



# The Effectiveness of Metacognitive Therapy on Rumination, Self-concept, and Perceived Social Support in Women with Generalized Anxiety Disorder

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## Abstract

**Background:** Metacognitive therapy (MCT) is an evolving therapeutic approach that has shown promise in the treatment of generalized anxiety disorder (GAD). Accordingly, this study aimed to assess the impact of MCT on rumination, self-concept, and perceived social support (PSS) in women diagnosed with GAD.

**Methods:** The current quasi-experimental study was conducted using a pre-test-post-test design with a control group. The statistical population consisted of women diagnosed with GAD in Tehran in 2022. The research sample comprised 36 women with GAD, selected through purposive sampling and allocated into an experimental group (n=18) and a control group (n=18). The experimental group underwent ten 90-minute sessions of MCT, while the control group received no intervention. Data were collected through questionnaires to assess GAD symptoms, rumination, self-concept, and PSS. The collected data were analyzed using multivariate analysis of covariance (MANCOVA) via SPSS version 24.

**Results:** The findings indicated that MCT led to a significant decrease in rumination from  $53.61 \pm 3.25$  to  $48.94 \pm 3.45$  ( $P < 0.001$ ) and an increase in self-concept from  $70.55 \pm 2.87$  to  $74.16 \pm 2.74$  ( $P < 0.001$ ) among women diagnosed with GAD. Additionally, the dimensions of PSS were significantly enhanced: support from significant others increased from  $15.72 \pm 1.34$  to  $18.50 \pm 1.20$  ( $P < 0.001$ ), family support increased from  $17.78 \pm 1.22$  to  $20.50 \pm 1.91$  ( $P < 0.001$ ), and support from friends increased from  $16.22 \pm 1.74$  to  $19.01 \pm 1.30$  ( $P < 0.001$ ).

**Conclusion:** The findings from this study underscore the potential of MCT as a tailored intervention for enhancing well-being and reducing anxiety in individuals diagnosed with GAD, highlighting its relevance for clinical practice and future research endeavors.

**Keywords:** Metacognitive therapy, Rumination, Self-concept, Perceived social support, Generalized anxiety disorder

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## Introduction

Generalized anxiety disorder (GAD) is a globally prevalent condition, affecting millions worldwide (1). Amidst the diverse array of individuals grappling with anxiety, women stand out as a distinct demographic group facing unique challenges (2). This introduction delves into the intricate realm of women with GAD, exploring the multifaceted aspects of their experiences, the societal context influencing their mental health, and the imperative need for a nuanced understanding and support system (3). GAD is defined as persistent and disproportionate worry concerning diverse facets of life, frequently surpassing specific triggers (4). Women, statistically more prone to anxiety disorders than men, navigate the intricate interplay of biological, psychological, and sociocultural factors that contribute to

the development and manifestation of GAD (5).

In the context of GAD, one recurring and often insidious pattern that significantly impacts the lived experiences of women is the phenomenon of rumination (6). Characterized by persistent and repetitive thoughts focused on perceived threats, worries, or negative aspects of one's life, rumination plays a pivotal role in amplifying the challenges faced by women grappling with GAD (7). This exploration delves into the intricate nature of rumination in the context of women's mental health, unraveling its impact on the disorder's severity and duration as well as the overall quality of life (8). Rumination, a hallmark feature of GAD, is often described as a cognitive process involving the uncontrollable repetition of negative thoughts. Women with GAD may find themselves trapped



in a cycle of overthinking, replaying distressing scenarios, and anticipating future problems, perpetuating a state of chronic anxiety (9). The cognitive nature of rumination distinguishes it from normal problem-solving, rendering it a maladaptive coping mechanism that exacerbates the symptoms of GAD (10). Merino et al (6) found that multiple mediation analyses indicate worry acts as a mediator between neuroticism and anxiety symptoms in various patient groups. Conversely, brooding rumination seems to mediate the relationship between neuroticism and depressive symptoms in GAD patients.

