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Academic Stress and Self-Regulation Skills among High School Mathematics Learners

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ABSTRACT

Academic stress is one of the serious issues in mathematics education that is likely to undermine student performance and motivation. This study examines the relationship between academic stress and self-regulation skills among high school mathematics learners, focusing on how self-regulation can prevent the adverse effects of stress and enhance academic performance. With a descriptive-correlational research design, the research sampled 300 high school students from private schools in Davao City for the academic year 2024–2025. Data were collected using validated Likert-scale questionnaires to measure academic stress (e.g., teaching methods, parental expectations, and exam results) and self-regulation skills (planning, self-checking, effort, and self-efficacy). Statistical analysis indicated a significant negative correlation between academic stress and self-regulation skills. Among the stress indicators, only class tests and content difficulty stress showed a considerable relationship with self-regulation. These findings support the necessity to address these particular sources of stress in building resilience and improving performance in mathematics. Therefore, the study recommends that educational institutions emphasize developing interventions for reducing academic stress and enhancing student self-regulation through structured learning strategies, well-rounded support systems, and alternative assessment methods. Moreover, involving parents in nurturing supportive learning environments is essential. Future research should investigate the relative effect of digital tools and institutional policies for maintaining lower stress levels and improving academic self-regulation across diverse educational contexts. Addressing academic stress is crucial for fostering a positive learning environment and improving student achievements in mathematics education.

INTRODUCTION

Mathematics is a challenging subject that leads to dissatisfaction, burnout, and procrastination among most high school students (Siaw *et al.,* 2021). Students show problems in their capacity to grasp complex concepts, test anxiety, inadequacy from teachers and peer-group support, and widespread fear of failure that has degraded their motivation and performance (Mamat *et al.,* 2023). Furthermore, procrastinating techniques, including delay of work and tests due to immediate temptations, ineffective information processing, or fear of failure, are standard among students. In this sense, a valuable ability for addressing mathematical problems is the capacity of self-regulation students to control their learning behaviors, emotions, and thoughts to reach academic objectives (Ziegler & Opdenakker, 2018). Understanding their learning, planning, and strategic thinking styles can also help them succeed (Teng *et al.,* 2021). The need for more intensive interventions to enhance students' self-regulation is highlighted by the Philippines' 2018 PISA score of 353, lower than the OECD average of 489 (Paris, 2019). Research shows self-regulation is essential for learning mathematics; it accounts for 40% of middle school students' performance (Arsyad *et al.,* 2022) and positively affects 79.6% of junior high school students' learning outcomes (Nurfa & Quraisy, 2021). Self-regulation techniques show important skills like managing time, setting goals, and staying focused-skills needed for lifelong learning (Nufus *et al.,* 2024).

Strengthening self-regulation skills can lead to greater independence and improved academic success in mathematics. Statistical data and findings from several studies highlight the problem's existence; mathematics is essential in helping individuals understand the world, improve their lives, and generate new ideas and challenges to achieve this goal. Although building educational systems to increase students' mathematical comprehension is critical, various issues, such as fear and a lack of self-regulation, inhibit growth. However, one of the factors negatively affecting this target is the anxiety learners experience about mathematics. Self-regulation and math anxiety mediate the relationship between teacher-student dynamics and students' ability to solve mathematical problems (Zhou *et al.,* 2020). It addresses psychological and emotional challenges associated with establishing better mathematics learning settings (Peker & Ulu, 2018). The Organization for Economic Cooperation and Development (OECD) surveyed over 500,000 students aged 15 to 16 from 72 countries. As stated by Sokolowski *et al.* (2019), this statistical information underscores the necessity for particular interventions that lower anxiety and encourage self-regulation to improve

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students' mathematics ability. Furthermore, Pascoe *et al.* (2020) reported that over 60% of respondents claim they are apprehensive and nervous because they do not want to receive poor results, and more than half of students are concerned after preparing and studying.

