Mental Health and Lifestyle Journal

Year 2027
Volume 5
Issue 6

# Comparing the Effectiveness of Emotion Regulation-Based Therapy and Self-Compassion-Based Therapy on Learned Helplessness and Self-Efficacy in Patients with Psychosomatic Disorders: The Moderating Role of Social Support

Maryam. Rahimiyan[1], Parisa. Motavaselian[2], Tayebeh. Zarini Mehr[3], Hanieh. Salehi[4], Elham. Jafari Foutami[5*]

1 MA, Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran
2 MA, Department of Psychology, University of Hormozgan, Bandar Abbas, Iran
3 MA, Department of Psychology, Payame Noor University, Kish Branch, Kish, Iran
4 MA, Department of Psychology, Ayatollah Amoli Branch, Islamic Azad University, Amol, Iran
5 MA, Department of Psychology, Sari Branch, Islamic Azad University, Sari, Iran
*Correspondence: elham.jafari1367@gmail.com

Article type:
Original Research

Article history:
Received 10 August 2026
Revised 12 November 2026
Accepted 19 November 2026
Initial Publish 21 November 2026
Published online 01 November 2027

## ABSTRACT

This study aimed to compare the effectiveness of emotion regulation-based therapy (ERBT) and self-compassion-based therapy (SCBT) on learned helplessness and self-efficacy in patients with psychosomatic disorders, considering the moderating role of perceived social support. This quasi-experimental study employed a three-group design with a three-month follow-up. The statistical population comprised patients diagnosed with psychosomatic disorders in Tehran, Iran, in 2025. Using purposive sampling, 45 patients were selected and assigned to two experimental groups and one control group. The ERBT group received eight 90-minute sessions, while the SCBT group attended eight 60-minute sessions, both conducted twice weekly. Data were collected using the Learned Helplessness Questionnaire, General Self-Efficacy Scale, and Multidimensional Scale of Perceived Social Support. Statistical analyses included the Kruskal–Wallis H test, repeated-measures analysis of covariance, and Bonferroni post hoc comparisons using SPSS version 27. The overall treatment-group effect on self-efficacy was significant ($F=11.994$, $p<0.001$, $\eta^2=0.421$), whereas the time-by-group interaction was nonsignificant ($F=1.044$, $p=0.363$). Both interventions significantly improved self-efficacy compared with the control group. For learned helplessness, significant time-by-group interaction ($F=4.729$, $p=0.016$, $\eta^2=0.223$) and treatment-group effects ($F=102.848$, $p<0.001$, $\eta^2=0.862$) emerged. ERBT produced greater reductions than SCBT at posttest ($MD=-2.527$, $p<0.001$) and follow-up ($MD=-3.044$, $p<0.001$). Social support did not significantly moderate self-efficacy outcomes ($F=1.178$, $p=0.332$), but significantly moderated sustained reductions in learned helplessness at follow-up ($\beta=0.277$, $p=0.020$). Both interventions improved self-efficacy, while ERBT demonstrated superior effectiveness in reducing learned helplessness. Greater perceived social support strengthened the sustained therapeutic effects on learned helplessness, highlighting its importance in psychosomatic treatment.

**Keywords:** Emotion Regulation-Based Therapy; Self-Compassion-Based Therapy; Learned Helplessness; Self-Efficacy; Perceived Social Support; Psychosomatic Disorders.

**How to cite this article:**
Rahimiyan, M., Motavaselian, P., Zarini Mehr, T., Salehi, H., & Jafari Foutami, E. (2027). Comparing the Effectiveness of Emotion Regulation-Based Therapy and Self-Compassion-Based Therapy on Learned Helplessness and Self-Efficacy in Patients with Psychosomatic Disorders: The Moderating Role of Social Support. *Mental Health and Lifestyle Journal, 5*(6), 1-22. https://doi.org/10.61838/mhlj.362



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## Introduction

Psychosomatic disorders represent a complex intersection between psychological processes and physical symptom expression, in which emotional distress, maladaptive cognitive patterns, perceived lack of control, and interpersonal factors can contribute to the onset, persistence, or exacerbation of bodily complaints. In such conditions, symptoms may not be adequately explained by biomedical mechanisms alone, because patients' interpretations of stress, their capacity to regulate emotional states, their perceived competence in coping with illness, and the quality of their social environment can substantially affect both subjective suffering and functional adaptation. Recent evidence has increasingly emphasized the importance of psychological resilience, self-compassion, emotion regulation, self-efficacy, and perceived social support as potentially modifiable factors associated with psychological and somatic outcomes across a range of clinical populations (1-4). This perspective is particularly relevant for psychosomatic patients, whose symptoms may be intensified by reciprocal cycles of emotional dysregulation, helplessness, negative self-appraisal, reduced coping confidence, and insufficient interpersonal resources. Accordingly, interventions that target these mechanisms may offer a more comprehensive means of reducing psychological vulnerability and improving adaptation to chronic or recurrent bodily symptoms.

