





# Effectiveness of a Mentalization-Based Relationship Enrichment Package Compared to Emotionally Focused Couple Therapy on Anxiety Sensitivity, Intolerance of Uncertainty, and Anger Control in Infertile Couples

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### ABSTRACT

**Objective:** This study aimed to develop a Mentalization-Based Relationship Enrichment (MBRE) package and compare its effectiveness with Emotionally Focused Couple Therapy (EFCT) on anxiety sensitivity, intolerance of uncertainty, and anger control among infertile couples.

**Methods and Materials:** This research employed a sequential exploratory mixed-methods design. In the qualitative phase, semi-structured interviews with infertile couples and experts, along with thematic analysis, were used to develop the MBRE package. Content validity was confirmed using CVR and CVI indices. In the quantitative phase, a quasi-experimental pretest-posttest design with a control group and three-month follow-up was conducted. Thirty-six infertile couples were selected purposively and randomly assigned to an MBRE group, an EFCT group, or a control group. Data were collected using the Anxiety Sensitivity Index (ASI), Intolerance of Uncertainty Scale (IUS), and Novaco Anger Scale, and analyzed using repeated-measures ANOVA and Bonferroni post hoc tests.

**Findings:** Repeated-measures ANOVA showed significant group  $\times$  time interaction effects for all three variables ( $p < .001$ ), indicating differential changes over time across conditions. Both MBRE and EFCT produced significant reductions in anxiety sensitivity and significant improvements in intolerance of uncertainty and anger control compared to the control group ( $p < .001$ ). Bonferroni comparisons revealed that EFCT had a stronger effect than MBRE on reducing anxiety sensitivity at posttest and follow-up ( $p < .001$ ). Both interventions maintained their beneficial effects at the three-month follow-up, demonstrating treatment stability over time ( $p < .001$ ).

**Conclusion:** Both MBRE and EFCT effectively reduced anxiety sensitivity and improved intolerance of uncertainty and anger control in infertile couples, with EFCT showing greater impact on anxiety sensitivity. The newly developed MBRE package presents a promising relational and emotional intervention for couples experiencing infertility-related distress.

**Keywords:** Mentalization-Based Relationship Enrichment; Emotionally Focused Couple Therapy; Anxiety Sensitivity; Intolerance of Uncertainty; Anger Control; Infertile Couples

## 1. Introduction

Infertility is widely recognized as one of the most psychologically, emotionally, and relationally distressing life events for couples, exerting profound effects on mental health, marital satisfaction, identity, and social functioning (Soheila et al., 2024; Toope et al., 2025; Vanni et al., 2024). Global evidence suggests that infertility is commonly accompanied by elevated anxiety, depressive symptoms, emotional dysregulation, and increased vulnerability to interpersonal conflict (Olthuis et al., 2024; Rousta et al., 2024; Smits et al., 2024). Studies conducted in various cultural contexts confirm that anxiety sensitivity, intolerance of uncertainty, and anger expression difficulties serve as central psychological responses to infertility, heightening both individual distress and relational strain among couples facing reproductive challenges (Karbalaei et al., 2024; Khajavand et al., 2024; Khajeh Hosseini Rabari et al., 2024). The chronic stress of repeated medical interventions, unmet expectations regarding parenthood, and perceived social stigma can significantly disrupt emotional connectedness, reduce dyadic coping, and weaken marital resilience (Ashimi et al., 2024; Braverman et al., 2024; Garey et al., 2024). Therefore, identifying therapeutic approaches that target the emotional and relational consequences of infertility is a central priority for contemporary psychological research and clinical practice (Araya et al., 2024; Peel et al., 2023; Richard et al., 2023; Warwar, 2023).

Infertility affects an estimated 8–12% of couples worldwide, with substantial variability in prevalence and conceptualization across cultures and health systems (Araya et al., 2024). In many societies, infertility constitutes not only a medical concern but also a sociocultural and gender-laden phenomenon that disproportionately impacts women's psychological wellbeing and social standing (Ashimi et al., 2024; Hassan et al., 2023). Research conducted in low-resource settings, for instance, indicates that infertile women report significantly higher levels of depression and lower self-esteem compared to fertile women, reflecting systemic societal pressures and limited psychosocial support (Akintayo et al., 2022). Moreover, emotional reactions to infertility often unfold within a complex mesh of cultural narratives, gender norms, and interpersonal expectations. These dynamics interact with individual temperament, family systems, and relational communication patterns to shape the couple's experience of infertility and its emotional

consequences (Antequera-Jurado et al., 2023; Fernandes et al., 2023).