Students who study mathematics often associate academic stress with their ability to self-regulate, as self-regulation reduces stress while enhancing performance. They acquire agency in learning by setting goals, tracking progress, and reporting on their understanding of the material (Adom *et al.,* 2020). However, stress may also interfere with these skills, making it more difficult for students to focus, create high-quality work, and enjoy learning. While teachers want their students to perform well in math in the long run, they must know how to manage stress, which reduces motivation and academic performance. The Principles of Self-Regulated Learning (SRL) formulated by Zimmerman (2000) emphasize that learners can shape their academic outcomes by setting specific goals, monitoring their progress, and adjusting strategies accordingly—fostering sustained focus and resilience in the face of challenges. Initially, the Model of Stress and Coping, introduced by Lazarus and Folkman (1984), further supports this view by explaining how people use different strategies to manage pressure when facing challenges. In the classroom, self-regulation plays a vital role. It helps students stay focused and calm and manage the demands of complex math tasks and high expectations. Building on this idea, Bandura's (1977) Social Cognitive Theory highlights how believing in your abilities—what we call self-efficacy—can make a big difference. When students feel confident in themselves, they're more likely to manage stress, stay motivated, and see challenging tasks as something they can handle. These strategies can help high school students improve their math and not feel overwhelmed. Together, these theories provide a comprehensive framework for understanding how self-regulation is essential for managing academic stress, equipping students with the resilience and confidence needed to approach mathematics successfully. Collectively, various independent indicators of academic stress significantly shape students' experiences and outcomes; understanding these elements is crucial to addressing the complexities of stress in educational settings because they undermine effective self-regulation techniques and impair cognitive functioning, which is consistent with the idea of academic stress as pressure from educational expectations and anxiety that compromises performance and concentration (Promsri, 2019). For instance, the teaching method is an affective state that can negatively impact teaching and learning when teachers lack support structures, which gives poor results (Aydin, 2021; Qin, 2024), while the parent's expectations may lead to excessive involvement and control, which puts more pressure on students to perform well on tests and experience increased academic stress (Arusha & Biswas, 2020; Worku *et al.,* 2020). Most students with test anxiety express self-doubt and struggle to handle challenging academic tasks; while moderate levels of test anxiety can enhance performance, high anxiety levels often lead to the opposite effect (Bekomson & Mgban, 2019; Oluoch *et al.,* 2018).

Group work can significantly boost student performance by allowing them to combine their skills and tackle complex problems more efficiently (Chen & Yang, 2019; Swanson *et al.,* 2019). However, exam anxiety can interfere with this process, making it difficult for students to meet academic goals and creating intense stress during testing (Joseph, 2019; Sasikumar & Bapitha, 2019). Contrastingly, content difficulties refer to a range of emotions related to learning that result in a subjective and unpleasant experience marked by tension and worry (Kusumastuti, 2020; Apriani, 2021). Many students view competition negatively, which causes stress, anxiety, and low self-esteem (Kowalski & Christensen, 2019; Harris, 2023). On the other hand, there are many different definitions of time management, but they all revolve around the idea of finishing tasks on time while obtaining high-quality results through organization and planning; it also entails setting clear objectives, identifying useful time management tools, and evaluating a person's sense of control over how they use their time (Sagredo *et al.,* 2020; Herrero-Blasco *et al.,* 2019). Finally, presentation anxiety is a common occurrence for many people, including students, and can negatively affect self-esteem during presentations (Pratama, 2018; Wijaya, 2019).

