

Explaining a Model of Obsessive–Compulsive Symptom Severity Based on Perfectionism and Intolerance of Uncertainty, with Emphasis on the Mediating Role of Rumination Among Women Attending Psychological Clinics

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ABSTRACT

The present study aimed to explain a model of obsessive–compulsive symptom severity based on perfectionism and intolerance of uncertainty, with emphasis on the mediating role of rumination among women attending psychological clinics. In terms of its nature, this study was descriptive–applied, and methodologically, it employed a correlational design based on path analysis. The statistical population consisted of all women attending psychological clinics in Bandar Abbas in 2025 who had been diagnosed with obsessive–compulsive disorder (OCD) by a psychiatrist or clinical psychologist. The study sample was selected through convenience sampling. Accordingly, five active psychological clinics located in different areas of Bandar Abbas were selected, and 50 eligible women were recruited from each clinic, resulting in a total sample of 250 participants. The instruments included the Obsessive–Compulsive Inventory developed by Foa et al. (2002), the Multidimensional Perfectionism Scale developed by Hewitt and Flett (1991), the Intolerance of Uncertainty Scale developed by Freeston et al. (1994), and the Ruminative Responses Scale developed by Nolen-Hoeksema and Morrow (1991). The data were analyzed using descriptive and inferential statistics in SPSS version 27 and path analysis in AMOS. The findings indicated that rumination played a significant mediating role in the relationship between perfectionism and obsessive–compulsive symptom severity, as well as in the relationship between intolerance of uncertainty and obsessive–compulsive symptom severity ($p < .01$). These findings suggest that perfectionism and intolerance of uncertainty may exacerbate obsessive–compulsive symptoms among women attending psychological clinics through increased rumination, highlighting the need for further investigation of these mechanisms.

Keywords: obsessive–compulsive symptoms, perfectionism, intolerance of uncertainty, rumination, women.

1. Introduction

Obsessive-compulsive disorder (OCD) is a complex and frequently debilitating psychological disorder characterized by recurrent, intrusive, and unwanted thoughts, images, or impulses, together with repetitive behaviors or mental acts performed to reduce distress or prevent feared consequences. Beyond the categorical diagnosis itself, obsessive-compulsive symptoms can be conceptualized dimensionally, because their severity varies substantially across individuals and across symptom domains such as checking, washing, ordering, obsessing, hoarding, and neutralizing. The dimensional assessment of such symptoms has therefore become important in both clinical research and psychological practice. The development of psychometrically sound instruments, including the Obsessive-Compulsive Inventory and its short-form measures, has facilitated the systematic evaluation of symptom severity and has contributed to a more precise understanding of individual differences in obsessive-compulsive phenomena (Foa et al., 2002). From a contemporary psychopathological perspective, obsessive-compulsive symptoms are not considered the product of a single cognitive or emotional factor; rather, they appear to emerge from the interaction of dispositional vulnerabilities, maladaptive beliefs, cognitive processing styles, and repetitive regulatory strategies. Consequently, identifying the mechanisms through which relatively stable cognitive-personality characteristics are translated into greater symptom severity is essential for developing more integrative explanatory models.

Among the psychological variables repeatedly associated with obsessive-compulsive symptoms, perfectionism occupies a particularly important position. Perfectionism is a multidimensional construct involving the setting of excessively high standards, rigid expectations regarding personal performance, heightened sensitivity to mistakes, and, in maladaptive forms, the tendency to evaluate self-worth according to the attainment of unrealistic standards. Although striving for excellence may sometimes be adaptive, maladaptive perfectionism is distinguished by inflexibility, excessive self-criticism, fear of failure, and a persistent discrepancy between expected and perceived performance. These characteristics are theoretically relevant to OCD because individuals with obsessive-compulsive tendencies often experience an exaggerated need to perform actions correctly, avoid mistakes, attain certainty, and prevent potentially harmful outcomes. Comparative research

has indicated that dimensions of perfectionism differ meaningfully between individuals with OCD and nonclinical populations, supporting the proposition that perfectionistic tendencies may represent an important cognitive-personality vulnerability for obsessive-compulsive psychopathology (Nekounam, 2014). Similarly, patients with OCD have been found to exhibit distinctive patterns of perfectionism relative to individuals with other psychological disorders, further suggesting that perfectionistic cognition may contribute specifically to the development or maintenance of obsessive-compulsive symptomatology (Nemati Vanashi & Saliminia, 2018).

The relevance of perfectionism to obsessive-compulsive symptoms has been supported in both clinical and nonclinical research. Structural models have demonstrated that maladaptive perfectionism can contribute to obsessive-compulsive manifestations directly and through additional cognitive vulnerabilities. For example, a model of obsessive-compulsive disorder based on maladaptive perfectionism and parental psychological control has provided evidence that rigid perfectionistic tendencies constitute an important component of the broader cognitive architecture underlying obsessive-compulsive symptoms (Vakili Haris et al., 2020). Likewise, research examining metacognitive beliefs and perfectionism in adolescents with OCD has shown that perfectionistic beliefs are significantly related to obsessive symptoms, indicating that perfectionism may intensify the monitoring, interpretation, and control of intrusive cognitions (Sadeghi Ahouei et al., 2023). Developmental evidence also suggests that trajectories of perfectionism are associated with obsessive-compulsive personality traits and obsessive-compulsive symptoms across adolescence, implying that perfectionistic tendencies may become increasingly relevant as cognitive control demands and self-evaluative standards consolidate over time (Sametoğlu et al., 2022). These findings reinforce the view that perfectionism should not merely be regarded as a correlate of OCD, but as a potentially important antecedent or maintaining factor.

The association between perfectionism and obsessive-compulsive symptoms has also been confirmed at the meta-analytic level. A meta-analysis examining perfectionism in relation to anxiety, depression, and obsessive-compulsive symptoms among young people found meaningful associations between maladaptive perfectionistic dimensions and OCD-related symptomatology (Lunn et al., 2023). More recently, a systematic review and meta-analysis in adults similarly demonstrated significant relationships between perfectionism and symptoms of depression,

anxiety, and OCD, providing stronger cumulative evidence for perfectionism as a transdiagnostic vulnerability that is nevertheless highly relevant to obsessive-compulsive phenomena (Callaghan et al., 2024). Importantly, perfectionism may also operate within more specific symptom networks. For instance, research on relationship obsessive-compulsive symptoms has indicated that different dimensions of perfectionism are related to obsessive concerns in close relationships and that psychological capacities such as ego strength may partly account for these associations (Dehaghain et al., 2023). In addition, research on body image concern in girls has shown that obsessive-compulsive symptoms and perfectionism jointly contribute to maladaptive body-related concerns, suggesting that perfectionistic standards may interact with obsessive cognitive processes across multiple domains of functioning (Ahmadi Golsafidi et al., 2021). The role of perfectionism in obsessive-compulsive symptomatology therefore appears broad, multidimensional, and potentially mediated by other maladaptive cognitive processes.