Among the most commonly reported psychological difficulties in infertile individuals are anxiety sensitivity, intolerance of uncertainty, and anger dysregulation—constructs that have been identified as transdiagnostic risk factors across multiple forms of distress (Allan et al., 2023). Anxiety sensitivity encapsulates the fear of anxiety-related sensations based on beliefs that these sensations signal harmful physical, cognitive, or social consequences; evidence suggests that elevated anxiety sensitivity amplifies physiological hyperarousal, emotional reactivity, and maladaptive coping (DeWolfe et al., 2023; Jemcov et al., 2023). Research further indicates that anxiety sensitivity contributes not only to anxiety disorders but also to irritability, sleep disturbances, and impaired interpersonal functioning (Li, 2023; Zajenkowska et al., 2019). In infertility contexts, these heightened sensitivities may intensify distress when facing medical uncertainty, treatment failure, or perceived loss of control (Dong et al., 2022). Likewise, intolerance of uncertainty—a dispositional incapacity to tolerate ambiguous or unpredictable situations—plays a central role in infertility-related psychological distress, often resulting in heightened worry, catastrophizing, and emotional exhaustion (Gallagher et al., 2013; Peel et al., 2023). Given that infertility inherently involves unpredictable timelines, uncertain treatment outcomes, and ambiguous prognoses, intolerance of uncertainty can undermine a couple's ability to adapt and maintain emotional stability (Dadhwai et al., 2022).

Anger dysregulation also occupies a critical position in the infertility experience. Evidence from neuroscience and clinical psychology shows that anger and aggression have significant cognitive, emotional, and interpersonal determinants, and are often exacerbated by chronic stress, unmet expectations, and identity-threatening events (Richard et al., 2023). Infertility treatments often impose repeated cycles of hope and disappointment, financial burden, and physical discomfort, which can fuel anger responses and hinder healthy communication patterns in couple relationships (Dong et al., 2022). Additionally, relational research indicates that anger expression patterns, particularly hostile attributions, are closely linked to conflict escalation and diminished relationship satisfaction in distressed couples (Khajeh Hosseini Rabari et al., 2024; Zajenkowska et al., 2019). For infertile couples, therefore, addressing anger regulation is essential for supporting adaptive dyadic coping and preserving relational cohesion.

Given these psychological challenges, numerous therapeutic models have been developed to address the emotional and relational impacts of infertility. Among these, Emotionally Focused Couple Therapy (EFT) and Mentalization-Based Therapy (MBT) have demonstrated effectiveness in improving emotional regulation, attachment security, and interpersonal functioning across diverse populations. EFT emphasizes the identification, processing, and transformation of primary emotional experiences within the couple's interaction cycle, fostering secure bonding and reducing emotional reactivity (Eslami et al., 2022; Toope et al., 2025). Empirical research demonstrates that EFT enhances intimacy, reduces negative emotional patterns, and improves relational satisfaction, even among couples facing major stressors such as infidelity or chronic illness (Khajeh Hosseini Rabari et al., 2024; Warwar, 2023). In particular, EFT has shown significant benefits in reducing anxiety, emotional dysregulation, and hostility in clinical samples, highlighting its relevance for couples managing infertility-related stressors (Karbalaei et al., 2024; Shokrollahi et al., 2021).

MBT, in contrast, centers on enhancing individuals' capacity to understand their own and others' mental states—thoughts, feelings, desires, and intentions—and to reflect upon these states even under emotional strain (Oehlman Forbes et al., 2021; Taubner et al., 2021). Mentalization is considered a core psychological competency that buffers against emotional dysregulation and maladaptive interpersonal responses. Research demonstrates that MBT can significantly improve emotional regulation, reduce aggression, and ameliorate symptoms across disorders characterized by interpersonal instability (Ghafari Cherati et al., 2023; Juul et al., 2023). Moreover, MBT has been adapted for various populations, including adolescents with conduct problems, adults with trauma histories, and parents with relational difficulties (Khajavand et al., 2024; Roustae et al., 2024; Smits et al., 2024). Evidence suggests that cultivating mentalization skills enhances empathy, reduces misinterpretations of partner behavior, and increases the couple's capacity for constructive dialogue—mechanisms highly relevant to infertility-related relational distress (Dong et al., 2022; Soheila et al., 2024).

Emerging research suggests that combining MBT principles with relational-focused interventions may yield particularly strong outcomes for couples navigating complex stressors such as infertility. The ability to reflect on one's internal states, tolerate emotional ambiguity, and accurately interpret a partner's emotional signals may enhance dyadic

coping, strengthen attachment security, and reduce escalatory anger cycles (Garey et al., 2024; Olthuis et al., 2024). Furthermore, clinical evidence shows that MBT improves distress tolerance and reduces impulsive anger responses, which are often intensified in high-stress contexts (Allan et al., 2023; Kremer et al., 2023). As such, integrating mentalization-based relational skills with structured psychoeducational strategies may help infertile couples better regulate emotions, tolerate uncertainty, and maintain relational stability during treatment.

