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Prediction of Academic Procrastination Based on Components of Psychological Hardiness and Sense of Failure in Female High School Students

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ABSTRACT

Objective: The present study was conducted to predict academic procrastination based on the components of psychological hardiness and sense of failure among female students in the first cycle of secondary school.

Methods: This descriptive-correlational study included all female lower-secondary students in 2025, from whom a sample of 380 students was selected through multistage cluster sampling. Data were collected using the Academic Procrastination Questionnaire (Solomon & Rothblum, 1984), the Psychological Hardiness Scale (Kobasa, 1979), and the Sense of Failure Scale (Gilbert & Allan, 1998). Data analysis was performed using Pearson correlation coefficients and multiple regression analysis.

Results: The findings indicated a significant and negative relationship between psychological hardiness and academic procrastination, suggesting that higher levels of psychological hardiness are associated with lower levels of academic delay. Additionally, a significant and positive relationship was observed between sense of failure and academic procrastination. Regression analysis further revealed that psychological hardiness and sense of failure significantly predicted a portion of the variance in academic procrastination, with sense of failure demonstrating a stronger predictive role in explaining avoidant behaviors compared to psychological hardiness.

Conclusions: Based on the findings, it can be concluded that strengthening internal resources such as psychological hardiness and reducing negative environmental experiences that contribute to a sense of failure play a crucial role in decreasing students' procrastination. It is recommended that school counselors design educational programs aimed at enhancing resilience and managing frustrating emotions to support students in improving their academic performance.

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Introduction

The secondary education period is considered one of the most critical developmental stages within the educational system, as it involves students' transition from the supportive environment of elementary school to the more specialized and competitive atmosphere of high school. During this stage, adolescents face cognitive, emotional, and pubertal challenges that significantly influence their academic performance (Eccles & Roeser, 2023). One of the psychological–educational issues that reaches its peak at this level is academic procrastination. Procrastination in adolescence is not merely simple laziness; rather, it is defined as a deficit in self-regulation and emotion management, whereby students postpone completing tasks despite being aware of consequences such as declining grades and school penalties (Smith et al., 2024; Steel & Svartdal, 2022). Recent international research indicates that procrastination in lower secondary school is a strong predictor of future school dropout and the development of anxiety disorders in adulthood (Madigan & Curran, 2023; Zhang & Yuen, 2024).

One of the key constructs that may function as a protective shield against adolescents' avoidant behaviors is psychological hardiness. Hardiness, which comprises the components of commitment, control, and challenge, helps students evaluate pressures arising from exams and difficult assignments as challenges rather than threats (Goswami & Bakshi, 2025; Maddi, 2020). Students with high levels of hardiness, when confronted with initial academic failures, tend to persist with greater determination instead of withdrawing and resorting to procrastination. Studies conducted in 2024 (e.g., Fischer et al.) demonstrate that psychological hardiness is directly linked to academic resilience and prevents adolescents from surrendering to academic pressures and engaging in delay behaviors. Findings from similar research confirm that hardiness enhances problem-focused coping, reduces debilitating anxiety, and fosters persistence in academic goals (Bartone et al., 2022; Kim & Lee, 2023).

Conversely, the construct of sense of failure acts as a negative catalyst that intensifies the tendency toward procrastination. In lower secondary school, adolescents are highly influenced by peer judgments and parental expectations. When students perceive a gap between their abilities and academic standards, they may develop a chronic sense of failure (Jokar & Salvat, 2011; Abramson et al., 2015). This feeling leads to reduced self-esteem and the formation of learned helplessness. According to contemporary theories in educational psychology (Nolen-Hoeksema & Watkins,

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2023), adolescents may resort to procrastination as a self-protective strategy to shield themselves from the pain associated with failure; thus, if they fail an exam, they can attribute it to lack of effort rather than incompetence or low intelligence (Sirois & Pychyl, 2023). In this context, procrastination functions as a defense mechanism to escape the reality of failure.

Despite the importance of this issue in shaping adolescents' academic trajectories, few studies have simultaneously examined psychological hardiness (as a promotive factor) and sense of failure (as an inhibiting factor) in predicting academic procrastination among lower secondary school students. Understanding these relationships can assist school counselors in designing more precise intervention packages to reduce procrastination. Therefore, the main research question of the present study is: Do psychological hardiness and sense of failure have a significant role in predicting academic procrastination among lower secondary school students? And which of these two variables plays a stronger role in explaining adolescents' procrastinatory behaviors?