Another major cognitive vulnerability implicated in obsessive-compulsive symptoms is intolerance of uncertainty. Intolerance of uncertainty refers to a dispositional tendency to perceive uncertain, ambiguous, or unpredictable situations as stressful, threatening, or unacceptable, regardless of the actual probability of a negative outcome. Individuals high in intolerance of uncertainty are more likely to react to ambiguity with worry, anticipatory anxiety, cognitive avoidance, excessive information seeking, and repeated attempts to achieve certainty. Such tendencies are especially relevant to obsessive-compulsive symptoms because compulsive checking, reassurance seeking, repeated mental review, and ritualized behavior can all be understood as efforts to reduce uncertainty and obtain a subjective sense of completeness or safety. Research comparing individuals with OCD and healthy controls has shown that intolerance of uncertainty is significantly elevated among those with obsessive-compulsive problems, highlighting its role as a potentially central cognitive vulnerability (Nekounam, 2014). Furthermore, studies of nonclinical and clinical symptom models indicate that intolerance of uncertainty may act not only as an independent correlate of OCD but also as an intervening mechanism connecting perfectionistic beliefs to obsessive-compulsive symptom expression (Vakili Haris et al., 2019).

The psychological consequences of intolerance of uncertainty extend beyond OCD and may help explain why

it represents a broad vulnerability factor for emotional disorders. Among female students, intolerance of uncertainty has been identified as an important determinant of anxiety and depressive symptoms, whereas mindfulness appears to function in an opposing, potentially protective direction (Nekić & Mamić, 2019). Research with women working in essential and critical sectors has similarly shown that intolerance of uncertainty is meaningfully related to psychological adjustment, suggesting that difficulties tolerating unpredictability can impair adaptation in contexts characterized by stress and changing demands (Wigunawati et al., 2023). In women undergoing infertility treatment, where uncertainty regarding treatment success and future reproductive outcomes is especially salient, intolerance of uncertainty has also been linked to psychological distress and reduced capacity to tolerate emotionally difficult circumstances (Öztürk Serter & Balci Çelik, 2025). These findings are particularly relevant to studies focused on women because they demonstrate that intolerance of uncertainty can become highly consequential in populations exposed to repeated ambiguity, perceived lack of control, and emotionally charged decision-making.

Within OCD specifically, intolerance of uncertainty may increase symptom severity by making intrusive thoughts and ambiguous situations more difficult to tolerate. An individual who is unable to accept doubt may experience an ordinary intrusive thought as requiring resolution, verification, or neutralization. This process can produce repeated checking, cognitive review, reassurance seeking, and other compulsive strategies designed to eliminate uncertainty. Recent evidence among female students has demonstrated a significant relationship between intolerance of uncertainty and obsessive-compulsive symptoms, supporting the proposition that reduced tolerance for ambiguity may contribute directly to greater obsessive-compulsive symptomatology (Khorasanian & Manzouri Shirejini, 2025). Moreover, perfectionism and intolerance of uncertainty appear to interact conceptually: perfectionism creates a demand that outcomes, decisions, or behaviors meet exact standards, while intolerance of uncertainty makes it difficult to accept any residual doubt regarding whether those standards have been achieved. In relationship-centered obsessive-compulsive symptoms, both perfectionism and intolerance of uncertainty have been shown to mediate the relationship between early maladaptive schemas and obsessive-compulsive concerns involving relationships and partners (Toroslu & Çirakoğlu, 2023). Such findings indicate that perfectionism and intolerance of uncertainty

may represent complementary cognitive processes within obsessive-compulsive psychopathology.

Nevertheless, direct associations between perfectionism, intolerance of uncertainty, and obsessive-compulsive symptoms do not fully explain how these vulnerabilities are transformed into persistent symptom patterns. One potentially critical intervening process is rumination. Rumination refers to repetitive, passive, and perseverative thinking focused on distress, its causes, its meaning, or its possible consequences. Unlike deliberate problem solving, rumination typically does not produce effective resolution; instead, it maintains attention on distressing material, reinforces negative affect, and interferes with flexible cognitive disengagement. In obsessive-compulsive presentations, repetitive internal analysis may be particularly difficult to distinguish from compulsive mental behavior. Individuals may repeatedly analyze the meaning of intrusive thoughts, review past events, examine whether they acted correctly, or attempt to determine with certainty whether a feared interpretation is true. Contemporary clinical work has emphasized that rumination in response to repugnant or ego-dystonic obsessions can function as a subtle mental compulsion, sustaining the obsessive-compulsive cycle even when overt rituals are absent (Gagné & Wong, 2025). This perspective makes rumination especially important for understanding symptom severity because repetitive mental processing may serve as a mechanism through which underlying vulnerabilities become prolonged and behaviorally consequential.

Rumination is also theoretically linked to perfectionism. Perfectionistic individuals tend to engage in repeated self-evaluation, comparison between actual and ideal performance, post-event analysis, and cognitive fixation on errors or perceived inadequacies. When personal standards are rigid and mistakes are interpreted as significant failures, disengaging from performance-related thoughts may become increasingly difficult. Empirical research among women has demonstrated significant structural relationships between perfectionism and rumination, while psychological flexibility appears capable of moderating this association (Memarzadeh et al., 2025). These findings suggest that perfectionistic thinking does not necessarily lead directly to psychological symptoms in every individual; instead, the tendency to remain cognitively entangled with perceived mistakes or discrepancies may determine the extent to which perfectionism becomes maladaptive. Similarly, research examining negative perfectionism and bulimia nervosa among employed women has shown that rumination can

mediate the association between perfectionistic tendencies and psychopathological outcomes, supporting the broader proposition that repetitive negative thinking constitutes a mechanism through which perfectionism is translated into symptom severity (Rakhshan Haghighifard & Azad Yekta, 2026).