Despite these advances, gaps remain in the literature regarding integrated therapeutic protocols tailored specifically to the psychological needs of infertile couples. While EFT offers strong emotion-processing mechanisms, it may not explicitly target reflective functioning, cognitive-emotional integration, or mentalization capacities. Conversely, MBT does not always address the nuanced emotional bonding processes central to couple functioning. Furthermore, empirical research points to the need for culturally sensitive frameworks that incorporate contextual beliefs, social pressures, and gendered expectations influencing the infertility experience, especially in societies where fertility carries significant cultural value (Araya et al., 2024; Ashimi et al., 2024). The development of a mentalization-based relationship enrichment package may address these gaps by providing a comprehensive relational framework that enhances emotion regulation, promotes reflective dialogue, and reduces maladaptive reactions to infertility-related stress.

Given the central role of anxiety sensitivity, intolerance of uncertainty, and anger control in the emotional functioning of infertile individuals—and the scarcity of structured interventions targeting these mechanisms within couple-based therapeutic formats—new research exploring combined relational-mentalization approaches is warranted. Moreover, comparative studies assessing the differential effects of MBT-based interventions and EFT can provide deeper insight into the mechanisms of change most relevant for infertile couples experiencing emotional distress (Eslami et al., 2022; Smits et al., 2024). Such investigations are essential for informing evidence-based clinical practice and expanding the repertoire of psychosocial interventions tailored to infertility.

Therefore, the aim of the present study is to develop a Mentalization-Based Relationship Enrichment package and compare its effectiveness with Emotionally Focused Couple Therapy on anxiety sensitivity, intolerance of uncertainty, and anger control in infertile couples.

## 2. Methods and Materials

### 2.1. Study Design and Participants

An exploratory mixed-methods design was used in this study, consisting of both qualitative and quantitative components. In the qualitative phase, aimed at developing the Mentalization-Based Relationship Enrichment training package, data were gathered through interviews with experts in psychology, counseling, couple therapy, and infertility, as well as with infertile couples, in addition to reviewing relevant scientific literature. Data analysis was performed using thematic and content analysis, following steps that included extracting concepts, coding, categorizing themes, drafting the initial set of training-package questions, presenting them to 15 experts, receiving feedback, making revisions, and calculating inter-rater agreement. The final version of the training package was then developed.

In the quantitative phase, the study was conducted using a quasi-experimental pretest–posttest design with a control group and a three-month follow-up. The statistical population included all infertile couples attending fertility clinics and specialized pregnancy centers in the city of Ahvaz. The sample was selected purposively according to inclusion and exclusion criteria and consisted of 12 couples in each of the two experimental groups and 12 couples in the control group, who were then randomly assigned to the groups. Inclusion criteria consisted of informed consent, age range 20–45 years, infertility, ability to read and write Persian, and absence of psychological and psychiatric disorders. Exclusion criteria included use of psychiatric medication, absence from more than two sessions, failure to participate in posttest or follow-up phases, pregnancy, development of additional psychiatric disorders, addiction or substance abuse, and the presence of extramarital relationships or severe domestic violence. The study questionnaires were completed by participants at three stages—pretest, posttest, and follow-up—and the effects of the Mentalization-Based Relationship Enrichment package and Emotionally Focused Couple Therapy on anxiety sensitivity, intolerance of uncertainty, and anger control were examined.

### 2.2. Measures

This self-report questionnaire was developed by Floyd et al. in 2005. It contains 16 items rated on a five-point Likert scale (from 0 = very little to 4 = very much). Higher scores indicate greater fear of anxiety-related symptoms. Total

scores range from 0 to 64 (Floyd et al., 2005). The structure of the questionnaire includes three factors: fear of bodily concerns (8 items), fear of cognitive dyscontrol (4 items), and fear of publicly observable anxiety (4 items). Psychometric evaluations of this scale show high internal consistency ranging from .80 to .90. Test–retest reliability was reported as .75 after two weeks and .71 after three years, indicating that it measures a stable personality construct (Reiss et al., 1986). In an Iranian sample, internal consistency, test–retest reliability, and split-half reliability were .93, .95, and .97, respectively. Concurrent validity was assessed through simultaneous administration with the SCL-90, yielding a correlation of .56. Correlations with total scores were satisfactory, ranging from .74 to .88. Cronbach's alpha reported in the present study was .815.