One of the central constructs relevant to psychosomatic functioning is learned helplessness, which refers to a generalized expectation that one's behavior has little or no meaningful influence over important outcomes. When repeated experiences of uncontrollability are internalized, individuals may become less likely to initiate adaptive coping efforts, more likely to disengage from challenging situations, and more vulnerable to pessimistic beliefs, low motivation, and emotional distress. In clinical populations, learned helplessness may be especially detrimental because symptoms themselves can serve as repeated reminders of limited control, thereby reinforcing passivity and maladaptive expectancy patterns. Recent research has demonstrated that learned helplessness is not merely an isolated cognitive state but is closely intertwined with social and psychological resources. For example, social support has been shown to influence learned helplessness directly and indirectly through resilience and self-efficacy, suggesting that patients who perceive stronger interpersonal resources may be less likely to develop entrenched expectations of uncontrollability (2). Similarly, structural modeling evidence has indicated that learned helplessness and self-efficacy may operate as mediating mechanisms linking social support to depressive outcomes in patients with serious medical conditions (3). Intervention research has also shown that learned helplessness can be modified through psychological treatment, including attributional retraining designed to alter maladaptive interpretations of failure and personal control (5). These findings suggest that learned helplessness is both clinically consequential and therapeutically modifiable, making it an important outcome in psychosomatic populations.

Closely related to learned helplessness is self-efficacy, defined broadly as an individual's belief in their ability to organize and execute the behaviors required to manage difficult situations. Self-efficacy affects persistence, coping effort, emotional response, and resilience in the face of adversity. In patients dealing with chronic physical or psychological problems, stronger self-efficacy may facilitate treatment adherence, adaptive problem solving, more effective symptom management, and greater willingness to remain engaged when progress is slow. Research among individuals with health-related difficulties has consistently demonstrated the relevance of self-efficacy to psychological adaptation and quality of life. In adolescents

with amblyopia, for example, self-efficacy has been examined alongside quality of life as an important psychosocial resource (6). Among individuals with substance dependence, interventions targeting cognitive and temporal perspectives have produced meaningful changes in quitting self-efficacy, further illustrating the malleability of this construct in clinical settings (7). Self-efficacy has also been associated with physical activity and broader indices of public health, demonstrating its relevance beyond symptom-specific coping (8). More recent work among patients with diabetes suggests that self-efficacy, together with resilience and growth-oriented cognitive patterns, may reduce vulnerability to anxiety (9). Thus, enhancing self-efficacy may be especially valuable in psychosomatic patients who experience recurrent symptoms and may have developed reduced confidence in their ability to influence their own functioning.

The relationship between learned helplessness and self-efficacy is theoretically coherent because both constructs concern perceived control, but they represent opposing orientations toward coping. Learned helplessness reflects an expectation that action will not alter outcomes, whereas self-efficacy reflects confidence that purposeful action can be successful. Consequently, interventions capable of reducing helplessness while increasing self-efficacy may produce complementary psychological benefits. This reciprocal relationship has also been observed empirically in medical populations. Studies of patients with lung cancer have shown that self-efficacy may partially explain how social resources influence helplessness and depression, reinforcing the view that perceptions of control and competence are central components of adaptation to illness (2, 3). Likewise, contemporary research has continued to identify self-efficacy as an important psychological correlate of broader behavioral and emotional outcomes, including loneliness, maladaptive internet use, and health-related functioning (10). For psychosomatic patients, who may frequently interpret recurring symptoms as uncontrollable or unpredictable, strengthening self-efficacy while weakening helplessness may therefore represent an important therapeutic target.