In the realm of self-regulation in mathematics learning, four key dependent variables are essential: Planning is critical to student organization as it signifies a process of decision-making that would help learners reflect on their strengths, weaknesses, values, and achievements that empower them to set informed and meaningful goals for the future (Victoria, 2019; Herrity, 2023). In addition, self-checking helps learners review their work, make changes, and improve. It encourages them to understand their learning better and take responsibility for their progress. By recognizing where they can improve, students can set personal goals to keep growing (Nguyen, 2023; Nicholas, 2023). Moreover, effort manifests in work primarily through a focus on the result, which is the product that represents "success" in a given pursuit, as well as the methods to attain it (Smilansky, 2022). According to Dunlosky *et al.* (2020), student's perceptions of effort have the potential to identify techniques to increase self-regulated learning and boost student performance. Self-efficacy is the belief in one's ability to accomplish tasks and reach goals. It involves having confidence in self-control, influencing one's surroundings, and staying motivated to pursue goals. This internal motivation closely connects to how students view their abilities, boosting their effort and persistence and helping them better manage their learning (Mozahem *et al.,* 2021; Cherry, 2024).

However, students who struggle with self-control may find it challenging to manage their time, which may harm

their performance and test-taking strategies. A lack of time management and planning often leads to poor grades and increased exam stress (Adams, 2019). Although there is considerable research on the general effects of self-regulation on academic performance, there remains a lack of information about how self-regulation abilities impact the decrease of academic stress and the improvement of performance among high school mathematics students. The study will deepen our understanding of self-regulation and educational success by providing crucial insights into how effective self-regulation strategies can enhance mathematics instruction in the Philippines. This research is significant to society because it gives stakeholders, educators, and policymakers the tools to improve student outcomes and create a more resilient and capable generation of learners. Furthermore, the study on academic stress and self-regulation skills among high school mathematics learners offers relevant information to the teachers on how such factors interconnect and affect the learner's educational performance. The findings can help identify specific barriers that affect self-regulation and design interventions to improve coping skills and academic performance.

In addition, this study enriches the literature in educational psychology to show how self-regulation skills can buffer the negative impact of academic stress and promote resilience and a positive learning attitude. Apart from the theoretical perspective, this study seeks to improve the quality of student's lives and equip them with skills to deal with difficulties they will likely encounter in learning processes and their future professions. Finally, by creating self-regulated learners, this study promotes the enhancement of individuals' lives and the cultivation of a generation of students equipped to manage the limitations of life efficiently and effectively. The study aims to determine whether a relationship exists between student self-regulation skills and academic stress as part of achieving its specified goals. Specifically, this study will look at the levels of academic stress caused by teaching methods, parental expectations, class tests, group work, exam results, competition with classmates, content difficulties, time management, and presentation anxiety. It will also examine self-regulation regarding planning, self-monitoring, effort, and self-efficacy. Further, the study will determine which academic stress indicators are most closely associated with self-regulation skills among high school mathematics learners. Finally, at a significance level of .05, this study will confirm whether academic stress and self-regulation abilities are not significantly correlated.

MATERIALS AND METHODS

This section covers the study's research methodology, which includes respondent selection, data collection, and analysis methods. It also includes descriptive statistics, correlation analysis, and regression results to determine relationships and predictive influences.

Research Respondents

This study involves three private junior high schools in Davao City, with a total student population 814. The researchers selected 300 high school mathematics students from this group to participate. The sample came from one private learning institution with various campuses offering junior high education. The respondents were distributed proportionally across the three schools: 57 students from School A, 140 from School B, and 103 from School C. Each campus served as a separate stratum, and the researchers determined the sample size based on the total number of enrolled mathematics students. The study employed stratified random sampling, dividing the population into smaller groups, or strata, depending on the common characteristics. Researchers selected random samples from each group to ensure better representation. This technique enhanced the accuracy of the estimates by giving a better representation of the population (Thomas, 2020). This approach subsequently helped improve the reliability of the findings regarding the relationship between academic stress and self-regulation skills among high school learners, as it captured student diversity while ensuring fair representation for each group (Simkus, 2023). The inclusion criteria specified that only current junior high school students enrolled in private institutions could participate while excluding students from alternative education programs like the alternative learning system and homeschooling. Therefore, only answers from participants who finished the questionnaires were included in the study. To ensure a trustworthy and accurate depiction of the results, it eliminated data and incomplete responses from respondents who opted out or withdrew.

