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Original Research Paper

The Mediating Effect of Academic Stress on Fear of Failure and Academic Procrastination of College Students

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Abstract: This quantitative non-experimental study delves into the factors associated with academic procrastination among college students. Using stratified random sampling, the identified and included 409 students from different higher educational institutions in Region XI, Philippines. The study adopted validated measurement scales for the Academic Procrastination, Academic Stress, and Fear of Failure. Using SmartPLS 4.0 software a mediation analysis was conducted on the data. The results revealed that college students manifest moderate levels of academic stress, fear of failure, and academic procrastination. Further, significant direct and indirect effects were found to all hypothesized paths thus supporting the hypothesized mediation model of academic procrastination. The coefficient of determination (R^2 = 0.433) indicates that fear of failure and academic stress together explain 43.3% of the variance in academic procrastination among college students. Implications and limitations of the study were also provided.

Keywords: Academic Stress, Academic Procrastination, College Student, Fear of Failure, Mediation Analysis.

1. Introduction

Academic Procrastination is a phenomenon where students postpone academic assignments, like studying for a test or homework. Academic procrastination refers to an act of delaying academic task completion [1]. Academic procrastination in academic tasks extends to the college level [2]. Many research studies elucidated that college students' common issue is academic procrastination [3]. This common problem can disrupt the student learning process and have impacts on student academic achievement. Because of delay, it can affect student's performance although there are also instances in which the pressure created by procrastination can improve performance [4].

An analysis of procrastination in college students indicates that 80-95% of people suffer from this phenomenon, or it is found in at least half of the student population [4]. Previous studies such as Chehrzad [5] suggest that between 70% and 90% of college students regularly indulge in procrastination, and some among them even consider themselves as chronic procrastinators. The empirical findings also illustrate that. Kuftyak [6] suggested that procrastination was often related to the level of difficulty of the task, where boring or hard-to-understand assignments were more susceptible to being put off. Furthermore, improper time commitment will mean complexity in learning, which in turn affects one's personal and professional growth and development as well as the quality of education one receives [6].

Fear of failure (FF) is a psychological trait characterized by a tendency to avoid failing in situations when success is expected, due to the perception that the shame and disgrace associated with failure would be overpowering [7]. This notion has developed from previous definitions that characterized FF as consisting of two separate motivational behaviors: the inclination to pursue achievement and the aspiration to avoid failure [8]. In order to prevent failure, individuals frequently employ self-protective actions such as "self-handicapping," which involves deliberately creating obstacles for oneself, such as setting unrealistic goals, procrastinating, or inadequately preparing for exams. The purpose of this behavior is to attribute the cause of failure to external, uncontrollable factors rather than personal shortcomings [9] [10] [11].

Theory of the current study is provided by Lazarus and Folkman [12] in their Transactional Model of Stress and Coping, stating that it is the dynamic process initiated by the relationship between a person and an environment. More specifically, mediation of the appraisal and coping responses defines the process of stress. In an academic context, the fear of failure may be regarded as a potent stressor that seriously influences students' levels of academic stress.

Academic stress is generated when students perceive their academic demands as exceeding the coping resources they have, which leads them to become nervous and stressed. This kind of stress can therefore reach the stage of affecting the students' behaviors, such as academic procrastination, which can be a method to avoid the foreseen negative results from the academic responsibilities.

To achieve this, the present study explored the mediating role of academic stress in the relationship between fear of failure and academic procrastination among college students by using the Transactional Model of Stress and Coping. This model contributes to a broader understanding of how students' cognitive appraisals and their stress responses lead to the determination of their academic behaviors. It also gives insight for any potential intervention to alleviate academic procrastination.

2. Literature Review

Academic stress represents the psychological burden borne by students under the influence of permanent social and self-imposed pressures within the educational environment [13]. This stress might cause exhaustion of an emotional reserve and be characterized by mental strain due to different demands and expectations placed on a student. Significantly, fear of failure is positively correlated with academic stress, which also encourages educational organizations to explore successful interventions for the two elements. Stress, one of the elements causing procrastination among students, as shown by Ghufron and Risnawita [14]. Academic procrastination is a constant inclination for the student to prolong academic activities nearing stress. It is linked with unfavorable psychological and physiological consequences such as depression, low self-esteem, anxiety, guilt, and stress [15] as cited in Bojuwoye [16].

