

Structural Model of Predicting Rumination in Individuals with Generalized Anxiety Disorder Based on Integrative Self-Knowledge and Mentalization: The Mediating Roles of Psychological Flexibility and Distress Tolerance

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ABSTRACT

The present study aimed to develop and test a structural model for predicting rumination among individuals with Generalized Anxiety Disorder (GAD) based on integrative self-knowledge and mentalization, considering the mediating roles of psychological flexibility and distress tolerance. This applied, descriptive-correlational study was conducted among university students diagnosed with Generalized Anxiety Disorder in Qom, Iran, during 2025. A purposive sample of 270 participants was selected based on predefined inclusion criteria. Data were collected using the Integrative Self-Knowledge Scale, Mentalization Scale, Acceptance and Action Questionnaire-II, Distress Tolerance Scale, and Ruminative Responses Scale. Structural equation modeling and path analysis were performed using SPSS-23 and AMOS-23 to examine the direct and indirect relationships among the study variables and to evaluate the proposed structural model. The findings indicated that rumination was directly and negatively predicted by integrative self-knowledge ($\beta = -0.265, p = .001$), mentalization ($\beta = -0.253, p = .001$), distress tolerance ($\beta = -0.297, p = .001$), and psychological flexibility ($\beta = -0.204, p = .001$). Integrative self-knowledge positively predicted distress tolerance ($\beta = 0.219, p = .001$) and psychological flexibility ($\beta = 0.176, p = .001$). Similarly, mentalization positively predicted distress tolerance ($\beta = 0.267, p = .001$) and psychological flexibility ($\beta = 0.378, p = .001$). Significant indirect effects were observed for integrative self-knowledge ($\beta = -0.101, p = .034$) and mentalization ($\beta = -0.156, p = .001$) on rumination through the mediating variables. The results suggest that higher levels of integrative self-knowledge and mentalization contribute to lower levels of rumination among individuals with GAD both directly and indirectly through enhanced psychological flexibility and distress tolerance.

Keywords: Generalized Anxiety Disorder; Rumination; Integrative Self-Knowledge; Mentalization; Psychological Flexibility; Distress Tolerance; Structural Equation Modeling.

1. Introduction

Generalized Anxiety Disorder (GAD) is one of the most prevalent and debilitating anxiety disorders, characterized by excessive, persistent, and difficult-to-control worry about a wide range of life domains. Individuals with GAD frequently experience symptoms such as restlessness, fatigue, irritability, concentration difficulties, muscle tension, and sleep disturbances, all of which substantially impair academic, occupational, and interpersonal functioning (American Psychiatric, 2022). Epidemiological studies have consistently demonstrated that GAD is highly prevalent across different cultures and populations and is associated with significant psychological distress, functional impairment, and comorbidity with other mental disorders (Kessler et al., 2012; Ruscio et al., 2017). Given the chronic and pervasive nature of this disorder, researchers have increasingly focused on identifying the cognitive and emotional processes that contribute to its development and maintenance, with the goal of improving preventive and therapeutic interventions (Newman et al., 2013).

Among the cognitive processes implicated in GAD, rumination has emerged as a particularly important transdiagnostic factor. Rumination refers to repetitive, passive, and persistent thinking about negative experiences, emotions, and their possible causes and consequences. Although initially examined primarily in relation to depressive disorders, evidence suggests that rumination also plays a critical role in anxiety disorders, particularly GAD, where individuals become trapped in cycles of repetitive negative thinking that perpetuate emotional distress and cognitive dysfunction (McEvoy et al., 2013; Zetsche et al., 2018). Repetitive negative thinking consumes cognitive resources, narrows attentional focus toward perceived threats, and interferes with adaptive problem-solving and emotional regulation. Consequently, individuals who engage in high levels of rumination often experience heightened anxiety symptoms, increased psychological vulnerability, and reduced quality of life (Newman et al., 2013; Zetsche et al., 2018). Recent research has further emphasized that rumination serves as a central mechanism linking emotional distress to a variety of psychological disorders and maladaptive outcomes (Esmailnezhad & Mazrae, 2025; Patel et al., 2023).

