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Original Article

The Mediating Role of Experiential Avoidance in the Relationship Between Cognitive Emotion Regulation Strategies and Academic Procrastination Among University Students

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Abstract

Introduction: Academic procrastination is a prevalent self-regulatory failure among university students, with adverse consequences for mental health and academic performance. This study examined the mediating role of experiential avoidance in the association between adaptive and maladaptive cognitive emotion regulation strategies (CERS) and academic procrastination in female university students.

Methods: A descriptive-correlational design employing path analysis was used. The sample consisted of 214 female undergraduate and postgraduate students from universities in Isfahan, Iran, in 2024. Participants completed the Academic Procrastination Questionnaire (APQ), Cognitive Emotion Regulation Questionnaire (CERQ), and Acceptance and Action Questionnaire–II (AAQ-II). Data were analyzed using structural equation modelling in AMOS 22.

Results: The hypothesized model demonstrated excellent fit (CFI = 0.99, RMSEA = 0.073). Adaptive CERS were directly associated with lower academic procrastination ($\beta = -0.26$, $P < 0.001$) and indirectly associated with lower procrastination through reduced experiential avoidance ($\beta = -0.12$, $P = 0.002$). Maladaptive CERS were directly associated with higher procrastination ($\beta = 0.18$, $P = 0.014$) and demonstrated an indirect association via increased experiential avoidance ($\beta = 0.21$, $P < 0.001$). Experiential avoidance itself was strongly associated with academic procrastination ($\beta = 0.37$, $P < 0.001$).

Conclusion: Experiential avoidance partially mediates the associations of both adaptive and maladaptive CERS with academic procrastination. Given the correlational nature of the data, interventions targeting experiential avoidance, such as those based on Acceptance and Commitment Therapy (ACT), may be associated with reduced procrastination in female university students.

Introduction

University students worldwide face substantial academic, social, and personal demands during higher education, a developmental stage characterized by increased independence and heightened self-regulatory requirements.[1] Among the most prevalent and persistent behavioral difficulties in this population is academic procrastination, defined as the voluntary, irrational postponement of intended academic tasks despite foreseeable negative consequences.[2] This behavior is widely recognized as a core deficit in self-regulation rather than a mere time-management issue.[3] Empirical evidence indicates alarmingly high prevalence rates, with 70–95 % of university students reporting frequent procrastinatory behavior, establishing it as a global educational challenge.[4]

Although findings are mixed, several studies suggest that female students may exhibit higher levels of academic procrastination than their male peers, potentially due to greater perfectionism, fear of failure, or heightened sensitivity to evaluative threats.[5]

The adverse consequences of chronic academic procrastination are extensive and well-documented. Beyond lowered grades and missed deadlines, procrastination is robustly associated with increased psychological distress, including elevated stress, anxiety, depression, guilt, shame, reduced self-esteem, sleep disturbances, and academic burnout.[6,7] These outcomes underscore the urgent need to elucidate the underlying psychological mechanisms to inform evidence-based preventive and therapeutic interventions.

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Contemporary theoretical frameworks have shifted away from viewing procrastination primarily as poor planning or laziness, instead conceptualizing it as a maladaptive emotion-regulation strategy aimed at short-term mood repair.[8] When students perceive an academic task as aversive, boring, overwhelming, or threatening, it elicits negative affect. Delaying the task provides immediate relief from this discomfort through negative reinforcement, thereby perpetuating the cycle despite long-term costs.[9] Thus, procrastination functions as an avoidance-based coping mechanism that temporarily alleviates emotional distress but undermines goal-directed behavior.[10] Effective emotion regulation—the capacity to tolerate, accept, and adaptively modulate negative emotions—is therefore considered a critical protective factor against procrastinatory behavior.[11]

Emotion regulation encompasses the processes by which individuals influence the nature, timing, experience, and expression of their emotions.[12] Cognitive emotion regulation strategies (CERS) specifically involve conscious mental approaches employed after experiencing stressful or threatening events to manage ensuing affective states. These strategies are typically classified as adaptive or maladaptive.[13] Adaptive strategies—such as positive reappraisal, putting into perspective, positive refocusing, planning, and acceptance—facilitate constructive processing of negative emotions and sustain engagement with goal-relevant activities. In contrast, maladaptive strategies—including rumination, catastrophizing, self-blame, and other-blame—tend to intensify and prolong negative affect, thereby increasing vulnerability to behavioral disengagement.[14,15] A substantial body of research demonstrates that greater use of adaptive CERS is negatively associated with academic procrastination, whereas reliance on maladaptive CERS is robustly associated with higher procrastination levels across diverse academic contexts.[9,16]