At the intersection of mental health and personal identity lies a profound exploration of self-concept, a facet acutely influenced by the intricate nature of GAD (11). Women grappling with GAD often find themselves entangled in a complex dilemma between their sense of self and the pervasive worries that characterize the disorder (12). This exploration seeks to unravel the multifaceted dimensions of self-concept in the context of women with GAD, delving into its impact on self-perception, interpersonal relationships, and the ongoing journey toward mental well-being (13). Self-concept, the amalgamation of beliefs and perceptions an individual holds about themselves, becomes a focal point of inquiry when examining the experiences of women with GAD (14). The relentless nature of anxiety, characterized by persistent worry and apprehension, influences the way these women view themselves (15). The perpetual self-doubt and fear of inadequacy that accompany GAD may lead to a distorted self-concept, with implications for self-esteem and overall mental well-being (16). Kusec et al (11) found that in logistic regressions, elevated intolerance of uncertainty and lower self-concept clarity were strongly correlated with severe GAD symptoms.

In the intricate landscape of mental health, the role of social support is a critical thread that weaves through the experiences of individuals grappling with GAD (17). Women, disproportionately affected by GAD, find themselves navigating a labyrinth of emotions where the perceived quality of their social support can significantly impact the course of their disorder (18). This exploration delves into the nuanced interplay between perceived social support (PSS) and the well-being of women with GAD, shedding light on the multifaceted nature of their interpersonal relationships and the implications for mental health (19). PSS pertains to an individual's subjective assessment of the availability and sufficiency of support from their social network (20). For women with GAD, the quality of this perceived support plays a pivotal role in shaping their coping mechanisms, resilience, and overall mental health outcomes (21). The complex dilemma between the need for reassurance and understanding and the fear of burdening others underscores the delicate balance these women must strike in seeking and maintaining social support (22).

The impact of PSS extends beyond emotional well-being, influencing the severity and duration of GAD symptoms (23). A robust support network can serve as a buffer against the stressors that trigger anxiety, providing a sense of security and validation (24). Conversely, a perceived lack of support or feelings of social isolation can intensify the symptoms of GAD, creating a self-reinforcing cycle of heightened anxiety and impaired coping mechanisms (25). Barnett et al (19) showed anxiety in both men and women was linked to lower social support due to reduced expressiveness. In men, anxiety was also associated with lower PSS through decreased preciseness. For women, this connection was mediated by lower verbal aggressiveness and higher emotionality.

Metacognitive therapy (MCT) is an evolving therapeutic approach that has shown promise in the treatment of GAD (26). Developed by Wells (27), MCT operates on the premise that it is not the content of thoughts but the processes governing thinking that contribute to anxiety disorders (28). MCT focuses on metacognition, which refers to thinking about thinking, with an emphasis on challenging maladaptive metacognitive beliefs and processes (29). By honing in on the cognitive processes that perpetuate the cycle of anxiety, MCT seeks to equip individuals with effective coping mechanisms and empower them to manage and mitigate the impact of GAD on their lives (30). Studies have indicated promising outcomes for MCT in treating GAD (31,32). Moreover, MCT has been proven to be effective in reducing worry severity, anxiety symptoms, and associated cognitive distortions in individuals with GAD (33,34). Accordingly, the present study examines the effectiveness of MCT as an intervention for women with GAD. It focuses on disrupting maladaptive thinking patterns and improving coping mechanisms by targeting metacognitive processes, aiming to address the multifaceted challenges faced by women with GAD.

## Methods

The present quasi-experimental study was carried out using a pre-test-post-test design with a control group. The study population consisted of women with GAD seeking assistance at psychological and counseling centers in the fifth district of Tehran, Iran in 2022.

