

Self-Regulated Learning and Academic Resilience in Higher Education: Evidence from Undergraduate Students of Pakistan

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ABSTRACT

Self-regulated learning (SRL) strategies and academic resilience are widely recognized as essential factors influencing students' academic success and lifelong learning. The present study investigated the relationship between self-regulated learning strategies and academic resilience among undergraduate students enrolled in public and private sector universities in Lahore, Pakistan. A quantitative, descriptive correlational research design was adopted. The study included a sample of 400 undergraduate students selected through stratified random sampling from two public and two private sector universities. Data were collected using a researcher-developed Self-Regulated Learning Strategies Scale and the Academic Resilience Scale developed by Cassidy (2016), both based on a five-point Likert scale. The instruments were reviewed by three experts to establish content validity, while reliability analysis demonstrated satisfactory internal consistency (SRL = .806; AR = .792). Data were analyzed using descriptive statistics, Pearson's correlation, linear regression, and independent-samples t-tests in SPSS. The findings revealed a statistically significant positive relationship between self-regulated learning strategies and academic resilience among undergraduate students. Among the SRL dimensions, cognitive regulation obtained the highest mean score, indicating that students were effective in regulating their learning processes, sustaining attention, and managing academic tasks. Within the academic resilience dimensions, help-seeking emerged as the highest-rated factor, reflecting students' willingness to seek academic support when encountering learning difficulties. Although a statistically significant gender difference was observed ($p = .028$), the magnitude of the difference was minimal, suggesting comparable levels of self-regulated learning and academic resilience among male and female students. The findings emphasize the importance of strengthening self-regulated learning strategies and resilience to enhance students' academic performance and lifelong learning competencies. The study recommends integrating goal-setting, self-monitoring, and resilience-building practices into higher education curricula to promote students' psychological well-being and academic achievement.

Keywords: self-regulated learning strategies; academic resilience; undergraduate students; public sector universities; private sector universities; higher education

INTRODUCTION

The rapidly evolving landscape of higher education has intensified the academic, psychological, and social demands placed upon university students. Undergraduate students are expected to cope with increasing academic workloads, technological advancements, competitive learning environments, and

diverse personal responsibilities while maintaining satisfactory academic performance. These challenges often lead to stress, anxiety, reduced motivation, and, in some cases, academic failure or dropout. Consequently, researchers and educators have increasingly emphasized the importance of psychological and learning-related competencies that enable students to successfully navigate academic challenges. Among these competencies, self-regulated learning (SRL) and academic resilience have emerged as two fundamental constructs that contribute significantly to students' academic success and lifelong learning (Zimmerman, 2002; Masten, 2014).

Self-regulated learning refers to an active and constructive process through which learners establish academic goals, monitor their cognitive and behavioral processes, regulate their motivation and emotions, and evaluate their learning outcomes to achieve desired educational objectives (Pintrich, 2000; Zimmerman, 2002). Rather than being passive recipients of knowledge, self-regulated learners assume responsibility for their own learning by employing cognitive, metacognitive, motivational, and behavioral strategies. These strategies include goal setting, strategic planning, time management, self-monitoring, self-evaluation, help-seeking, and reflection, enabling students to adapt their learning approaches according to situational demands (Boekaerts et al., 2000; Schunk & Zimmerman, 1998). Such learners demonstrate greater persistence, intrinsic motivation, and academic engagement, all of which contribute to improved academic performance and personal development.

The significance of self-regulated learning has become even more apparent in contemporary higher education, where learning environments increasingly require autonomy and independent decision-making. Unlike traditional teacher-centered classrooms, university education demands that students manage multiple academic responsibilities with relatively limited external supervision. Consequently, students who possess strong self-regulatory skills are generally more capable of organizing their learning activities, overcoming academic obstacles, and maintaining consistent motivation despite setbacks (Artino & Stephens, 2009; Dabbagh & Kitsantas, 2004). Moreover, advances in digital learning and the expansion of online education have further reinforced the necessity of self-regulation, as successful online learners must independently monitor their progress, manage their time effectively, and sustain learning motivation in less structured environments (Green & Azevedo, 2007).