A particularly relevant transdiagnostic process in this context is experiential avoidance, a core construct in Acceptance and Commitment Therapy (ACT).[17] Experiential avoidance is defined as the unwillingness to remain in contact with aversive private experiences (thoughts, emotions, memories, bodily sensations) and deliberate efforts to alter their form, frequency, or contextual triggers, even when such avoidance causes behavioral harm.[18] High experiential avoidance reflects low psychological flexibility and is maintained by short-term negative reinforcement, despite exacerbating distress and functional impairment over time. Experiential avoidance is increasingly recognized as a dysfunctional emotion-regulation strategy itself and has been shown to mediate relations between various risk factors (e.g., neuroticism, perfectionism) and psychopathological outcomes, including anxiety, depression, and stress-related disorders.[19] Importantly, recent studies have directly linked elevated experiential avoidance to increased academic procrastination, whereas higher psychological flexibility (the functional opposite of experiential avoidance) is associated with reduced procrastination and greater task persistence.[20,21]

To clarify the proposed mediation model for readers, the present study distinguishes three key constructs: (1) CERS, which are conscious mental approaches to manage emotions following stressful events; (2) experiential avoidance, which refers to the unwillingness to remain in contact with aversive private experiences and efforts to alter them despite long-term costs; and (3) academic procrastination, defined as the voluntary delay of intended academic tasks despite negative consequences. These distinctions facilitate understanding of how CERS may be associated with procrastination through the pathway of experiential avoidance.

Although empirical evidence supports independent associations between CERS and academic procrastination, and between experiential avoidance and procrastination, integrative models examining experiential avoidance as a mediator between adaptive/maladaptive CERS and procrastination remain scarce, particularly among non-Western and female student populations. This study adds to the literature by explicitly testing experiential avoidance as a mediator in a non-Western, female-only sample using path analysis, thereby addressing important gaps in integrative models linking CERS, psychological inflexibility, and procrastination. The present study tested the following hypotheses: (1) Adaptive CERS would be negatively associated with academic procrastination, both directly and indirectly via lower experiential avoidance; (2) Maladaptive CERS would be positively associated with academic procrastination, both directly and indirectly via higher experiential avoidance. Clarifying these pathways holds significant theoretical and clinical implications, as targeting experiential avoidance may be associated with enhanced efficacy of interventions designed to address chronic academic procrastination. This study, therefore, aimed to determine the mediating role of experiential avoidance in the association between adaptive and maladaptive CERS and academic procrastination in female university students.

Methods

Design

This study utilized a descriptive-correlational design employing structural equation modeling (SEM), specifically path analysis, to test the hypothesized mediating relationships among the variables.

Participants

The statistical population for this research consisted of all female undergraduate and postgraduate students enrolled at universities in Isfahan, Iran, during the academic year 2024. Participants were recruited through university-affiliated online student groups, academic channels, and social media platforms associated with the universities. Approximately 280 students were invited to participate. A total of 214 female students provided complete responses, yielding a response rate of approximately 76%. Inclusion

criteria required participants to be currently enrolled female university students and to provide informed consent. Exclusion criteria involved failing to complete all sections of the questionnaires or reporting a current diagnosis of a severe psychiatric disorder that might interfere with self-report accuracy. The study focused exclusively on female students because prior research suggests that female students may exhibit higher levels of academic procrastination, and this approach reduced sample heterogeneity in the present investigation. However, this sampling decision limits the generalizability of the findings to male students. Before data collection, all ethical guidelines were rigorously observed: participants were fully informed of the study's purpose and procedures, and strict confidentiality was maintained regarding all collected data, ensuring anonymity throughout the study.

Measures

The instruments used in this study are described below, including the number of items, response scale, score range, interpretation of higher scores, and reliability coefficients in the current sample.

Academic Procrastination Questionnaire (APQ)

Academic procrastination was measured using the Academic Procrastination Questionnaire (APQ), a 27-item self-report instrument adapted from the structure of the Procrastination Assessment Scale–Students (PASS), originally developed by Solomon and Rothblum.[22] Items are rated on a 5-point Likert scale, ranging from 1 (Very seldom or not at all) to 5 (Very often). Total scores range from 27 to 135, with higher scores indicating a greater tendency toward academic procrastination. The total score was used for analysis. The Persian version of the instrument has demonstrated acceptable reliability in previous Iranian studies (Cronbach's alpha = 0.86).[23] In the current study, the internal consistency for the APQ was excellent (Cronbach's $\alpha = 0.87$).

