

## AUTOMATIC NEGATIVE THOUGHTS, SELF-COMPASSION, AND ACADEMIC PROCRASTINATION AMONG UNIVERSITY STUDENTS

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### ABSTRACT

This study investigated the relationship between Automatic Negative Thoughts (ANTs) and academic procrastination, exploring self-compassion as a potential mediator. Utilizing a quantitative cross-sectional design, data were collected from 500 undergraduate and graduate students across six universities in Lahore, Pakistan, via stratified convenience sampling. Statistical analysis, including correlation and regression-based mediation, revealed a significant positive association between ANTs and academic procrastination. Conversely, self-compassion was negatively correlated with both variables. Results indicated that self-compassion significantly mediates the relationship, acting as a psychological resource that buffers the impact of maladaptive cognitions on procrastinatory behavior. These findings suggest that addressing cognitive distortions while fostering self-compassion is essential for developing effective educational and psychological interventions. The study highlights the importance of emotion-regulation strategies in reducing academic delay among university students.

**Keywords:**

### 1. INTRODUCTION

University education is a transformative period characterized by intensified academic demands and the need for increased independence, requiring students to manage complex deadlines while maintaining constant engagement. However, many students struggle with academic procrastination, defined as the voluntary postponement of planned tasks despite anticipating negative consequences (Liu et al., 2025). Estimates suggest that 50-70% of university students face significant procrastination

challenges, which are increasingly understood not as mere time-management failures, but as self-regulation deficits rooted in cognitive and affective processes (Rozenal et al., 2022; Johansson et al., 2024). When students encounter difficult assignments, dysfunctional cognitions often activate avoidance behaviors to mitigate immediate emotional discomfort (De Haas et al., 2025).

Central to these maladaptive appraisals are Automatic Negative Thoughts (ANTs)—rapid,

involuntary, and self-referential cognitions such as "I am incompetent" or "I will fail" (Riskind & Cakvete, 2020). Grounded in Beck's (1976) cognitive theory, these thoughts heighten anticipatory anxiety and perceived threat, acting as powerful cognitive predictors of task avoidance (Stevens et al., 2022). Conversely, self-compassion emerges as a vital protective factor, involving a balanced approach to personal failure through self-kindness, common humanity, and mindfulness (Neff, 2023). Students with high self-compassion treat setbacks with understanding rather than harsh criticism, which fosters emotional resilience and reduces the tendency to use procrastination as a "mood repair" mechanism (Dodson & Henn, 2022; Sirois & Pychyl, 2013). While previous research has explored these variables in isolation, there is a lack of integrative understanding regarding how ANTs and self-compassion interact to influence procrastination, particularly within non-Western contexts like Pakistan. Most existing literature relies on Western samples, limiting the cross-cultural generalizability of these self-regulatory models (Irfan & Zulkefly, 2022). This study addresses this gap by examining self-compassion as a potential mediator that may buffer the impact of cognitive distortions on academic behavior (Rehman et al., 2024). By shifting focus from deficit-oriented models toward resilience-based frameworks, this research aims to clarify the internal mechanisms underlying academic delay (Mendes et al., 2023). The conceptual framework of this study integrates Cognitive Theory, the Emotion-Regulation Model of Procrastination, and Self-Compassion Theory to explain how students navigate academic stressors. According to the Emotion-Regulation Model, procrastination serves as short-term relief from cognitively induced distress, even though it results in long-term failure (Suarez-Perdomo et al., 2022; Xinchun, 2025). Self-compassion is hypothesized to intervene in this cycle; by regulating emotional reactivity, students may experience ANTs without identifying with them so strongly that they resort to avoidance (Aizik-Reebs et al., 2022). Understanding this interaction is crucial for developing evidence-based psychological interventions in higher education environments.

Consequently, this research aims to evaluate the predictive power of ANTs and the mediating role of self-compassion in academic procrastination among university students. The study tests several hypotheses: that ANTs will positively correlate with procrastination, that self-compassion will negatively correlate with both variables, and that self-compassion will significantly mediate the relationship between ANTs and academic delay. By investigating these dynamics, the study seeks to inform data-driven strategies for improving student mental health and academic persistence, offering meaningful insights into the cognitive-emotional pathways that dictate student success (Yang, 2026; Shoaib, Haq & Khan, 2025).