A study of Steel [17] found a relationship between fear of failure and self-regulation concerning academic procrastination in students was studied. The results, according to the study, indicated that fear of failure positively predicted academic procrastination and responsibility also significantly predicted academic procrastination [17] [18]. Conversely, a study found that there is no influence between fear of failure and academic performance of participants with procrastination considered as a mediating variable [3],[19].

The study by Tan and Prihadi [18] ascertained that achievement expectancy negatively predicted academic procrastination. Another result from the National Capital Region (NCR) shown by Nartea et al. [20] was that there was a significant correlation between academic procrastination and academic performance. Defined as the appraisal of a threatening situation by a student leading to anxiety and potential actual failure, the fear of failure is responsible for much of the performance of a student affecting, particularly when low fear is apparent, skills improvement and new academic strategies developed.

Other findings from the study of Muliani et al., [21] revealed that there is a relationship between the level of stress and academic procrastination of nursing students. Academic procrastination is a major cause of academic failure [22]. Research studying fear of failure as a justification for procrastination suggests that individuals may justify their fear in terms of protecting their self-worth because of the findings of Balkis & Erdinç [23] cited in Zarrin et al. [17]. Results, from the study of Zarrin et al. [17], showed a positive relation with the fear of failing construct and academic procrastination, and a negative relation with the subscales of self-regulation and academic procrastination. However, fueling of students' procrastination could be due to fear of failing and may be related to a variety of other factors, and not necessarily failing [24].

There have been many studies carried out in the past which determined how academic stress, fear of failure, and procrastination influence performance. One study by Rahardjo et al. [25] has shown that academic procrastination is mainly due to stress of academics and computer anxiety, especially among students who are pursuing social sciences. The study by Parlade and Karayiğit [26] also noted that procrastination has a moderate positive association with fear of failure, in which women are more fearful. On the other hand, Shi [27] demonstrated that academic stress is a significant predictive factor for academic procrastination, with both type of procrastination, active or passive, and academic self-efficacy moderating this relationship. Further Shi [28] also gave the relationship of procrastination and academic performance, where it can be inferred that the highest level of procrastination is exhibited during the third year of college. Shi [27] would also argue that academic procrastination, that is because of academic stress, in turn infers academic performance.

However, there's an existing gap in understanding the specific mediating role of academic stress in the relationship between fear of failure and academic procrastination. Uncovering insights into how stress cultivates the connection of fear of failure and procrastination requires attention and effective educational intervention as well as effective self-management and productivity. Thus, the present research aims to investigate and analyze the mediating effect of academic stress on the relationship between fear of failure and academic procrastination among college students, offering a comprehensive understanding of these dynamics.

3. Methodology

3.1. Research Design

This study utilized a quantitative research design, specifically a non-experimental correlational approach, to examine the association between fear of failure, academic stress, and academic procrastination. Additionally, it aimed to determine the role of academic stress as a mediator in these relationships among college students in Region XI, Philippines. Quantitative research, as described by Creswell and Creswell [29], is a methodical approach that entails gathering, analyzing, and interpreting numerical data, usually acquired by surveys or other measurement tools. This approach enables the analysis of associations between variables without altering the independent variables, which is a characteristic of non-experimental designs.

3.2. Respondents

The survey included college students who were currently enrolled at different universities located in Region XI, Philippines. Stratified random sampling was employed to pick a total of 409 students, ensuring that the sample sufficiently represents certain subgroups within the community. Stratified random sampling is a method where the population is divided into groups (strata) depending on specific criteria. Participants are then randomly selected from each group in proportion to its size in the population. This approach improves the accuracy and dependability of the results by ensuring a representative sample.

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3.3. Instrument of the Study

The data were gathered utilizing standardized questionnaires, which were conducted through Google Forms. The research utilized the Academic Procrastination Scale, adapted from McCloskey [30], the Fear of Failure Scale, adapted from Conroy et al. [31], and the Academic Stress Scale, adapted from Bedewy and Gabriel [32]. The instruments were chosen based on their proven validity and reliability in measuring the desired constructs.

The data collection technique entailed disseminating the online surveys to the chosen students. Participants were guaranteed the secrecy and anonymity of their responses. The gathered data were next subjected to statistical analysis in order to ascertain the correlations between the variables and to evaluate the mediation model.