Cognitive Emotion Regulation Questionnaire (CERQ)

Cognitive emotion regulation was assessed using the 36-item Cognitive Emotion Regulation Questionnaire (CERQ), developed by Garnefski et al.[24] This instrument assesses nine distinct cognitive strategies (four items per subscale) used after encountering a stressful or threatening life event. The nine scales group into two higher-order factors: Adaptive Strategies and Maladaptive Strategies. Items are scored on a 5-point scale from 1 (Almost never) to 5 (Almost always). For this study, the two overarching factor scores were calculated and used. In previous Persian validation studies, the Cronbach's alpha coefficient was reported to be satisfactory for both factors (alpha = 0.81 to 0.85).[25] The current study confirmed good reliability for the Adaptive Strategies factor ($\alpha = 0.82$) and the Maladaptive Strategies factor ($\alpha = 0.88$).

Acceptance and Action Questionnaire–II (AAQ-II)

Experiential avoidance was measured using the 10-item Acceptance and Action Questionnaire–II (AAQ-II), developed by Hayes et al.[26] Items are rated on a 7-point Likert scale, ranging from 1 (Never true) to 7 (Always true). Total scores range from 10 to 70, with higher scores reflecting greater levels of experiential avoidance and lower psychological flexibility. The Persian version of the AAQ-II has consistently shown high internal consistency (alpha typically above 0.80).[27] For the present sample, the AAQ-II demonstrated strong internal reliability ($\alpha = 0.85$).

Procedure

Data were collected using an electronic survey platform distributed primarily through university-affiliated online student groups and academic channels. The survey was fully anonymous, and participants were assured that their responses would not be linked to any identifiable information to reduce social desirability bias and encourage honest responding. Following the provision of digital informed consent, participants were directed to the questionnaire package. The survey began with demographic questions and then presented the three main instruments (APQ, CERQ, and AAQ-II) in a fixed order. This fixed order was used to maintain consistency across participants. Participants were explicitly instructed to answer all questions based on their typical academic behavior and emotional responses. Completion of the full survey took approximately 30 to 45 minutes. Participation was entirely voluntary, and students were assured of their right to withdraw at any time without penalty.

Data Analysis

Data were analyzed using IBM SPSS Statistics 22 and AMOS 22. Descriptive statistics and bivariate Pearson correlations were computed first. Path analysis within the SEM framework was then conducted to test direct effects of adaptive and maladaptive CERS on academic procrastination and indirect effects mediated by experiential avoidance. Prior to the main analyses, assumptions of multivariate normality, linearity, multicollinearity (all variance inflation factors < 5), and the absence of influential outliers were examined and satisfactorily met. Model fit was evaluated using the following indices and thresholds: χ^2/df (acceptable ≤ 3), Comparative Fit Index (CFI ≥ 0.95), Incremental Fit Index (IFI ≥ 0.95), Tucker-Lewis Index (TLI ≥ 0.95), Standardized Root Mean Square Residual (SRMR ≤ 0.08), and Root Mean Square Error of Approximation (RMSEA ≤ 0.08). These indices were selected because they provide a comprehensive assessment of model fit, with CFI, IFI, and TLI being incremental fit measures less sensitive to sample size, and RMSEA and SRMR being absolute fit measures. The statistical significance of indirect effects was determined using 5,000 bootstrap samples and bias-corrected 95% confidence intervals. Standardized and unstandardized coefficients are reported consistently throughout the results. The level of significance was set at $P < 0.05$.

Results

The final sample consisted of 214 female university students aged 18 to 42 years (M = 23.47, SD = 4.55). Regarding marital status, 78% (n = 167) were single, and 22% (n = 47) were married. All participants were enrolled in undergraduate or postgraduate programs at universities in Isfahan, Iran, during the 2024 academic year.

As shown in Table 1, academic procrastination exhibited moderate positive correlations with both experiential avoidance (r = 0.44, $P < 0.01$) and maladaptive CERS (r = 0.35, $P < 0.01$), and a moderate negative correlation with adaptive CERS (r = −0.36, $P < 0.01$). Experiential avoidance was strongly positively associated with maladaptive CERS (r = 0.56, $P < 0.01$) and negatively associated with adaptive CERS (r = −0.34, $P < 0.01$). These preliminary correlations provided initial support for the hypothesized relationships and justified proceeding with the mediation analysis.

Prior to the main analyses, the assumptions of multivariate normality and linearity were examined. Skewness and kurtosis values for all study variables fell within the acceptable range of −1 to +1, and the Kolmogorov–Smirnov test was non-significant ($P > 0.05$). Visual inspection of histograms and Q–Q plots further confirmed that the distribution of scores approximated normality. No influential outliers were detected, and multicollinearity was not a concern (all variance inflation factors < 5). Therefore, maximum likelihood estimation was deemed appropriate for path analysis.