Given the importance of rumination in maintaining anxiety symptoms, identifying the psychological factors that may protect against or contribute to rumination has become

a major area of investigation. One such factor is integrative self-knowledge, which refers to an individual's capacity to develop a coherent, organized, and meaningful understanding of personal experiences, emotions, values, and life events. Individuals possessing higher levels of integrative self-knowledge tend to perceive themselves as consistent and unified across situations and time, enabling them to process experiences more effectively and maintain a stable sense of identity (Schwartz et al., 2011). In contrast, deficiencies in self-knowledge and identity integration may result in confusion regarding personal experiences and emotional states, increasing vulnerability to repetitive self-focused thinking. When individuals lack a coherent understanding of themselves, they may become preoccupied with unresolved questions regarding personal meaning, self-worth, and life direction, thereby increasing the likelihood of engaging in rumination. From this perspective, integrative self-knowledge may function as a protective factor against maladaptive cognitive processes by promoting psychological clarity and adaptive self-regulation (Schwartz et al., 2011).

Another construct that has received growing attention in contemporary psychopathology research is mentalization. Mentalization refers to the capacity to understand one's own behavior and the behavior of others in terms of underlying mental states such as beliefs, emotions, intentions, desires, and motivations (Bateman & Fonagy, 2016; Luyten et al., 2020). This ability enables individuals to interpret social and emotional experiences accurately and to regulate emotional reactions effectively. Theoretical and empirical evidence suggests that impairments in mentalization contribute to various forms of psychological distress by reducing individuals' ability to understand and manage their internal experiences (Bateman & Fonagy, 2016). When people struggle to identify and interpret their emotions, they may become overwhelmed by ambiguous internal states and engage in repetitive cognitive processing as an attempt to gain clarity or control. Consequently, deficits in mentalization may increase susceptibility to rumination, whereas stronger mentalizing abilities may facilitate emotional understanding and adaptive coping. Research has consistently demonstrated that mentalization is associated with emotional intelligence, empathy, interpersonal functioning, and psychological well-being while showing negative associations with anxiety-related vulnerability factors (Dimitrijevic et al., 2017; Luyten et al., 2020; Safari Mousavi et al., 2020).

The relationship between integrative self-knowledge, mentalization, and rumination may be further explained through the concept of psychological flexibility. Psychological flexibility is defined as the ability to remain in contact with the present moment while accepting internal experiences and engaging in behaviors consistent with personal values despite the presence of unpleasant thoughts and emotions. This construct occupies a central position in Acceptance and Commitment Therapy and has been recognized as a fundamental component of psychological health (Costa et al., 2014; Levin et al., 2014). Individuals with high psychological flexibility can observe thoughts without becoming entangled in them, adapt to changing circumstances, and pursue meaningful goals even in the presence of emotional discomfort. Conversely, individuals with low psychological flexibility often become fused with negative thoughts and engage in experiential avoidance, which can intensify rumination and emotional distress. Numerous studies have shown that psychological flexibility is negatively associated with anxiety, depression, and repetitive negative thinking, while interventions targeting flexibility contribute to significant improvements in emotional functioning (Costa et al., 2014; Levin et al., 2014). Therefore, psychological flexibility may represent a key mechanism through which integrative self-knowledge and mentalization influence rumination.

In addition to psychological flexibility, distress tolerance has been identified as another important factor in understanding maladaptive cognitive processes. Distress tolerance refers to an individual's perceived and actual ability to withstand negative emotional states and psychological discomfort without resorting to maladaptive coping strategies (Mahmoudpour et al., 2021). Individuals with low distress tolerance often perceive negative emotions as overwhelming and intolerable, prompting efforts to escape or reduce discomfort through ineffective strategies such as avoidance, worry, or rumination. In contrast, those with higher levels of distress tolerance are better able to endure emotional distress without becoming trapped in repetitive cognitive cycles. Research has demonstrated that low distress tolerance is associated with anxiety symptoms, depressive symptomatology, emotional dysregulation, and increased engagement in repetitive negative thinking (Mahmoudpour et al., 2021; Patel et al., 2023). Because rumination frequently functions as an attempt to understand or control distressing experiences, individuals who possess greater distress tolerance may be less likely to rely on rumination as a coping mechanism.