3.4. Statistical Analysis

The Jamovi program was used to produce descriptive statistics, such as the mean and standard deviation, in order to provide an overview of the levels of academic stress, fear of failure, and academic procrastination among the participants. In order to ascertain the accuracy and dependability of the equipment, a series of tests were carried out utilizing SmartPLS 4.0 software. The Average Variance Extracted (AVE) measure was employed to examine the convergent validity of the scales. The Heterotrait-Monotrait Ratio (HTMT) was utilized to analyze the discriminant validity. Additionally, the internal consistency of the scales was evaluated using Cronbach's Alpha and Composite Reliability, as suggested by Taber [33].

The mediation analysis utilized the bootstrapping standardized algorithm in SmartPLS 4.0. Mediation analysis investigates whether the presence of academic stress acts as a mediator in the connection between fear of failure and academic procrastination. This entails evaluating the direct, indirect, and overall impacts of the predictor variable (fear of failing) on the outcome variable (academic procrastination) by means of the mediating variable (academic stress) [34] [35].

3.5. Hypotheses

There are hypotheses used:

- H1 : Fear of failure has a significant direct effect on academic stress among college students.
- H2 : Academic stress has a significant direct effect on academic procrastination among college students.
- H3 : Fear of failure has a significant direct effect on academic procrastination among college students.
- H4 : Academic stress mediates the significant direct effect of fear of failure on academic procrastination among college students.

4. Finding and Discussion

The validity and reliability of the measuring model play a crucial role in mediation analysis, as they significantly impact the study's findings and conclusions [36].

Table 1 displays the validity and reliability metrics for the three dimensions examined in the study: Academic Procrastination (AP), Academic Stress (AS), and Fear of Failure (FF). Cronbach's alpha was used to evaluate the internal consistency of the constructions. AP indicates a good level of reliability, as shown by a Cronbach's alpha coefficient of 0.876. AS shows satisfactory reliability, with a coefficient value of 0.754. FF exhibits great internal consistency, with a coefficient value of 0.957. According to Kılıç [37], a benchmark coefficient alpha of 0.70 or higher is deemed satisfactory. Cronbach's alpha is commonly used in statistics to assess the reliability of psychometric tests [38].

The reliability of the constructs is further confirmed by composite reliability, which is measured by both rho_a and rho_c. The composite dependability values for AP are 0.883 and 0.900, for AS are 0.758 and 0.836, and for FF are 0.957 and 0.960, respectively. The average variance extracted (AVE) is a statistical metric that compares the proportion of variance explained by a construct to the proportion of variance attributed to measurement error (Santos & Cirillo, 2021). Convergent validity is established when the average variance extracted (AVE) value exceeds 0.5, as stated by Mehmetoglu [39]. Table 1 demonstrates that all AVE values surpass the 0.5 threshold, hence showing satisfactory convergent validity.

The Heterotrait-Monotrait Ratio (HTMT) falls within the range of 0.50 to 0.70. The pairings of constructs are as follows: FF and AP (0.523), AS and AP (0.591), and FF and AS (0.752). The ratios of

all variables are below the 0.85 limit, which suggests that there is good evidence of discriminant validity [40]. Hence, the instruments employed in the study are both dependable and accurate.

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Table 1. Construct Validity and Reliability

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Academic Procrastination (AP)	0.876	0.883	0.900	0.502
Academic Stress (AS)	0.754	0.758	0.836	0.506
Fear of Failure (FF)	0.957	0.957	0.960	0.501
Discriminant Validity - Heterotrait-monotrait ratio (HTMT)				
AS <-> AP	0.591			
FF <-> AP	0.523			
FF <-> AS	0.752			

Table 2 shows the descriptive statistics for academic stress, fear of failure, and academic procrastination among 409 college learners in Region XI, Philippines. An average mean of 2.90 was found and indicates a moderate level of academic procrastination among the respondents. This aligns with recent studies which indicate that a significant portion of college students engage in moderate procrastination [41] - [43]. Academic procrastination frequently involves tasks such as postponing important assignments and diverting attention to less critical activities, reflecting behaviors identified by McCloskey [30]. The standard deviation of 0.683 and the relatively narrow distribution surrounding the mean suggest that procrastination levels are consistent.