The GAD questionnaire was administered to the participants for accurate patient identification, following a review of the records of 87 women diagnosed with GAD. Among these individuals, 36 women were randomly selected through a lottery and allocated to an experimental group (n = 18) and a control group (n = 18). The sample size was determined using G\*Power (35) software, considering the guidelines for sample size in covariance analysis. Parameters for determining sample size included an effect size of 0.5, an alpha level of 0.05, and a power of 0.80. The inclusion criteria were obtaining

the designated cut-off score on the anxiety questionnaire, not undergoing psychological interventions, residing in Tehran, and having literacy skills. The exclusion criteria were missing more than two treatment sessions and worsening of anxiety symptoms.

To conduct the study, coordination was established with the managers of psychology and counseling centers. Initially, participants were given general information, and upon obtaining their consent, they enrolled in the study. Concerning ethical principles, participants were assured that their data would be analyzed collectively.

### Tools

#### *Generalized Anxiety Disorder Scale (GAD-7)*

The GAD-7 was developed by Spitzer et al (36). This scale has 7 items on a Likert scale ranging from 0 (not at all) to 3 (nearly every day). The total score ranges from 0 to 21. A score higher than 11 indicates the presence of GAD in a person. Spitzer et al (36) reported a Cronbach's alpha coefficient of 0.92 for the internal consistency of the scale and the test-retest reliability of 0.83. Naeinian et al (37) conducted a study on the reliability and validity of the GAD-7, and Cronbach's alpha coefficient was found to be 0.85. Furthermore, they calculated Cronbach's alpha coefficients for two halves of the scale: 0.81 for the first half and 0.68 for the second half. The correlation coefficient between these two halves was 0.65. In the present study, Cronbach's alpha coefficient of this scale was reported as 0.86.

#### *The Ruminative Responses Scale (RRS)*

This 22-item scale was developed by Nolen-Hoeksema and Morrow in 1991 (38). The items of this scale are scored on a four-point Likert scale from never (1) to always (4), with the total score ranging from 22 to 88. The higher scores indicate higher rumination. Nolen-Hoeksema and Morrow (38) evaluated the content validity of this scale as favorable and reported its reliability using the test-retest method from 0.48 to 0.82. Besides, its reliability was calculated as 0.90 using Cronbach's alpha method. In Iran, Bagherinezhad et al (39) found the Cronbach's alpha coefficient of the scale to be 0.88. In the current study, the Cronbach's alpha coefficient was calculated as 0.87.

#### *Beck Self-concept Test (BST)*

This 25-item test was developed in 1990 by Beck et al (40). The test asks respondents to rate themselves about other people they know on a Likert scale ranging from 1 (low) to 5 (high). The scale showed good internal consistency, with a Cronbach's alpha coefficient of 0.82. The reported test-retest reliability was 0.88 after one week and 0.65 after three months. Furthermore, the internal consistency coefficient for this scale was reported as 0.80 (40). In Iran, the Cronbach's alpha coefficient for this scale was reported to be 0.82, and its face and content validity were

qualitatively confirmed (41). In the present study, the Cronbach's alpha coefficient for this questionnaire was 0.89.

#### *The Multidimensional Scale of Perceived Social Support (MSPSS)*

This 12-item scale was developed by Zimet et al (42), measuring communication quality with family, friends, and significant others. It assesses social reputation, respect, and support from three sources including family, friends, and significant others. Responses range from completely disagree (1) to completely agree (7), yielding a total score between 12 and 84, with higher scores indicating greater PSS (42). Bagherian-Sararoudi et al (43) examined the psychometric properties of the Persian version of the scale in Iran, reporting a Cronbach's alpha coefficient of 0.84 for the overall scale. In the patient sample, the coefficients were 0.90, 0.93, and 0.85 for the friends, significant others, and family subscales, respectively. In the present study, the Cronbach's alpha coefficients for the subscales were optimal: 0.91 for significant others, 0.83 for family, and 0.84 for friends.