## 2. Materials and Methods

### 2.1 Research Design and Philosophy

This study adopts a quantitative, cross-sectional research design grounded in the positivist paradigm. A deductive approach was employed to test hypotheses derived from Beck's Cognitive Theory and the Emotion-Regulation Model of Procrastination. The cross-sectional nature of the study allowed for the efficient collection of data from a diverse sample at a single point in time, providing a statistically rigorous basis for examining the predictive and mediating relationships between Automatic Negative Thoughts (ANTs), self-compassion, and academic procrastination (Creswell, 2014; Saunders et al., 2020).

### 2.2 Participants and Sampling Strategy

The target population comprised undergraduate and graduate students from three public (University of the Punjab, GCU, University of Lahore) and three private (LUMS, BNU, UCP) universities in Lahore, Pakistan. A sample of 500 students was recruited using a stratified convenience sampling strategy to ensure balanced representation across the public and private sectors. Inclusion criteria required participants to be at least 18 years old and actively enrolled in coursework. Students on academic leave or those with self-reported severe psychiatric diagnoses were excluded to minimize confounding influences on cognitive and emotional responses.

### 2.3 Instrumentation and Operationalization

Three standardized psychometric instruments, all utilizing a 5-point Likert scale, were used to operationalize the study variables:

**Automatic Negative Thoughts (ANTs):** Measured via the Automatic Thoughts Questionnaire-Believability (ATQ-B), assessing the frequency and belief in maladaptive self-referent cognitions ( $\alpha=.69$ ).

**Self-Compassion:** Assessed using the Self-Compassion Scale (SCS), covering dimensions of self-kindness, common humanity, and mindfulness ( $\alpha=.85$ ).

**Academic Procrastination:** Measured by the Procrastination Assessment Scale-Students (PASS), focusing on task-specific delays in studying and assignments ( $\alpha=.88$ ).

### 2.4 Data Collection and Analysis

Data were collected over six weeks using a hybrid approach—online Google Forms and paper-based surveys—to ensure maximum accessibility. Statistical analysis was performed using SPSS

version 26. Following descriptive statistics and Shapiro-Wilk normality testing, the primary hypotheses were evaluated using Pearson's correlation and regression-based mediation analysis with bootstrapping methods (Preacher & Hayes, 2008). This approach was specifically chosen to isolate the indirect effect of ANTs on procrastination through the mediating mechanism of self-compassion.

### 2.5 Ethical Considerations

The study adhered to strict ethical standards, ensuring informed consent, anonymity, and confidentiality. Participants were informed of their right to withdraw at any stage without penalty. To mitigate potential psychological distress related to the sensitive nature of self-critical thoughts, participants were provided with information regarding university counseling resources. All data were stored on password-protected platforms and reported only in aggregate form to protect individual identities, upholding the principles of beneficence and non-maleficence.

## 3. Results

**Table 1. Demographic Information of the Respondents**

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	238	47.6%
	Female	262	52.4%
Age Group	18–20 years	146	29.2%
	21–23 years	214	42.8%
	24–26 years	103	20.6%
	27 years & above	37	7.4%
Academic Level	Undergraduate	352	70.4%
	Graduate (MS/MPhil)	148	29.6%
University Type	Public University	252	50.4%
	Private University	248	49.6%
Mode of Data Collection	Online Survey	250	50.0%

Field of Study			
	Paper-Based Survey	250	50.0%
	Social/Behavioral Sciences	178	35.6%
	Business & Management	121	24.2%
	Natural Sciences	96	19.2%
	Engineering & Technology	105	21.0%

The sample (N=500) consisted of a relatively balanced gender distribution, with 52.4% females (f=262) and 47.6% males (f=238). The participants were predominantly young adults, with the largest age group being 21–23 years (42.8%), followed by 18–20 years (29.2%), while those aged 27 and above represented the smallest segment (7.4%). In terms of academic standing, the majority were undergraduate students (70.4%), with graduate students (MS/MPhil) comprising 29.6%. The

institutional split was nearly equal between public (50.4%) and private (49.6%) universities. Data collection was evenly divided, with exactly 50% (f=250) gathered through online surveys and 50% via paper-based forms. Disciplinarily, the sample was diverse, led by Social/Behavioral Sciences (35.6%), followed by Business & Management (24.2%), Engineering & Technology (21.0%), and Natural Sciences (19.2%).