The mediating function of rumination has also been documented in relation to other forms of psychological distress that share cognitive characteristics with OCD. A structural model of social anxiety based on maladaptive perfectionism and maladaptive cognitive emotion regulation strategies demonstrated that rumination plays an important mediating role between maladaptive perfectionistic tendencies and social anxiety (Haddadi & Tamannaefar, 2023). Likewise, recent research examining obsession-related processes has shown that perfectionism, social anxiety, and rumination may operate simultaneously as mediating mechanisms within more complex models of obsessive tendencies (Çelik & Koç, 2025). Together, these studies suggest that rumination may not merely coexist with perfectionism and obsessive symptoms; rather, it may constitute a process that maintains attention on threatening, incomplete, or self-critical cognition and thereby magnifies emotional distress. In an individual with perfectionistic beliefs, for example, an intrusive doubt concerning whether an action was performed correctly may trigger repeated internal review. Such rumination may heighten the subjective importance of the doubt, make certainty more difficult to attain, and ultimately increase the likelihood of compulsive behavior.

Rumination may also be closely connected to intolerance of uncertainty. When an individual perceives uncertainty as unacceptable, unresolved questions can remain cognitively active for prolonged periods. Rather than allowing doubt to persist, the person may repeatedly analyze possible explanations, anticipate negative outcomes, examine evidence, or mentally rehearse scenarios in an attempt to reach certainty. Paradoxically, this strategy can prolong rather than resolve uncertainty because repetitive thought generates additional possibilities and further doubt. The relationship between perfectionism and intolerance of ambiguity has recently been demonstrated in a model of depressive symptoms among female university students, in which intolerance of ambiguity functioned as a mediator between perfectionism and depression (Dehghani Dolatabadi et al., 2026). Although depression and OCD differ phenomenologically, such findings are relevant because they demonstrate how rigid standards may interact

with difficulty tolerating uncertain or ambiguous internal experiences and thereby contribute to psychopathology. Within OCD, a comparable mechanism may operate in which perfectionistic demands for correctness and intolerance of unresolved doubt stimulate rumination, which in turn intensifies obsessive-compulsive symptoms.

A broader consideration of perfectionism in psychopathology further supports the importance of examining indirect cognitive pathways. Research on orthorexia nervosa has shown that perfectionism mediates the relationship between obsessive-compulsive symptoms and traits involving pathological preoccupation with healthy eating, illustrating the central role of perfectionistic cognition in connecting obsessive tendencies with rigid behavioral patterns (Greville-Harris et al., 2024). Similarly, maladaptive perfectionism has been shown to relate to interpersonal problems through obsessive-compulsive symptoms in adolescents, indicating that obsessive manifestations can themselves function as mechanisms through which perfectionistic vulnerabilities affect broader psychosocial functioning (Hefazi Torghabeh et al., 2025). These findings imply that perfectionism, rumination, uncertainty intolerance, and obsessive-compulsive symptoms are best understood within interconnected networks rather than as isolated variables. A structural approach capable of estimating direct and indirect pathways is therefore particularly appropriate for clarifying their relative contributions.

The importance of such an integrative approach is further strengthened by the observation that previous studies have often examined these variables in separate combinations. Some investigations have focused on perfectionism and OCD (Sadeghi Ahouei et al., 2023; Vakili Haris et al., 2020), whereas others have emphasized intolerance of uncertainty in relation to obsessive-compulsive symptoms (Khorasanian & Manzouri Shirejini, 2025; Vakili Haris et al., 2019). Other studies have investigated perfectionism and rumination in relation to different psychological outcomes (Haddadi & Tamannaefar, 2023; Memarzadeh et al., 2025; Rakhshan Haghighifard & Azad Yekta, 2026). Still others have highlighted the broader role of uncertainty intolerance in psychological distress among women (Nekić & Mamić, 2019; Öztürk Serter & Balcı Çelik, 2025; Wigunawati et al., 2023). Although these findings provide a strong theoretical basis for the proposed relationships, fewer studies have simultaneously examined perfectionism and intolerance of uncertainty as antecedent variables, rumination as a mediating cognitive process, and obsessive-compulsive

symptom severity as the principal outcome within a single path model, particularly among women receiving psychological services.

This research gap is clinically important because women attending psychological clinics may present with complex and mutually reinforcing patterns of perfectionistic self-evaluation, difficulty tolerating uncertainty, repetitive negative thinking, and obsessive-compulsive symptomatology. A model that clarifies the relative direct and indirect effects of these variables can potentially improve case conceptualization by distinguishing distal cognitive-personality vulnerabilities from proximal maintaining mechanisms. For example, if perfectionism and intolerance of uncertainty exert substantial indirect effects on obsessive-compulsive symptoms through rumination, therapeutic interventions may need to target not only perfectionistic standards and maladaptive beliefs about uncertainty but also the repetitive cognitive processing that maintains their influence. Such a formulation is compatible with current conceptualizations of rumination as an often covert compulsive response to obsessional distress (Gagné & Wong, 2025) and with evidence showing that perfectionistic processes are consistently associated with obsessive-compulsive symptom severity across age groups and clinical contexts (Callaghan et al., 2024; Lunn et al., 2023). It also extends previous structural research by bringing together cognitive vulnerability and repetitive thinking mechanisms within a unified explanatory framework.

Accordingly, examining these relationships in women diagnosed with OCD who attend psychological clinics may provide both theoretical and applied contributions. Theoretically, it can clarify whether rumination constitutes a mechanism through which perfectionism and intolerance of uncertainty are associated with greater obsessive-compulsive symptom severity. Clinically, the findings may help identify specific cognitive targets that can be incorporated into assessment, formulation, and intervention. Existing evidence concerning the role of perfectionism in obsessive-compulsive phenomena (Dehaghain et al., 2023; Sametoğlu et al., 2022), the contribution of intolerance of uncertainty to obsessive-compulsive symptoms (Khorasanian & Manzouri Shirejini, 2025; Toroslu & Çirakoğlu, 2023), and the mediating function of rumination across psychological disorders (Çelik & Koç, 2025; Memarzadeh et al., 2025) collectively provides a coherent empirical basis for such a model. Therefore, the present study aimed to explain the severity of obsessive-compulsive

symptoms based on perfectionism and intolerance of uncertainty, with emphasis on the mediating role of rumination among women attending psychological clinics.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a descriptive–correlational design using a path analysis approach. The statistical population consisted of all women attending psychological clinics in Bandar Abbas in 2025. Given the limitations associated with accessing all clients and the limited cooperation of psychological clinics, random sampling and recruitment from the entire target population were not feasible. Therefore, convenience sampling was employed. Under this sampling method, individuals who were accessible and willing to participate in the study were recruited. To determine the sample size, considering the correlational nature of the study and the application of structural equation modeling, the rule of thumb proposed by Kline (1998) was applied. According to Kline, an appropriate sample size for path analysis should be approximately 10 times the number of parameters in the model, whereas an ideal sample size would be approximately 20 times the number of parameters. Furthermore, according to researchers such as Hoogland and Boomsma (1998) and Kline (2005), a minimum sample size of 200 participants is recommended for structural equation modeling. Accordingly, to enhance internal validity and ensure more precise parameter estimation, a sample size of 250 participants was considered adequate for the present study.

