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Academic Procrastination and School Satisfaction: Mediating Role of Academic Stress

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This investigation sought to explore the mediating role of academic stress in the linkage between academic procrastination and school satisfaction among Turkish adolescents (N = 362; Mage = 15.22, SD = 1.22). It was found that adolescents' academic procrastination had a negative correlation with school satisfaction, and their levels of academic stress were positively related to satisfaction with school. Utilizing structural equation modeling, the analysis revealed that academic stress served as a partial mediator in the relationship between academic procrastination and school satisfaction. Consequently, the indirect influence of academic procrastination on school satisfaction, mediated through academic stress, was statistically significant.

Keywords: School satisfaction, academic procrastination, academic stress

INTRODUCTION

Adolescents spend a significant portion of their day in school, engaging with peers and advancing academically to lay the groundwork for their future. The excitement, desire, and enthusiasm they harbor towards their educational institutions can foster a more enjoyable and lasting impact. Schools should be designed to not only provide education but also to instill human values and offer entertainment (Verkuyten & Thijs, 2002). Such an environment could enhance academic achievements and reduce dropout rates, while also bolstering adolescents' self-confidence and well-being through school engagement. Furthermore, students who feel a strong connection to their school are likely to experience increased satisfaction, reducing the likelihood of psychological issues such as loneliness and depression (Baker et al., 2003; Lawal, 2023; Tian et al., 2013).

Traditionally, fulfilling school expectations has been equated with academic success. However, influenced by positive psychology, factors such as school satisfaction and emotional engagement towards school have become increasingly evaluated (Huebner & Gilman, 2006). The idea of school satisfaction has gained significant attention in the field of positive psychology. It is rooted in Diener's theory of subjective well-being, which consists of both cognitive and affective elements. The cognitive aspect is represented by life satisfaction (Diener, 1984). Life satisfaction refers to the subjective evaluations made by individuals regarding their level of contentment with their lives (Diener, 2012). The notion of school satisfaction is applied within the context of educational institutions, encompassing the cognitive and emotive evaluations made by teenagers regarding their entire experience in school (Tian et al., 2016). It can positively influence students' academic focus by fostering emotional attachment to the school (Jiang et al., 2013). Fredricks, Blumenfeld, and Paris (2004) noted that this emotional attachment and resulting school satisfaction enhance relationships with classmates and teachers, and increase willingness to engage in school tasks, thereby boosting motivation and academic proficiency (Samdal et al., 1998). Students who derive satisfaction from school contribute to a positive school and classroom climate, feeling comfortable and developing quality relationships with peers and teachers (Takakura et al., 2010; Ye et al., 2014). Conversely, students with low school satisfaction may become alienated, leading to disinterest in school, which can precipitate bullying, and dropout (Finn, 1989; Sun, 2016).

Procrastination, which refers to the deliberate delay of tasks despite expecting negative outcomes, is widespread among students. Conservative estimates indicate that at least 50% of students regularly engage in procrastination when it comes to important tasks like exam preparation, term paper writing, and meeting weekly assignments (Pychyl et al., 2000; Schouwenburg, 2004; Steel, 2007). This behavior negatively impacts both academic performance and retention rates (Klassen et al., 2008; Kim & Seo, 2015). Academic procrastination, specifically, involves delaying work related to academic tasks (Tice & Baumeister, 1997; Steel, 2007). In order for such behavior to be categorized as procrastination, the individual must deliberately opt to postpone duties, even while they are aware of the probable adverse consequences (Steel, 2007). Studies conducted in the last forty years have shown that these delays are linked to personality characteristics such as impulsivity and a tendency to seek immediate rewards. Additionally, they are associated with difficulties in planning and self-control, low confidence in one's abilities, and avoidance of tasks due to fatigue or low energy levels (Steel, 2007; Steel et al., 2018). Hence, it may be deduced that

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students who engage in academic procrastination may also observe a decline in their level of satisfaction with their educational institution.

The Mediating Role of Academic Stress

Academic stress is arguably the most significant stressor impacting students' mental well-being, serving as the primary catalyst for concerning rates of stress-related issues within this demographic. Lee & Larson (2000) describe academic stress as stemming from a dynamic interaction between environmental stressors, the student's personal assessment of these stressors, and their responses to them. Evidence is mounting in support of the significant impact of academic-related stress on students' experiences within educational settings (Bedewy and Gabriel, 2015; Pascoe et al., 2020). A critical area of concern in the educational journey is the stress associated with adapting to and succeeding in new academic environments.