Research Instruments

To gather information from the respondents, the researchers used separate survey questionnaires—one designed to assess self-regulation and the other to measure academic stress. The first instrument is the Academic Stress Scale developed by Alam *et al.* (2023). The subclasses will assess the level of stress regarding the teaching method (8 items), parental expectations (5 items), class tests (2 items), group work (4 items), exam results (2 items), competitions with classmates (2 items), content difficulties (2 items), time management (4 items), and presentation anxieties (4 items). This section of the questionnaire aims to establish the level of stress of students in their responses, which were scaled from 1 (not at all stressed) to 5 (extremely stressed). Another instrument, adapted from Herl *et al.* (1999), consisted of 32 questions to measure self-regulation. These questions have four sections: planning, self-checking, effort, and self-efficacy, with eight questions in each section. Scores of planning and self-checking represented the trait metacognition scale; effort and self-efficacy scores depicted the trait motivation scale. This questionnaire also used a 5-point Likert-type response ranging from 1

(strongly disagree) to 5 (strongly agree). The Likert scale interval comprised five categories: 4.20 to 5.00 indicated very high academic stress or very high self-regulation, whereas 3.40 to 4.19 indicated high academic stress or high self-regulation, 2.60 to 3.39 reflected moderate academic stress or moderate self-regulation, 1.80 to 2.59 indicated weak academic stress or weak self-regulation, and 1.00 to 1.79 indicated very weak academic stress or very weak self-regulation. External experts in research and statistics validated the survey instruments to ensure their accuracy and relevance. After validation, the instruments were pilot-tested to assess clarity and improve their accuracy and effectiveness, ensuring they properly measured academic stress and self-regulation skills. Cronbach's alpha was calculated during reliability testing to ensure that the instruments produced consistent results. This step also helped identify any possible issues with the data collection process before the main study began.

Design and Procedure

This study used a quantitative research approach with a descriptive-correlational design to examine the relationship between academic stress and self-regulation skills among high school mathematics students. The design was ideal for exploring the natural relationship between the variables without altering them (Copeland, 2022). It was especially fitting because it allowed the researchers to examine the connections between academic stress and self-regulation while maintaining the integrity of the students' learning environments. In implementing the study, the school administration did not authorize the researchers to conduct the research outside the school campus. Consequently, the researchers collected data through Google Docs, following the research advisor's recommendation. The researchers used a form to outline the study procedures, inform respondents of their rights, and ensure they understood the study's purpose before giving consent. The researchers obtained permission from the relevant school officials before conducting the survey. They prioritized participant privacy by not collecting personal data to uphold ethical standards. All data were handled with the utmost care and in full compliance with the 2012 Data Privacy Act, ensuring confidentiality and protection throughout the research process. They have the right to withdraw from the study for any reason. At the same time, the researchers used different statistical tools to understand better how high school math students manage stress and improve their self-regulation skills. First, Spearman's rho correlation was applied to examine the relationships between the variables, as the data did not meet the normality condition. Then, linear regression analysis assessed whether mathematical stress could predict students' self-regulation and mathematical performance.

RESULTS AND DISCUSSION

This section highlights the study's main findings on academic stress and self-regulation skills among high school math students. It investigates relationships and pinpoints important factors using regression analysis, descriptive statistics, and correlation.

Factors of Academic Stress of Students

Table 1 presents the level of academic stress experienced by high school mathematics students across various factors. The data were analyzed using the mean and standard deviation to determine the average stress level and degree of variation in students' experiences.