The inclusion criteria were as follows: (1) participants had to be women who attended psychological clinics in Bandar Abbas in 2025 and had received a diagnosis of obsessive–compulsive disorder from a psychiatrist or clinical psychologist; (2) participants had to be between 25 and 45 years of age to maintain age homogeneity within the sample; and (3) participants had to demonstrate sufficient willingness to participate in the study and provide informed consent to complete the questionnaires. The exclusion criteria were as follows: (1) questionnaires that were completed incompletely, with more than 10% of the items left unanswered, were excluded from statistical analysis; and (2) questionnaires demonstrating careless or noncooperative response patterns, such as selecting the same response option for all items, were excluded from the analysis.

2.2. Measures

A) Obsessive–Compulsive Symptom Severity

Questionnaire: The Obsessive–Compulsive Inventory was developed by Foa et al. (2002) to assess the severity of obsessive–compulsive symptoms and was translated and standardized in Iran by Mohammadi et al. (2008). The questionnaire consists of 18 items and six subscales: washing, checking, obsessing, ordering, hoarding, and neutralizing. Responses are rated on a five-point Likert scale ranging from *not at all* (0) to *extremely* (4). The total possible score ranges from 0 to 72, with higher scores indicating greater severity of obsessive–compulsive symptoms. Foa et al. (2002) reported a Cronbach's alpha coefficient of .89 for the total questionnaire. In Iran, Mohammadi et al. (2008) reported a Cronbach's alpha coefficient of .90 for the questionnaire. In the present study, the reliability of the instrument, assessed using Cronbach's alpha, was .88.

B) Perfectionism Questionnaire: The Multidimensional Perfectionism Scale was developed by Hewitt and Flett (1991) to assess different dimensions of perfectionism and was translated and standardized in Iran by Abdollahpour et al. (2009). The questionnaire consists of 45 items and three subscales: self-oriented perfectionism (15 items), other-oriented perfectionism (15 items), and socially prescribed perfectionism (15 items). Responses are rated on a seven-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7). The total possible score ranges from 45 to 315, with higher scores indicating higher levels of perfectionism. Hewitt and Flett (1991) reported Cronbach's alpha coefficients ranging from .70 to .88 for the subscales. In the study by Abdollahpour et al. (2009), a Cronbach's alpha coefficient of .87 was obtained for the total scale. In the present study, the reliability of the instrument, assessed using Cronbach's alpha, was .86.

C) Intolerance of Uncertainty Questionnaire: The Intolerance of Uncertainty Scale was developed by Freeston et al. (1994) to assess individuals' intolerance of ambiguous and unpredictable situations and was translated and standardized in Iran by Khazaei et al. (2016). The questionnaire consists of 27 items rated on a five-point Likert scale ranging from *not at all characteristic of me* (1) to *entirely characteristic of me* (5). The total possible score ranges from 27 to 135, with higher scores indicating greater intolerance of uncertainty. Freeston et al. (1994) reported a Cronbach's alpha coefficient of .89 and confirmed the content and construct validity of the instrument. In the study

by Khazaei et al. (2016), a Cronbach's alpha coefficient of .87 was obtained for the total questionnaire. In the present study, the reliability of the instrument, assessed using Cronbach's alpha, was .85.

D) Rumination Questionnaire: The Ruminative Responses Scale was developed by Nolen-Hoeksema and Morrow (1991) to assess repetitive and passive responses to distress and was translated and standardized in Iran by Pourshahriari et al. (2009). The questionnaire consists of 22 items rated on a four-point Likert scale ranging from *almost never* (1), *sometimes* (2), and *often* (3) to *almost always* (4). The total possible score ranges from 22 to 88, with higher scores indicating higher levels of rumination. Nolen-Hoeksema and Morrow (1991) reported a Cronbach's alpha coefficient of .89 for the scale. In Iran, Pourshahriari et al. (2009) reported a Cronbach's alpha coefficient of .88. In the present study, the reliability of the instrument, assessed using Cronbach's alpha, was .87.

2.3. Interventions

After the required administrative permissions had been obtained and eligible participants had been selected, the first experimental group received the Positive Youth Development Program in 12 two-hour sessions conducted twice weekly. The intervention was designed to promote personal, interpersonal, cognitive, emotional, and behavioral competencies associated with healthy adolescent development. The initial session introduced the concept, objectives, and principles of positive youth development and familiarized participants with the structure and expectations of the program. Subsequent sessions addressed socialization skills and constructive participation in social environments, spiritual competencies and the development of meaning and personal values, goal setting and systematic planning, creative thinking, critical thinking, and the evaluation of alternative perspectives. The program also included training in physical self-care, recognition of health-promoting behaviors, empathy, emotional understanding, intimacy, and the establishment of supportive interpersonal relationships. Additional sessions focused on effective communication, assertive expression, active listening, constructive interaction with peers and family members, and the enhancement of self-esteem. The final components of the intervention emphasized self-regulation, behavioral monitoring, emotional control, persistence, and self-efficacy. Throughout the sessions, instructional explanations were combined with group discussions, practical exercises,

role-playing activities, behavioral assignments, and review of participants' experiences. Students were encouraged to apply the acquired competencies to real academic and social problems between sessions and to discuss the outcomes of these applications during subsequent meetings.