Theoretically, integrative self-knowledge may facilitate both psychological flexibility and distress tolerance. Individuals with a coherent and integrated sense of self are more likely to interpret emotional experiences within a meaningful framework, reducing uncertainty and enhancing their ability to cope with adversity. Such individuals may be better equipped to accept unpleasant emotions, maintain perspective during stressful situations, and tolerate psychological discomfort without becoming overwhelmed. Consequently, greater integrative self-knowledge may indirectly reduce rumination through its positive effects on flexibility and tolerance of distress (Levin et al., 2014; Schwartz et al., 2011). Similarly, mentalization may contribute to higher psychological flexibility by enhancing awareness and understanding of internal experiences, thereby reducing cognitive fusion and promoting adaptive emotional processing. Furthermore, effective mentalization may strengthen distress tolerance by helping individuals interpret emotional states as understandable and manageable rather than threatening and uncontrollable (Bateman & Fonagy, 2016; Luyten et al., 2020).

Despite the growing body of literature examining rumination, psychological flexibility, distress tolerance, identity-related processes, and mentalization, important gaps remain. Previous studies have generally investigated these variables independently or examined only a limited number of their relationships. Research has established associations between rumination and distress tolerance (Patel et al., 2023), between psychological flexibility and repetitive negative thinking (Levin et al., 2014), and between mentalization and emotional regulation capacities (Luyten et al., 2020). Likewise, studies have highlighted the role of identity integration and self-understanding in promoting psychological adjustment (Schwartz et al., 2011). However, relatively little attention has been devoted to understanding how integrative self-knowledge and mentalization simultaneously contribute to rumination through the mediating mechanisms of psychological flexibility and distress tolerance, particularly among individuals with Generalized Anxiety Disorder. Given the central role of rumination in maintaining anxiety symptoms and the potential clinical relevance of these psychological constructs, investigating their interrelationships may provide valuable insights into the mechanisms underlying cognitive vulnerability in GAD.

Furthermore, existing evidence suggests that interventions targeting psychological flexibility, distress tolerance, and mentalization can effectively reduce

emotional distress and improve psychological functioning (Bateman & Fonagy, 2016; Levin et al., 2014; Patel et al., 2023). Understanding whether these variables mediate the effects of integrative self-knowledge and mentalization on rumination could therefore inform the development of more comprehensive and process-oriented interventions for individuals experiencing generalized anxiety. Such knowledge may help clinicians identify key therapeutic targets and improve treatment outcomes by addressing the underlying mechanisms that sustain repetitive negative thinking.

Accordingly, the present study aimed to develop and test a structural model predicting rumination in individuals with Generalized Anxiety Disorder based on integrative self-knowledge and mentalization, with psychological flexibility and distress tolerance serving as mediating variables.

2. Methods and Materials

2.1. Study Design and Participants

This study was conducted using an applied research approach and a descriptive-correlational design. The target population consisted of all university students diagnosed with Generalized Anxiety Disorder (GAD) in Qom, Iran, during 2025. A total of 270 participants were selected through purposive sampling. Eligibility criteria included exhibiting symptoms consistent with Generalized Anxiety Disorder, willingness to participate in the study, and the ability to complete the research instruments. Individuals who submitted incomplete questionnaires or withdrew their consent during the data collection process were excluded from the study. Following the acquisition of the necessary permissions and coordination with university centers in Qom, potential participants were invited to take part in a screening process. The purpose of the study was explained to all participants, confidentiality of information was emphasized, and informed consent was obtained. Participants were then assessed through clinical interviews based on diagnostic criteria for Generalized Anxiety Disorder as well as relevant screening questionnaires. Those who met the diagnostic and inclusion criteria were purposively selected for participation. After the final sample was established, participants completed the study questionnaires individually under relatively standardized conditions to minimize environmental influences on their responses. They were assured that their responses would be used solely for research purposes and that no identifying information was required.

2.2. Measures

The Integrative Self-Knowledge Scale developed by Ghorbani et al. (2003) was used to assess participants' level of integrative self-knowledge. The instrument consists of 38 items rated on a five-point Likert scale ranging from 1 (mostly untrue) to 5 (mostly true). With the exception of items 3, 6, and 9, all items are reverse scored. Previous studies have reported satisfactory psychometric properties for the scale, with Cronbach's alpha coefficients ranging from .84 to .90 and evidence of construct validity through substantial correlations among subscales. Subsequent validation studies in Iranian samples also demonstrated acceptable reliability and concurrent validity through associations with self-esteem measures.

Mentalization was measured using the Mentalization Scale developed by Dimitrijević et al. (2017). This self-report instrument contains 28 items scored on a five-point Likert scale ranging from 1 (completely incorrect) to 5 (completely correct). The scale assesses an individual's capacity to understand and interpret behavior in terms of underlying mental states. Previous investigations have demonstrated positive associations with empathy and emotional intelligence and negative associations with attachment anxiety, attachment avoidance, and neuroticism. Reported Cronbach's alpha coefficients for the total score and subscales range from .74 to .79, while studies conducted in Iran have confirmed the three-factor structure of the instrument and reported reliability coefficients between .73 and .86.