This questionnaire consists of 27 items and was developed by Freeston et al. (1994) to assess individuals' emotional, cognitive, and behavioral reactions to uncertain situations. It is scored on a five-point Likert scale (from 5 = completely true to 1 = completely false). The questionnaire includes the following components: Inability to act: items 1, 9, 12, 13, 14, 15, 20, 22, 25; The stressful nature of uncertainty: items 2, 3, 4, 5, 6, 7, 17, 24, 26; Negative appraisal of unexpected events and avoidance: items 8, 10, 11, 19, 21; Uncertainty about the future: items 16, 18, 23, 27. Freeston et al. (1994) reported satisfactory reliability for this scale. Buhr and Dugas (2002) reported a Cronbach's alpha of .94 for the scale (Buhr et al., 2002). The English version was validated by Carleton et al. (2006). Correlations between this scale and the Penn State Worry Questionnaire ( $r = .60$ ), the Beck Depression Inventory ( $r = .59$ ), and the Beck Anxiety Inventory ( $r = .55$ ) were significant (as cited in Besharat et al., 2015). In Iran, construct, convergent, and discriminant validity were assessed by administering the Beck Anxiety Inventory (BAI; Beck et al., 1993), the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990), the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), and the Mental Health Inventory (MHI-28; Besharat, 2009). Pearson correlations indicated significant positive associations between intolerance of uncertainty and anxiety, negative affect, and psychological distress (.43 to .62,  $p < .001$ ), and significant negative associations with positive affect and psychological well-being (–.41 to –.57,  $p < .001$ ). These results confirmed convergent and discriminant validity. Preliminary confirmatory factor analysis supported two factors: rejection and avoidance of uncertainty, and inhibitory uncertainty (Besharat et al., 2015). Besharat (2010) also reported Cronbach's alpha



coefficients of .87 for the rejection/avoidance factor, .87 for the inhibitory uncertainty factor, and .89 for the total score (as cited in Besharat et al., 2015). Cronbach's alpha in the present study was .912.

The Novaco Anger Scale was originally developed by Novaco in 1994 and later revised into its current form. It consists of 25 items, each describing a situation that elicits varying levels of anger. The scale has five subcomponents that reflect the degree of individual arousal, with items scored from 0 to 4. Total scores range from 0 to 100. The scale was administered in Los Angeles to 1,546 participants across various age groups, regardless of gender; reliability was reported as .96 and validity as .86 (Novaco, 1998, as cited in Mahmoudi, 2016). Mokhtar Malekpour et al. (2012) conducted a psychometric evaluation of the Novaco Anger Scale among university students in Isfahan. Test validity was assessed using correlations with the Buss–Perry Aggression Questionnaire, content validity evaluation, and factor analysis. Reliability using Cronbach's alpha and test–retest methods was .86 and .73, respectively, and validity (correlation with Buss–Perry, 1992) was .78. Content validity was confirmed by five experts in psychology, counseling, and sociology, and factor analysis further supported validity. Mahmoudi (2016) also reported reliability of .87 and validity of .81 among middle-school students, with factor-analytic confirmation. Cronbach's alpha in the present study was .846.

### 2.3. Interventions

The Mentalization-Based Relationship Enrichment (MBRE) protocol consists of ten structured sessions designed specifically for infertile couples and focuses on enhancing emotional awareness, strengthening mutual understanding, and improving adaptive relational functioning through mentalization and mindfulness skills. Session 1 introduces infertility-related psychological, emotional, physical, and social challenges and teaches foundational concepts of mentalization and emotion regulation, with couples writing daily feelings and concerns. Session 2 teaches recognition of core emotions—fear, anger, sadness, and shame—and helps partners observe emotional reactions without judgment. Session 3 explores culturally shaped beliefs, gender role expectations, and family pressures related to infertility, encouraging couples to identify and reconsider unhelpful beliefs. Session 4 focuses on relationship facilitators and barriers such as empathy, mutual support, avoidance, blame, and resistance to change,

using mentalization to reduce misunderstandings. Session 5 formally introduces mentalization skills such as recognizing one's own and the partner's thoughts, feelings, and intentions, and applying these skills to anger regulation. Session 6 incorporates mindfulness practices including breath awareness and body-scan exercises to strengthen present-moment attention and emotional self-regulation in interactions. Session 7 teaches recognition and modification of maladaptive relational behaviors—such as denial, emotional withdrawal, and blame—by replacing them with adaptive responses like open communication and supportive engagement. Session 8 focuses on managing anxiety, anger, and uncertainty through cognitive and somatic mentalization-based techniques and mindful acceptance of distress without avoidance. Session 9 strengthens empathy, emotional expression, and constructive communication through guided dialogues about needs and vulnerabilities. Session 10 reviews all acquired skills, evaluates improvements in anxiety sensitivity, intolerance of uncertainty, and anger control, and helps couples develop a personalized plan to maintain mentalization, mindfulness, and relational intimacy over time.

