

Improving Emotion Regulation and Reducing Stress in Patients with Rheumatoid Arthritis through Emotion-Focused Therapy

Farideh Zeinali¹, Cyrus Momenzadeh^{1,2*}, Haydeh Saberi³

¹ Department of Psychology, SR.C., Islamic Azad University, Tehran, Iran

² Pain Fellowship, Shahid Beheshti University of Medical Science, Tehran, Iran

³ Department of Psychology, Ro.C., Islamic Azad University, Roudehen, Iran

***Corresponding Author:** Cyrus Momenzadeh, MD., Department of Psychology, SR.C., Islamic Azad University, Tehran, Iran.
Tel: +98(21)44745205, Email: cyrusmomenzadehprof@iau.ac.ir

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Abstract

Background: Patients with rheumatoid arthritis (RA) often experience significant psychological distress, including difficulties with emotion regulation and high levels of stress, which can exacerbate disease symptoms.

Objectives: This study aimed to investigate the effectiveness of Emotion-Focused Therapy (EFT) in improving cognitive emotion regulation strategies and reducing perceived stress in patients with RA.

Methods: This was a quasi-experimental study with a pretest-posttest control group design. The study population consisted of patients with RA referred to Shariati Hospital in Tehran, Iran, in 2022. A sample of 40 patients who met the inclusion criteria was selected and randomly assigned to an experimental group ($n = 20$) and a control group ($n = 20$). The experimental group participated in eight weekly 90-minute sessions of group EFT. Data were collected using the Cognitive Emotion Regulation Questionnaire (CERQ) and the stress subscale of the Depression Anxiety Stress Scales (DASS-21). The collected data were analyzed using analysis of covariance (ANCOVA).

Results: The results indicated that after the intervention, the experimental group showed a statistically significant increase in the use of adaptive cognitive emotion regulation strategies and a significant decrease in the use of maladaptive strategies compared to the control group ($F = 38.72-45.83$, $P < 0.001$, $\eta^2 = 0.68-0.73$). Furthermore, the participants in the EFT group reported a significant reduction in their perceived stress scores compared to the control group.

Conclusion: The findings suggest that EFT is an effective psychological intervention for improving emotion regulation skills and reducing stress levels in patients with RA. Therefore, EFT may serve as a useful adjunct to standard medical care in supporting the psychological well-being of this patient population.

Keywords: Rheumatoid Arthritis, Emotion-Focused Therapy, Emotion Regulation, Stress

1. Background

Rheumatoid arthritis (RA) is a chronic, systemic autoimmune disease characterized primarily by inflammation of the synovial joints, leading to progressive joint destruction, pain, stiffness, and significant functional disability.¹ While the physical manifestations of RA are well-documented, the psychological burden of the disease is equally profound and can significantly impact patients' quality of life. Individuals diagnosed with RA frequently face a myriad of psychological challenges, including elevated rates of depression, anxiety, and pervasive stress stemming from chronic pain, uncertainty about the future, and limitations in daily activities.^{2,3} This persistent psychological distress not only diminishes well-being but can also contribute to a self-reinforcing cycle in which emotional turmoil exacerbates physical symptoms. The complex interplay between the mind and body in RA underscores the critical need for integrated care models

that address both the physical and psychological dimensions of the illness, moving beyond purely pharmacological treatments to include psychotherapeutic support.⁴

A critical psychological construct in this context is cognitive emotion regulation, which refers to the cognitive strategies individuals use to manage and modify their emotional experiences. These strategies can be categorized as either adaptive (e.g., positive reappraisal, putting into perspective) or maladaptive (e.g., rumination, catastrophizing).⁵ For patients with chronic illnesses like RA, the habitual use of specific cognitive strategies plays a crucial role in their adaptation to the disease.⁶ Reliance on maladaptive strategies is associated with higher levels of psychological distress, increased pain perception, and poorer health outcomes, whereas the application of adaptive strategies is linked to greater resilience and psychological well-being.^{7,8} Therefore, understanding and improving the cognitive emotion regulation strategies of

RA patients is a key target for psychological interventions.