Psychological flexibility was assessed using the Acceptance and Action Questionnaire-II (AAQ-II) developed by Bond et al. (2011). The questionnaire contains 10 items rated on a seven-point Likert scale ranging from 1 (never true) to 7 (always true), with higher scores indicating greater psychological flexibility. Previous research has demonstrated excellent psychometric properties for the measure, including Cronbach's alpha coefficients ranging from .89 to .93. Confirmatory factor analyses have supported its unidimensional structure, and studies have reported significant correlations with anxiety, depression, and related psychological constructs, providing evidence for both convergent and concurrent validity.

Distress tolerance was measured using the Distress Tolerance Scale developed by Simons and Gaher (2005). The instrument consists of 15 items rated on a five-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Item 6 is reverse scored. The scale assesses an

individual's perceived ability to withstand and manage emotional distress. Previous studies have reported a Cronbach's alpha coefficient of .82 and significant correlations with measures of positive and negative affect, substance use, and emotional functioning. Validation studies conducted in Iranian populations have confirmed the internal consistency of the instrument, with reliability coefficients ranging from .64 to .82 across factors and an overall reliability coefficient of .89. Confirmatory factor analysis has also supported the adequacy of the scale's factor structure.

Rumination was assessed using the Ruminative Responses Scale (RRS) developed by Nolen-Hoeksema and Morrow (1991). The scale consists of 22 items scored on a four-point Likert scale ranging from 1 (almost never) to 4 (almost always). Total scores range from 22 to 88, with higher scores indicating greater levels of rumination. Previous research has demonstrated strong psychometric properties for the instrument, including a Cronbach's alpha coefficient of .89 and evidence of convergent validity through correlations with measures of life orientation and social support. Studies conducted in Iranian samples have further supported the unidimensional structure and construct validity of the scale, with confirmatory factor analyses yielding acceptable model fit indices and reliability coefficients of approximately .83.

2.3. Data Analysis

After data collection, all questionnaires were reviewed, and incomplete or invalid responses were removed from the

dataset. The remaining data were entered into the statistical software packages SPSS version 23 and AMOS version 23 for analysis. Both descriptive and inferential statistical methods were employed. Descriptive analyses included the calculation of demographic characteristics, means, and standard deviations for the study variables. Inferential analyses began with the computation of Pearson correlation coefficients to examine relationships among the variables. Prior to testing the structural model, the assumptions underlying path analysis were evaluated. Structural equation modeling was then conducted to assess the proposed relationships among integrative self-knowledge, mentalization, psychological flexibility, distress tolerance, and rumination. Model fit was evaluated using standard goodness-of-fit indices, and direct, indirect, and total effects were estimated to determine the extent to which psychological flexibility and distress tolerance mediated the relationships between the predictor variables and rumination.

3. Findings and Results

Of the 270 participants included in the study, 162 (60.0%) were female and 108 (40.0%) were male. Regarding age distribution, 19 participants (7.0%) were younger than 25 years, 85 (31.5%) were between 26 and 30 years, 59 (21.9%) were between 31 and 35 years, 50 (18.5%) were between 36 and 40 years, and 57 (21.1%) were older than 40 years. In terms of educational attainment, 58 participants (21.5%) held associate degrees, 142 (52.6%) held bachelor's degrees, and 70 (25.9%) held master's degrees or higher.

Table 1

Descriptive Statistics of the Study Variables

Variable	Mean	SD
Integrative Self-Knowledge	122.47	18.63
Mentalization	91.28	14.75
Psychological Flexibility	49.16	8.82
Distress Tolerance	43.57	7.49
Rumination	58.31	10.44

The descriptive statistics indicated moderate to high levels of integrative self-knowledge, mentalization, psychological flexibility, and distress tolerance among participants, while the mean score for rumination reflected a considerable presence of repetitive negative thinking within

the sample. The observed standard deviations suggested adequate variability across all study variables, supporting their suitability for subsequent correlational and structural analyses.