The Emotionally Focused Couple Therapy (EFCT) protocol, based on Johnson (2010), consists of ten weekly 90-minute sessions that aim to restructure emotional interactions, create secure attachment bonds, and transform maladaptive relational cycles. Session 1 establishes rapport, clarifies treatment motivation, and builds therapeutic alliance. Session 2 identifies problematic interactional patterns and attachment barriers while forming a shared understanding of the presenting issues. Session 3 explores significant attachment-related experiences and helps partners access unacknowledged primary emotions. Session 4 focuses on clarifying key emotional responses and aligning the therapist's formulation with clients' lived emotional cycles. Session 5 deepens emotional expression, enhances recognition of attachment needs, and fosters acceptance of both partners' core emotional states. Session 6 further expands emotional engagement, promotes self-focused rather than partner-blaming dialogue, and reframes attachment injuries. Session 7 supports restructuring of interactional cycles and helps partners articulate previously suppressed desires and longings. Session 8 consolidates new interaction patterns and facilitates the discovery of novel solutions to longstanding relational problems. Session 9 strengthens intimate engagement, promotes acceptance of emerging relational roles, and supports the development of secure attachment and a shared positive relational narrative.

Session 10 finalizes the therapeutic process by integrating past and present interactional patterns, highlighting relational growth, and affirming partners' confidence in sustaining emotional vitality independently of the therapist.

#### 2.4. Data Analysis

In the qualitative phase, the Content Validity Ratio (CVR) and Content Validity Index (CVI) were used for assessing the content validity of the training package. In the quantitative phase, data were analyzed at both descriptive and inferential levels. At the descriptive level, indices such as frequency, percentage, mean, and standard deviation were used. At the inferential level, the Shapiro–Wilk test was used to examine the normality of data distribution, Levene's test for equality of variances, and Mauchly's test to assess sphericity. Subsequently, repeated-measures ANOVA with Bonferroni post hoc tests was used to compare the effectiveness of the Mentalization-Based Relationship Enrichment package and Emotionally Focused Couple Therapy on anxiety sensitivity, intolerance of uncertainty, and anger control.

### 3. Findings and Results

To examine the validity of the Mentalization-Based Relationship Enrichment package among infertile couples and to evaluate its potential effects on reducing anxiety sensitivity, increasing intolerance of uncertainty, and improving anger control, the complete content of the training sessions was developed following the qualitative interviews and analysis of theoretical and empirical literature. Subsequently, the session outlines, along with two content

evaluation forms, were provided to 15 experts in psychology, couple therapy, and family counseling. In one form, the overall validity and appropriateness of the Mentalization-Based Relationship Enrichment package with respect to the study objectives were assessed; in the second form, each expert evaluated the structure, goals, and activities of each session separately. To quantitatively assess their views, the experts' responses were recorded using a 1–10 rating scale so that the mean score for each session and the overall content validity index of the package could be calculated.

The experts' evaluations indicated that the Mentalization-Based Relationship Enrichment package demonstrated appropriate content validity for infertile couples. Based on their assessments, the content of the sessions was aligned with the study objectives—namely, reducing anxiety sensitivity, enhancing intolerance of uncertainty, and improving anger control. It is important to note that, given the participation of 15 expert evaluators, a Content Validity Ratio (CVR) above .49 and a Content Validity Index (CVI) above .70 were considered acceptable thresholds. Data analysis showed that these indices fell within the acceptable range for all components of the package.

After content validity was confirmed, the training package was implemented in a preliminary study with four infertile couples. The aim of this pilot phase was to evaluate the practical applicability and appropriateness of the session content, as well as the comprehensibility and feasibility of mentalization exercises in couple interactions. A summary of the results from this preliminary implementation is presented in Table 1.

**Table 1**

*Descriptive findings from the preliminary study of the Mentalization-Based Relationship Enrichment package on study variables*

Variables	Phase	N	Mean	SD
Anxiety Sensitivity	Pretest	4	51.6	8.25
	Posttest	4	43.9	7.14
	Follow-up	4	44.1	7.96
Intolerance of Uncertainty	Pretest	4	61.2	6.98
	Posttest	4	50.05	6.12
	Follow-up	4	51.3	6.44
Anger Control	Pretest	4	65.3	5.48
	Posttest	4	59.4	4.33
	Follow-up	4	60.1	4.90

The results presented in Table 1 show that implementing the Mentalization-Based Relationship Enrichment package in the preliminary phase resulted in changes in the mean

scores of the study variables. Based on the obtained data, participants' anxiety sensitivity decreased, while intolerance of uncertainty and anger control improved. However, to

determine the statistical significance of these changes, inferential statistical tests (such as repeated-measures ANOVA) were required in the next stage. Overall, the direction of the observed changes suggests that the developed package produced positive effects on psychological indices relevant to infertile couples' relationships and can be used as an effective program to improve interaction quality and couple adjustment.