The second experimental group received Chang's social-cognitive problem-solving skills training in 12 two-hour sessions held twice weekly. This intervention was based on the assumption that effective problem solving depends on both a constructive cognitive orientation toward problems and the systematic use of rational problem-solving strategies. The initial sessions introduced the concepts of a problem, problem-solving processes, and the influence of thoughts, emotions, and behavioral responses on the way individuals confront challenging situations. Participants were then trained to develop a positive problem orientation by perceiving problems as manageable challenges rather than uncontrollable threats. Particular attention was given to strengthening problem-solving self-efficacy, identifying maladaptive beliefs, and modifying negative attitudes such as helplessness, pessimism, avoidance, impulsivity, and fear of failure. The subsequent sessions focused on defining problems accurately and concretely, distinguishing facts from interpretations, identifying personal and environmental barriers, and establishing realistic and attainable goals. Participants were taught to generate multiple alternative solutions without premature judgment and to employ flexible and creative thinking when considering possible responses. Decision-making skills were subsequently addressed through the systematic evaluation of the advantages, disadvantages, feasibility, short-term consequences, and long-term consequences of each proposed solution. The later sessions focused on selecting, implementing, monitoring, and verifying the most appropriate solution, as well as revising ineffective plans when necessary. Participants repeatedly practiced all stages of the problem-solving process using hypothetical situations and real academic, interpersonal, and social difficulties encountered in their daily lives. Homework assignments, guided practice, cognitive restructuring exercises, feedback, and review of completed problem-solving tasks were used to consolidate the skills. During the same period, the control group received no psychological or educational intervention and remained on a waiting list. All three groups completed the outcome measure at pretest, immediately after completion of the interventions, and at a two-month follow-up assessment.

2.4. Data Analysis

In the present study, SPSS version 26 and AMOS were used for data analysis. Data analysis was conducted at both descriptive and inferential statistical levels. At the descriptive level, indices including mean, standard deviation, frequency, and percentage were used to describe the characteristics of the sample and the main study variables. At the inferential level, statistical assumptions were first examined, including the normality of the data distribution using the Kolmogorov–Smirnov test, followed by Pearson’s correlation coefficient to examine the preliminary relationships among the variables. In the main analysis, path analysis using AMOS was employed to test the mediating role of rumination in the relationships of perfectionism and intolerance of uncertainty with obsessive–compulsive symptom severity. This method allowed the

simultaneous examination of direct and indirect relationships, and the bootstrap method was used to assess the statistical significance of the mediating effects.

3. Findings and Results

Table 1 presents the descriptive statistics, including means and standard deviations, together with the correlation matrix for perfectionism, intolerance of uncertainty, rumination, and obsessive–compulsive symptoms. As shown, the correlations of perfectionism, intolerance of uncertainty, and rumination with obsessive–compulsive symptoms were positive and statistically significant at the .01 alpha level ($p < .01$). The positive correlation coefficients indicate direct relationships between perfectionism, intolerance of uncertainty, and rumination and the severity of obsessive–compulsive symptoms.

Table 1

Descriptive Statistics and Correlation Matrix of the Study Variables

Variable	Mean	SD	1	2	3	4
1. Perfectionism	171.52	13.879	1			
2. Intolerance of uncertainty	82.69	7.109	.616**	1		
3. Rumination	46.48	8.087	.645**	.678**	1	
4. Obsessive–compulsive symptoms	48.10	8.142	.588**	.598**	.627**	1

To test the proposed research model, path analysis using the maximum likelihood estimation method was conducted in AMOS. Prior to performing path analysis, univariate outliers were examined using boxplots, while multivariate outliers were identified using Mahalanobis distance; identified outliers were excluded from the dataset. The skewness and kurtosis of the distributions of the study variables were calculated using SPSS. The results indicated that none of the skewness or kurtosis values exceeded the ± 1 range. Data normality was assessed using the Kolmogorov–Smirnov test. The results indicated that the scores for all four variables included in the model were normally distributed ($p > .05$). The assumption of independence of errors was examined using the Durbin–Watson statistic in estimating

the regression equations of the proposed model, and the obtained value confirmed that this assumption was satisfied. The assumption of multicollinearity among variables was initially evaluated using Pearson correlations between pairs of variables. Given that bivariate correlations of .90 or higher are generally indicative of multicollinearity, no such problem was identified in the present dataset. In addition, tolerance statistics and variance inflation factors (VIFs) were calculated to assess multiple multicollinearity. The results indicated that none of the tolerance values were below the acceptable threshold of .10 and none of the VIF values exceeded the acceptable threshold of 10. Accordingly, these two indices provided no evidence of problematic multicollinearity in the data.

Figure 1

Standardized coefficients of the model examining the mediating role of rumination in the relationships of perfectionism and intolerance of uncertainty with obsessive–compulsive symptoms.

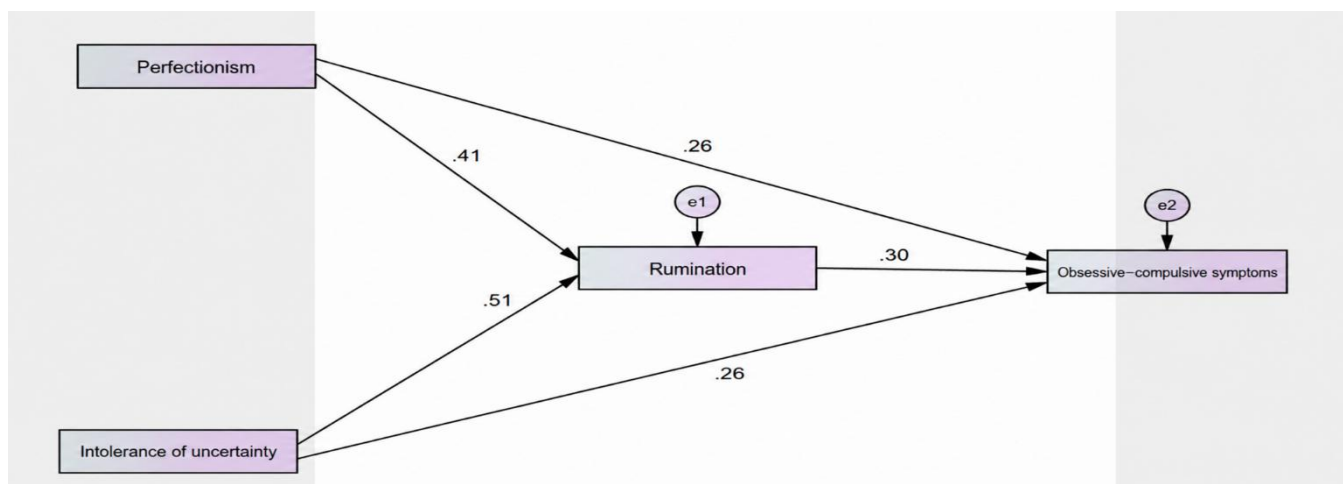


Figure 1 presents the standardized coefficients of the proposed model examining the mediating role of rumination in the relationships of perfectionism and intolerance of

uncertainty with obsessive–compulsive symptoms. The model fit indices are presented in the following table.