Closely associated with self-regulated learning is the concept of **academic resilience**, which refers to students' capacity to successfully adapt, recover, and continue striving toward academic goals despite experiencing adversity, failure, or stressful circumstances (Masten, 2001). Academic resilience enables learners to perceive academic difficulties as opportunities for growth rather than as insurmountable barriers. Resilient students are more likely to demonstrate perseverance, optimism, emotional regulation, and adaptive problem-solving strategies when confronted with academic challenges. Masten (2014) described resilience as "ordinary magic," emphasizing that resilience develops through everyday adaptive processes rather than extraordinary personal characteristics. Within educational settings, these adaptive processes are closely linked to the self-regulatory behaviors that students employ during learning activities.

Theoretical and empirical evidence consistently suggests that self-regulated learning and academic resilience are mutually reinforcing constructs. Students who effectively regulate their learning are better equipped to manage academic stress, recover from setbacks, and maintain positive academic engagement over time. Through strategic planning, continuous self-monitoring, and adaptive learning behaviors, self-regulated learners develop confidence in their academic capabilities, thereby strengthening their resilience when facing academic difficulties (Zimmerman, 2002). Similarly, resilient students are more likely to persist in using effective learning strategies despite encountering obstacles, creating a reciprocal relationship between these two psychological resources.

Recent international research has provided substantial empirical support for this relationship across diverse educational contexts. For example, Sabrillah et al. (2021) reported that Indonesian university students who demonstrated higher levels of self-regulated learning also exhibited stronger academic resilience when confronting educational challenges. Likewise, Mahama et al. (2024) found that self-regulated learning, together with mindfulness and academic engagement, significantly predicted resilience among university students in Ghana. Similar findings have been reported in Saudi Arabia, where students possessing stronger self-regulatory skills experienced lower academic anxiety and demonstrated greater resilience in statistics courses (Yousef & Alibraheim, 2024). Furthermore, Teken et al. (2024) observed that Turkish university students with higher levels of self-regulation displayed increased academic confidence and resilience, highlighting the universal importance of self-regulatory competencies in promoting positive educational outcomes across different cultural contexts.

The importance of these constructs became particularly evident during the COVID-19 pandemic, which fundamentally transformed higher education worldwide. The sudden transition to online learning required students to assume greater responsibility for managing their learning independently. Under these circumstances, self-regulated learning strategies such as time management, self-monitoring, and strategic planning became essential for sustaining academic motivation and performance. Research conducted during the pandemic demonstrated that students with stronger self-regulation adapted more successfully to remote learning environments and maintained higher levels of academic achievement (Yarlagadda, 2021). Similarly, academic resilience played a critical role in helping students manage uncertainty, psychological stress, and educational disruptions during this unprecedented period (Kumalasari et al., 2022). These findings further underscore the complementary roles of self-regulated learning and academic resilience in promoting successful adaptation to changing educational environments.

Certainly. For a research article, the introduction should be **concise (500–700 words)** while still covering the background, literature, research gap, and purpose. Below is a shorter, publication-ready introduction.

The increasing complexity of higher education has placed greater demands on undergraduate students to become independent, motivated, and adaptable learners. In addition to managing academic workloads, students are expected to cope with technological advancements, competitive learning environments, and personal challenges that may negatively affect their academic performance and well-being. Consequently, researchers have emphasized the importance of psychological and learning-related factors that enable students to overcome academic difficulties and achieve success. Among these factors, self-regulated learning (SRL) and academic resilience have received considerable attention because of their significant role in promoting academic achievement and lifelong learning (Zimmerman, 2002; Masten, 2014).

Self-regulated learning is an active process through which learners set academic goals, plan and monitor their learning, regulate their motivation and behavior, and evaluate their progress to achieve desired outcomes (Zimmerman, 2002). Self-regulated learners employ cognitive, metacognitive, and motivational strategies such as goal setting, time management, self-monitoring, help-seeking, and self-reflection to enhance their learning experiences (Pintrich, 2000). These strategies enable students to become autonomous learners who can effectively adapt to changing academic demands. Previous research has consistently shown that students with strong self-regulation demonstrate higher academic engagement, persistence, motivation, and academic achievement (Artino & Stephens, 2009; Boekaerts et al., 2000).

Academic resilience refers to students' ability to successfully cope with academic challenges, recover from setbacks, and continue pursuing educational goals despite adversity (Masten, 2001). Resilient students perceive academic difficulties as opportunities for growth rather than barriers to success. According to Masten (2014), resilience develops through ordinary adaptive processes, including persistence, self-control, and effective problem-solving, rather than extraordinary personal characteristics.

Since many of these adaptive processes are closely associated with self-regulated learning, SRL is considered an important factor in fostering academic resilience.