The minimum age of participants in this study was 28 and the maximum was 40 years. Given the significance level greater than .05, no significant difference was found among the three groups, indicating age homogeneity across groups. The minimum duration of marriage among participants was 5 years and the maximum was 8 years. Similarly, based on a significance level greater than .05, no significant difference was observed among the groups, indicating homogeneity in marital duration.

**Table 2**

*Results of multivariate repeated-measures ANOVA for study variables*

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta <sup>2</sup>
Factor (Within-Subjects)	348414.9	2.24	154969.1	3181.4	.001	.987
Factor × Group	10103.3	4.49	2252.9	46.2	.001	.688
Error (Within-Subjects)	4599.5	94.4	48.7	—	—	—
Group (Between-Subjects)	280.4	2	140.2	3.57	.037	.145
Error (Between-Subjects)	1648.6	69	39.2	—	—	—

The results of the repeated-measures ANOVA indicate that the interaction effects of group and measurement time on the study variables are statistically significant.

**Table 3**

*Bonferroni Test for Comparing the Three Groups on Anxiety Sensitivity*

Subscale	Research Phase	Group 1	Group 2	Mean Difference	Significance Level
Anxiety Sensitivity	Pretest	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	0.8	1
		Mentalization-Based Enrichment Package	Control	0.466	1
		Emotionally Focused Couple Therapy	Control	−0.33	1
	Posttest	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	*11.6	.001
		Mentalization-Based Enrichment Package	Control	*22.9	.001
		Emotionally Focused Couple Therapy	Control	*11.2	.001
	Follow-up	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	*11.8	.001
		Mentalization-Based Enrichment Package	Control	*24.1	.001
		Emotionally Focused Couple Therapy	Control	*12.3	.001

Intolerance of Uncertainty	Pretest	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	-0.266	1
		Mentalization-Based Enrichment Package	Control	0.6	1
		Emotionally Focused Couple Therapy	Control	0.866	1
	Posttest	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	-2.10	.15
		Mentalization-Based Enrichment Package	Control	*-8.46	.001
		Emotionally Focused Couple Therapy	Control	*5.13	.001
	Follow-up	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	2.16	.14
		Mentalization-Based Enrichment Package	Control	*-8.93	.001
		Emotionally Focused Couple Therapy	Control	*-3.80	.001
Anger Control	Pretest	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	0.266	1
		Mentalization-Based Enrichment Package	Control	0.466	1
		Emotionally Focused Couple Therapy	Control	0.2	1
	Posttest	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	-0.133	1
		Mentalization-Based Enrichment Package	Control	*-6.60	.001
		Emotionally Focused Couple Therapy	Control	*6.46	.001
	Follow-up	Mentalization-Based Enrichment Package	Emotionally Focused Couple Therapy	-0.133	1
		Mentalization-Based Enrichment Package	Control	*-7.20	.001
		Emotionally Focused Couple Therapy	Control	*-7.06	.001

\*p<0.01

The data presented in the intergroup comparison table show that, in the pretest phase, there were no statistically significant differences among the “Emotionally Focused Couple Therapy,” “Relationship Enrichment Package,” and “Control” groups ( $p > .05$ ). This finding indicates that participants in the three groups were in relatively similar conditions regarding the variables under investigation before the interventions were administered.

In the posttest phase, the significance levels between the experimental groups and the control group were below .05 ( $p < .05$ ), indicating statistically significant differences. Accordingly, both interventions—Emotionally Focused Couple Therapy and the Mentalization-Based Relationship Enrichment package—showed substantial effectiveness in reducing symptom severity compared with the control group. Additionally, in this phase, Emotionally Focused Couple Therapy demonstrated greater effectiveness than the enrichment package in reducing anxiety sensitivity.

A similar pattern was observed in the follow-up phase; both experimental groups continued to show significant

differences compared with the control group ( $p < .05$ ). However, differences between the two therapeutic interventions were statistically significant only for anxiety sensitivity ( $p < .05$ ). This result indicates that the therapeutic effects remained stable and consistent over time.

#### 4. Discussion

The present study examined the effectiveness of a Mentalization-Based Relationship Enrichment (MBRE) package in comparison with Emotionally Focused Couple Therapy (EFCT) on anxiety sensitivity, intolerance of uncertainty, and anger control among infertile couples. The results demonstrated that both interventions significantly reduced anxiety sensitivity and improved intolerance of uncertainty and anger regulation, with EFCT showing a stronger effect on anxiety sensitivity during the posttest and follow-up phases. The MBRE package, specifically tailored to address the emotional and relational complexities of infertility, also produced meaningful improvements,



indicating its potential as a beneficial intervention for couples under reproductive stress. These findings are consistent with growing empirical evidence emphasizing the centrality of Emotionally Focused and mentalization-based processes in addressing psychological distress and relational dysfunction among individuals experiencing chronic stressors such as infertility (Toope et al., 2025). The observed reductions in anxiety sensitivity align with transdiagnostic models suggesting that targeted intervention on emotional awareness, cognitive appraisal, and interpersonal processing can significantly diminish maladaptive anxiety responses (Allan et al., 2023).