Table 2

Goodness-of-Fit Indices for the Tested Research Model

Fit Index	Acceptable Range	Observed Value	Evaluation
χ^2/df	≤ 5	2.961	Acceptable
IFI	$> .90$	.928	Acceptable
RMSEA	$< .08$	.071	Acceptable
SRMR	$< .08$	.062	Acceptable
CFI	$> .90$	.926	Acceptable
NFI	$> .90$	.924	Acceptable
GFI	$> .90$	.932	Acceptable

Table 2 presents the model fit indices. The chi-square-to-degrees-of-freedom ratio (χ^2/df) supported the adequacy of the model fit, as the obtained value fell within the acceptable range of 1 to 5, indicating consistency between the proposed model and the observed data. The root mean square error of approximation (RMSEA) was reported as approximately .072, and the standardized root mean square residual

(SRMR) was .062; both values were below the criterion of .08 and therefore supported an acceptable model fit. The IFI, CFI, GFI, and NFI values were also greater than the recommended criterion of .90. Taken together, the obtained indices indicated a satisfactory fit of the proposed model to the data.

Table 3

Direct, Indirect, and Total Effects and Explained Variance of the Study Variables

Predictor Variable	Outcome Variable	Direct Effect	Indirect Effect	Total Effect	Explained Variance
Perfectionism	Rumination	.410**	—	.410**	.426
Intolerance of uncertainty	Rumination	.508**	—	.508**	.426
Perfectionism	Obsessive–compulsive symptoms	.265**	.124**	.388**	.375
Intolerance of uncertainty	Obsessive–compulsive symptoms	.262**	.153**	.415**	.375
Rumination	Obsessive–compulsive symptoms	.301**	—	.301**	.375

Table 3 presents the direct, indirect, and total effects among the variables included in the model. According to the findings, perfectionism ($\beta = .410, p < .01$) and intolerance of uncertainty ($\beta = .508, p < .01$) had significant positive direct effects on rumination. Perfectionism exerted both a significant direct effect on obsessive-compulsive symptoms ($\beta = .265, p < .01$) and a significant indirect effect through the mediating role of rumination ($\beta = .124, p < .01$). Intolerance of uncertainty similarly exerted both a significant direct effect on obsessive-compulsive symptoms ($\beta = .262, p < .01$) and a significant indirect effect through rumination ($\beta = .153, p < .01$). Rumination also had a significant positive direct effect on obsessive-compulsive symptoms ($\beta = .301, p < .01$).

4. Discussion

The present study aimed to explain the severity of obsessive-compulsive symptoms based on perfectionism and intolerance of uncertainty, with emphasis on the mediating role of rumination among women attending psychological clinics. The findings showed that perfectionism, intolerance of uncertainty, and rumination were all positively and significantly correlated with obsessive-compulsive symptoms. In addition, perfectionism and intolerance of uncertainty had significant positive direct effects on rumination. Perfectionism had both a significant direct effect on obsessive-compulsive symptoms and a significant indirect effect through rumination. Likewise, intolerance of uncertainty exerted both a significant direct effect on obsessive-compulsive symptoms and a significant indirect effect through rumination. Rumination itself also had a significant positive direct effect on obsessive-compulsive symptoms. Overall, the findings supported the proposed model and indicated that rumination functions as an important mediating cognitive mechanism through which perfectionism and intolerance of uncertainty may contribute to greater obsessive-compulsive symptom severity.

The first major finding was that perfectionism had a significant positive direct effect on obsessive-compulsive symptoms. This result is consistent with previous research demonstrating a close relationship between perfectionistic tendencies and obsessive-compulsive symptomatology. Meta-analytic findings have shown that maladaptive dimensions of perfectionism are significantly associated with OCD symptoms in both younger and adult populations (Callaghan et al., 2024; Lunn et al., 2023). Similar evidence

has been reported in studies indicating that perfectionism is related to obsessive symptoms among adolescents with OCD (Sadeghi Ahouei et al., 2023) and that maladaptive perfectionism contributes to structural models of obsessive-compulsive disorder (Vakili Haris et al., 2020). Comparative findings have also shown that individuals with OCD differ from nonclinical groups in levels and dimensions of perfectionism (Nekounam, 2014), while patients with OCD have demonstrated distinctive perfectionistic characteristics in comparison with individuals experiencing depressive disorders (Nemati Vanashi & Saliminia, 2018). Developmental research has further suggested that growth trajectories of perfectionism are associated with obsessive-compulsive traits and symptoms across adolescence (Sametoğlu et al., 2022). Taken together, these findings support the present result that perfectionism constitutes an important cognitive-personality correlate of obsessive-compulsive symptom severity.

This finding may be explained by the rigid cognitive standards characteristic of maladaptive perfectionism. Individuals with high perfectionism may interpret minor errors, incomplete actions, or uncertain outcomes as unacceptable, thereby increasing the likelihood of repeated checking, correcting, reviewing, or neutralizing behaviors. Perfectionistic individuals frequently experience a pronounced discrepancy between how an action was actually performed and how it “should” have been performed. In the context of OCD, such discrepancies may become particularly distressing because the individual may experience doubt regarding whether an action was completed correctly, whether a possible danger was fully prevented, or whether a thought was sufficiently controlled. Consequently, perfectionism can increase both the subjective importance of intrusive cognitions and the perceived necessity of eliminating doubt. The association observed in the present study is therefore theoretically understandable because obsessive-compulsive symptoms often involve a search for completeness, certainty, exactness, and error prevention, all of which overlap conceptually with maladaptive perfectionistic cognition. Previous structural research showing links between perfectionism and relationship-centered obsessive-compulsive symptoms provides additional support for this explanation (Dehaghain et al., 2023; Toroslu & Çirakoğlu, 2023).

The second important finding was that intolerance of uncertainty had a significant positive direct effect on obsessive-compulsive symptoms. This result is consistent

with previous studies indicating that difficulty tolerating ambiguous or unpredictable situations is strongly related to obsessive–compulsive tendencies. Research has shown that individuals with OCD demonstrate greater intolerance of uncertainty than psychologically healthy individuals (Nekounam, 2014). In addition, a pathological model of obsessive–compulsive disorder has indicated that intolerance of uncertainty may play a central role in explaining the association between maladaptive perfectionism and obsessive–compulsive symptoms (Vakili Haris et al., 2019). More recent findings among female students have also demonstrated a significant relationship between intolerance of uncertainty and obsessive–compulsive symptoms (Khorasanian & Manzouri Shirejini, 2025). Furthermore, research on relationship- and partner-related obsessive–compulsive symptoms has shown that intolerance of uncertainty constitutes an important mediating variable within more complex cognitive models of obsessive symptoms (Toroslu & Çirakoğlu, 2023). Thus, the direct positive relationship found in the present study is well aligned with the existing empirical literature.