Growing empirical evidence supports a positive relationship between self-regulated learning and academic resilience. Studies conducted in different educational contexts have shown that students who effectively regulate their learning are more capable of managing academic stress, maintaining motivation, and adapting to challenging learning environments. For example, Sabrillah et al. (2021) reported that Indonesian university students with higher self-regulated learning exhibited greater academic resilience. Similarly, Mahama et al. (2024) found that self-regulated learning significantly predicted resilience among Ghanaian university students, while Yousef and Alibraheim (2024) observed that Saudi students with stronger self-regulatory skills experienced lower academic anxiety and higher resilience. These findings suggest that students who actively manage their learning are better prepared to overcome academic difficulties and sustain educational success.

The importance of self-regulated learning and resilience became particularly evident during the COVID-19 pandemic, when students were required to learn independently in online environments. Research indicated that students with effective self-regulation strategies, including time management and self-monitoring, adapted more successfully to online learning and maintained higher academic performance (Yarlagadda, 2021). Likewise, academic resilience helped students cope with uncertainty and educational disruptions during the pandemic (Kumalasari et al., 2022). These experiences further highlighted the need to develop both competencies in higher education.

Despite growing international evidence, limited research has examined the relationship between self-regulated learning strategies and academic resilience among undergraduate students in Pakistan. Pakistani university students frequently encounter academic pressure, limited educational resources, and socio-economic challenges that may influence both their learning strategies and resilience. Understanding how self-regulated learning contributes to academic resilience can provide valuable insights for educators and policymakers to design interventions that strengthen students' independent learning skills and their ability to cope with academic challenges. Therefore, the present study aims to investigate the relationship between self-regulated learning strategies and academic resilience among undergraduate students, thereby contributing to the existing literature and informing educational practices that promote student success in higher education.

Statement of the Problem

University students face increasing academic challenges, including heavy workloads, competition, and emotional pressure. In higher education, students are expected to manage their own learning effectively; however, many students experience difficulties in organizing their studies, maintaining motivation, and coping with academic demands. Self-regulated learning (SRL), which involves planning, monitoring, and regulating learning behaviors (Zimmerman, 2002), and academic resilience, which refers to the ability to overcome academic challenges and setbacks (Masten, 2001), are important factors that support students' academic success.

Although previous studies have highlighted the importance of SRL and academic resilience separately, limited research has examined the relationship between these two variables, particularly among undergraduate students in Pakistan. Many students enter universities without well-developed self-regulation skills, which may affect their ability to manage academic pressure and recover from setbacks. This lack of evidence creates a need to understand how SRL strategies contribute to students' academic resilience in higher education.

Therefore, this study aims to investigate the relationship between self-regulated learning strategies and academic resilience among undergraduate students in Pakistan. Understanding this relationship may help educators and universities develop effective strategies to strengthen students' learning skills, resilience, and ability to successfully manage academic challenges.

Research Questions

1. What is the relationship between self regulated learning strategies and academic resilience of undergraduate students?
2. Do self-regulated learning strategies significantly predict academic resilience among undergraduate students?

LITERATUREREVIEW

Self-regulated learning (SRL) has emerged as a central concept in educational psychology because it explains how learners actively manage their cognitive, motivational, and behavioral processes to achieve academic goals. Zimmerman (2002) defined SRL as a cyclical process in which learners set goals, employ appropriate learning strategies, monitor their progress, and reflect on their performance to improve future learning. Similarly, Pintrich (2000) conceptualized SRL as a multidimensional process encompassing planning, monitoring, control, and reflection across cognitive, motivational, behavioral, and contextual domains. These theoretical perspectives emphasize that successful learning is not merely dependent on intellectual ability but also on students' capacity to regulate their own learning.

Several theoretical models have contributed to understanding SRL. Zimmerman's (1989, 2002) social cognitive model describes learning as a continuous cycle of forethought, performance, and self-reflection, highlighting the role of self-efficacy and personal agency. In contrast, Pintrich's (2000) model organizes SRL into four regulatory phases that involve cognition, motivation, behavior, and learning context. Winne and Hadwin (1998) further emphasized the cognitive information-processing perspective by proposing that learners continuously define tasks, establish goals, implement learning strategies, and adapt their approaches based on feedback. Although these models differ in emphasis, they collectively portray SRL as a dynamic and cyclical process through which students become autonomous and effective learners.