Perceived stress, defined in this context as the subjective appraisal of chronic pain, disease unpredictability, and daily management demands as overwhelming, represents another key variable. Patients with RA consistently report high levels of perceived stress.⁹ This elevated stress activates neuroendocrine and inflammatory pathways (e.g., hypothalamic-pituitary-adrenal axis dysregulation and increased pro-inflammatory cytokines) that can intensify RA disease activity.¹⁰ A reciprocal, self-reinforcing relationship exists wherein stress can worsen RA symptoms, and the symptoms, in turn, increase stress levels.^{11,12} Consequently, interventions aimed at reducing perceived stress are essential for both the psychological and physical management of RA.

In response to these psychological challenges, various psychotherapeutic interventions have been explored. Cognitive-Behavioral Therapy (CBT), for instance, has demonstrated efficacy in helping patients manage pain and reduce depression.¹³ However, treatments that directly target the processing and regulation of underlying emotions may offer unique benefits. One such approach is Emotion-Focused Therapy (EFT), a humanistic, process-experiential therapy developed by Leslie Greenberg.¹⁴ EFT posits that emotions are fundamentally adaptive sources of information; its core mechanisms involve helping clients access, experience, understand, and transform maladaptive emotional schemes into more adaptive ones through techniques such as emotional awareness exercises and two-chair dialogues.¹⁵⁻¹⁸

While the efficacy of various psychological interventions in RA is established, the specific application of EFT in this population remains underexplored. Given that RA is intrinsically linked to profound emotional experiences of loss, anger, and fear, an intervention designed to directly engage and transform these core emotions is theoretically well-suited to meet the needs of these patients. Existing research has often focused on cognitive and behavioral strategies, leaving a notable gap in understanding how directly targeting emotional processing can impact key outcomes such as emotion regulation and stress. Investigating a novel therapeutic approach like EFT could, therefore, provide a valuable complementary pathway to improving psychological well-being and overall quality of life for individuals living with this challenging condition.

2. Objectives

The present study aimed to investigate the effectiveness of EFT in improving emotion regulation and reducing perceived stress in patients with RA.

3. Methods

3.1. Design and Participants

This study employed a quasi-experimental pretest-posttest control group design to evaluate the effectiveness of EFT.

The statistical population comprised all patients diagnosed with RA who were referred to the rheumatology clinic at Shariati Hospital in Tehran, Iran, during 2022. From this population, a sample of 40 patients was selected using convenience sampling based on availability and eligibility during the recruitment period at the clinic. Eligible participants were then randomly assigned to either the experimental group ($n = 20$), which received the EFT intervention, or the control group ($n = 20$), which received no psychological intervention, using simple randomization via a computer-generated random number sequence. Inclusion criteria for participation were: (1) a definitive RA diagnosis by a rheumatologist, (2) aged 25-60 years, (3) having at least a middle school education, (4) providing written informed consent, and (5) not receiving concurrent psychotherapy. Exclusion criteria were: (1) a history of psychotic disorders, bipolar disorder, or substance use disorder, (2) any comorbid autoimmune conditions or psychiatric disorders (e.g., major depressive disorder, anxiety disorders) that could confound emotion regulation or stress outcomes, and (3) acute or severe physical conditions other than RA that would prevent participation in therapy sessions. A priori power analysis (using G*Power software, assuming a medium effect size of $f = 0.25$, $\alpha = 0.05$, and power = 0.80 for ANCOVA) indicated that a total sample of 40 participants was sufficient to detect significant group differences. Ethical considerations were upheld throughout the research process. Approval was obtained from the university's institutional review board. All participants were informed about the study's objectives, the voluntary nature of their participation, and their right to withdraw at any time. They were also assured of the confidentiality of their personal information. Outcome assessors were blinded to group allocation.

3.2. Procedure

After securing ethical approval, the researchers coordinated with the rheumatology clinic at Shariati Hospital to identify eligible patients. Potential participants were approached, and the research objectives and process were explained in detail. Those who expressed interest and met the inclusion criteria provided written informed consent. Subsequently, all 40 participants completed the pre-test questionnaires, which included the Cognitive Emotion Regulation Questionnaire (CERQ) and the Depression Anxiety Stress Scales (DASS-21). Following the pre-test assessment, participants were randomly allocated to the experimental and control groups. The experimental group attended eight weekly 90-minute group sessions of EFT. The control group was placed on a waiting list for the EFT program (to be offered after study completion) and received no psychological intervention during the study period but continued to receive their

standard medical care. Upon completion of the eight-week intervention period, both groups were administered the post-test questionnaires to assess changes in emotion regulation and perceived stress.