The improvements in anxiety sensitivity following EFCT support existing literature highlighting the importance of emotion-processing mechanisms, attachment restructuring, and experiential deepening in reducing maladaptive fear responses and physiological hyperarousal. EFCT's structured focus on accessing and transforming primary emotional experiences appears particularly effective in reducing cognitive and somatic fears associated with anxiety sensitivity, parallels that resonate with the mechanisms of change outlined in research on panic disorder and anxiety-related constructs (Gallagher et al., 2013). Moreover, studies examining emotional dysregulation among individuals facing infertility indicate that unresolved emotional distress magnifies cognitive concerns and heightens reactivity to anxiety cues (Fernandes et al., 2023), which may explain the superior effects of EFCT in the present study. Similar findings have been documented in studies on marital distress, where emotion-centered interventions show significant reductions in avoidance, cognitive distortions, and physiological tension (Khajeh Hosseini Rabari et al., 2024).

However, the MBRE package also produced significant reductions in anxiety sensitivity, which aligns with evidence from MBT-based interventions demonstrating that strengthening reflective functioning—through understanding emotional intentions, distinguishing mental states, and enhancing attentional self-regulation—reduces anxiety-driven hypervigilance and catastrophic interpretations of bodily sensations (Smits et al., 2024). Research on mentalization therapy in adolescents with emotional and behavioral difficulties shows consistent reductions in anxiety, reactivity, and emotional misinterpretation when reflective functioning is enhanced (Taubner et al., 2021). Similarly, investigations into MBT for trauma-focused populations indicate that mentalization helps individuals reinterpret distress signals more

adaptively, thereby decreasing fear responses and promoting emotional clarity (Olthuis et al., 2024). These mechanisms appear to be activated similarly in infertile couples using the MBRE package in the present study.

The improvements in intolerance of uncertainty across both intervention groups also align with prior studies noting that infertility inherently evokes uncertainty about identity, future planning, social expectations, and relational stability (Araya et al., 2024). The MBRE model, by incorporating mindfulness elements, cognitive-emotional integration, and attentional flexibility, likely helped participants develop a more adaptive approach to life unpredictability. The results correspond with evidence that mentalization-based approaches enhance an individual's capacity to evaluate thoughts and feelings accurately, reducing worst-case scenario thinking and fostering greater tolerance for ambiguity (Khajavand et al., 2024). Similarly, research shows that difficulty tolerating uncertainty exacerbates infertility-related distress and relationship conflict (Dadhwaj et al., 2022), a pattern that interventions in the present study partially resolved.

EFCT also exhibited meaningful improvements in intolerance of uncertainty, although with smaller effect sizes compared to anxiety sensitivity outcomes. This is consistent with studies showing that emotional bonding, secure attachment framing, and deepening emotional awareness can indirectly improve tolerance for uncertainty by reinforcing relational stability and safety (Eslami et al., 2022). Additionally, research confirms that addressing emotional schema disruptions and attachment fears enhances individuals' capacity to manage unpredictable situations such as fertility treatments or medically complex reproductive journeys (Karbalaei et al., 2024). The emotional restructuring characteristic of EFCT may have reinforced participants' ability to manage stressful ambiguity by strengthening perceived relational support and reducing maladaptive worry cycles.

With respect to anger control, both interventions produced statistically significant improvements, demonstrating their utility in addressing emotional dysregulation linked to infertility-related distress. Infertility commonly triggers heightened anger, frustration, and irritability due to perceived loss of reproductive autonomy, societal expectations, and repeated cycles of hope and disappointment (Ashimi et al., 2024; Hassan et al., 2023). The MBRE package's incorporation of mentalization and mindfulness likely helped participants develop increased awareness of their internal emotional states and enhance

capacity to interpret partner behavior accurately, reducing misattributions and defensiveness. These results correspond with previous studies indicating that mentalization therapy decreases aggressive tendencies and increases emotional regulation capacity in distressed individuals (Ghafari Cherati et al., 2023).

Furthermore, the enhanced anger control observed in EFCT participants is consistent with emotionally focused interventions that decrease emotional threat responses, reduce reactivity, and promote secure attachment bonds (Warwar, 2023). Research suggests that improved emotional attunement and validation—core EFCT processes—function as buffers against hostile attributions and reactive anger (Zajenkowska et al., 2019). EFCT's focus on helping partners engage vulnerability, articulate unmet needs, and process attachment injuries appears to promote more constructive emotional expression and reduce conflict escalation. These processes have been noted in studies on couples facing severe relational stressors, including infidelity, trauma, chronic illness, and relational separation (Khajeh Hosseini Rabari et al., 2024).