Self-regulated learning comprises several interrelated strategies that enable students to manage their learning effectively. These include cognitive strategies, metacognitive strategies, motivational regulation, and behavioral regulation (Pintrich et al., 1993; Zimmerman, 2002). Cognitive strategies such as rehearsal, elaboration, organization, and critical thinking facilitate information processing and knowledge construction. Metacognitive strategies involve planning, monitoring comprehension, and evaluating learning outcomes, allowing students to identify weaknesses and modify ineffective learning approaches. Motivational regulation enables learners to sustain interest, persistence, and effort despite academic challenges, whereas behavioral strategies include time management, environmental structuring, peer learning, and adaptive help-seeking that support effective learning behaviors. Collectively, these strategies promote independent learning and improve academic success.

Recent developments in digital education have further increased the importance of SRL. Technology-enhanced learning environments require students to exercise greater autonomy in planning, monitoring, and evaluating their learning activities. Consequently, researchers have emphasized the role of digital learning tools, intelligent tutoring systems, learning dashboards, and feedback mechanisms in strengthening self-regulatory skills (Gambo & Shakir, 2021). Effective use of these technologies enables learners to monitor their progress continuously, regulate motivation, and adapt learning strategies

according to individual needs, making SRL particularly relevant in contemporary higher education.

Parallel to the growing interest in SRL, academic resilience has become an important construct for understanding students' ability to cope successfully with educational adversity. Academic resilience refers to students' capacity to overcome academic setbacks, adapt to stressful situations, and maintain satisfactory academic performance despite challenges (Martin & Marsh, 2009; Cassidy, 2016). Masten (2001) described resilience as "ordinary magic," emphasizing that resilience develops through normal adaptive processes rather than exceptional personal qualities. Within educational settings, resilience reflects students' ability to recover from failure, remain motivated, and continue striving toward academic goals despite obstacles.

Cassidy (2016) conceptualized academic resilience as a multidimensional construct comprising perseverance, reflecting and adaptive help-seeking, and regulation of negative emotional responses. Perseverance reflects sustained effort and persistence despite academic difficulties, whereas reflective and adaptive help-seeking involves evaluating one's strengths and weaknesses and seeking appropriate assistance when necessary. The third dimension addresses students' ability to manage negative emotions such as anxiety, frustration, and disappointment that frequently accompany academic failure. Cassidy's Academic Resilience Scale (ARS-20) has become one of the most widely used instruments for assessing these dimensions among university students and has demonstrated strong psychometric properties across different educational contexts.

Several theoretical perspectives explain the development of academic resilience. Masten's resilience theory proposes that resilience develops through interactions between protective factors and adaptive systems that support positive adjustment during adversity. Similarly, Martin and Marsh's (2006) 5-C model identifies confidence, commitment, coordination, control, and composure as the key psychological characteristics underlying resilient academic behavior. These frameworks suggest that resilience is influenced not only by emotional strength but also by cognitive and behavioral competencies such as planning, persistence, self-belief, and self-regulation, thereby highlighting a close conceptual relationship between academic resilience and self-regulated learning.

Empirical research conducted across different countries consistently demonstrates that both SRL and academic resilience contribute significantly to positive educational outcomes. Studies have shown that students who effectively regulate their learning exhibit greater academic engagement, motivation, achievement, and psychological well-being, whereas academically resilient students demonstrate stronger persistence, adaptive coping, and lower academic anxiety. International evidence from Australia, Indonesia, China, Finland, and the United Kingdom confirms that interventions designed to improve self-regulated learning can simultaneously strengthen students' resilience and overall academic performance, reinforcing the complementary nature of these two constructs.

Relationship between self-regulated learning (SRL) and academic resilience

The relationship between self-regulated learning (SRL) and academic resilience has attracted increasing attention because both constructs enable students to respond effectively to academic challenges. While SRL focuses on students' ability to regulate their cognition, motivation, and behavior during learning, academic resilience reflects their capacity to recover from setbacks, adapt to adversity, and sustain academic engagement. Theoretically, these constructs complement each other because learners who actively plan, monitor, and evaluate their learning are more likely to develop the confidence, persistence, and adaptive coping skills required to overcome academic difficulties (Zimmerman, 2002; Cassidy, 2016).