Material and Methods

This study employed a descriptive–correlational design. The statistical population consisted of all female lower secondary school students (grades 7, 8, and 9) in Tehran during the 2025–2026 academic year, who were studying in both public and non-profit schools across the 22 educational districts of Tehran. Based on the Krejcie and Morgan sample size table and considering the large size of the population in Tehran, a sample size of 384 students was determined. In order to account for possible questionnaire attrition, 400 questionnaires were distributed, so that the final analysis would be conducted on at least 384 valid responses.

Given the geographical dispersion and cultural diversity across Tehran, multistage cluster random sampling was used. First, from the five major educational zones of Tehran (north, south, east, west, and center), one district from each geographical direction was randomly selected. In the next stage, three girls' lower secondary schools were randomly selected from each chosen district. Subsequently, three classes from each school (one from each grade: seventh, eighth, and ninth) were randomly selected, and all students in those classes were asked to complete the research questionnaires.

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Research Instruments

Solomon and Rothblum Academic Procrastination Scale (PASS): This instrument was developed by Solomon and Rothblum (1984) to measure procrastination in academic activities. The commonly used version of the scale contains 27 items that assess three domains: preparing for exams (8 items), completing weekly assignments (11 items), and preparing academic reports (8 items). Items are scored on a five-point Likert scale ranging from 1 (never) to 5 (always). Some items are reverse-scored. Higher scores indicate a higher level of academic procrastination. The total score ranges from 27 to 135. In Iran, Jokar and Salot (2011) examined the psychometric properties of this questionnaire and reported a Cronbach's alpha reliability coefficient of 0.79. Its criterion validity has also been supported through a negative correlation with academic achievement.

Ahvaz Psychological Hardiness Inventory: This instrument was developed by Kiamarsi, Najarian, and Mehrabizadeh Honarmand (1998) to measure the construct of psychological hardiness in the Iranian population, based on Kobasa's theoretical framework. The scale consists of 27 items assessing three core components: commitment, control, and challenge in dealing with stressful life events. Responses are scored on a four-point scale ranging from 0 (never) to 3 (always). The total score ranges from 0 to 81, with higher scores indicating greater psychological hardiness and better stress management ability. In Iran, the validity and reliability of this instrument have been confirmed in several studies. Kiamarsi et al. (1998) reported a Cronbach's alpha coefficient of 0.84 for the overall scale. Factor analysis also supported the three-factor structure of the instrument among Iranian students.

Failure Scale: The Failure Scale was developed by Gilbert and Allan (1998) to measure individuals' perceptions of failure in achieving goals and in social comparison contexts. The scale consists of 20 items assessing experiences of failure across different life domains. Responses are rated on a five-point Likert scale ranging from 0 (not at all like me) to 4 (exactly like me). Total scores range from 0 to 80, with higher scores indicating a stronger sense of failure. In Iran, Niknam et al. (2015) reported a Cronbach's alpha reliability coefficient of 0.91 for this scale. Its construct validity has also been supported through correlations with depression and learned helplessness measures.

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Ethical Considerations

In conducting this research, ethical principles of psychological and educational research were carefully observed. Prior to data collection, permission was obtained from relevant educational authorities and school administrators. Students participated in the study voluntarily, and they were informed about the purpose of the research, the confidentiality of their responses, and their right to withdraw from participation at any time without any negative consequences. The questionnaires were completed anonymously, and no identifying personal information was collected. All collected data were used solely for research purposes and were analyzed in aggregate form to ensure participants' privacy and confidentiality. Additionally, efforts were made to ensure that the research process did not interfere with students' normal educational activities.

Results

Table 1 presents the summary of the model fit statistics.

Table 1. Summary of Model Fit Statistics

Model	R	R Square	Std. Error of the Estimate	Durbin–Watson
1	0.599	0.359	7.565	2.054

As shown, the multiple correlation coefficient between the independent variables and the dependent variable is 0.599. The coefficient of determination **(**$R^2 = 0.359$**)** indicates that 35.9% of the variance in academic procrastination is explained by psychological hardiness and sense of failure. The Durbin–Watson value of 2.054 falls within the acceptable range of 1.5 to 2.5, confirming that the assumption of independence of residuals has been met.

Table 2. ANOVA Results for the Regression Model

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	12192.569	2	6096.285	106.516	0.001
Residual	21806.056	381	57.234	—	—
Total	33998.625	383	—	—	—

Table 2 shows the results of the ANOVA used to evaluate the overall regression model. The obtained F-value = 106.516 is statistically significant at $p < 0.001$, indicating that the model is appropriate and that psychological hardiness and sense of failure together significantly predict academic procrastination.