The structure of the educational system itself can exacerbate stress levels among students. Several factors have been identified as contributing to the escalation of academic stress. These factors encompass overcrowded lecture halls, the semester grading system, insufficient resources and facilities (Awing & Agolla, 2008), extensive syllabi (Agrawal & Chahar, 2007; Sreeramareddy et al., 2007), extended working hours, and the expectation for memorization-based learning (Deb et al., 2015). Additionally, the constant emphasis on the fear of failure by parents and educational institutions can severely impact students' self-esteem and confidence. Ang & Huan (2006) have identified escalated expectations as a pivotal factor in the amplification of stress levels among students. Moreover, a research conducted by Ranasinghe et al. (2017) examined the association between academic stress and emotional intelligence in relation to academic performance. The results indicated a significant inverse relationship between academic stress and academic accomplishment, implying that heightened levels of stress hinder students' academic performance.

The Present Study

The present study aims to investigate the mediating role of academic stress in the relationship between academic procrastination and school satisfaction among adolescents. Drawing on previous findings that highlight academic stress as a predominant stress factor impacting students' mental well-being and academic performance, this research seeks to deepen the understanding of how academic stress influences the dynamics between students' experiences of procrastination and their satisfaction with the school environment. Building upon the theoretical framework proposed by Lee & Larson (2000), which outlines academic stress as an interplay among environmental stressors, student appraisals, and reactions, the study examines whether academic stress serves as a critical intermediary that might exacerbate or mitigate the negative effects of academic procrastination on school satisfaction. Recognizing the complexity of academic stressors, including environmental conditions, evaluation systems, and external pressures highlighted by Awing & Agolla (2008), Agrawal & Chahar (2007), and Ang & Huan (2006), this investigation aims to elucidate the pathways through which academic stress impacts students' psychological and educational outcomes. Furthermore, by incorporating insights from Ranasinghe et al. (2017) on the detrimental correlation between academic stress and performance, this study explores the potential buffering or exacerbating effects of academic stress on the relationship between academic burnout, characterized by exhaustion, cynicism, and feelings of reduced efficacy, and the level of satisfaction students derive from their school experience

METHOD

Research Design

In this study, a correlational research framework was utilized, employing a structural equation modeling approach to examine the mediation model that investigates the relationship between academic procrastination, academic stress, and school satisfaction among Turkish students.

Participants

In this research, a convenience sampling method was implemented. The participants comprised 362 adolescents, with 189 (51.7%) female and 175 (48.3%) male. Their ages ranged from 13 to 18 (Mean age = 15.22, SD = 1.22). When considering perceptions of academic achievement, 33 (9.4%) were classified as low,

195 (53.9%) as medium, and 133 (36.7%) as high. It was reported that the majority of participants had their own study rooms (n = 266, 73.5%).

Ethics

Data gathering was conducted exclusively online, targeting adolescent volunteers. Adherence to the Helsinki Declaration was ensured, and the ethical clearance for the study was granted by the Yildiz Technical University Social Sciences and Humanities Research Ethics Committee (Report Number: 20240202700).

Data Collection Tool

The Tuckman Procrastination Scale, developed in 1991 by Tuckman, is a measurement instrument created to evaluate distinct types of procrastination exhibited by individuals. It comprises 16 statements, such as "[I get stuck in neutral even though I know how important it is to get started" which respondents rate using a 4-point Likert scale ranging from 1 ("Strongly disagree") to 4 ("Strongly agree"). This scale is structured around a singular factor model, where each item has a factor loading of .40 or above, demonstrating significant relevance to the underlying construct. The reliability of the scale is robust, with a Cronbach's alpha coefficient of .89, indicating high internal consistency among the items. In this study, the reliability coefficient was found to be .88.

Academic Expectation Stress Inventory, originally developed by Ang and Huan in 2006, was utilized in its form adapted to Turkish by Kelecioglu and Bilge in 2009. This scale, which operates on a 5-point Likert-type scale (never = 1 to always = 5). Comprising 9 items, the scale is divided into two sub-dimensions: Family/Teacher Expectations, consisting of 5 items, and Self-Related Expectations, consisting of 4 items. The scoring system of the inventory indicates that the lowest possible total score is 9 and the highest is 45, with higher scores reflecting an increase in perceived academic stress. In this study, the reliability coefficient was found to be .82.