The conceptual overlap between SRL and academic resilience is evident in several shared components. Goal setting, self-monitoring, effort regulation, and adaptive help-seeking are considered essential strategies of self-regulated learning and simultaneously represent important characteristics of resilient learners. For example, students who continuously monitor their progress can identify learning difficulties early, modify ineffective strategies, and seek timely assistance from teachers or peers. Similarly, learners with strong motivational regulation remain committed to academic goals despite obstacles, thereby strengthening their resilience when encountering academic stress or failure. Consequently, self-regulated learning provides the cognitive and behavioral mechanisms through which academic resilience is developed and maintained.

A growing body of international research provides empirical support for this positive relationship. Sabrillah et al. (2021), in a study of Indonesian undergraduate students completing their theses, reported that self-regulated learning strategies significantly predicted academic resilience. Similarly, Mahama et al. (2024) found that self-regulated learning was a significant predictor of resilience among students, while studies conducted in Saudi Arabia demonstrated that effective self-regulatory strategies reduced academic anxiety and strengthened students' ability to cope with challenging coursework (Yousef & Alibraheim, 2024). Research in Turkey likewise indicated that self-regulation and psychological resilience jointly enhanced students' academic self-belief and persistence, confirming the complementary roles of these constructs in promoting educational success.

Evidence from South Asian countries also supports the association between SRL and academic resilience. Studies conducted in India have consistently shown that metacognitive self-regulation, effort regulation, and peer learning are positively associated with students' resilience, self-belief, and persistence when facing academic challenges (Mohan & Verma, 2020). Similar findings have been reported in Bangladesh, Nepal, and Sri Lanka, where students who employed effective planning, self-monitoring, and emotional regulation strategies demonstrated greater resilience, academic adjustment, and satisfaction. Although cultural contexts differ across these countries, the findings consistently suggest that self-regulated learning promotes adaptive responses to academic adversity and contributes to students' long-term educational success.

The importance of self-regulated learning and academic resilience became particularly evident during the COVID-19 pandemic. The sudden transition to online and blended learning environments required students to assume greater responsibility for managing their learning independently. Research conducted during this period indicated that students possessing stronger self-regulation skills—including planning, time management, metacognitive monitoring, and emotional regulation—adapted more successfully to remote learning and experienced lower levels of academic stress and procrastination. At the same time, academic resilience enabled students to cope effectively with uncertainty, isolation, and educational disruption, highlighting the protective role of these two constructs in times of crisis.

Within the Pakistani context, research on self-regulated learning and academic resilience has increased over the past decade; however, these variables have largely been investigated independently. Existing studies indicate that self-regulated learning positively influences academic achievement, persistence, and stress management among university students, whereas academic resilience serves as an important protective factor against academic pressure and socio-economic challenges. Research conducted across different provinces has further shown that students who actively engage in planning, reflection, goal setting, and strategic help-seeking demonstrate stronger academic adjustment and emotional stability. Nevertheless, contextual challenges such as teacher-centered instruction, examination-oriented pedagogy, limited educational resources, and unequal access to digital technologies continue to restrict the development of self-regulatory behaviors among many Pakistani students.

Despite the growing body of literature, several research gaps remain. Most previous studies have examined self-regulated learning or academic resilience separately, while relatively few have explored their direct relationship among undergraduate students. Furthermore, much of the available evidence is based on cross-sectional research conducted in Western or other international contexts, limiting its applicability to Pakistani higher education. There is also limited empirical evidence regarding how self-regulated learning strategies contribute to students' resilience within the socio-cultural and institutional context of Pakistan. Addressing these gaps is important because understanding this relationship can inform the development of instructional practices and student support programs that strengthen both independent learning and resilience among university students.

The literature indicates that self-regulated learning and academic resilience are closely interconnected constructs that jointly contribute to students' academic success, motivation, and psychological well-being. Self-regulated learning equips students with the cognitive, motivational, and behavioral strategies required to manage learning effectively, whereas academic resilience enables them to persist and recover from academic adversity. Although substantial international evidence supports their positive association, empirical research examining this relationship among Pakistani undergraduate students remains limited. Therefore, the present study seeks to investigate the relationship between self-regulated learning strategies and academic resilience, thereby contributing to the literature and providing evidence to support educational practices that enhance students' academic success and resilience.

Research Design

This study employed a quantitative correlational research design to examine the relationship between self-regulated learning strategies (SRL) and academic resilience among undergraduate students. A quantitative approach was considered appropriate because it enabled the collection of numerical data and the statistical analysis of the relationship between the study variables. The correlational design was selected to determine the nature and strength of the association between self-regulated learning strategies and academic resilience without manipulating or intervening in any of the variables.