All indices met or exceeded conventional criteria for excellent fit. The non-significant chi-square difference and low residual values indicated that the proposed model adequately represented the observed data with minimal discrepancy (Table 2).

Table 3 presents the standardized and unstandardized path coefficients. Both direct paths from adaptive CERS (β = −0.26, $P < 0.001$) and maladaptive CERS (β = 0.18, $P = 0.014$) to academic procrastination were significant. Experiential avoidance significantly mediated both relationships, with bootstrap analyses confirming statistically significant indirect effects ($P < 0.01$). Standardized and unstandardized coefficients are reported consistently for clarity.

Figure 1 illustrates the final structural model with standardized coefficients and significance indicators. The figure is designed to be highly readable, with all path labels, standardized coefficients, and significance asterisks clearly presented. Adaptive CERS reduced experiential avoidance, which in turn lowered academic procrastination, whereas maladaptive CERS increased experiential avoidance, thereby exacerbating procrastination. The significant direct effects indicate partial mediation. Overall, the model provides strong empirical support for experiential

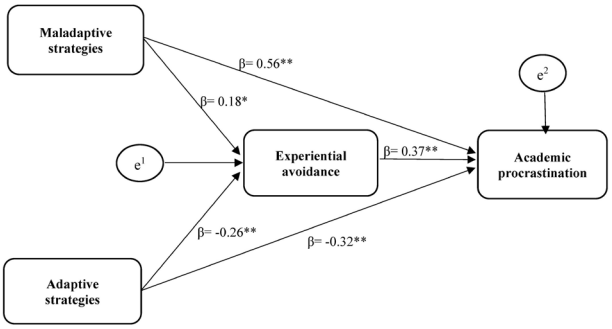

Figure 1. Path diagram of the final structural model with standardized coefficients (*: $P < 0.05$; **: $P < 0.001$)

Table 1. Descriptive statistics and intercorrelations among study variables (N = 214)

Variables	Mean	SD	1	2	3	4
1- Academic procrastination	89.42	18.31	-			
2- Experiential avoidance	42.18	10.65	0.44**	-		
3- Adaptive CERS	72.36	14.82	-0.36**	-0.34**	-	
4- Maladaptive CERS	58.91	13.27	0.35**	0.56**	−0.22**	-

CERS: Cognitive Emotion Regulation Strategies, **: $P < 0.01$

Table 2. Goodness-of-fit indices for the hypothesized path model

Fit indicators	χ^2	df	(χ^2/df)	CFI	IFI	TLI	RMSEA	SRMR
Model	2.12	1	2.12	0.99	0.99	0.98	0.073	0.018
Acceptable range	-	-	≤3	≥0.95	≥0.95	≥0.95	≤0.08	≤0.08

Table 3. Direct, indirect, and total effects in the final path model

Paths	B	SE	β	t	*P*
Adaptive CERS → Academic procrastination	-0.23	0.05	-0.26	-5.12	0.001
Maladaptive CERS → Academic procrastination	0.45	0.04	0.18	11.25	0.001
Experiential avoidance → Academic procrastination	0.38	0.09	0.37	4.21	0.001
Adaptive CERS → Experiential avoidance	-0.18	0.05	-0.26	-4.04	0.001
Maladaptive CERS → Experiential avoidance	0.14	0.06	0.18	2.47	0.014
Adaptive CERS → Academic procrastination (indirect)	-0.09	0.03	-0.12	—	0.002
Maladaptive CERS → Academic procrastination (indirect)	0.17	0.05	0.21	—	0.001

avoidance as a key mechanism linking CERS to academic procrastination among female university students.

Discussion

The current study aimed to investigate the precise psychological mechanisms underlying academic procrastination by examining the mediating role of experiential avoidance in the influence of adaptive and maladaptive CERS among female university students. The structural model provided strong empirical support for the hypothesized interrelationships, confirming that experiential avoidance functions as a significant partial mediator in the association between both adaptive and maladaptive CERS and academic procrastination. This key finding reinforces modern affective theories that conceptualize procrastination as a deep-seated failure of emotional self-regulation rather than merely a temporal management issue.