#### *Metacognitive therapy*

In this study, following the pre-test, the experimental group received 10 training sessions of MCT designed by Wells (27), each lasting 90 minutes, conducted weekly over two and a half months. These sessions were administered by a licensed clinical psychologist with expertise in MCT and took place at a designated mental health clinic in Tehran. Subsequently, post-tests were administered to both the experimental and control groups (Table 1).

#### *Statistical analysis*

Data were analyzed using descriptive statistics (mean and standard deviation) and multivariate analysis of covariance (MANCOVA) via SPSS-24. The paired samples t-test was utilized for intragroup comparisons before and after the intervention. In addition, for intergroup comparisons, either before or after the intervention, independent t-tests were employed. The significance level for these tests was set at 0.05.

#### **Results**

The mean age of the participants was  $38.19 \pm 3.71$  years in the experimental group and  $37.94 \pm 4.26$  years in the control group. A chi-square test was performed to compare the experimental and control groups in terms of marital status, education level, occupation, and family history of anxiety. The results showed no significant differences ( $P > 0.05$ ) (Table 2).

Table 3 presents the mean and standard deviation of pre-test and post-test scores for rumination, self-concept, and PSS in women with GAD in both the experimental and control groups. The results of the Shapiro-Wilk test

**Table 1.** Summary of Metacognitive Therapy Sessions (27)

Session	Topic
1	Welcome, discussions about the venue, number of sessions, and duration of each session, rules and regulations of the group, introducing group members, explaining research tools, completing the questionnaires by participants
2	Summarizing the content of the previous session with the help of the members, explaining what the metacognitive model is, dissociative mindfulness techniques, teaching attention and postponing worry, presenting the diagram, presenting the assignment and emphasizing completing the assignment, receiving feedback
3	Discussing positive and negative metacognitive beliefs and practicing them, teaching the technique of broken mindfulness, testing the suppression-non-suppression practice of postponing focused attention on uncontrollable beliefs
4	Receiving feedback from the previous session, reviewing the exercise and assignment of the previous session, challenging with positive and negative metacognitive beliefs, teaching the technique of postponing worry, training and practicing the technique of metacognitive guidance
5	Receiving feedback from the previous session, discussing homework, teaching and practicing free association, presenting homework, receiving feedback
6	Confronting and preventing responses focused on reassuring beliefs, the technique of refocusing attention on safety signs, teaching and practicing the anti-inhibition test, presenting homework
7	Receiving feedback from the previous session, reviewing homework, teaching and practicing the technique of prescribing the wandering mind, teaching tiger assignment practice, presenting assignments, receiving feedback
8	Teaching the technique of making changes in threat monitoring focused on self-awareness beliefs, using verbal and behavioral re-documentation techniques focused on risk beliefs
9	Receiving feedback from the previous session, reviewing homework, teaching and practicing the verbal loop technique, teaching the practice of the rebellious child technique, presenting assignments, receiving feedback, answering the questions raised by the members
10	Training in examining opposing evidence, preparing members to identify the obstacles to using the techniques, concluding the sessions

**Table 2.** The Demographic information of the participants in the experimental and control groups

	Experimental Group		Control Group		P value <sup>a</sup>
	Frequency	Percent	Frequency	Percent	
<b>Marital status</b>					
Married	10	55.6	9	50.0	0.092
Single	8	44.4	9	50.0	
<b>Employment status</b>					
Employed	7	38.9	8	44.4	0.101
Unemployed	11	61.1	10	55.6	
<b>Education level</b>					
Highschool diploma	5	27.7	6	33.4	0.064
Bachelor's degree	9	50.0	8	44.4	
Masters's degree	4	22.3	4	22.2	
<b>Family history of anxiety</b>					
Yes	10	55.6	11	61.1	0.128
No	8	44.4	7	38.9	

<sup>a</sup> Chi-square test.

are also reported to check the normality of the distribution of variables in the two groups. The results showed that the Shapiro-Wilk statistics were not significant for any of the variables, implying that the distribution of variables was normal ( $P > 0.05$ ). According to the pre-test and post-test scores, no significant differences were found between the experimental and control groups at baseline. However, after completing the therapy sessions, the women who underwent MCT exhibited lower levels of GAD and rumination. Additionally, they had higher levels of self-concept and PSS (Table 3).