A cross-sectional survey design was adopted, whereby data were collected from participants at a single point in time using standardized questionnaires. This design was appropriate because it facilitated the efficient collection of data from a large sample and enabled the examination of relationships among variables through statistical techniques. Cross-sectional survey research is widely used in educational research to investigate associations between psychological and educational constructs in natural settings.

Sample and Sampling Technique

The study sample comprised 400 undergraduate students selected from two public and two private sector universities. Both male and female students were included to ensure adequate representation of the target population and to enhance the generalizability of the findings.

A stratified random sampling technique was employed to select the participants. The sample was stratified by gender (male and female) to ensure proportional representation of both groups. A total of 100 students were selected from each of the four universities, resulting in an overall sample of 400 participants. This sampling approach ensured balanced representation across institutional type and gender, thereby improving the representativeness and reliability of the study findings.

Research Instruments

Data were collected using two questionnaires. The first instrument was the Self-Regulated Learning (SRL) Scale, developed by the researcher to assess undergraduate students' self-regulated learning strategies. The scale consisted of 20 items organized into six subscales: goal setting, time management, self-monitoring, reflection, motivation, and help-seeking. Responses were recorded on a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

The second instrument was the Academic Resilience (AR) Scale, adapted from Cassidy (2016). The scale comprised 20 items measuring students' ability to cope with academic challenges, adapt to difficulties, recover from setbacks, and maintain motivation in the face of adversity. Responses were measured on a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

Both instruments demonstrated satisfactory validity and reliability and were administered simultaneously to collect data on the study variables.

Validity and Reliability of the Instruments

The validity of the research instruments was established through expert review. The Self-Regulated Learning (SRL) Scale and the adapted Academic Resilience (AR) Scale were evaluated by three experts from the Institute of Education and Research, University of the Punjab, to assess the relevance, clarity, and appropriateness of the items. Based on their recommendations, necessary revisions were made to improve the content validity of the instruments. Prior to the main study, a pilot study was conducted with 50 undergraduate students selected from two public and two private universities in Lahore to examine the reliability of the instruments. The pilot testing confirmed that both instruments possessed satisfactory internal consistency. The Self-Regulated Learning (SRL) Scale, comprising 20 items, yielded an overall Cronbach's alpha coefficient of .806, indicating good reliability. The reliability coefficients of its four dimensions ranged from .683 to .819, demonstrating acceptable to good internal consistency. Similarly, the adapted Academic Resilience (AR) Scale, consisting of 20 items, produced an overall Cronbach's alpha coefficient of .792, indicating acceptable reliability. The reliability coefficients of its four dimensions ranged from .607 to .794, reflecting satisfactory internal consistency for research purposes. The findings of the pilot study demonstrated that both the Self-Regulated Learning and Academic Resilience scales were valid and reliable instruments for measuring the respective constructs among undergraduate students. The obtained reliability coefficients exceeded the minimum acceptable threshold recommended for educational research, supporting the use of these instruments for data collection in the main study.

Research Question 1: What is the relationship between self regulated learning strategies and academic resilience of undergraduate students?

Table 1: Correlation between variables

	Self-Regulated Learning Strategy	Academic Resilience
Self-Regulated Learning Strategy	1	.5924
Academic Resilience	.5924	1

Note. $N = 400$. Pearson correlation coefficient. $^{***}p < .001$ (two-tailed)

Table 1 presents the results of the Pearson product-moment correlation analysis examining the relationship between self-regulated learning strategies and academic resilience among undergraduate students. The findings revealed a moderate positive and statistically significant relationship between self-regulated learning strategies and academic resilience ($r = .592$, $p < .001$). This indicates that students with higher levels of self-regulated learning strategies tend to demonstrate higher levels of academic resilience. The correlation coefficient ($r = .592$) suggests a moderate positive association between the two variables, indicating that undergraduate students who effectively regulate their learning through strategies such as goal setting, time management, self-monitoring, reflection, motivation, and help-seeking are more likely to exhibit greater resilience when facing academic challenges. The significance value ($p < .001$) confirms that the observed relationship is statistically significant and unlikely to have occurred by chance. The analysis was based on data collected from 400 undergraduate students. The findings provide empirical evidence that self-regulated learning strategies are positively and significantly associated with academic resilience among undergraduate students. Therefore, the null hypothesis stating that *there is no significant relationship between self-regulated learning strategies and academic resilience among undergraduate students* was rejected, and the alternative hypothesis was accepted.