**Table 2. Descriptive Statistics of Study Variables (N = 500)**

Variable	Possible	Observed	Observed	Mean	Standard	
Range		Min	Max	(M)	Deviation (SD)	
Automatic Thoughts	Negative	15–75	21	72	51.18	10.65
Self-Compassion		26–130	48	121	81.32	15.74
Academic Procrastination		20–100	28	96	67.24	14.80

The descriptive statistics for the study variables (N=500) indicate that participants reported a moderate to high frequency of Automatic Negative Thoughts (M = 51.18, SD = 10.65), with observed scores ranging from 21 to 72 against a possible range of 15–75. Self-compassion scores averaged \$81.32\$ (SD = 15.74), reflecting a mid-range level of emotional resilience across an observed span of 48 to 121. Furthermore,

academic procrastination yielded a mean score of \$67.24\$ (SD = 14.80) within an observed range of 28 to 96, suggesting that a significant portion of the student population experience notable tendencies toward task delay. These results establish a baseline for the subsequent mediation analysis, showing sufficient variability across all cognitive, emotional, and behavioral measures.

**Table 3. Correlation analysis for ANTs, Self-Compassion and Academic Procrastination (N-500)**

Variables	Self-Compassion	Academic Procrastination
Automatic Negative Thoughts (ANTs)	-.463*	.551**
Self-Compassion	-	-.477*
Academic Procrastination	-	-

The correlation analysis reveals significant relationships between the study variables, consistently supporting the theoretical framework. Automatic Negative Thoughts (ANTs) exhibit a strong, significant positive correlation with academic procrastination ( $r = .551, p < .01$ ), indicating that as the frequency of maladaptive cognitions increases, so does the tendency to delay academic tasks. In contrast, self-compassion demonstrates a significant negative association with both ANTs ( $r = -.463, p < .05$ ) and

academic procrastination ( $r = -.477, p < .05$ ), suggesting that higher levels of self-directed kindness and mindfulness are associated with fewer cognitive distortions and reduced procrastinatory behavior. These findings provide the empirical foundation for the hypothesized mediation model, as they satisfy the preliminary conditions for self-compassion to act as a potential buffer between cognitive vulnerability and behavioral avoidance.

**Table 4. Mediation analysis for ANTs, Self-Compassion and Academic Procrastination (N-500)**

Predictors		Academic Procrastination
	$R^2$	$\Delta R^2$
<b>Block 1</b>		<b>B</b>
Automatic Negative Thoughts (ANTs)	.357	.256*
<b>Block 2</b>		.531
Self-Compassion	.508	-.338**

The hierarchical regression analysis was conducted to evaluate the predictive power of Automatic Negative Thoughts (ANTs) and self-compassion on academic procrastination. In the first block, ANTs were entered as a primary predictor, accounting for 35.7% of the variance in procrastination behaviors ( $\Delta R^2 = .357, p < .05$ ) with a significant positive beta coefficient ( $\beta = .256, p < .05$ ). In the second block, the addition of self-compassion significantly improved the model, increasing the total explained variance to 53.1% ( $R^2 = .531, \Delta R^2 = .508, p < .01$ ). Notably, self-compassion emerged as a strong negative predictor ( $\beta = -.338, p < .01$ ), suggesting that while negative cognitions drive procrastination, higher levels of self-compassion serve as a significant countervailing force. These findings confirm that both cognitive and emotional-regulatory factors are critical in determining the extent of academic delay among university students.

#### 4. Discussion

The current findings confirm that Automatic Negative Thoughts (ANTs) are robust predictors of academic procrastination, aligning with Beck's Cognitive Theory (1976). Students experiencing frequent self-critical or pessimistic cognitions often perceive academic tasks as overwhelming threats, leading to avoidant behavior as a functional defense mechanism. This study found that ANTs alone explained 35.7% of the variance in procrastination, reinforcing the primacy of maladaptive thoughts in driving task delay. These results mirror longitudinal evidence by Sirois et al. (2022), which established that negative cognitions directly heighten procrastination tendencies. By quantifying this effect in a large Pakistani sample ( $N=500$ ), the research demonstrates that the psychological impact of cognitive distortions on goal-directed behavior transcends Western educational contexts.