Table 1: Level of Academic Stress

Indicators	Mean	SD
Exam Result's Stress (ERS)	3.53	1.15
Competition with Classmate's Stress (CCS)	2.95	1.10
Overall	3.17	1.77

Based on the data presented, the overall mean score of 3.17 (SD = 1.77) indicates that high school mathematics students experience moderate academic stress. Differences in students' stress levels suggest varied responses to educational demands, potentially influencing how they cope, their readiness to learn, and the support they receive from their environment. With an overall mean score drawn from nine indicators of academic stress, the highest was seen in the ERS category (M = 3.53, SD = 1.15), indicating that high school mathematics students are especially concerned about their performance, particularly in exams. In contrast, CCS had the lowest mean score of 2.95 (SD = 1.10), indicating students are less stressed about competing with their peers. These results suggest that while competition does exist, it might not be as much of a stressor for students as other things like test scores or class-related tasks. The lower mean and standard deviation for CCS indicate that students view peer competition as a minor source of academic stress, highlighting the complex nature of academic pressure and the importance of a supportive learning environment that nurtures mental and emotional well-being.

Olivera *et al.* (2023) support the study's results, highlighting how excessive academic stress affects students' cognitive capacities, leading to poor performance from those who find it more challenging to complete various assignments. Additionally, stress can hinder mental processes like memory and learning, harming academic performance, including taking tests, completing tasks, and participating in class, especially in higher-order thinking courses like mathematics Tibus and Ledesma (2021). In line with this, Luo *et al.* (2020) and Thompson *et al.* (2022) discovered

that stress significantly impacted students' academic efforts, social pressure, and school motivation. This finding aligns with the studies conducted by Effendi *et al.* (2021) and Fukui (2024), which support the idea that mathematics's inherent complexity and abstraction contribute to students' poor academic performance and elevated stress levels.

Self-Regulation Skills of Students

Table 2 shows the mean scores and standard deviations for various indicators of self-regulation skills. The overall mean score of 3.96 (SD = .66) also shows a high level of self-regulated learning among the students, indicating that students generally demonstrate a high capacity for self-regulation.

Table 2: ALevel of Self-Regulation Skills

Indicators	Mean	SD
Planning	4.09	0.73
Self-Checking	3.96	0.72
Effort	4.08	0.73
Self-Efficacy	3.72	0.90
Overall	3.96	0.66

The results suggest that students will likely have good self-regulated learning behavior, as all categories fall within the high range. Among these, planning represents the highest mean score of 4.09 (SD = .73), which indicates that students focus on organizing their studies well. The results reflect the student's ability to organize learning, set goals, and manage tasks, as measured by the questionnaire. However, the results show that self-efficacy has the lowest mean score of 3.72 (SD = .90) and the highest variability. It suggests that educators may need to tailor support to address variations in students' confidence levels. This finding parallels Suan's (2023) study, which also revealed that students with strong self-regulation skills tend to achieve better academic performance. The study emphasized that key components of self-regulation, particularly reflection, are crucial for academic success, with results suggesting that students who regularly engage in self-reflection tend to perform well in their studies. In addition, Pandey *et al.* (2021) pointed out that self-regulation includes vital skills such as goal-setting, managing emotions, and taking charge of one's learning—all of which are crucial for academic achievement. Similarly, students who develop goal-setting, track their progress, and maintain consistent effort tend to perform better in school, with those having strong self-regulation more likely to set meaningful goals and persistently work toward them (Saks & Leijen, 2019; Tosuncuoglu, 2019).

These results further support the belief that Noonan & Erickson (2021) found that students with high self-regulation skills are likely to continuously monitor and adjust their performance accordingly—a pattern reflected in the high self-checking scores observed in this study. Additionally, these findings align with the perspective of Maleki *et al.* (2018) and Xiao *et al.* (2019), who pointed out that lower scores on self-efficacy reflect the challenge of building students' confidence in their capacities, which is essential for academic motivation and success. Low confidence tends to be linked with poor performance and reduced motivation, reinforcing that self-regulated learning plays a crucial role in educational success.

Relationship Between Academic Stress and Self-Regulation Skills

Table 3 presents the relationship between academic stress and self-regulation among high school mathematics students. The researchers conducted a correlation analysis to identify whether there is a significant link between the two variables. This analysis aimed to show how effectively self-regulation skills help students manage the stress they encounter in learning mathematics.