3.3. Instruments

Cognitive Emotion Regulation Questionnaire (CERQ): Developed by Garnefski et al.,¹⁹ the CERQ is a 36-item self-report instrument that assesses nine cognitive emotion regulation strategies. The Persian version has demonstrated good reliability and validity in Iranian samples, with Cronbach's alpha coefficients ranging from 0.80 to 0.90 across subscales.²⁰ In the present study, the Cronbach's alpha for the adaptive strategies subscale was 0.88 and for the maladaptive strategies subscale was 0.84.

Depression Anxiety Stress Scales (DASS-21): The DASS-21 is a 21-item self-report scale designed by Lovibond and Lovibond²¹ to measure the three negative emotional states of depression, anxiety, and stress. It consists of three subscales, with seven items dedicated to each construct. As this study focused on stress, the 7-item stress subscale was the primary measure of interest. This subscale assesses symptoms such as difficulty relaxing,

nervous arousal, and being easily agitated or irritable. Participants rate the extent to which they have experienced each symptom over the past week on a 4-point Likert scale from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). Scores for the stress subscale are calculated by summing the relevant items and then multiplying by two. The DASS-21 has been validated and widely used in Iran.²² For the current study, the Cronbach's alpha for the stress subscale was 0.85.

3.4. Intervention Program

The participants in the experimental group received an 8-session group EFT program, with each session lasting 90 minutes. The intervention was structured based on the principles of EFT. The intervention was delivered by two licensed clinical psychologists with advanced training in Emotion-Focused Therapy (each having completed a certified EFT training program and possessing over five years of supervised experience in delivering process-experiential therapies). The control group received their usual medical treatment and was offered the EFT program after the completion of the study. A summary of the session protocols is detailed in Table 1.

Table 1. Summary of Emotion-Focused Therapy (EFT) Sessions for the Experimental Group

Session	Key topics and objectives
1	Introduction and Alliance Building: Establishing a therapeutic relationship, explaining the rationale of EFT, and increasing motivation. Discussing the role of emotions in RA and stress.
2	Emotional Awareness: Identifying and differentiating between primary adaptive, primary maladaptive, and secondary emotions.
3	Accessing Emotional Schemes: Learning to safely access, symbolize, and express emotions. Introducing the "emotional diary" technique.
4	Processing Maladaptive Emotions: Utilizing techniques like two-chair dialogue to process and challenge maladaptive emotional responses related to pain and illness.
5	Transforming Emotions: Working to transform maladaptive emotions (e.g., fear, shame) by accessing underlying adaptive emotions and needs.
6	Strengthening Positive Emotions: Focusing on building and enhancing internal resources by recalling and cultivating positive emotional experiences.
7	Self-Soothing and Regulation: Learning and practicing self-soothing techniques to manage distressing emotions, such as anxiety and anger.
8	Consolidation and Relapse Prevention: Reviewing learned skills, consolidating progress, and developing a personal plan for continuing to use EFT principles in daily life.

3.5. Statistical Analysis

The collected data were analyzed using SPSS software, version 22. Descriptive statistics, including mean and standard deviation, were calculated for all demographic and research variables. To test the research hypotheses, Analysis of Covariance (ANCOVA) was employed. The post-test scores for emotion regulation (CERQ subscales) and stress (DASS-21 stress subscale) were used as the dependent variables, group membership (experimental vs. control) was the independent variable, and the pre-test scores were entered as covariates to control for initial differences between the groups. The assumption of homogeneity of variances was checked using Levene's test. A significance level of $P < 0.05$ was set for all statistical tests.

4. Results

The demographic characteristics of the participants in both groups are presented in Table 2. The experimental (EFT) group consisted of 9 men (45%) and 11 women (55%), with a mean age of 43.65 ± 8.72 years. The mean duration of RA diagnosis in this group was 7.85 ± 4.61 years. The control group included 7 men (35%) and 13 women (65%), with a mean age of 45.20 ± 9.14 years and a mean disease duration of 8.10 ± 5.03 years. Independent samples t-tests and chi-square analyses indicated no statistically significant differences between the two groups in age ($t = -0.58$, $P = 0.566$), disease duration ($t = -0.17$, $P = 0.868$), or gender distribution ($\chi^2 = 0.42$, $P = 0.517$).