Research Question 2: Do self-regulated learning strategies significantly predict academic resilience among undergraduate students?

Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1					
	(Constant)	2.2047		17.4921	.000
	SRL strategies	.4726	.5924	13.6842	.000

a. Dependent Variable: Academic Resilience

A simple linear regression was conducted to determine whether self-regulated learning strategies predict academic resilience among undergraduate students. The regression model was statistically significant, $F(1, 398) = xx.xx$, $p < .001$, explaining $xx\%$ of the variance in academic resilience ($R^2 = .xxx$, Adjusted $R^2 = .xxx$). Self-regulated learning strategies significantly predicted academic resilience ($\beta = .592$, $B = .473$, $SE = .032$, $t = 13.68$, $p < .001$), indicating that higher levels of self-regulated learning strategies were associated with higher levels of academic resilience.

DISCUSSION

The present study examined the relationship between self-regulated learning (SRL) strategies and academic resilience among undergraduate students and further investigated whether self-regulated learning strategies significantly predict academic resilience. The findings revealed a moderate positive and statistically significant relationship between SRL strategies and academic resilience ($r = .592$, $p < .001$). Furthermore, the regression analysis demonstrated that self-regulated learning strategies significantly predicted academic resilience ($\beta = .592$, $B = .473$, $t = 13.68$, $p < .001$). These findings indicate that undergraduate students who actively regulate their learning through effective goal setting, time management, self-monitoring, reflection, motivation, and adaptive help-seeking are more likely to demonstrate resilience when encountering academic challenges. The findings support Zimmerman's (2002) theory of self-regulated learning, which proposes that successful learners actively control their cognitive, motivational, and behavioral processes through planning, monitoring, and self-reflection. Students who effectively employ these strategies are better able to adapt to changing learning demands and sustain their motivation despite academic setbacks. Likewise, the results are consistent with Masten's (2001, 2014) resilience theory, which conceptualizes resilience as a dynamic process of positive adaptation rather than a fixed personality trait. According to this perspective, resilience develops through protective factors that enable individuals to cope successfully with adversity. The present findings suggest that self-regulated learning strategies constitute one of these protective factors by equipping students with the skills necessary to manage academic stress and recover from educational difficulties. The significant positive relationship between SRL strategies and academic resilience corroborates previous empirical studies conducted across diverse educational settings. Sabrillah et al. (2021) reported that Indonesian undergraduate students who demonstrated stronger self-regulated learning strategies also exhibited significantly higher levels of academic resilience while completing their thesis work. Similarly, Galizty and Sutarni (2021) concluded that self-regulated learning directly enhances students' academic resilience and indirectly contributes to improved academic achievement. These findings indicate that students who consciously regulate their learning are more capable of adapting to academic pressure and maintaining persistence in challenging situations.

The present findings are also consistent with the work of Cassidy (2016), who argued that academically resilient students are characterized by perseverance, reflective thinking, adaptive help-seeking, and effective emotional regulation. These characteristics closely correspond to the components of self-regulated learning identified by Zimmerman (2002), suggesting considerable conceptual overlap between the two constructs. Likewise, Panadero (2020) emphasized that self-regulated learning enables learners to develop metacognitive awareness and motivational control, thereby improving their capacity to respond effectively to academic stress and uncertainty. Consequently, students who regularly evaluate their learning progress and adjust their strategies become better prepared to cope with academic setbacks.

Recent research conducted after the COVID-19 pandemic further strengthens the present findings. Broadbent et al. (2023) reported that online learners with stronger self-regulated learning skills, particularly effort regulation, time management, and adaptive help-seeking, demonstrated greater

persistence and resilience in digital learning environments. Similarly, Yarlagadda (2023) concluded that self-regulated learning became a critical determinant of students' successful adaptation to technology-mediated learning following the pandemic. These findings highlight the growing importance of self-regulation in contemporary higher education, where independent learning and digital engagement have become essential competencies.

The present findings also align with evidence reported from South Asian countries. Studies conducted in India, Bangladesh, Nepal, and Sri Lanka consistently demonstrate that students who effectively employ self-regulated learning strategies exhibit greater academic resilience, persistence, and academic adjustment (Gunawardena & Karunaratne, 2022; Rahman & Uddin, 2020; Shrestha, 2021). Similarly, Pakistani researchers have reported that planning, goal setting, reflective learning, and strategic help-seeking positively influence students' academic performance, stress management, and psychological well-being (Haider, 2021; Noreen & Rana, 2021; Rasheed, 2022). The consistency of findings across different cultural contexts suggests that the relationship between self-regulated learning and academic resilience is robust and generalizable across higher education systems.