Table 3: Significant Relationship between Academic Stress and Self-Regulation Skill

Self-Regulation	Academic Stress									
	TTMS	PES	CTS	GWS	ERS	CCS	CDS	TMS	PAS	Overall
Planning	-.065	-.110	.135*	-.073	.040	.008	-.202*	-.075	-.049	-.069
p-value	.244	.050	.016	.195	.480	.891	< .001	.182	.381	.222
Self-Checking	-.003	-.096	.156*	-.045	.058	.042	-.131*	-.015	.015	-.015
p-value	.954	.088	.005	.419	.299	.457	.019	.794	.789	.789
Effort	-.025	-.079	.232*	.021	.148*	.008	-.133*	-.021	.072	.019
p-value	.660	.157	< .001	.715	.008	.887	.018	.705	.202	.733
Self-Efficacy	-.055	-.140*	.092	-.114*	-.051	.016	-.170*	-.087	.088	.098

p-value	.331	.012	.100	.042	.368	.775	.002	.123	.116	.081
Overall	-.047	.123*	.179*	-.059	.052	.019	-.186*	-.053	-.017	-.049
p-value	.404	.001	.001	.293	.355	.735	< .001	.344	.769	.382

*Note: * p < .05*

The correlation between academic stress and self-regulation is extremely weak (r = –.049), suggesting that although self-regulation is likely to have some influence on academic stress, its impact is limited. This weak negative correlation implies that students with higher self-regulation skills do not necessarily have lower levels of academic stress. Furthermore, the non-significant p-value of some measures reflects that self-regulation does not consistently link with academic stress, suggesting that other factors are likely more influential in determining students' stress levels. In line with Mathew and Simon's (2024) findings, the weak correlation between self-regulation and academic stress also reflects that self-regulation alone may not considerably decrease stress levels. However, this implies that while self-regulation may help manage stress, peer pressure and other external factors could significantly determine students' academic stress. The results show that planning correlates negatively with CDS (r = –0.202, p < 0.001), meaning that students with high planning skills will have a lower stress level related to academic content difficulties. This finding is consistent with Callan *et al.* (2022), who emphasized that effective planning and organizational ability are crucial in handling academic tasks and reducing stress, especially concerning content challenges. Similarly, students who frequently engage in self-checking tend to experience less stress related to difficulties with educational content, as shown by a significant negative correlation with CDS (r = –0.131, p = 0.019). This supports the findings of Munawaroh *et al.* (2023), Nuriyyatiningrum *et al.* (2023), and Fachrozie *et al.* (2021), who explained that self-monitoring behaviors help students manage their learning better and reduce anxiety, which in turn helps lessen academic stress.

Additionally, there was a negative correlation between effort and CDS (r = –0.133, p = 0.008), suggesting that students who invest more in self-regulation tend to experience less stress when dealing with challenging academic content. This finding supports Vizoso *et al.* (2018), who reported that academic engagement and adaptive coping contribute positively to academic success, suggesting that self-regulation may play a key role in reducing academic stress. Self-efficacy showed a significant negative correlation with CDS (r = –0.170, p = 0.002), implying that students with greater confidence in handling academic tasks tend to experience lower stress when confronted with challenging content. These results support the conclusions of Karaman *et al.* (2019) and Van Zyl *et al.* (2022), who emphasized that students with higher self-efficacy—those who are more confident in overcoming academic difficulties—tend to experience lower academic stress, likely because they are better equipped with effective coping strategies. Finally, self-regulation is negatively correlated with CDS (r = –0.186, p = 0.031), reinforcing that students with high self-regulation skills tend to have lower stress levels related to academic content difficulties. In parallel, these results uphold the view expressed by Yahya *et al.* (2021), who found that self-regulated students are more successful in learning because they plan, set goals, organize, and self-evaluate throughout their learning process, which helps reduce academic stress. These results support the Self-Regulated Learning (SRL) Theory, which highlights the importance of students' ability to manage their learning process for academic success and emotional well-being. While planning and self-checking are fundamental to success, excessive self-monitoring can increase academic stress, aligning with SRL Theory's view that overregulation can be harmful. Overall, the findings reinforce SRL Theory by showing how self-regulation strategies can reduce or increase academic stress, depending on how they are applied.