A possible explanation for this finding is that obsessive–compulsive symptoms often emerge in situations in which certainty cannot realistically be achieved. Everyday experiences commonly contain some degree of ambiguity, yet individuals with high intolerance of uncertainty may perceive even minor doubt as threatening or emotionally unacceptable. When the individual cannot tolerate uncertainty about contamination, responsibility, safety, morality, relationships, or the correctness of an action, compulsive behaviors may become temporary strategies for reducing that discomfort. Repeated checking, reassurance seeking, reviewing memories, or performing rituals can provide short-term relief, but they may simultaneously strengthen the assumption that uncertainty is dangerous and must be eliminated. As a result, the individual may become increasingly dependent on compulsive strategies whenever ambiguity arises. This cycle can intensify obsessive–compulsive symptoms over time. The broader psychological significance of intolerance of uncertainty is also supported by studies linking it with anxiety, depression, reduced adjustment, and distress among women (Nekić & Mamić, 2019; Öztürk Serter & Balcı Çelik, 2025; Wigunawati et al., 2023). These findings suggest that intolerance of uncertainty is not merely an OCD-specific phenomenon but a broader vulnerability that can contribute to emotional dysregulation under conditions of unpredictability.

Another central finding was that perfectionism significantly predicted rumination. This result is consistent with evidence showing that perfectionistic individuals are more likely to engage in repetitive and persistent negative thinking. Research among women has demonstrated significant structural relationships between perfectionism and rumination, with psychological flexibility influencing the strength of this relationship (Memarzadeh et al., 2025). Similarly, rumination has been shown to mediate the relationship between negative perfectionism and psychopathological outcomes among employed women (Rakhshan Haghighifard & Azad Yekta, 2026). In another structural model, maladaptive perfectionism was associated with rumination, which in turn contributed to social anxiety (Haddadi & Tamannaefar, 2023). These findings are consistent with the present study and suggest that rumination may be one of the principal cognitive consequences of rigid perfectionistic self-evaluation.

This relationship can be explained by the way perfectionistic individuals process perceived mistakes and discrepancies. When individuals hold excessively high standards, ordinary imperfections are more likely to be interpreted as meaningful failures. Rather than disengaging from such experiences, they may repeatedly analyze what went wrong, consider what should have happened, mentally rehearse alternative outcomes, and evaluate the possible consequences of their perceived mistakes. This repetitive cognitive process resembles rumination and may become particularly intense when individuals believe that errors are unacceptable or personally significant. In women presenting with obsessive–compulsive symptoms, perfectionistic rumination may focus on whether an action was completed properly, whether an intrusive thought reveals something meaningful about the self, or whether a feared outcome has been adequately prevented. Consequently, perfectionism may establish the rigid cognitive standard, while rumination prolongs attention to perceived violations of that standard.

The finding that intolerance of uncertainty had a significant positive effect on rumination is also theoretically important. Although fewer studies have examined this exact pathway in OCD populations, previous findings support the broader association between difficulty tolerating ambiguity and repetitive negative cognition. Intolerance of uncertainty has been associated with anxiety and depression in female students (Nekić & Mamić, 2019), and recent research has shown that intolerance of ambiguity can serve as a mediator between perfectionism and depressive symptoms among female university students (Dehghani Dolatabadi et al.,

2026). The present findings extend this line of evidence by indicating that when uncertain situations are experienced as unacceptable, individuals may respond by repeatedly thinking about possible explanations, consequences, and solutions. Rumination may therefore represent an attempted cognitive strategy for resolving uncertainty. However, because many uncertainties cannot be completely eliminated through thought, repeated analysis may paradoxically generate additional possibilities, doubts, and concerns, thereby maintaining distress rather than resolving it.

One of the most important findings of the present study was that rumination had a significant positive direct effect on obsessive-compulsive symptoms. This result is supported by recent conceptualizations of rumination as a covert or mental compulsion in OCD. Gagné and Wong emphasized that rumination in response to repugnant obsessions can be particularly difficult to detect because it may appear to be ordinary thinking while actually functioning as an attempt to gain certainty, determine the meaning of an intrusive thought, or neutralize distress (Gagné & Wong, 2025). The present results are also consistent with findings indicating that rumination contributes to obsessive tendencies within multivariable psychological models (Çelik & Koç, 2025). Thus, higher levels of rumination may increase obsessive-compulsive symptom severity by maintaining attentional engagement with intrusive thoughts and by preventing adaptive disengagement from obsessional content.

From a cognitive-behavioral perspective, rumination may intensify obsessive-compulsive symptoms through several mechanisms. First, repetitive analysis increases the salience and accessibility of obsession-related thoughts. Second, continued monitoring of internal experiences may strengthen the belief that intrusive thoughts are important and require resolution. Third, rumination may reduce opportunities for individuals to learn that uncertainty, distress, or unwanted thoughts can naturally diminish without active cognitive control. Fourth, repeated mental review may itself become ritualized, producing short-term relief and thereby becoming negatively reinforced. This mechanism is particularly relevant when obsessions concern moral responsibility, contamination, harm, interpersonal relationships, or taboo thoughts, because such concerns are often impossible to resolve with complete certainty. The greater the effort invested in mentally solving these concerns, the more psychologically dominant they may become.

The mediation findings provide the most integrative contribution of the study. Rumination significantly mediated the relationship between perfectionism and obsessive-compulsive symptoms. This result suggests that perfectionism does not influence obsessive-compulsive symptom severity only through a direct pathway; part of its effect occurs because perfectionistic individuals are more likely to become involved in repetitive negative thinking. This finding is consistent with research demonstrating the mediating role of rumination in the relationship between perfectionistic characteristics and psychological problems (Haddadi & Tamannaefar, 2023; Rakhshan Haghighifard & Azad Yekta, 2026). It is also compatible with evidence showing simultaneous relationships among perfectionism, rumination, and obsession (Çelik & Koç, 2025). Theoretically, perfectionistic standards may increase sensitivity to discrepancies and mistakes, while rumination sustains cognitive attention to these perceived imperfections. In individuals vulnerable to OCD, the combination of rigid standards and persistent mental review may produce repeated doubt and a stronger perceived need for corrective or neutralizing behavior.