The Children's Overall Satisfaction with Schooling Scale (COSS), developed by Randolph, Kangas, and Ruokamo in 2009, is designed to assess students' overall satisfaction with their schooling experience. It is a self-assessment tool that employs a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) and comprises 6 items (e.g., "I like to go to school"). Scores on the COSS can range from 6 to 30, with higher scores indicative of greater satisfaction with school and learning experiences. The scale was adapted to Turkish by Telef in 2014. The exploratory factor analysis conducted by Telef revealed that the six-item, single-dimensional structure accounted for 65% of the total variance, with item factor loadings ranging from .77 to .82. The confirmatory factor analysis indicated that the COSS demonstrated good fit. The reliability of the scale in the adaptation study was reported with a Cronbach's alpha coefficient of .89. In this study, the reliability coefficient was found to be .87.

Data Collection and Analysis

The researchers conducted statistical analysis using IBM SPSS Statistics 22 and AMOS Graphics. The analysis commenced with calculating descriptive statistics. Following this, Pearson's correlation analysis was utilized to evaluate the relationships between the variables under investigation. To investigate the influence of academic self-efficacy on adolescents' well-being and the intermediary role of academic procrastination, structural equation modeling (SEM) was utilized. Given the unidimensional nature of academic procrastination and school satisfaction, structural equation modeling included procrastination divided into three parcels and school satisfaction into two parcels. The adequacy of the model was appraised using various fit indices as advocated by Hu and Bentler (1999), including the χ^2/df ratio (which should be less than 5.0), SRMR and RMSEA (both of which should be less than 0.08), and CFI, GFI, IFI, and TLI (all of which should exceed 0.90). The threshold for statistical significance in this research was set at .05.

FINDINGS

Statistical analyses revealed significant relationships among school satisfaction, academic procrastination, and academic stress (see Figure1). Descriptive statistics indicated that the mean scores were 19.88 for school satisfaction, 37.05 for academic procrastination, and 23.79 for academic stress, with standard deviations of

5.14, 11.40, and 7.55, respectively. The distributions of school satisfaction, academic procrastination, and academic stress showed skewness values of -.316, .546, and .350, and kurtosis values of -.449, -.189, and -.036, indicating slight deviations from normal distribution.

Correlation analyses demonstrated that school satisfaction negatively correlated with academic procrastination (r = -.383, p < .001) and academic stress (r = -.277, p < .001). Furthermore, there was a positive correlation between academic procrastination and academic stress (r = .220, p < .001), suggesting that higher levels of procrastination are associated with increased academic stress.

Table 1. Correlations among the variables

Variable	School satisfaction	Academic procrastination	Academic stress
School satisfaction	–		
Academic procrastination	-.383**	–	
Academic stress	-.277**	.220**	–
Mean	19.88	37.05	23.79
Standard deviation	5.14	11.40	7.55
Skewness	-.316	.546	.350
Kurtosis	-.449	-.189	-.036

** p < .001

Measurement Model

Initially, the analysis focused on a measurement model incorporating three latent variables—school satisfaction, academic procrastination, and academic stress—alongside seven observed variables. The model's fit was assessed through various indices: the Chi-square statistic was significant, $\chi^2(11, N = 362) = 116.80$, p < .001, indicating that the model was a reasonable fit to the data. The χ^2/df ratio stood at 4.86, hovering near the upper limit of acceptability. The Comparative Fit Index (CFI) of 0.982, Goodness of Fit Index (GFI) of 0.977, Incremental Fit Index (IFI) of 0.983, Normed Fit Index (NFI) of 0.972, and Tucker-Lewis Index (TLI) of 0.966 all exceeded the conventional threshold of 0.90, further validating the model's adequacy. The Standardized Root Mean Square Residual (SRMR) was 0.0348 and the Root Mean Square Error of Approximation (RMSEA) was 0.068, both indicating a good fit. Additionally, all standardized factor loadings were significant, with values ranging from 0.352 to 0.905 (ps < .05), demonstrating significant associations between each observed variable and its corresponding latent construct.

Structural Model

The study examined how academic stress affects the relationship between academic procrastination and school satisfaction, taking into consideration factors like gender and age. The results were found to be statistically significant (refer to Figure 1). The structural model's goodness of fit metrics suggested an acceptable fit to the collected data: $\chi^2(21, N = 362) = 66.32$, p < .001, with a χ^2/df ratio of 3.15. The Comparative Fit Index (CFI) was measured at 0.959, the Goodness of Fit Index (GFI) at 0.960, the Incremental Fit Index (IFI) at 0.959, Normed Fit Index (NFI) of 0.942, and the Tucker-Lewis Index (TLI) at 0.929. These indices, alongside a Standardized Root Mean Square Residual (SRMR) of 0.0532 and a Root Mean Square Error of Approximation (RMSEA) of 0.077, validate the model's robustness. In addition, it was determined that the goodness-of-fit indices in the full mediation model were at an acceptable level (see Table 2). To determine which of the two models was preferable, the AIC and ECVI values were compared. The partial mediation model was chosen because its AIC and ECVI values were lower than those of the full mediation model.

