

The Mediating Role of Intolerance of Uncertainty in the Relationship Between Coping Styles and Perfectionism Among Individuals With Depression

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Abstract

Background: Perfectionism and intolerance of uncertainty (IU) are increasingly recognized as transdiagnostic risk factors for depression. Coping styles may determine how these vulnerabilities contribute to psychopathology, yet the mechanisms remain insufficiently clarified.

Objective: This study investigated the mediating role of IU in the relationship between coping styles and perfectionism, and its subsequent impact on depressive severity.

Methods: A cross-sectional design was conducted with 320 individuals clinically diagnosed with major depressive disorder recruited from psychological centers in Sabzevar, Iran. Participants completed validated measures of coping styles (CISS), perfectionism (FMPS; MPS), IU (IUS-12), and depression severity (BDI-II). Structural equation modeling (SEM) with robust maximum likelihood estimation and bootstrapped confidence intervals (5,000 resamples) was applied to test the hypothesized mediation model.

Results: The measurement model demonstrated strong reliability and validity. The structural model showed excellent fit ($\chi^2/df = 1.90$; RMSEA = .058; CFI = .951; TLI = .944). Problem-focused coping negatively predicted IU, whereas emotion-focused coping positively predicted IU. IU strongly predicted perfectionism, which in turn predicted depression severity. Bootstrapped indirect effects confirmed that IU mediated both adaptive and maladaptive coping pathways. The model explained 63% of the variance in perfectionism and 41% in depression severity.

Conclusion: Findings highlight IU as a robust mediator linking coping styles to perfectionism and depression. Emotion-focused coping exacerbates vulnerability through IU, while problem-focused coping exerts protective effects. Interventions enhancing tolerance of uncertainty and adaptive coping may reduce perfectionism and depressive symptoms.

Keywords: Perfectionism, Intolerance of Uncertainty, Coping Styles, Depression

Introduction

Depression remains one of the most prevalent and disabling mental health disorders worldwide, affecting more than 280 million individuals according to the World Health Organization (2023). Beyond its clinical manifestations, depression is strongly associated with maladaptive cognitive styles and personality traits, among which perfectionism has received considerable empirical attention (Callaghan et al., 2024; Malivoire et al., 2022). Perfectionism, particularly its maladaptive dimensions such as socially prescribed perfectionism and concerns over mistakes, has consistently been linked to higher levels of depressive symptoms (Simon et al., 2025; Nepon et al., 2023). Recent meta-analyses confirm that perfectionism functions as a transdiagnostic risk factor, exacerbating vulnerability to depression, anxiety, and obsessive-compulsive symptoms (Benassi et al., 2021; Egan et al., 2022).

Coping styles represent another critical mechanism in the onset and maintenance of depression. Problem-focused coping strategies are generally considered adaptive, facilitating resilience and psychological adjustment, whereas emotion-focused coping strategies often intensify distress and maladaptive outcomes (Endler & Parker, 1990; Yang et al., 2025). Empirical studies have demonstrated that coping styles interact with perfectionism to predict depressive symptoms, with maladaptive coping amplifying the negative effects of perfectionistic tendencies (Garber & Flynn, 2023; Liu & Zhang, 2025).

Intolerance of uncertainty (IU) has emerged as a pivotal cognitive vulnerability that bridges the relationship between coping and perfectionism. IU refers to the tendency to perceive ambiguous situations as threatening, leading to heightened anxiety, rumination, and avoidance (Carleton, 2016; Morriss et al., 2023). Recent evidence highlights IU as a robust mediator: it not only predicts depressive symptoms directly but also explains how perfectionism and maladaptive coping styles contribute to psychological distress (Başaran, 2023; Tu et al., 2025). For instance, Kaya and Bağatarhan (2025) demonstrated that IU undermines psychological well-being through rumination and maladaptive online behaviors, while Bican et al. (2025) confirmed its mediating role between emotional reactivity and mental well-being.

Recent scholarship has emphasized that perfectionism is not a unitary construct but a multidimensional personality trait with both adaptive and maladaptive forms (Stoeber & Otto, 2020; Flett & Hewitt, 2022). While adaptive perfectionism may foster achievement, maladaptive perfectionism is consistently linked to stress generation and psychopathology (Abdulcebbar & Altan-Atalay, 2025; Bardhoshi & Duncan,

2022). Coping styles further moderate these associations, with avoidant and emotion-focused coping exacerbating vulnerability to depression (Carnahan et al., 2022; Arana & Rice, 2021).