To analyze the differences between the experimental and control groups, a MANCOVA was conducted. The results (Wilks' lambda = 0.227,  $F = 13.07$ ,  $P < 0.001$ ,

**Table 3.** Descriptive statistics of the study variables in control and experimental groups

Variable	Group	Pre-test	Post-test	P value <sup>a</sup>
GAD	Experimental	12.66 ± 1.60	10.77 ± 1.35	< 0.001
	Control	12.55 ± 1.73	12.72 ± 1.56	
Rumination	Experimental	53.61 ± 3.25	48.94 ± 3.45	< 0.001
	Control	53.72 ± 3.02	53.32 ± 3.29	
Self-concept	Experimental	70.55 ± 2.87	74.16 ± 2.74	< 0.001
	Control	70.43 ± 2.91	70.67 ± 2.83	
Significant others	Experimental	15.72 ± 1.34	18.50 ± 1.20	< 0.001
	Control	15.83 ± 1.84	15.61 ± 1.67	
Family	Experimental	17.78 ± 1.22	20.50 ± 1.91	< 0.001
	Control	17.89 ± 1.37	17.66 ± 1.59	
Friends	Experimental	16.22 ± 1.74	19.01 ± 1.30	< 0.001
	Control	16.10 ± 1.86	16.34 ± 1.89	

Values indicate mean ± standard deviation.

<sup>a</sup> reported intragroup comparison, <sup>b</sup> reported intergroup comparison.

ETA = 0.7) indicated that the independent variable had a significant effect on the dependent variables. Group differences in each variable were further analyzed using a one-way analysis of variance (ANOVA). The F-statistics were notably significant for rumination ( $F = 32.13$ ,  $P = 0.001$ ), self-concept ( $F = 36.53$ ,  $P = 0.001$ ), PSS from significant others ( $F = 54.68$ ,  $P = 0.001$ ), PSS from family ( $F = 55.34$ ,  $P = 0.001$ ), and PSS from friends ( $F = 51.19$ ,  $P = 0.001$ ) at the 0.001 significance level. These results



revealed substantial differences between the groups in these variables. Moreover, based on the calculated effect size, 53% of rumination, 56% of self-concept, 65% of PSS from significant others, 66% of PSS from family, and 64% of PSS from friends were independent of the variable's effect. Consequently, it can be concluded that MCT significantly reduces rumination and enhances self-concept and PSS among women with GAD.

### Discussion

The primary objective of this study was to assess the impact of MCT on rumination, self-concept, and PSS in women with GAD. The findings revealed a significant reduction in rumination among women diagnosed with GAD following the implementation of MCT. This finding aligns with existing literature suggesting that MCT effectively targets and reduces repetitive negative thinking patterns characteristic of GAD (27). The observed reduction in rumination is particularly noteworthy, as rumination is known to exacerbate anxiety symptoms and contribute to the maintenance of GAD (26). By breaking this cycle through MCT interventions, individuals may experience not only immediate relief from distressing thoughts but also long-term improvements in overall anxiety levels and psychological well-being (31). The findings of the present study are in line with the core tenets of MCT, which target maladaptive metacognitive beliefs and aim to disrupt repetitive thinking patterns (26). MCT operates under the premise that individuals with GAD engage in excessive worry due to dysfunctional metacognitive beliefs about the uncontrollability and danger of their thoughts (29). By addressing these metacognitive beliefs and modifying cognitive processes, MCT seeks to interrupt the cycle of rumination and enhance adaptive coping strategies (3). The observed reduction in rumination among participants points to the potential success of MCT in achieving these therapeutic goals (9). Reduced rumination may contribute to lower anxiety levels, improved emotional well-being, and enhanced overall functioning (15). Furthermore, the findings demonstrated that MCT may empower women with GAD to gain better control over their thought processes, fostering a sense of agency in managing their anxiety (33). The effectiveness of MCT in reducing rumination suggests that targeting metacognitive processes specifically may offer a promising avenue for intervention (26).