Table 2. Model fit-indexes

	χ^2	df	CFI	GFI	IFI	NFI	TLI	SRMR	AIC	ECVI
Partial mediating model	66.32	21	.959	.960	.959	.942	.929	.053	114.32	.317
Fully mediating model	99.34	22	.930	.942	.931	.913	.885	.077	145.34	.403

Further analysis revealed a significant direct positive predict of academic procrastination on academic stress (β = 0.320, p < 0.001), as well as a significant negative direct predict of academic stress on school satisfaction (β = -0.252, p < 0.01). To examine the significance of indirect predicts within the mediation model, a bootstrapping approach with 5000 resamples was employed. This procedure confirmed the mediation of academic stress in the relationship between academic procrastination and school satisfaction, with an indirect predict quantified at -0.081 and a 95% confidence interval ranging between -0.174 and -0.018. This analysis underscores the nuanced role that academic stress plays in the interplay between academic procrastination and school satisfaction among adolescents.

Table 3. Bootstrapping results

Path	Estimate	95% CI – Lower	95% CI – Upper
AP → Academic stress → School satisfaction	-.081	-.174	-.018

AP = academic procrastination

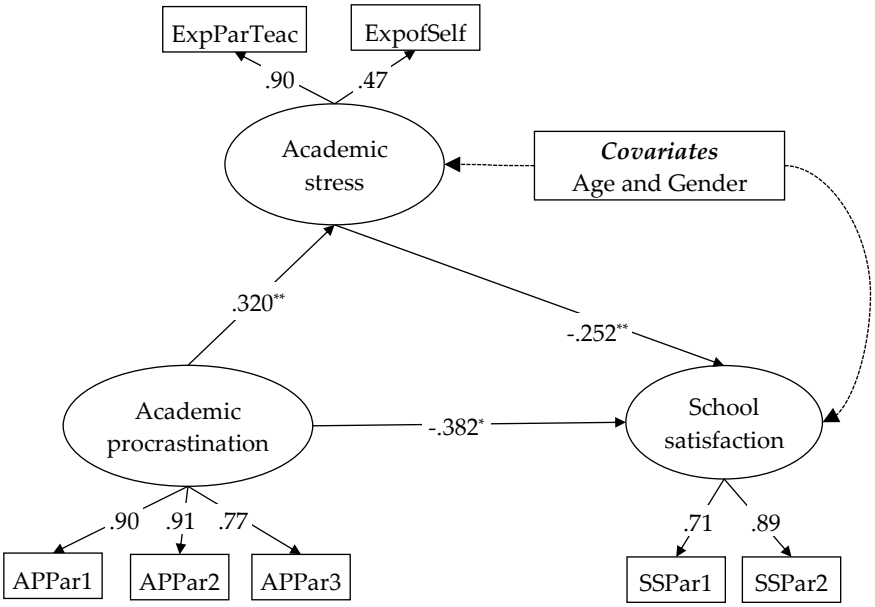

Figure 1. The parameter estimates for the model ** p < .05

RESULT and DISCUSSION

The findings of the present study, considering academic procrastination as a primary focus, offer significant insights into the interplay between procrastination and academic stress among adolescents. Contrary to initial expectations that academic satisfaction might buffer students against the pressures of academic tasks, our results underscore a complex relationship where procrastination, rather than acting as a benign byproduct of confidence or satisfaction, significantly contributes to heightened academic stress. This outcome aligns with the broader academic narrative that suggests procrastination—defined as the voluntary delay of important tasks despite knowing the negative consequences—can exacerbate the stress experienced by students (Steel, 2007).

The positive correlation between academic procrastination and academic stress can be understood through several lenses. Firstly, the act of delaying tasks leads to a compressed timeframe for completion, thereby increasing the intensity of the required effort and the stress associated with looming deadlines (Tice & Baumeister, 1997; Pychyl et al., 2000). This escalation in stress not only undermines the quality of the academic work but also impacts the overall well-being of the student, contributing to a cycle of stress and procrastination that is difficult to break. Moreover, the underlying factors contributing to procrastination, such as impulsiveness, a preference for short-term gratification, and deficiencies in self-regulation (van Eerde, 2000; Steel, 2007), also play a significant role in the development and exacerbation of academic stress.