Intolerance of uncertainty (IU) has been identified as a central vulnerability factor that interacts with perfectionism and coping to predict depressive outcomes (Dugas et al., 2021; Gentes & Ruscio, 2021). IU not only heightens negative affective states but also undermines resilience and flexibility (Lombardi & Cuzzocrea, 2021; Andrews et al., 2023). Recent meta-analyses confirm that IU contributes to depression through rumination and maladaptive emotion regulation (Huang et al., 2019; Chen & Zhou, 2022).

Structural equation modeling (SEM) has been widely employed to examine these complex relationships, offering a rigorous statistical framework to test direct and indirect pathways (Kim & Mackinnon, 2024; Kline, 2023). Recent SEM studies have validated the mediating role of IU in the link between perfectionism and depression, underscoring the importance of integrating coping styles into these models (Camadan et al., 2025; Gong & Li, 2024).

Taken together, the literature suggests that perfectionism, coping styles, and intolerance of uncertainty form an interconnected triad that significantly contributes to depressive symptomatology. However, few studies have simultaneously examined these constructs within a unified SEM framework, particularly in clinical populations. The present study addresses this gap by investigating the mediating role of intolerance of uncertainty in the relationship between coping styles and perfectionism among individuals with depression.

Methodology

Research Design

This study employed a quantitative, cross-sectional design using structural equation modeling (SEM) to examine the mediating role of intolerance of uncertainty (IU) in the relationship between coping styles and perfectionism among individuals with depression. SEM was chosen because it allows for simultaneous testing of direct and indirect effects within complex theoretical models (Kline, 2023; Kim & Mackinnon, 2024).

Participants

The sample consisted of 320 individuals diagnosed with major depressive disorder, recruited from private psychological centers in Sabzevar, Iran. Inclusion criteria required participants to be aged between 18 and 55, have a clinical diagnosis confirmed by a licensed psychologist, and provide informed consent. Exclusion criteria included comorbid psychotic disorders or severe cognitive impairments. The sample size exceeded the minimum threshold recommended for SEM (Hair et al., 2019), ensuring adequate statistical power.

Measures

- **Coping Styles:** Assessed using the Coping Inventory for Stressful Situations (CISS; Endler & Parker, 1990), which distinguishes between problem-focused and emotion-focused coping. The

instrument has demonstrated strong reliability in both clinical and non-clinical populations (Rice & Ashby, 2020).

- **Perfectionism:** Measured using the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990) and the Hewitt & Flett Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). These scales capture both self-oriented and socially prescribed perfectionism, dimensions strongly linked to depression (Simon et al., 2025; Malivoire et al., 2022).
- **Intolerance of Uncertainty:** Evaluated using the Intolerance of Uncertainty Scale (IUS-12; Carleton, 2016), a widely validated measure capturing cognitive, emotional, and behavioral responses to uncertainty (Morris et al., 2023; Tu et al., 2025).
- **Depression Severity:** Measured using the Beck Depression Inventory-II (BDI-II), which has demonstrated robust psychometric properties across diverse populations (Benassi et al., 2021).

Procedure

Participants completed the questionnaires in a controlled setting under the supervision of trained research assistants. Ethical approval was obtained from the University of Sistan's Institutional Review Board, and all procedures adhered to the Declaration of Helsinki.

Data Analysis

Data were analyzed using AMOS 24.0. Preliminary analyses included reliability testing (Cronbach's alpha), normality checks, and correlation analyses. SEM was conducted to test the hypothesized model, with IU specified as a mediator between coping styles and perfectionism. Model fit was evaluated using multiple indices: χ^2/df , RMSEA, CFI, GFI, and NFI (Hair et al., 2019; Kline, 2023). Bootstrapping procedures (5,000 resamples) were applied to assess the significance of indirect effects (Hayes, 2022).

Ethical Considerations All participants provided informed consent prior to data collection, and confidentiality and anonymity were strictly maintained throughout the study. As the research involved only self-report questionnaires without any clinical intervention or experimental manipulation, formal ethical approval codes were not required. Nevertheless, all procedures adhered to internationally accepted ethical standards, including the Declaration of Helsinki, ensuring respect for participants' rights and well-being.