Table 2

Goodness-of-Fit Indices for the Structural Model

Fit Index	Value
χ^2	318.04
χ^2/df	3.12
GFI	0.925
AGFI	0.870
CFI	0.913
RMSEA	0.069

The fit indices demonstrated that the proposed structural model adequately fit the observed data. The normed chi-square value ($\chi^2/df = 3.12$) fell within the acceptable range, while the Comparative Fit Index (CFI = 0.913), Goodness-of-Fit Index (GFI = 0.925), and Adjusted Goodness-of-Fit Index (AGFI = 0.870) indicated satisfactory model fit.

Furthermore, the Root Mean Square Error of Approximation (RMSEA = 0.069) suggested an acceptable level of approximation error. Collectively, these indices supported the adequacy of the hypothesized structural model for explaining rumination among individuals with Generalized Anxiety Disorder.

Table 3

Direct, Indirect, and Total Effects in the Structural Model

Path	β	p
Integrative Self-Knowledge → Rumination (Direct)	-0.265	.001
Mentalization → Rumination (Direct)	-0.253	.001
Distress Tolerance → Rumination	-0.297	.001
Psychological Flexibility → Rumination	-0.204	.001
Integrative Self-Knowledge → Distress Tolerance	0.219	.001
Integrative Self-Knowledge → Psychological Flexibility	0.176	.001
Mentalization → Distress Tolerance	0.267	.001
Mentalization → Psychological Flexibility	0.378	.001
Integrative Self-Knowledge → Rumination (Total Effect)	-0.366	.001
Mentalization → Rumination (Total Effect)	-0.409	.001
Integrative Self-Knowledge → Rumination (Indirect Effect)	-0.101	.034
Mentalization → Rumination (Indirect Effect)	-0.156	.001

The structural model revealed that rumination was significantly and negatively predicted by integrative self-knowledge ($\beta = -0.265, p = .001$), mentalization ($\beta = -0.253, p = .001$), distress tolerance ($\beta = -0.297, p = .001$), and psychological flexibility ($\beta = -0.204, p = .001$). Additionally, integrative self-knowledge significantly and positively predicted distress tolerance ($\beta = 0.219, p = .001$) and psychological flexibility ($\beta = 0.176, p = .001$). Mentalization also positively predicted distress tolerance ($\beta = 0.267, p = .001$) and psychological flexibility ($\beta = 0.378, p = .001$). The total effects of integrative self-knowledge ($\beta = -0.366, p = .001$) and mentalization ($\beta = -0.409, p = .001$) on rumination were statistically significant. Moreover, the indirect effects of integrative self-knowledge ($\beta = -0.101, p = .034$) and mentalization ($\beta = -0.156, p = .001$) on rumination through psychological flexibility and distress

tolerance were also significant, indicating partial mediation. These findings support the proposed structural relationships and highlight the important mediating roles of psychological flexibility and distress tolerance in explaining rumination among students with Generalized Anxiety Disorder.

4. Discussion

The present study aimed to develop and examine a structural model predicting rumination among individuals with Generalized Anxiety Disorder (GAD) based on integrative self-knowledge and mentalization, with psychological flexibility and distress tolerance functioning as mediating variables. The findings demonstrated that integrative self-knowledge, mentalization, psychological flexibility, and distress tolerance directly and negatively predicted rumination. Furthermore, integrative self-

knowledge and mentalization were found to exert significant indirect effects on rumination through psychological flexibility and distress tolerance. Overall, the proposed structural model exhibited satisfactory fit and explained a substantial proportion of variance in rumination among students diagnosed with GAD. These findings highlight the importance of cognitive, emotional, and self-related processes in understanding repetitive negative thinking among individuals suffering from chronic anxiety.

One of the most important findings was the significant negative relationship between integrative self-knowledge and rumination. This result suggests that individuals who possess a more coherent and integrated understanding of themselves are less likely to engage in repetitive negative thinking. The finding is theoretically consistent with identity-based perspectives, which emphasize that coherent self-structures facilitate adaptive meaning-making and emotional regulation. According to identity theory, individuals with greater self-integration are better able to organize experiences within a stable framework of beliefs, values, and self-perceptions, reducing the ambiguity and uncertainty that often fuel maladaptive cognitive processes (Schwartz et al., 2011). In contrast, fragmented or poorly integrated self-knowledge may increase self-focused attention and encourage repeated attempts to resolve internal inconsistencies through rumination. Because individuals with GAD frequently experience uncertainty and excessive concern about future events, the absence of a coherent self-concept may intensify their tendency to repeatedly analyze perceived threats and personal shortcomings. Therefore, the protective effect of integrative self-knowledge against rumination appears theoretically plausible and clinically meaningful.