Empirically, the results revealed a substantial and inverse relationship between the use of adaptive CERS and academic procrastination. Students who typically relied on constructive cognitive strategies, such as positive refocusing, acceptance, and positive reappraisal, demonstrated a lower inclination toward delaying academic tasks. This relationship is psychologically meaningful because these adaptive strategies are consistent with the capacity to effectively neutralize or minimize the acute emotional distress often associated with challenging assignments, such as fear of failure or anxiety over performance. By successfully managing these task-induced negative affects, students are better able to maintain goal-directed behavior and avoid the urge to escape through procrastination. This result is congruent with studies demonstrating that self-regulation skills, which are inherently bolstered by adaptive coping, act as strong protective factors against academic delay.[28,29]

In stark contrast, a strong and positive direct association was identified between maladaptive CERS and academic procrastination. Students who frequently engaged in dysfunctional cognitive patterns, notably rumination, self-blame, and catastrophic thinking, reported significantly higher levels of task delay. This outcome underscores that these strategies, far from offering emotional relief, are associated with intensified and prolonged negative affective states. The resulting psychological environment is one of exaggerated threat and sustained distress, which makes the corresponding academic task feel overwhelmingly aversive. In this intensified state, academic procrastination serves as an immediate, albeit temporary and self-destructive, coping mechanism to break contact with the unpleasant internal experience. This interpretation is supported by established literature that links high levels of rumination and negative evaluative cognitions to generalized avoidance behavior.[30,31] Similarly, studies concerning perfectionism and fear of failure have shown that the self-punishing nature of maladaptive cognitions is associated with delaying tasks to avoid confronting a performance that might confirm their negative self-assessment.[32]

A pivotal empirical finding was the clear association of CERS with the mediating variable, experiential avoidance. Adaptive CERS were found to be inversely related to experiential avoidance, suggesting that constructive coping methods are associated with greater tolerance for internal distress. This is logical, as strategies like acceptance and positive reappraisal inherently involve a willingness to acknowledge and process negative emotions without attempting to suppress or escape them. Individuals employing these methods develop greater psychological flexibility. Conversely, maladaptive CERS were found to be significantly associated with increased experiential avoidance. Strategies such as rumination, which involve obsessive preoccupation with aversive thoughts, are consistent with the perception of internal discomfort as a threat that must be eliminated. This dynamic is associated with a generalized stance of psychological rigidity, making the student more likely to engage in avoidance behaviors across various domains, including academic tasks.[33-35]

The most critical insight from the path analysis is the confirmation of experiential avoidance as a central mechanism that partially explains the relationship between cognitive strategies and procrastination. This result refines our understanding by showing that academic procrastination is largely a behavioral manifestation of the generalized tendency to avoid aversive thoughts, feelings, and bodily sensations. When a student faces a task, the associated internal experiences (e.g., boredom, anxiety, perceived difficulty) are immediately perceived as intolerable. Experiential avoidance is then associated with the immediate impulse to delay the task, as the postponement momentarily removes the source of the discomfort. This temporary emotional relief is powerful negative reinforcement that locks the student into the cycle of chronic procrastination. This finding is consistent with research that directly links psychological inflexibility—which is functionally defined by high experiential avoidance—to various forms of self-handicapping and performance-related avoidance.[36]

While the findings are promising, they must be interpreted cautiously in light of several limitations. The use of a cross-sectional design prevents the establishment of definitive causality or temporal precedence among the variables. Additionally, the reliance on self-report measures may introduce common method bias or social desirability effects, despite efforts to ensure anonymity. The exclusive focus on a convenience sample of female students from universities in Isfahan, Iran, further restricts the generalizability of these findings to male populations and other cultural or educational contexts. Cultural and contextual factors specific to the Iranian higher education system—such as high-stakes examinations, familial expectations, and socioeconomic pressures—may shape the observed relationships and should be examined in future cross-cultural investigations.

Future research should address these limitations by employing longitudinal designs to clarify directional

influences, incorporating multi-method assessments (e.g., behavioral measures of procrastination alongside self-reports), and including more diverse samples across genders and cultural settings. Such studies would also benefit from exploring potential moderators, such as mindfulness or academic self-efficacy, in the mediation pathways identified here.

Conclusion

This study established a robust path model confirming that experiential avoidance serves as a critical partial mediator in the associations between CERS and academic procrastination. The findings indicate that adaptive CERS are associated with lower levels of procrastination through greater psychological flexibility (lower experiential avoidance), while maladaptive CERS are positively associated with higher levels of procrastination through the avoidance of aversive internal experiences (higher experiential avoidance). Interventions such as those based on ACT may hold promise for addressing experiential avoidance and, in turn, academic procrastination in female university students. These results underscore the importance of addressing emotion regulation and psychological flexibility in university counseling services to support student well-being and promote academic success.

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Competing Interests

The authors declare no conflict of interest.

Ethical Approval

This study was approved by the Ethics Committee of Isfahan University of Medical Sciences, Isfahan, Iran (Approval ID: IR.ARI.MUI.REC.1401.032).

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