The mean level of fear of failure is 3.25, indicating a moderate degree. The fear of failure scores across the participant pool exhibit significant diversity, as seen by the standard deviation of 0.905. Multiple studies have shown that college students frequently encounter a profound apprehension of failure, which is a substantial indicator of both academic success and adverse mental health outcomes, such as depression and anxiety [44] [45]. In addition, the individuals experienced a moderate amount of stress, as indicated by an average mean of 3.38 on the academic stress scale. Multiple studies consistently demonstrate that college students experience moderate levels of stress, with academic stress being a significant factor [46]- [48].

Table 2. Level of Academic Stress, Fear of Failure, and Academic Procrastination of College Students

Constructs	N	Mean	SD	Description
Academic Procrastination	409	2.90	0.683	Moderate
Fear of Failure	409	3.25	0.905	Moderate
Academic Stress	409	3.38	0.528	Moderate

The direct effect of academic stress (AS) on academic procrastination (AP) is significant with a path coefficient of 0.303, a sample mean of 0.306, a standard deviation of 0.069, and a T statistic of 4.409 ($p < 0.001$). This indicates that higher levels of academic stress are associated with higher levels of academic procrastination among students, supporting hypothesis H_1. This finding aligns with the literature which suggests that academic stress can contribute significantly to academic procrastination behaviors in students [6] [27] [49]. Additionally, studies have also reported that academic stress is also detrimental to the positive mental health by increasing stress, anxiety, and depressive thoughts [50]

[51]. As reported by Obenza et al. [52], college students have been found to have a decreasing and moderate levels of positive mental health, belongingness, and self-esteem which are negatively predicted by several factors notably their academic stress.

The direct effect of fear of failure (FF) on academic procrastination (AP) is also significant, with a path coefficient of 0.294, a sample mean of 0.294, a standard deviation of 0.066, and a T statistic of 4.441 ($p < 0.001$), supporting hypothesis H_2. This suggests that students with a higher fear of failure tend to procrastinate more, consistent with findings that fear of failure is a significant predictor of procrastination [17] [52] [53].

Furthermore, the fear of failure (FF) has a strong and statistically significant impact on academic stress (AS). The path coefficient is 0.646, the sample mean is 0.649, the standard deviation is 0.034, and the T statistic is 19.233 ($p < 0.001$). These findings provide support for hypothesis H_3. This suggests that the presence of a fear of failure significantly amplifies academic stress, which is consistent with other studies that have identified fear of failure as a major source of stress in academic environments [53] [54]. Furthermore, research has indicated that the fear of failure and academic stress have a detrimental impact on happiness by causing anxiety, reduced resilience, and poor academic adaptation. However, it has been found that perceived academic control and happiness programs can help alleviate these effects [56] [57] [58].