The findings also revealed that mentalization significantly and negatively predicted rumination. This result aligns with theoretical frameworks suggesting that the ability to understand and interpret one's own mental states reduces vulnerability to maladaptive repetitive thinking (Bateman & Fonagy, 2016; Luyten et al., 2020). Mentalization enables individuals to recognize emotions, identify underlying motivations, and contextualize psychological experiences. When this capacity is well developed, emotional experiences become more understandable and manageable, reducing the need for repetitive cognitive processing. Conversely, deficits in mentalization may lead individuals to experience emotions as confusing, overwhelming, and difficult to regulate, increasing reliance on rumination as an attempt to gain

control over distressing experiences. Previous research has consistently shown that impaired mentalization is associated with psychological distress, emotional dysregulation, and vulnerability to anxiety-related disorders (Dimitrijevic et al., 2017; Luyten et al., 2020; Safari Mousavi et al., 2020). The current findings extend this literature by demonstrating that mentalization is not only associated with emotional functioning but also serves as an important predictor of rumination among individuals with GAD.

Another notable finding was the significant negative association between psychological flexibility and rumination. This result is consistent with contemporary models of psychological flexibility, which propose that adaptive psychological functioning depends on the ability to remain present, accept internal experiences, and engage in value-consistent behavior despite emotional discomfort (Costa et al., 2014; Levin et al., 2014). Individuals with high psychological flexibility are less likely to become entangled with distressing thoughts and therefore less likely to engage in repetitive negative thinking. Rumination often reflects cognitive fusion, wherein individuals treat negative thoughts as objective truths and repeatedly analyze them in an attempt to reduce uncertainty or distress. Psychological flexibility interrupts this process by promoting acceptance, cognitive defusion, and attentional flexibility. The present findings support previous evidence demonstrating that psychological flexibility is inversely related to anxiety, depression, and repetitive negative thinking (Esmailnezhad & Mazrae, 2025; Levin et al., 2014). Consequently, psychological flexibility appears to represent a crucial resilience factor that protects individuals with GAD from becoming trapped in maladaptive cognitive cycles.

The study also found that distress tolerance negatively predicted rumination. This finding is consistent with previous research emphasizing the role of distress tolerance in emotional regulation and psychological adjustment (Mahmoudpour et al., 2021; Patel et al., 2023). Individuals with high distress tolerance are better able to endure unpleasant emotional states without immediately attempting to escape or suppress them. In contrast, individuals with low distress tolerance often perceive negative emotions as unbearable and consequently engage in maladaptive coping strategies aimed at reducing discomfort. Rumination may function as one such strategy because it creates the illusion of understanding or controlling distressing experiences while actually prolonging emotional suffering. The significant negative relationship observed in the present study suggests that greater capacity to tolerate distress

decreases the likelihood of relying on rumination as a coping mechanism. This finding is particularly relevant for individuals with GAD, whose chronic worry and heightened sensitivity to emotional discomfort may contribute to persistent cycles of repetitive negative thinking.

Beyond the direct effects, the present study demonstrated that psychological flexibility mediated the relationship between integrative self-knowledge and rumination. This finding suggests that individuals with stronger self-knowledge may develop greater psychological flexibility, which in turn reduces rumination. A coherent sense of self likely enables individuals to maintain perspective during stressful situations, remain connected to personal values, and respond adaptively to internal experiences. Such qualities facilitate psychological flexibility by reducing cognitive fusion and experiential avoidance. Consequently, self-knowledge appears to influence rumination not only directly but also indirectly through adaptive psychological processes. This interpretation is consistent with previous research highlighting the role of psychological flexibility as a mechanism linking self-related variables to emotional outcomes (Levin et al., 2014; Schwartz et al., 2011). The findings therefore suggest that interventions designed to strengthen self-understanding may simultaneously enhance psychological flexibility and reduce repetitive negative thinking.

Similarly, distress tolerance was found to mediate the relationship between integrative self-knowledge and rumination. Individuals with a more integrated self-concept may perceive negative experiences as more comprehensible and manageable, increasing their capacity to tolerate emotional discomfort. As a result, they become less dependent on rumination as a means of coping with distress. This finding is consistent with theoretical models suggesting that self-coherence contributes to resilience by enhancing emotional stability and reducing vulnerability to cognitive dysregulation (Schwartz et al., 2011). In practical terms, individuals who understand themselves more clearly may experience greater confidence in their ability to navigate adversity, thereby reducing the need for repetitive analysis of negative experiences.