The findings from the current study indicated that women with GAD experienced an improvement in their self-concept following the application of MCT. The notable improvement in self-concept observed among women with GAD following MCT suggests a significant impact on their cognition (30). The observed positive changes in self-concept align with the theoretical underpinnings of MCT, which target metacognitive beliefs and processes contributing to distorted self-perceptions. By addressing

maladaptive cognitive patterns and fostering metacognitive awareness, MCT may empower women with GAD to develop a more balanced and positive self-concept (31). A more favorable self-concept may contribute to improved interpersonal relationships, increased resilience in the face of stressors, and enhanced overall quality of life (20). The findings revealed that addressing metacognitive processes through MCT may have a cascading effect, positively influencing multiple dimensions of women's well-being (27). Considering the gendered aspects of self-concept, it is crucial to acknowledge the societal expectations and pressures that women often grapple with. MCT's effectiveness in fostering a more positive self-concept may be particularly beneficial in challenging societal norms that contribute to self-doubt and perfectionism among women with GAD (5).

The results of the current study revealed that women diagnosed with GAD demonstrated enhanced social support, encompassing significant others, family, and friends, after undergoing MCT. The noteworthy improvement in PSS among women with GAD following MCT highlights the potential of this therapeutic approach to positively influence interpersonal relationships (34). PSS is a crucial factor in mental health outcomes, particularly for individuals grappling with the challenges of anxiety disorders (19). The findings suggest that MCT not only targets individual cognitive processes but may also have a salutary effect on the broader social dimensions of individuals' lives (24). The positive changes in PSS may be attributed to the metacognitive focus of MCT. By challenging maladaptive metacognitive beliefs related to social interactions, MCT may help individuals reevaluate and modify their perceptions of the support available to them (28). This could lead to a more accurate appraisal of the support network and, subsequently, a greater sense of connection and understanding (22).

While this study provides valuable insights into the efficacy of MCT for women with GAD, several limitations warrant consideration. Firstly, the sample size was relatively small, consisting of 36 participants, which may limit the generalizability of the findings to broader populations of women with GAD. Besides, the study design, although quasi-experimental with a control group, did not incorporate random assignment of participants, potentially introducing selection bias. Furthermore, the duration of follow-up to assess the long-term effects of MCT was not included, which could have provided a more comprehensive understanding of its sustained impact on rumination, self-concept, and PSS.

Future research in this area could address these limitations by conducting larger-scale randomized controlled trials to enhance the robustness and generalizability of the findings. Longitudinal studies that extend beyond the immediate post-intervention period would be beneficial in assessing the durability of

MCT effects over time. Moreover, exploring additional outcome measures, such as physiological markers of anxiety and quality-of-life assessments, could provide a more comprehensive evaluation of the holistic benefits of MCT. Finally, investigating the differential effects of MCT across diverse demographic and cultural contexts would contribute to tailoring interventions that meet the specific needs of women with GAD across various populations.

### Conclusion

The results of the present study underscored the impact of MCT on various dimensions of women's experiences with GAD. The triad of findings revealed a significant reduction in rumination, an improvement in self-concept, and an enhanced perception of social support among women who underwent MCT. The collective evidence from this study provides valuable insights into the multifaceted benefits of MCT for women with GAD.

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### Authors' Contribution

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### Competing Interests

The authors report no conflict of interest.

### Ethical Approval

This study was approved by the Ethics Committee of Tarbiat Modares University, Tehran, Iran in 2022 and was registered in the list of manual designs of this committee (IR.MODARES.REC.1401.100).

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