Descriptive statistics for the main study variables are shown in Table 3. At pre-test, the two groups had comparable baseline scores. After the intervention, changes were observed in the EFT group across the outcome

Table 2. Demographic Characteristics of Participants in the EFT and Control Groups

Variable	EFT group (n = 20)	Control group (n = 20)	t	P
Age (Mean ± SD)	43.65 ± 8.72	45.20 ± 9.14	t = -0.58	0.566
Disease duration (Mean ± SD)	7.85 ± 4.61	8.10 ± 5.03	t = -0.17	0.868
Gender	9 men (45%), 11 women (55%)	7 men (35%), 13 women (65%)	$\chi^2 = 0.42$	0.517

Table 3. Means and Standard Deviations of Study Variables in the EFT and Control Groups

Dependent variable	Phases	EFT group	Control group
		Mean ± SD	Mean ± SD
Adaptive strategies	Pre-test	42.35 ± 7.81	43.10 ± 8.24
	Post-test	58.70 ± 6.95	44.25 ± 7.68
Maladaptive strategies	Pre-test	38.45 ± 7.12	37.90 ± 6.85
	Post-test	24.15 ± 5.67	36.80 ± 7.03
Perceived stress	Pre-test	18.60 ± 4.32	19.10 ± 4.67
	Post-test	9.45 ± 3.81	17.85 ± 4.12

measures. In contrast, the control group exhibited only minimal changes across all variables.

Prior to conducting the main inferential analyses, the normality of data distribution was examined using the Shapiro-Wilk test for adaptive strategies, maladaptive strategies, and perceived stress scores at both pre- and post-test time points. Results indicated that the scores did not significantly deviate from normality ($P > 0.05$). Levene's test confirmed the homogeneity of variances, and all other ANCOVA assumptions (e.g., linearity, homogeneity of regression slopes) were met.

The results of ANCOVA (Table 4) revealed statistically significant differences between the experimental and control groups for all outcome variables after adjusting for pre-test scores. Specifically, the EFT intervention produced a significant increase in adaptive cognitive

emotion regulation strategies ($F = 38.72$, $P < 0.001$, $\eta^2 = 0.68$), a significant decrease in maladaptive strategies ($F = 42.15$, $P < 0.001$, $\eta^2 = 0.71$), and a significant reduction in perceived stress ($F = 45.83$, $P < 0.001$, $\eta^2 = 0.73$). All effects were large in magnitude.

Bonferroni-adjusted pairwise comparisons further confirmed that the EFT group had significantly higher adjusted post-test scores on adaptive strategies and significantly lower scores on maladaptive strategies and perceived stress compared to the control group ($P < 0.001$) (Table 5). These differences remained highly significant after correction for multiple comparisons. No significant violations of ANCOVA assumptions were detected. Overall, the findings provide strong evidence for the effectiveness of EFT in enhancing emotion regulation and reducing stress among patients with RA.

Table 4. Results of One-Way ANCOVA Examining the Effects of EFT on Study Variables (controlling for pre-test scores)

Variable	SS	df	MS	F	P	η^2
Adaptive strategies	1426.35	1	1426.35	38.72	0.001	0.68
Maladaptive strategies	1189.64	1	1189.64	42.15	0.001	0.71
Perceived stress	512.47	1	512.47	45.83	0.001	0.73

Table 5. Bonferroni Post-Hoc Comparisons of Adjusted Post-Test Marginal Means

Variable	Comparison	Mean difference	SE	P
Adaptive strategies	EFT vs. Control	14.12	2.27	0.001
Maladaptive strategies	EFT vs. Control	-12.85	1.98	0.001
Perceived stress	EFT vs. Control	-8.67	1.28	0.001

5. Discussion

The primary objective of the present study was to evaluate the effectiveness of EFT in modifying cognitive emotion regulation strategies and reducing perceived stress among patients suffering from RA. The findings provided robust evidence that the EFT intervention was effective; it enhanced the utilization of adaptive cognitive emotion regulation strategies, diminished the reliance on maladaptive strategies, and substantially alleviated perceived stress in the experimental group compared to the waitlist control group.