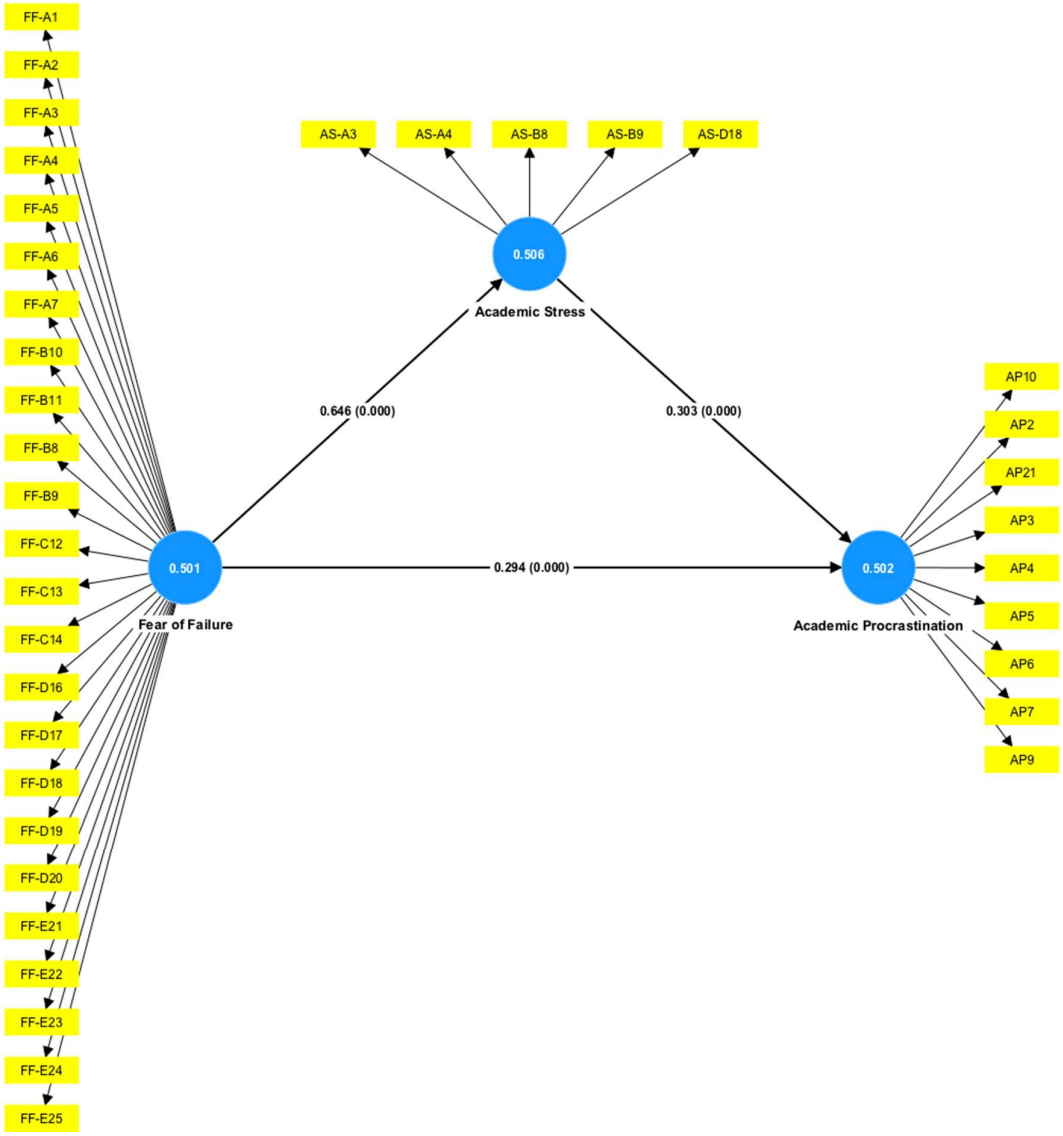

Figure 1. Mediation Analysis-Results using SmartPLS 4.0

The indirect effect of fear of failure (FF) on academic procrastination (AP), mediated by academic stress (AS), is significant, with a path coefficient of 0.196, a sample mean of 0.199, a standard deviation of 0.048, and a T statistic of 4.099 ($p < 0.001$), supporting hypothesis H_4. This suggests that academic stress partially mediates the relationship between fear of failure and academic procrastination. Students who fear failure are likely to experience higher academic stress, which in turn leads to higher procrastination.

The total effect of fear of failure (FF) on academic procrastination (AP) is substantial, with a path coefficient of 0.49, a sample mean of 0.493, a standard deviation of 0.044, and a T statistic of 11.253 ($p < 0.001$). This total effect underscores the considerable impact of fear of failure on academic procrastination, both directly and indirectly through academic stress, indicating partial mediation. This comprehensive influence highlights the importance of addressing both fear of failure and academic stress to effectively mitigate procrastination behaviors.

Based on the R2 value of 0.433, it can be inferred that the model effectively explains a significant percentage of the variability observed in academic procrastination. The adjusted R2 value of 0.430 indicates the robustness of the model when the number of predictors is taken into account. In summary, the results emphasize the significance of direct and indirect mechanisms in comprehending the way in which fear of failure impacts academic procrastination. Furthermore, they provide insight into the mediating function of academic stress in this association.

The findings of this study reveal that the combined influence of fear of failure and academic stress significantly predicts academic procrastination among college students, as evidenced by the coefficient of determination ($R^2 = 0.433$) and the adjusted coefficient of determination (Adjusted $R^2 = 0.420$). These values indicate that approximately 43.3% of the variance in academic procrastination can be explained by the model, which includes fear of failure and academic stress as predictor variables. The adjusted R^2 value, which accounts for the number of predictors in the model, slightly decreases to 42.0%, suggesting that the model remains robust even after adjusting for the number of predictors.

The substantial R^2 value signifies a strong explanatory power of the model, implying that fear of failure and academic stress are critical factors contributing to academic procrastination. This finding aligns with the theoretical framework provided by the Transactional Model of Stress and Coping [26] which posits that stress and coping mechanisms significantly influence behavioral outcomes. The significant path coefficients observed for both direct and indirect effects in the mediation analysis further underscore the importance of these variables.