Results

Data Screening and Preparation

The dataset ($N = 320$) was screened for missing values, outliers, and normality. Missingness was $\leq 2.1\%$ and handled via full information maximum likelihood (FIML). No multivariate outliers exceeded Mahalanobis distance at $p < .001$. Univariate skewness ranged from -0.62 to 0.71 and kurtosis from -0.58 to 0.83 . Mardia's multivariate kurtosis = 2.94 indicated mild non-normality; therefore, robust maximum likelihood estimation (MLR) was applied. Variance inflation factors ($VIF < 3.0$) confirmed absence of multicollinearity.

Measurement Model (CFA)

Four latent constructs were modeled: problem-focused coping (PFC), emotion-focused coping (EFC), intolerance of uncertainty (IU), and perfectionism (PER). Depression severity (BDI-II) was treated as an observed outcome.

- **Indicator loadings:** 0.62–0.87 (all $p < .001$).
- **Reliability:** Cronbach's $\alpha = 0.83$ –0.91; Composite Reliability (CR) = 0.84–0.92.
- **Convergent validity:** Average Variance Extracted (AVE) = 0.52–0.63.
- **Discriminant validity:** HTMT ratios = 0.41–0.78 (< 0.85).
- **Global fit:** $\chi^2(224) = 398.2$, $\chi^2/df = 1.78$; RMSEA = 0.055 (90% CI [0.047, 0.063]); SRMR = 0.042; CFI = 0.957; TLI = 0.949.

Table 1. Descriptive Statistics and Reliability

Variable	Mean	SD	Cronbach's α	CR	AVE
Problem-focused coping (PFC)	3.42	0.71	0.85	0.86	0.54
Emotion-focused coping (EFC)	3.87	0.68	0.83	0.84	0.52
Intolerance of uncertainty	3.65	0.74	0.89	0.90	0.59
Perfectionism	3.91	0.69	0.91	0.92	0.63
Depression (BDI-II)	24.7	6.12	0.87	—	—

Structural Model

IU was specified as a mediator between coping styles (PFC, EFC) and perfectionism (PER), with PER predicting depression severity. Direct paths from coping styles to PER were retained to test partial mediation.

- **Global fit:** $\chi^2(236) = 449.1$, $\chi^2/df = 1.90$; RMSEA = 0.058 (90% CI [0.050, 0.066]); SRMR = 0.048; CFI = 0.951; TLI = 0.944.
- **Explained variance:** $R^2(\text{IU}) = 0.52$; $R^2(\text{PER}) = 0.63$; $R^2(\text{BDI-II}) = 0.41$.

Table 2. Standardized Path Coefficients

Path	β	SE	CR	p-value	f^2
PFC \rightarrow IU	−0.58	0.074	−7.84		0.22
EFC \rightarrow IU	0.66	0.081	8.12		0.27
IU \rightarrow PER	0.70	0.074	9.45		0.35
PFC \rightarrow PER	−0.25	0.058	−4.32		0.07
EFC \rightarrow PER	0.21	0.054	3.87		0.06
PER \rightarrow Depression (BDI-II)	0.64	0.069	9.31		0.30

Indirect Effects (Bootstrapped)

Bias-corrected bootstrapping (5,000 resamples) confirmed mediation effects:

- **PFC → IU → PER:** $\beta = -0.406$; 95% CI $[-0.523, -0.291]$; $p < .001$.
- **EFC → IU → PER:** $\beta = 0.462$; 95% CI $[0.341, 0.586]$; $p < .001$.
- **PFC → IU → PER → Depression:** $\beta = -0.260$; 95% CI $[-0.348, -0.182]$; $p < .001$.
- **EFC → IU → PER → Depression:** $\beta = 0.305$; 95% CI $[0.217, 0.401]$; $p < .001$.

Table 3. Indirect Effects

Indirect Path	β	95% CI	p-value
PFC → IU → PER	-0.406	[-0.523, -0.291]	
EFC → IU → PER	0.462	[0.341, 0.586]	
PFC → IU → PER → Depression	-0.260	[-0.348, -0.182]	
EFC → IU → PER → Depression	0.305	[0.217, 0.401]	

Summary of Findings

The results demonstrate that coping styles exert both direct and indirect effects on perfectionism through intolerance of uncertainty. Emotion-focused coping increases vulnerability to perfectionism and depression via IU, while problem-focused coping reduces this vulnerability. IU emerged as a robust mediator, transmitting the effects of coping styles to perfectionism and subsequently to depression severity. These findings align with recent empirical evidence highlighting IU as a transdiagnostic mechanism linking coping and perfectionism to depressive outcomes (Camadan et al., 2025; Gong & Li, 2024; Simon et al., 2025).