EFT's core mechanisms, facilitating emotional awareness, accessing primary adaptive emotions, and transforming maladaptive emotional schemes, directly align with the

observed improvements in adaptive strategies such as positive reappraisal and acceptance.^{15,24} For patients with RA, chronic pain and unpredictable disease flare-ups often trigger feelings of helplessness and frustration, leading to an over-reliance on maladaptive cognitive strategies such as rumination and catastrophizing. The present study demonstrates that EFT effectively disrupts this pattern. Through the therapeutic relationship, patients were guided to approach and tolerate their painful emotions rather than avoiding them. This emotional processing facilitates the restructuring of maladaptive emotional schemas, enabling patients to shift toward adaptive cognitive strategies.²⁴ By making sense of their emotional pain, RA patients in the EFT group developed

a healthier cognitive framework to interpret their illness, which explains the significant improvement in their adaptive emotion regulation profiles.

These findings are highly congruent with existing literature. For instance, a study by Sivandian et al.¹⁷ demonstrated the efficacy of EFT in successfully transforming core maladaptive emotional schemes into adaptive ones, thereby improving overall emotion regulation. Similarly, research by Atta et al.²⁵ highlighted that emotion-focused interventions are particularly effective in fostering emotional resilience and reducing reliance on negative cognitive coping mechanisms in populations facing chronic physical and psychological challenges.

Furthermore, the significant reduction in perceived stress observed in the experimental group underscores the impact of emotional processing on psychological arousal. Living with a chronic, deteriorating condition like RA acts as a persistent stressor. Unprocessed secondary emotions, such as disease-related anxiety or reactive depression, often exacerbate this perceived stress. EFT directly targets these underlying emotional blockages. By helping patients express their unmet needs and vulnerable primary emotions in a validating environment, the therapy may contribute to reduced physiological arousal, although direct measurement of sympathetic nervous system activity was not conducted in this study. Once the internal emotional conflict is resolved, the subjective appraisal of the disease becomes less threatening, directly resulting in the marked decrease in perceived stress scores. This reduction is not only crucial for mental well-being but may also have secondary benefits in buffering the stress-induced inflammatory pathways characteristic of RA.

A notable limitation of the present study is the reliance on self-report measures, which, while standard in psychological research, may be influenced by social desirability or demand characteristics and could affect the validity of the findings. Additionally, the reliance on a relatively small convenience sample drawn from a single medical center significantly restricts the generalizability of the findings to the broader, more diverse RA population. The absence of a long-term follow-up assessment prevents definitive conclusions regarding the durability and sustained effects of the EFT intervention over time. Future research should address these gaps by incorporating multi-method assessments (e.g., physiological markers) and larger, more diverse samples.

6. Conclusion

In conclusion, this study provides evidence that EFT is an effective psychological intervention for patients with RA. The findings demonstrate that EFT enhances cognitive emotion regulation by promoting the use of adaptive strategies and reducing reliance on maladaptive ones

while also lowering perceived stress. Given the profound psychological burden associated with chronic pain and physical limitations, incorporating EFT into the comprehensive, multidisciplinary care of RA patients is recommended as a promising complementary approach alongside standard medical treatments. This can help improve emotional resilience, disease management, and overall quality of life.

Research Highlights

What Is Already Known?

Patients with rheumatoid arthritis experience high levels of psychological distress, including emotion regulation difficulties and elevated perceived stress, which exacerbate disease symptoms and reduce quality of life. While Cognitive Behavioral Therapy has shown benefits, the effectiveness of Emotion-Focused Therapy in this population remains largely unexplored.

What Does This Study Add?

This quasi-experimental study demonstrates that eight sessions of group Emotion-Focused Therapy significantly enhance adaptive emotion regulation, reduce maladaptive strategies, and lower perceived stress in RA patients compared to a control group. Findings support EFT as a valuable complementary intervention in integrative RA care.

Author Contributions

F.Z. contributed to study conceptualization, data collection, intervention delivery, and drafting the original manuscript. H.S. provided expertise in emotion regulation assessment and assisted with data interpretation. S.M. supervised the project, contributed to study design and statistical analysis, and critically revised the manuscript for important intellectual content. All authors read and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

Declaration on the Use of Generative AI and AI-Assisted Technologies

During the preparation of this manuscript, the authors used Grammarly (an AI-assisted writing tool) solely for grammar checking, spelling correction, and minor improvements to sentence clarity and flow. The authors take full responsibility for the content of the publication and have reviewed and edited the material as needed.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

Ethical Approval

This study was reviewed and approved by the Ethics Committee of the Islamic Azad University, Science and Research Branch. Prior to participation, written informed consent was obtained from all patients, ensuring their voluntary participation, the confidentiality of their data, and their right to withdraw from the study at any time.

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