Predictor of Academic Stress of Students

Table 4 presents the regression model of academic stress, exploring how specific indicators can predict overall stress among students. The researchers conducted a regression analysis to determine the key factors most effectively explaining variations in students' overall stress and assess each factor's significance in predicting academic stress.

Based on the data, the R^2 of .117 in the regression model shows that the predictors explain 11.7% of the variance

Table 4: Regression Model of Academic Stress

Predictor	B	SE	β	t	p
Teacher's Teaching Method Stress (TTMS)	.068	.062	.088	1.105	.270
Parent's Expectations Stress (PES)	-.082	.043	-.133	-1.913	.057
Class Test's Stress (CTS)	.167	.040	.303	4.230	< .001
Group Work Stress (GWS)	-.079	.063	-.105	-1.241	.215
Exam Result's Stress (ERS)	.019	.050	.033	.377	.706
Competition with Classmate's Stress (CCS)	.055	.041	.092	1.316	.189

Content Difficulties' Stress (CDS)	-.178	.055	-.265	-3.248	.001
Time Management Stress (TMS)	.005	.053	.007	.086	.932
Presentation Anxiety (PAS)	-0.024	.046	-.041	-.523	.600

Note. Constant=4.109, F(4,55), p < .001, R^2=.117

in academic stress, and the other 88.3% are due to factors not accounted for by the model. Among these predictors, CTS and CDS are significant predictors of academic stress. The positive beta coefficient for CTS (β = 0.303, p < 0.001) suggests that the greater the stress caused by class tests, the more the overall academic stress is increased. In contrast, the negative beta coefficient for CDS (β = –0.265, p = 0.001) indicates that lower difficulties with content link to decreased academic stress levels. These findings align with a study by Koppenborg *et al.* (2022), which emphasizes the complexity of academic stress and points out that tests, workloads, and assignments all raise students' stress levels. Park and Youngshim (2018) emphasize that academic stress increases when students struggle with managing their time, procrastination, and keeping a healthy academic-life balance. Building on this, Baglione *et al.* (2022) and Talha *et al.* (2020) highlight the importance of CDS and CTS when managing academic stress—they impact how students handle pressure effectively. Similarly, Dami and Parikaes (2018) point out that students must develop self-regulation and effective stress management techniques to deal with internal and external stressors. Altogether, these findings underline the vital role of self-regulation—not only for reducing stress but also for helping students stay focused, use their time effectively, and especially succeed academically.

CONCLUSION

This study examined the levels of academic stress and self-regulation skills in high school mathematics learners and their relationship. Findings show students experience moderate academic stress, with exam result stress being the most relevant factor, while competition with classmates is less stressful. Students generally possess high self-regulation skills, with planning and self-efficacy are relatively low. This suggest that while students manage their learning well, some lack confidence, which may affect motivation and performance.

A weak and non-significant correlation between academic stress and self-regulation was found, suggesting that self-regulation might help reduce stress but is not the main factor. However, specific self-regulation strategies like planning, monitoring, and effort were linked to lower stress from difficult content. Regression analysis identified test frequency and complex material as key stress predictors, highlighting the need for effective academic support.

The findings align with Self-Regulated Learning Theory, Lazarus and Folkman's Stress and Coping Model, and Bandura's Social Cognitive Theory, emphasizing that academic stress is influenced by both internal skills and external pressures. Thus, fostering student success requires integrated strategies including institutional support, adaptive coping, and building self-efficacy.

It is recommended that schools implement strategies to reduce academic stress and improve self-regulation, such as goal-setting, study planning, stress-relief activities, and counseling services. Parents can support their children by fostering a calm and encouraging home environment. Future research should explore the effectiveness of these interventions and their impact on academic outcomes and mental health.

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