Discussion

Interpretation of Findings

The present study examined the mediating role of intolerance of uncertainty (IU) in the relationship between coping styles and perfectionism, and its subsequent impact on depression severity. Results demonstrated that emotion-focused coping was positively associated with IU, which in turn predicted higher levels of perfectionism and depression. Conversely, problem-focused coping was negatively associated with IU, thereby reducing perfectionism and depressive symptoms. These findings support the hypothesis that IU functions as a transdiagnostic mechanism linking maladaptive coping and perfectionism to depression (Benassi et al., 2021; Kaya & Bağatarhan, 2025; Tu et al., 2025).

The strong predictive role of IU is consistent with prior evidence suggesting that individuals who perceive uncertainty as threatening are more likely to engage in rumination and avoidance, processes that exacerbate perfectionistic tendencies and depressive outcomes (Carleton, 2016; Morriss et al., 2023). The

indirect effects confirmed that IU mediates both adaptive and maladaptive coping pathways, underscoring its central role in psychological vulnerability.

The findings of this study extend prior work by demonstrating that IU mediates the effects of coping styles on perfectionism and depression. This is consistent with longitudinal evidence showing that perfectionism interacts with coping to predict depressive trajectories (MacDonald & Wilson, 2024; Boehme et al., 2023). Moreover, IU has been shown to amplify stress responses and avoidance behaviors, thereby reinforcing maladaptive perfectionism (Harvey & Watkins, 2020; Hill et al., 2021).

Clinical implications are underscored by recent intervention studies. For example, Schweizer et al. (2025) demonstrated that training young adults to tolerate uncertainty reduced both anxiety and depression. Similarly, Kelly et al. (2025) found that parenting perfectionism predicted postnatal depression, with IU and emotion regulation mediating this effect. These findings highlight the importance of targeting IU in therapeutic contexts, particularly when perfectionism and maladaptive coping are present.

Finally, network analyses and CBT-focused reviews emphasize that perfectionism remains a transdiagnostic process requiring integrated treatment approaches (O'Connor & Kirtley, 2021; Shafran, Egan & Wade, 2021). By situating IU as a mediator, the present study contributes to a growing body of evidence that underscores the need for interventions addressing both cognitive vulnerabilities and coping styles.

Comparison with Previous Research

Our findings align with recent meta-analyses that identified perfectionism as a transdiagnostic risk factor for depression and anxiety (Callaghan et al., 2024; Malivoire et al., 2022). The mediating role of IU extends this literature by clarifying how coping styles contribute to perfectionism and depression. Specifically, emotion-focused coping amplifies maladaptive perfectionism through IU, while problem-focused coping mitigates these effects. This dual pathway resonates with studies highlighting the protective role of adaptive coping strategies (Yang et al., 2025; Garber & Flynn, 2023).

Moreover, the SEM results corroborate prior structural models that positioned IU as a mediator between cognitive vulnerabilities and psychopathology (Camadan et al., 2025; Gong & Li, 2024). The high explained variance for perfectionism ($R^2 = 0.63$) and depression ($R^2 = 0.41$) indicates that the proposed model captures substantial psychological variance, strengthening its theoretical and clinical relevance.

Theoretical and Clinical Implications

Theoretically, this study integrates three constructs—coping styles, IU, and perfectionism—into a unified model of depression vulnerability. This integration advances existing frameworks by demonstrating that IU is not merely a correlate of depression but a mechanism that channels the effects of coping into perfectionistic cognitions. Clinically, interventions targeting IU (e.g., uncertainty tolerance training, cognitive restructuring) may reduce maladaptive perfectionism and depressive symptoms. Likewise, promoting problem-focused coping strategies could buffer against IU and its downstream effects.

Limitations

Despite its contributions, the study has limitations. First, the cross-sectional design precludes causal inference; longitudinal studies are needed to confirm temporal ordering. Second, reliance on self-report measures may introduce response biases. Third, the sample was limited to individuals diagnosed with depression in Sabzevar, Iran, which may restrict generalizability. Future research should replicate these findings across diverse populations and cultural contexts.

Future Directions

Future studies should employ longitudinal and experimental designs to establish causality and explore mechanisms over time. Incorporating physiological measures (e.g., stress biomarkers) could enrich understanding of IU's role in depression. Additionally, examining moderating variables such as resilience, social support, or cultural factors may clarify boundary conditions of the proposed model. Finally, clinical trials testing IU-focused interventions could provide practical insights into reducing perfectionism and depressive symptoms.

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