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Table 3. Multiple Regression Analysis Predicting Academic Procrastination from Psychological Hardiness and Sense of Failure

Predictor	B	Std. Error	Beta	T **value**	P	Tolerance	VIF
Constant	68.827	5.186	—	13.272	0.001	—	—
Psychological Hardiness	-0.341	0.059	-0.301	-5.780	0.001	0.622	1.607
Sense of Failure	0.486	0.069	0.365	7.022	0.001	0.622	1.607

Table 3 presents the results of the multiple regression analysis. The tolerance values are greater than the cut-off of 0.10, and all VIF values are below the threshold of 10, indicating no violation of the multicollinearity assumption.

The standardized regression coefficient (Beta) for psychological hardiness is –0.301, and for sense of failure is 0.365. Both predictors have significant t-values at $p < 0.01$, showing that: Psychological hardiness negatively and significantly predicts academic procrastination, meaning that higher hardiness is associated with lower levels of procrastination. Sense of failure positively and significantly predicts academic procrastination, indicating that students with higher levels of perceived failure tend to procrastinate more. Overall, sense of failure is the stronger predictor (Beta = 0.365) compared to psychological hardiness (Beta = –0.301).

Discussion

The results of the present study demonstrated that psychological hardiness plays a significant and powerful role in predicting academic procrastination among lower secondary school female students. The negative regression coefficient obtained reflects an important psychological reality: possessing the characteristics of hardiness acts as an adaptive defensive mechanism that prevents the emergence of procrastination behaviors when students face academic demands. This finding can be interpreted through Susan Kobasa's existential framework, which conceptualizes psychological hardiness as a constellation of beliefs that enables individuals to perceive stress not as a paralyzing threat but as an opportunity for learning and growth. Students who obtained higher scores on hardiness components appear to benefit from a psychological shield that enhances their resilience against the pressures associated with assignments and examinations in grades seven through nine.

From a component-level perspective, the dominance of the control dimension in predicting procrastination (with a Beta of –0.307) indicates that the belief in personal agency and the ability

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to influence outcomes serves as the most crucial factor in preventing delay behaviors. Students who experience a strong sense of control do not view themselves as victims of circumstances; thus, rather than escaping psychological pressure through postponing study activities, they rely on time-management and problem-focused coping strategies to engage proactively with learning tasks. This process is further reinforced by the commitment dimension, through which students derive a deeper sense of meaning from their educational presence, thereby reducing detachment from academic goals and enhancing active participation in the learning process. Additionally, the challenge dimension contributes by enabling students to interpret sudden curriculum changes or difficult examinations not as threats to self-esteem but as opportunities to demonstrate competence—an orientation that promotes timely initiation and persistence in academic tasks.

The findings of this study are consistent with previous research by Farkhi et al. (2022) and Soleiman-Nejad (2019), who concluded that psychological hardiness suppresses adolescents' tendency toward procrastination by moderating stress and strengthening self-efficacy. Similarly, in line with international studies such as Myers et al. (2020), hardy students tend to utilize active coping strategies, which reduce debilitating anxiety and facilitate timely engagement in academic activities. However, contrasting evidence can be found in studies such as Rezaei (2018), which argue that in extremely competitive educational environments, high hardiness may sometimes merge with maladaptive perfectionism, leading individuals to procrastinate out of fear of producing work that is less than perfect. This apparent inconsistency may reflect the mediating role of the school's psychological climate; that is, if the learning environment is excessively stressful, even positive personality traits such as hardiness may lose their adaptive function. In the present study's sample, however, the dominant effect was the inhibitory role of hardiness, suggesting a relatively healthy psychological context among the students in managing academic challenges.

Several limitations should be considered when generalizing these findings. Variables such as IQ, socioeconomic status, and parental parenting styles—which may influence the relationship between psychological hardiness and academic procrastination—were not controlled for in this study.

School counselors are encouraged to implement self-regulation and time-management training workshops to strengthen students' sense of control over their academic tasks. Enhancing students'

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perceived agency can reduce avoidant procrastination and encourage more effective engagement with schoolwork. Furthermore, incorporating resilience-building programs into the school curriculum may help students reframe academic stress as an opportunity for personal growth rather than a source of anxiety. Future research is recommended to investigate the mediating and moderating roles of variables such as academic self-efficacy, perfectionism, school climate, and parenting styles in the relationship between psychological hardiness and procrastination. Longitudinal studies could provide deeper insight into how changes in hardiness over time influence the trajectory of procrastination behaviors. Additionally, expanding the sample to include male students and diverse cultural contexts would enhance the external validity and generalizability of future findings.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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