Self-compassion emerged as a significant negative predictor, providing a critical regulatory buffer against academic stress. Consistent with Neff's (2021) theory, students who relate to their failures with kindness and mindfulness rather than harsh self-judgment are better equipped to manage task-related anxiety. The inclusion of self-compassion in the predictive model

increased the explained variance from 35.7% to 53.1%, indicating its substantial role in neutralizing the harmful effects of negative thinking. This aligns with Ferrari et al. (2022), who noted that self-compassion interventions effectively reduce procrastination by fostering adaptive emotion regulation. Furthermore, the negative correlation between self-compassion and ANTs suggests that a compassionate stance reduces the sheer intensity of intrusive thoughts (Sotardi & Dutton, 2022; Soomro & Shah, 2022).

Mediation analysis revealed that self-compassion partially explains the link between ANTs and academic procrastination. Beyond its direct influence, the impact of negative thoughts on procrastination is channeled through a reduction in the student's self-regulatory resources. This supports the Emotion-Regulation Model of Procrastination, which posits that maladaptive cognitive-emotional interactions trigger task avoidance as a form of short-term "mood repair" (Mohammadi et al., 2020; Chowdhury, 2022). When students are plagued by negative internal dialogues, their capacity for mindfulness and self-kindness diminishes, making them more susceptible to avoidance. This functional mechanism suggests that while cognitive restructuring is necessary, enhancing emotional resilience through self-compassion is equally vital to breaking the cycle of delay (Sirois et al., 2022).

The interaction between cognitive distortions and emotional regulation highlights the psychological cost of academic stressors. ANTs, such as catastrophizing or fear of failure, directly undermine the core components of self-compassion by activating self-judgment and isolation (Neff, 2023). Students with frequent negative thoughts often struggle to maintain a balanced perspective, leading to the "maladaptive perfectionism" described by Neff, Hsieh, and Dejitterat (2022). As self-compassion fails to buffer the distress created by these self-evaluations, procrastination becomes a temporary coping strategy to mitigate emotional discomfort (Huang et al., 2021; Ferrari et al., 2022). The partial mediation found in this study confirms that increased self-compassion can attenuate—though not entirely eliminate—the behavioral consequences of maladaptive cognitive patterns.

## 5. Conclusion

This research underscores the critical interplay between cognitive vulnerabilities and emotional regulation in predicting academic procrastination among university students. By integrating Beck's Cognitive Theory with Neff's Self-Compassion framework, the study demonstrates that Automatic Negative Thoughts (ANTs)—such as self-doubt and fear of failure—act as primary drivers of task avoidance, often serving as a maladaptive strategy to bypass immediate emotional discomfort. However, self-compassion emerges as a vital psychological buffer that partially mediates this relationship, allowing students to respond to academic pressures with mindfulness and self-kindness rather than harsh self-criticism. The findings reveal that while frequent negative cognitions significantly increase the likelihood of procrastination, higher levels of self-compassion effectively attenuate these effects by fostering emotional resilience and balanced self-perception. Ultimately, the study concludes that academic procrastination is deeply rooted in internal cognitive-emotional functioning, suggesting that effective educational interventions must move beyond simple time-management training to incorporate cognitive restructuring and compassion-based strategies that enhance overall student well-being and academic engagement.

The findings of this research offer significant theoretical and practical contributions by shifting the understanding of academic procrastination from a mere time-management deficit to a complex failure of self-regulation involving maladaptive cognitive-emotional interactions. Theoretically, the study extends Beck's Cognitive Theory and Neff's Self-Compassion model into the academic domain, demonstrating that Automatic Negative Thoughts (ANTs) do not drive avoidance in isolation but are partially mediated by a student's internal emotional orientation. Practically, these insights suggest that universities should move beyond traditional study-skills workshops to implement holistic interventions, such as cognitive-behavioral workshops and mindfulness-based self-compassion training, to help students restructure self-critical thoughts and build emotional resilience. Furthermore, institutional

support systems—including academic advising and peer mentoring—can utilize these findings to identify students at risk of persistent delay, fostering a growth-oriented learning environment that emphasizes psychological literacy and adaptive coping over harsh self-evaluation. Future research utilizing longitudinal designs and objective behavioral metrics will be essential to further validate these pathways and refine targeted interventions across diverse academic disciplines and digital learning environments.

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