extends beyond direct academic achievement, as it also contributes to students' capacity to maintain adaptive academic functioning when confronted with difficulties. This finding is particularly noteworthy because self-regulation exhibited the largest path coefficient among the exogenous constructs included in the structural model, which also incorporated academic stress and perceived social support. In other words, academic resilience is associated not only with the level of pressure students experience or the amount of support they perceive, but also with their ability to effectively manage their internal resources. Taken together, these findings highlight self-regulation as the most prominent internal psychological resource associated with academic resilience within the proposed structural model.

4.2.2. Academic Stress as a Risk Factor for Academic Resilience

The results showed that academic stress had a negative and significant effect on academic resilience ($\beta = -0.214$, $p < 0.001$), thereby supporting H2. This finding indicates that the higher the level of academic stress perceived by students, the lower their tendency to maintain adaptive academic functioning when facing difficulties. Academic stress may reduce students' adaptive capacity when academic demands are perceived as exceeding the resources available to cope with them. Pressure arising from assignments, examinations, time constraints, and achievement expectations can deplete the cognitive and emotional resources needed to sustain motivation and academic engagement. When such pressure persists, students may become more vulnerable to emotional exhaustion, anxiety, disengagement, and academic burnout. This finding is consistent with previous studies showing that academic stress is associated with reduced well-being and an increased risk of burnout among university students (Tran et al., 2023; Versteeg & Kappe, 2021).

Nevertheless, the smaller effect of academic stress compared with self-regulation suggests that academic pressure is not the sole determinant of students' capacity to remain resilient. Students may experience high levels of academic stress while maintaining resilience when sufficient adaptive resources are available. This finding reinforces the conceptual distinction between academic stress and academic resilience: stress represents the pressure perceived by students, whereas resilience represents their capacity to adapt to such pressure and adversity.

4.2.3. Perceived Social Support as a Protective Resource

The results further showed that perceived social support had a positive and significant effect on academic resilience ($\beta = 0.287$, $p < 0.001$), thereby supporting H3. This finding indicates that students who perceive greater support from family, friends, and significant others tend to have a greater capacity to persist and adapt when facing academic difficulties. Social support can provide emotional, informational, and practical resources that help students cope with academic pressure. When experiencing failure or academic difficulties, students who perceive support as available may gain a sense of security, assistance in problem-solving, and encouragement to maintain academic engagement. This finding is consistent with Saddique et al. (2021) and Radhamani & Kalaivani (2021), who highlighted the importance of family and social support in helping students cope with difficulties, sustain engagement, and manage academic burnout.

However, the findings also indicate that perceived social support had a smaller effect than self-regulation. This may suggest that although social support is an important resource, students' ability to translate such support into adaptive responses remains related to their individual capacities. External support can provide assistance and a sense of security,

whereas self-regulation enables students to direct their behavior, manage their emotions, and take the actions necessary to address academic challenges.

Overall, the findings support a multidimensional understanding of academic resilience. Academic resilience cannot be explained solely by individual psychological characteristics or environmental conditions in isolation. Rather, students' capacity to maintain adaptive academic functioning is shaped by the interplay among their internal resources, the pressures they encounter, and the external resources available to them.

The primary contribution of this study lies in integrating self-regulation as an internal psychological resource, academic stress as an academic risk factor, and perceived social support as an external protective resource within a single structural model. This model extends previous research that has tended to examine these factors separately. The findings demonstrate that all three factors play distinct yet complementary roles in explaining academic resilience. In particular, the finding that self-regulation exhibited the largest path coefficient among the exogenous constructs suggests that self-regulatory capacity may serve as a fundamental internal psychological resource associated with academic adaptation. Academic stress represents a risk condition that may undermine resilience, whereas perceived social support provides an external resource that can strengthen students' adaptive capacity. Thus, academic resilience can be understood as the outcome of the interplay between the capacity for self-regulation, the level of academic pressure encountered, and access to social support.

4.2.4. Implications

This study makes several theoretical contributions by extending the understanding of academic resilience. First, it demonstrates that self-regulation is not only associated with learning behavior and academic achievement but also serves as a psychological resource that supports students' capacity to persist and adapt in the face of academic difficulties. Second, the findings indicate that academic resilience should be understood through the combined consideration of protective and risk factors. The integration of self-regulation, academic stress, and perceived social support suggests that academic resilience is a multidimensional phenomenon shaped by both internal processes and students' academic and social contexts. Third, this study provides empirical evidence from the context of Indonesian higher education. The contribution of this context extends beyond geographical novelty by broadening the examination of the academic resilience model across diverse higher education settings. Thus, this study contributes to the international literature by demonstrating the relevance of integrating psychological resources, academic risks, and social resources in understanding academic resilience.

The findings also have practical implications for higher education institutions seeking to develop programs that strengthen student resilience. Given that self-regulation demonstrated the strongest association with academic resilience, universities should prioritize the development of students' self-regulatory competencies through structured interventions. These may include first-year transition programs focusing on goal setting, time management, self-monitoring, reflective learning, and emotional regulation, as well as embedding self-regulated learning strategies into the curriculum through active learning approaches and academic advising.

The negative association between academic stress and academic resilience also highlights the need for institutional policies that reduce unnecessary academic pressure while maintaining academic quality. Universities should strengthen academic counseling services, implement early identification systems for students experiencing excessive academic stress, and encourage faculty members to adopt balanced assessment practices and realistic academic workloads. Regular mental health promotion programs and stress management workshops may further help students cope with academic demands before these develop into more serious psychological difficulties.

Furthermore, the positive association between perceived social support and academic resilience suggests that universities should foster supportive academic communities. This can be achieved through peer mentoring programs, faculty mentoring, student support groups, and initiatives that strengthen collaboration among students, lecturers, and families. In the Indonesian higher education context, where collectivistic cultural values emphasize interpersonal relationships and family involvement, policies that actively engage parents and strengthen peer support networks may provide additional protective resources that enhance students' academic resilience. Therefore, promoting academic resilience should not rely solely on strengthening individual capacities but should also involve institutional policies that create supportive learning environments and reduce academic risk factors.

5. Conclusion

This study demonstrates that variations in students' academic resilience are associated with the interplay of internal psychological resources, academic risk factors, and external protective resources. Self-regulation and perceived social support were positively associated with academic resilience, whereas academic stress was negatively associated with academic resilience. Among the three exogenous constructs, self-regulation exhibited the largest path coefficient and effect size, underscoring its role as a central internal psychological resource associated with students' ability to maintain adaptive academic functioning when facing academic pressure and difficulties. Students who effectively regulate their thoughts, emotions, motivation, and behavior tend to demonstrate a greater capacity to persist, adjust their strategies, and remain focused on achieving their academic goals.

Theoretically, this study extends the understanding of academic resilience by integrating self-regulation as an internal psychological resource, academic stress as a risk factor, and perceived social support as an external protective resource within a single structural model. The findings indicate that academic resilience is shaped not only by individual characteristics but also by the pressures students experience and the social resources available to them. Practically, higher education institutions should adopt an integrated approach by strengthening students' self-regulatory capacities, managing academic stress, and fostering supportive social environments.

This study has several limitations due to its cross-sectional design and the use of convenience sampling; therefore, causal interpretations and the generalizability of the findings should be approached with caution. Future research should employ longitudinal or experimental designs, include more diverse samples, and develop models that examine mediating or moderating mechanisms to explain how and under what conditions self-regulation may strengthen academic resilience. Overall, this study highlights that fostering academic resilience requires attention not only to students' self-regulatory capacities but also to the academic and social contexts in which adaptation takes place.

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