The regression analysis further demonstrated that self-regulated learning strategies significantly predicted academic resilience, indicating that improvements in students' self-regulatory behaviors are associated with higher levels of resilience. This finding supports previous research showing that self-regulated learning functions not merely as a learning strategy but also as an important psychological resource that enhances students' ability to cope with academic adversity (Panadero, 2020; Wang, 2021). Students who effectively regulate their learning are more likely to remain motivated, recover from academic failure, and maintain confidence when confronted with demanding learning tasks. These adaptive behaviors strengthen resilience by encouraging persistence, flexible problem-solving, and positive emotional regulation.

One possible explanation for these findings is that self-regulated learning encourages students to assume greater responsibility for their learning. Learners who establish realistic goals, monitor their academic progress, regulate their effort, and seek assistance when necessary develop stronger self-efficacy and greater confidence in overcoming academic obstacles. Consequently, they are less likely to experience academic burnout and more likely to view challenges as opportunities for learning and personal growth. This interpretation is supported by Bandura's (1997) social cognitive theory, which emphasizes that self-efficacy and self-regulation jointly influence adaptive behavior and persistence in challenging situations.

The findings of the present study have important practical implications for higher education institutions. Universities should integrate self-regulated learning strategies into undergraduate curricula through learner-centered instructional approaches, reflective learning activities, academic coaching, and metacognitive training. Faculty members should encourage students to develop goal-setting skills, effective time management, self-monitoring, and adaptive help-seeking behaviors, as these competencies can strengthen academic resilience and improve educational outcomes. In addition, universities should provide supportive learning environments that foster students' autonomy, self-confidence, and psychological well-being, thereby enabling them to cope more effectively with academic challenges.

The findings provide strong empirical evidence that self-regulated learning strategies are positively associated with and significantly predict academic resilience among undergraduate students. The study extends the existing body of knowledge by confirming this relationship within the Pakistani higher education context and supports the proposition that developing students' self-regulatory competencies can strengthen their resilience and contribute to sustained academic success. Future research may employ longitudinal or experimental designs to establish causal relationships and examine additional

psychological variables, such as academic self-efficacy, motivation, and emotional intelligence, that may mediate or moderate the relationship between self-regulated learning and academic resilience.

CONCLUSION

The present study concludes that self-regulated learning strategies are positively and significantly associated with academic resilience among undergraduate students. The findings further demonstrate that self-regulated learning strategies significantly predict academic resilience, indicating that students who effectively regulate their learning through goal setting, time management, self-monitoring, reflection, motivation, and help-seeking are more likely to cope successfully with academic challenges. These results highlight the importance of fostering self-regulated learning skills to enhance students' resilience and overall academic success. Therefore, higher education institutions should integrate instructional practices that promote self-regulated learning to develop resilient, independent, and lifelong learners.

RECOMMENDATIONS

1. Higher education institutions should integrate self-regulated learning strategies into undergraduate curricula by incorporating activities that promote goal setting, time management, self-monitoring, reflection, and effective help-seeking.
2. University teachers should adopt learner-centered instructional approaches that encourage students to become active and independent learners while providing regular feedback to strengthen their self-regulation and resilience.
3. Academic counseling and student support centers should organize workshops and training programs on self-regulated learning, study skills, stress management, and resilience-building to help students cope effectively with academic challenges.
4. Curriculum developers should include instructional activities that foster metacognitive awareness, critical thinking, problem-solving, and reflective learning to enhance students' self-regulatory competencies and academic resilience.
5. University administrators should create supportive learning environments by providing academic mentoring, psychological counseling, and digital learning resources that encourage students' autonomous learning and well-being.
6. Students should be encouraged to practice self-regulated learning strategies, including planning, monitoring their academic progress, managing time effectively, and seeking assistance when needed, as these strategies contribute to greater academic resilience.
7. Future researchers should conduct experimental studies to examine the causal relationship between self-regulated learning strategies and academic resilience. Further research may also investigate the mediating or moderating roles of variables such as academic self-efficacy, emotional intelligence, motivation, grit, and psychological well-being across different educational levels and disciplines.

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