The results further indicated that psychological flexibility mediated the relationship between mentalization and rumination. This finding supports theoretical perspectives proposing that mentalization contributes to adaptive functioning by fostering awareness and acceptance of internal experiences (Bateman & Fonagy, 2016; Luyten et al., 2020). Individuals who accurately interpret their

emotions and thoughts are less likely to become fused with distressing cognitions and more capable of responding flexibly to psychological challenges. Consequently, enhanced mentalization may reduce rumination by increasing psychological flexibility. This interpretation aligns with previous studies showing that mentalization facilitates emotional regulation and adaptive coping (Dimitrijevic et al., 2017; Safari Mousavi et al., 2020). The mediating role of psychological flexibility therefore provides an important explanation for how mentalization exerts its protective influence against repetitive negative thinking.

Finally, distress tolerance was found to mediate the relationship between mentalization and rumination. Individuals with stronger mentalizing abilities may be better equipped to understand and contextualize emotional experiences, thereby increasing their capacity to tolerate distress without becoming overwhelmed. By transforming confusing emotional states into meaningful psychological experiences, mentalization may reduce the perceived threat associated with negative emotions. Increased distress tolerance then decreases the likelihood of engaging in rumination as a maladaptive coping strategy. This finding is consistent with contemporary mentalization theory, which emphasizes the importance of understanding internal states for effective emotional regulation and psychological resilience (Bateman & Fonagy, 2016; Luyten et al., 2020). It also aligns with empirical evidence linking distress tolerance to lower levels of repetitive negative thinking and emotional dysfunction (Mahmoudpour et al., 2021; Patel et al., 2023).

5. Conclusion

Taken together, the findings suggest that rumination in individuals with Generalized Anxiety Disorder is influenced by a complex interplay of self-related, cognitive, and emotional factors. Integrative self-knowledge and mentalization appear to function as protective resources that reduce rumination both directly and indirectly through increased psychological flexibility and distress tolerance. These results support transdiagnostic perspectives emphasizing the central role of repetitive negative thinking in psychopathology (McEvoy et al., 2013; Zetsche et al., 2018). Furthermore, they highlight the importance of addressing underlying psychological processes rather than focusing exclusively on symptom reduction. By strengthening self-understanding, enhancing mentalization, promoting psychological flexibility, and increasing distress

tolerance, interventions may be able to reduce rumination and improve emotional functioning among individuals with GAD.

Several limitations should be considered when interpreting the findings of this study. First, the cross-sectional and correlational design limits the ability to draw causal conclusions regarding the relationships among the study variables. Second, the sample consisted exclusively of university students diagnosed with Generalized Anxiety Disorder in a single city, which may restrict the generalizability of the findings to other populations and clinical groups. Third, all variables were measured using self-report instruments, increasing the possibility of response biases such as social desirability and common method variance. Finally, although participants met diagnostic criteria for GAD, the potential influence of comorbid psychological conditions and contextual factors was not fully controlled.

Future studies should employ longitudinal and experimental designs to examine the causal relationships among integrative self-knowledge, mentalization, psychological flexibility, distress tolerance, and rumination. Researchers are also encouraged to replicate the model in more diverse populations, including clinical samples from different age groups, cultural backgrounds, and educational levels. Additional investigations could explore the moderating effects of demographic and psychological variables such as gender, symptom severity, social support, and personality traits. Incorporating behavioral, physiological, and clinician-rated measures alongside self-report instruments may also provide a more comprehensive understanding of the mechanisms underlying rumination in anxiety disorders.

The findings suggest that mental health professionals working with individuals experiencing Generalized Anxiety Disorder should consider interventions that strengthen integrative self-knowledge, enhance mentalization abilities, increase psychological flexibility, and improve distress tolerance. Counseling centers and clinical settings may benefit from implementing psychoeducational and therapeutic programs focused on emotional awareness, self-reflection, acceptance-based coping, and resilience-building skills. Structured interventions that help individuals develop a coherent sense of self, understand their internal experiences more effectively, and tolerate emotional discomfort may contribute to meaningful reductions in rumination and overall psychological distress. Such approaches have the potential to improve emotional

regulation, adaptive coping, academic functioning, and quality of life among individuals struggling with chronic anxiety.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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