Table 3. Direct Effects, Indirect Effects, and Total Effects of the Variables

Hypotheses	Path Coefficient	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Remarks
a. Direct Effects						
AS -> AP	0.303	0.306	0.069	4.409	0.000	H_1 is supported
FF -> AP	0.294	0.294	0.066	4.441	0.000	H_2 is supported
FF -> AS	0.646	0.649	0.034	19.233	0.000	H_3 is supported
b. Indirect Effects						
FF -> AP	0.196	0.199	0.048	4.099	0.000	H_4 is supported
c. Total Effect						
FF -> AP	0.49	0.493	0.044	11.253	0.00	Partial Mediation
			$R^2 = 0.433$			
			Adjusted $R^2 = 0.420$			

Legend: AP (Academic Procrastination), AS (Academic Stress), and FF (Fear of Failure).

The results of this research, based on the Transactional Model of Stress and Coping [26], provide valuable understanding of the interactions between academic stress, fear of failure, and academic procrastination in college students. The study enhances our comprehension of the interplay between fear of failure, academic stress, and academic procrastination by clarifying the mediating role of academic stress in this relationship. This better knowledge sheds light on how these factors influence student behavior in academic contexts.

Theoretical implications of this work indicate many opportunities for action. Initially, implementing cognitive-behavioral strategies in programs could potentially decrease academic stress and, as a result, reduce procrastination by addressing the fear of failure. Secondly, stress management workshops that teach students effective coping strategies could mitigate the impact of academic stress on procrastination. Lastly, fostering a supportive academic environment that reduces the stigma of failure and encourages a growth mindset could help students reframe their appraisal of academic challenges, thereby reducing stress and procrastination.

Despite the significant insights gained from this study, several limitations should be acknowledged. Firstly, the use of a non-experimental correlational design inherently limits the ability to establish causality between the variables of interest. While the study identifies relationships between fear of failure, academic stress, and academic procrastination, it cannot definitively determine whether these relationships are causal. Secondly, the reliance on self-reported data collected through standardized questionnaires may introduce response biases, such as social desirability bias, where participants may underreport undesirable behaviors or overreport desirable ones. Additionally, the study's sample is confined to college students in Region XI, Philippines, which may limit the generalizability of the findings to other regions or populations. Although stratified random sampling enhances the representativeness of the sample, cultural and educational differences in other areas may influence the general applicability of the results. Furthermore, the cross-sectional nature of the study captures data at a single point in time, thus providing a snapshot rather than a dynamic view of how fear of failure, academic stress, and procrastination interact over time. Lastly, while the study employs robust statistical methods to ensure the reliability and validity of the instruments, the inherent limitations of these methods and the potential for unmeasured confounding variables should be considered when interpreting the results. Future research could benefit from longitudinal designs, more diverse samples, and mixed-methods approaches to address these limitations and provide a more comprehensive understanding of the phenomena under study.

5. Conclusion

The current study empirically investigated the significant interplay between fear of failure, academic stress, and academic procrastination among college students. Theoretically grounded in the Transactional Model of Stress and Coping, this relationship implicates that directly, fear of failure heightens academic stress and through that increase of stress, the level of procrastination. This underlines a dual pathway of influence in which the fear of failure directly predicts procrastination and even exacerbates it through an increase in levels of stress. The importance of mediation effects found in studies is that interventions focused on reducing the fear of failure and managing academic stress can well be effective in reducing procrastination behaviors. Such realizations highlight the need to focus not only on the emotional but also the cognitive stressors of an academic setting in promoting better academic outcomes and general well-being.

Beyond these insights, the strong predictability of the model again emphasizes the practical relevance of targeting fear of failure and academic stress within interventions to reduce student procrastination. The significant presence of direct effect between academic stress and procrastination showed the need for stress management programs that will provide students with a repertoire of effective coping mechanisms. Furthermore, the direct effect found for fear of failure on both academic stress and procrastination suggests that such cognitive-behavioral interventions that could bring about certain modifications in students' perception of failure would be of prime importance.

The adjusted R^2 value indicates that while the model explains a substantial portion of the variance in procrastination, other factors not included in this study also contribute to this behavior. Future research could expand the model by incorporating additional variables such as academic motivation, self-efficacy, and time management skills, which have been shown to influence procrastination.

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