These personality traits and behavioral patterns suggest a predisposition towards underestimating the impact of delayed actions on stress levels, which can lead to a misalignment between students' expectations and their actual academic performance and satisfaction. Additionally, the study by Ranasinghe et al. (2017), which found a negative correlation between academic stress and performance, further supports the argument that procrastination, as a stress-enhancing behavior, detrimentally affects students' academic outcomes.

Building upon the findings of the current study, the discussion now shifts to the second hypothesis, which posits that academic stress negatively predicts school satisfaction. This hypothesis is grounded in the extensive body of literature that underscores the detrimental impact of stress on various aspects of student life, particularly on their satisfaction with the educational environment. The relationship established between academic stress and decreased school satisfaction in our findings corroborates the notion that the pressures and demands inherent in academic settings can significantly erode students' perceptions of their educational experience.

The negative correlation between academic stress and school satisfaction is reflective of the theory that stress, especially when stemming from academic sources, can overwhelm students, diminishing their capacity to find joy, engagement, and fulfillment in their academic pursuits (Bedewy and Gabriel, 2015; Lawal, 2023; Lee & Larson, 2000). Academic stress, characterized by overwhelming workload, stringent deadlines, performance pressure, and inadequate support or resources, directly impacts students' emotional and cognitive appraisal of their school environment, leading to decreased satisfaction. This aligns with previous research (Demir, 2023; Diener, 1984; Tian et al., 2016).

Furthermore, the mediating role of academic stress in the dynamic between academic procrastination and school satisfaction highlights a complex interplay where stress not only arises as a consequence of procrastination but also actively contributes to diminishing the overall school experience. This is in line with findings from Ranasinghe et al. (2017), suggesting that increased stress levels, regardless of their source, have a universally negative impact on academic outcomes, including students' satisfaction with their academic environment.

The final hypothesis of our study posits that academic stress mediates the relationship between academic procrastination and school satisfaction. This hypothesis is anchored in the integration of findings that academic procrastination, characterized by the voluntary delay of tasks despite foreseeable negative outcomes, not only increases stress but also diminishes satisfaction with the school experience. The mediation analysis revealed that academic stress plays a significant role in the pathway from procrastination to decreased school satisfaction. This finding aligns with the broader academic narrative that procrastination exacerbates stress levels, which in turn, negatively affects students' perceptions of and satisfaction with their academic environment. Procrastination leads to a cascade of stress-inducing scenarios, including rushed work, lower quality of assignments, missed deadlines, and the psychological burden of unmet obligations, which collectively deteriorate the educational experience and reduce school satisfaction.

Furthermore, the mediating role of academic stress underscores the complex dynamics at play. While procrastination directly contributes to elevated stress, it is this increased stress that critically undermines school satisfaction. This mediating relationship suggests that interventions aimed at reducing procrastination could indirectly enhance school satisfaction by mitigating the stress associated with delayed academic tasks. Additionally, addressing academic stress through coping strategies and support systems could weaken the negative impact of procrastination on school satisfaction, highlighting a dual pathway for intervention.

Conclusion

Our findings contribute to a deeper understanding of the intricate relationships among academic procrastination, stress, and school satisfaction. By identifying academic stress as a mediator, the study underscores the pivotal role stress management and procrastination reduction play in enhancing students' academic experiences. Educational interventions that target both the reduction of procrastination behaviors and the management of academic stress are likely to be more effective in improving school satisfaction than those addressing either factor in isolation.

In summary, the mediating role of academic stress in the relationship between academic procrastination and school satisfaction illuminates the critical interdependencies between these variables. It

highlights the necessity for comprehensive strategies that address both procrastination and stress management to foster a more positive and satisfying educational environment for students.

Declarations

Conflict of Interest

No potential conflicts of interest were disclosed by the author(s) with respect to the research, authorship, or publication of this article.

Ethics Approval

Adherence to the Helsinki Declaration was ensured, and the ethical clearance for the study was granted by the Yildiz Technical University Social Sciences and Humanities Research Ethics Committee (Report Number: 20240202700).

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Research and Publication Ethics Statement

The study was approved by the Yildiz Technical University Social Sciences and Humanities Research Ethics Committee (Report Number: 20240202700). Hereby, I as the author consciously assure that for the manuscript the following is fulfilled:

- This material is the authors' own original work, which has not been previously published elsewhere.
- The paper reflects the authors' own research and analysis in a truthful and complete manner.
- The results are appropriately placed in the context of prior and existing research.
- All sources used are properly disclosed.

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