The consistency of results across variables suggests that infertility-related distress is deeply intertwined with emotional dysregulation, cognitive rigidity, and relational insecurity, and that interventions targeting emotional integration and interpersonal understanding are especially beneficial. Psychological research highlights infertility as a chronic emotional stressor that disrupts cognitive appraisals, increases hypervigilance to internal cues, and negatively affects the couple's relational dynamics (Dong et al., 2022). These findings align with global meta-analytic evidence showing substantial psychological burden among infertile individuals, including elevated anxiety, depression, hostility, and decreased quality of life (Braverman et al., 2024; Kremer et al., 2023). Moreover, studies indicate that social stigma, cultural expectations, and gender norms significantly intensify psychological distress, especially in women experiencing infertility, increasing vulnerability to internalizing and externalizing symptoms (Akintayo et al., 2022; Yokota et al., 2022). The results of the present study, therefore, highlight the importance of relationally oriented interventions that address interpersonal functioning and emotional wellbeing simultaneously.

The comparison between the MBRE and EFCT groups suggests that although both interventions are effective, EFCT may exert stronger influence on anxiety sensitivity due to its direct engagement with emotional processing, experiential deepening, and attachment-based vulnerability.

This pattern is supported by experimental findings in anxiety-prone populations showing that deeply processing and transforming emotional experiences leads to substantial reductions in cognitive fears and physiological reactivity (Shokrollahi et al., 2021). Meanwhile, the MBRE package appears particularly helpful for enhancing mentalization, reducing misinterpretations of partner behavior, and improving emotional clarity—all of which support improved anger control and tolerance of uncertainty. These distinctions reflect theoretical differences: EFCT focuses on emotional transformation, while MBRE emphasizes reflective functioning and cognitive-emotional integration. Yet both share a central focus on relational patterns, making them well-suited for couples under reproductive stress.

Furthermore, the results underscore the importance of integrating culturally sensitive therapeutic frameworks in infertility care. Studies conducted in culturally diverse settings highlight the profound influence of cultural norms, familial expectations, and social stigma on emotional functioning during infertility (Ashimi et al., 2024; Vanni et al., 2024). Interventions that address these contextual pressures—as the MBRE package does during early sessions—may be particularly relevant in societies where parenthood is strongly tied to identity and social value. Moreover, the increasing global attention to mentalization-based interventions across multiple contexts, including trauma, parent-child relationships, and medical stressors, reinforces the utility of MBT principles in addressing infertility-related psychological distress (Dong et al., 2022; Rousta et al., 2024; Soheila et al., 2024).

## 5. Conclusion

Overall, the findings illustrate that infertility is best conceptualized as an emotional and relational crisis that affects couples' cognitive, affective, and interpersonal functioning, and that interventions enhancing emotion regulation, reflective capacity, and relational communication are highly effective. The convergence of results across MBRE and EFCT suggests that therapeutic approaches addressing both intrapersonal and interpersonal processes can substantially improve psychological wellbeing and relationship quality in infertile couples.

## 6. Suggestions and Limitations

This study has several limitations. The sample size was relatively small, which may limit the generalizability of the findings. The study relied on self-report measures, which

may introduce response biases such as social desirability or underreporting of distress. The participants were recruited from a specific geographic and cultural context, which may limit generalizability to more diverse populations. In addition, the follow-up period of three months, although informative, may not fully capture the long-term sustainability of therapeutic gains. Finally, the study did not include observational assessments of couple interaction, which could have provided more objective data on relational changes.

Future research should examine larger and more diverse samples to improve generalizability and explore cross-cultural differences in infertility-related distress and therapeutic outcomes. Longitudinal studies with extended follow-up periods are recommended to assess the durability of intervention effects over time. Future work may also compare MBRE and EFCT with additional therapeutic models, including cognitive-behavioral, integrative, or mindfulness-based interventions, to clarify the mechanisms of change unique to each approach. Incorporating qualitative interviews or observational coding of couple interactions could provide richer insights into how relational patterns evolve during treatment. Studies exploring the role of gender, cultural background, and treatment history may shed further light on moderating factors influencing intervention effectiveness.

Practitioners working with infertile couples can benefit from integrating mentalization and Emotionally Focused techniques to enhance emotional awareness, tolerance of uncertainty, and constructive communication. Infertility clinics may incorporate relationally oriented psychosocial programs alongside medical treatment to address emotional and interpersonal burdens. Therapists may tailor interventions by combining experiential emotional work with mentalization strategies to target both emotional reactivity and reflective functioning. Finally, psychoeducational programs can support couples in navigating the uncertainty and emotional intensity of infertility while strengthening relational resilience.

### Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

### 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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