Rumination likewise significantly mediated the relationship between intolerance of uncertainty and obsessive-compulsive symptoms. This finding indicates that part of the effect of intolerance of uncertainty may operate through repetitive attempts to cognitively resolve ambiguity. Individuals who find uncertainty intolerable may repeatedly examine possible threats, reconsider past actions, evaluate alternatives, or search internally for a sense of certainty. Such rumination may initially be intended to reduce uncertainty but may ultimately make it more cognitively salient. This interpretation is compatible with previous findings demonstrating that intolerance of uncertainty plays an intervening role within models of obsessive-compulsive symptoms (Toroslu & Çırakoğlu, 2023; Vakili Haris et al., 2019). The present study extends those findings by identifying rumination as an additional mechanism through which intolerance of uncertainty may be translated into greater symptom severity.

The overall pattern of findings suggests that perfectionism, intolerance of uncertainty, and rumination operate as an interconnected cognitive system rather than as isolated predictors. Perfectionism may create a requirement for exactness, correctness, and flawless outcomes, while intolerance of uncertainty may make any residual doubt psychologically difficult to tolerate. Rumination can then function as the cognitive process through which the

individual repeatedly attempts to reconcile these demands. However, because absolute certainty and perfection are generally unattainable, rumination may prolong rather than resolve doubt. Over time, obsessive–compulsive behaviors may become increasingly likely as strategies for obtaining temporary reassurance or relief. This interpretation is consistent with broader research showing that perfectionistic processes are connected with obsessive–compulsive symptoms and associated difficulties across different domains (Ahmadi Golsafidi et al., 2021; Greville-Harris et al., 2024; Hefazi Torghabeh et al., 2025). Accordingly, the present findings support a process-oriented understanding of OCD in which distal cognitive vulnerabilities contribute to symptoms partly through repetitive maladaptive information processing.

The findings also have implications for understanding why individuals with apparently similar levels of perfectionism or uncertainty intolerance may differ in obsessive–compulsive symptom severity. Rumination may represent one mechanism that distinguishes those whose cognitive vulnerabilities remain relatively manageable from those whose symptoms become more persistent and severe. If a perfectionistic individual can tolerate imperfection and disengage from self-evaluative thought, perfectionism may not necessarily result in severe obsessive–compulsive manifestations. Likewise, an individual who dislikes uncertainty but does not repeatedly analyze it may experience distress without developing extensive obsessive–compulsive patterns. In contrast, when perfectionism and intolerance of uncertainty are accompanied by persistent rumination, the individual may remain continuously cognitively engaged with doubts, mistakes, and feared possibilities. This interpretation helps explain why mediation models are especially informative in OCD research, as they identify not only which vulnerabilities are associated with symptoms but also the psychological processes through which these relationships may unfold.

5. Conclusion

The present findings should therefore be interpreted as supporting a multilevel cognitive model of obsessive–compulsive symptom severity. The direct paths from perfectionism and intolerance of uncertainty indicate that both constructs independently contribute to symptoms, whereas the significant indirect paths through rumination demonstrate that repetitive thinking represents an additional mechanism of influence. The substantial positive

relationships among all variables further reinforce the theoretical coherence of the model. Collectively, the findings are consistent with previous studies emphasizing perfectionism as a vulnerability for obsessive–compulsive symptoms (Callaghan et al., 2024; Lunn et al., 2023), intolerance of uncertainty as a factor underlying obsessional distress (Khorasanian & Manzouri Shirejini, 2025; Vakili Haris et al., 2019), and rumination as a repetitive cognitive process capable of maintaining obsessional thinking (Çelik & Koç, 2025; Gagné & Wong, 2025). The results consequently suggest that understanding obsessive–compulsive symptom severity among women attending psychological clinics requires attention not only to what individuals believe about performance and uncertainty but also to how persistently they mentally engage with those beliefs.

The present study has several limitations that should be considered when interpreting its findings. First, the participants were women attending psychological clinics in Bandar Abbas, which restricts the generalizability of the results to men, nonclinical populations, individuals from other geographical regions, and people from different sociocultural backgrounds. Second, convenience sampling was employed because of limitations in access to the target population, and this may have introduced selection bias. Third, the study used a cross-sectional correlational design; therefore, although the proposed path model was theoretically grounded, causal relationships among perfectionism, intolerance of uncertainty, rumination, and obsessive–compulsive symptoms cannot be definitively established. Fourth, the variables were assessed primarily through self-report questionnaires, making the findings potentially susceptible to response bias, social desirability, inaccurate self-perception, and common-method variance. Finally, although the model included several important cognitive variables, other potentially relevant factors such as metacognitive beliefs, thought-action fusion, inflated responsibility, anxiety sensitivity, emotion regulation difficulties, depressive symptoms, and experiential avoidance were not included.

Future studies are recommended to replicate the present model in larger and more diverse samples, including men, adolescents, older adults, nonclinical populations, and individuals from different cultural and geographical contexts. Longitudinal designs would be particularly valuable for determining the temporal ordering of perfectionism, intolerance of uncertainty, rumination, and obsessive–compulsive symptoms and for testing whether

changes in rumination predict subsequent changes in symptom severity. Experimental and intervention studies could further clarify causal mechanisms by examining whether reductions in rumination or increases in tolerance of uncertainty weaken the relationship between perfectionism and obsessive-compulsive symptoms. Future researchers may also compare alternative structural models, investigate moderators such as psychological flexibility, mindfulness, self-compassion, and emotion regulation, and distinguish between adaptive and maladaptive dimensions of perfectionism. It would also be useful to examine different forms of rumination separately, including brooding, reflective pondering, post-event processing, and obsession-focused mental review, to determine which forms are most strongly associated with OCD symptom dimensions.

From a practical perspective, the findings suggest that assessment and psychological intervention for women with obsessive-compulsive symptoms should extend beyond the overt content of obsessions and compulsions to include perfectionistic standards, responses to uncertainty, and repetitive thinking patterns. Clinicians may benefit from assessing whether clients interpret mistakes as unacceptable, demand complete certainty before disengaging from a concern, or use prolonged mental analysis as a strategy for reducing anxiety. Treatment plans could incorporate strategies designed to increase tolerance of imperfection and uncertainty, reduce rigid standards, identify rumination as a potentially covert compulsive process, and strengthen the ability to disengage from repetitive mental review. Psychoeducation may help clients distinguish productive problem solving from unproductive rumination, while behavioral exercises can provide opportunities to experience uncertainty or incompleteness without engaging in corrective rituals. Incorporating these targets into individualized case formulations may improve the precision of interventions and help reduce the cognitive processes that maintain obsessive-compulsive symptom severity.

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

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