Emotion regulation is another mechanism of particular relevance to psychosomatic symptomatology. Emotion regulation refers to the processes through which individuals identify, understand, modulate, and respond to emotional experiences. Difficulties in emotional awareness, suppression of distressing affect, excessive avoidance, maladaptive cognitive appraisal, or ineffective management of intense arousal can contribute to prolonged physiological activation and reinforce bodily symptom awareness. In this context, Emotion Regulation–Based Therapy seeks to improve the individual's capacity to recognize emotions, tolerate distress, accept internal experiences, reinterpret emotionally charged situations, and engage in more adaptive behavioral responses. Evidence from diverse populations suggests that emotion-focused therapeutic approaches can improve psychological functioning by reducing maladaptive emotional responding and strengthening coping-related capacities. A randomized intervention integrating meaning and emotion regulation, for example, demonstrated benefits in behavioral and emotional outcomes among adolescents experiencing problematic interactive media use (11). Emotion efficacy therapy has also been associated with improvements in coping self-efficacy and related psychological outcomes among individuals with social anxiety (12). Furthermore, comparative intervention research has shown that treatments that modify emotion regulation processes can produce improvements in mindfulness, executive functioning, and adaptive emotional control among patients with chronic inflammatory conditions (13). These findings support the relevance of emotion regulation as a transdiagnostic therapeutic mechanism across both psychological and medically complicated populations.

The importance of emotion regulation is also supported by research showing that the way individuals manage intense emotional states can influence recovery following acute psychological or performance-related disruption. Patterns of emotional experience, regulation strategy selection, and regulatory depletion have been linked to differences in performance collapse and subsequent recovery, suggesting that regulation capacity influences how individuals regain functioning after destabilizing experiences (14). In psychosomatic disorders, similar processes may operate when patients experience symptom flare-ups, perceived treatment failure, or emotionally stressful events. If distress is met with catastrophic appraisal, suppression, or avoidance, psychosomatic symptoms may be intensified, whereas adaptive regulation strategies may reduce physiological arousal and foster a greater sense of control. Interventions grounded in emotion regulation have therefore been increasingly used to target maladaptive emotional processes in patients with physical illness. Iranian research has also demonstrated the effectiveness of treatment based on emotion regulation and compassion-oriented approaches in reducing maladaptive self-conscious affect among patients with cancer (15). Together, these findings provide a strong basis for examining ERBT as a method for simultaneously reducing helplessness and improving self-efficacy in psychosomatic patients.

Self-compassion represents a second therapeutic pathway that may influence the same outcomes through a different psychological mechanism. Self-compassion generally involves responding to one's suffering with kindness rather than harsh self-criticism, recognizing personal difficulties as part of common humanity rather than as isolating failures, and maintaining balanced awareness of distressing thoughts and emotions. In individuals with chronic illness or persistent somatic symptoms, self-compassion may reduce the tendency to interpret suffering as evidence of personal inadequacy and may create a more supportive internal environment for coping with setbacks. Meta-analytic evidence indicates that self-compassion interventions can improve psychological symptoms and pain-related outcomes among adults with chronic illness, underscoring their potential value in populations with persistent health problems (16). Likewise, self-compassion therapy has demonstrated effectiveness in reducing psychological distress and improving quality of life among patients with psoriasis, a condition in which psychological and somatic processes frequently interact (17). Recent intervention research has further shown that self-compassion training can reduce dysfunctional attitudes and perceived stress while improving psychosocial adjustment in individuals experiencing depression (18).

Self-compassion may be particularly relevant to learned helplessness because repeated experiences of failure, pain, or symptom recurrence can trigger self-blame and rigid negative self-evaluation. When individuals respond to such experiences with self-criticism, they may be more likely to disengage and conclude that further effort is pointless. In contrast, self-compassion may allow individuals to acknowledge distress without interpreting it as evidence of incapacity, thereby preserving motivation and willingness to re-engage. Recent evidence has identified self-compassion as a protective factor against learned helplessness, together with grit and gratitude, in emerging adults (19). This protective role is theoretically important because self-compassion may interrupt the transition from temporary failure to generalized helplessness. Moreover, self-compassion has been associated with psychological resilience in relation to psychosomatic symptoms, suggesting that it may buffer the adverse effects of earlier psychological adversity on somatic functioning (1). These findings indicate that self-compassion may have direct relevance to

psychosomatic populations in whom recurrent physical symptoms can become sources of self-criticism, discouragement, and perceived personal inadequacy.

Self-compassion may also support self-efficacy by creating a less punitive response to failure. Individuals with stronger self-compassion may remain more willing to persist because mistakes and setbacks are interpreted as tolerable and correctable rather than as confirmation of incompetence. Empirical evidence has shown that self-compassion and self-efficacy are positively connected in populations coping with substantial caregiving demands, and that this relationship may be shaped by interpersonal variables such as trust and social support (20). Similar mechanisms may operate in psychosomatic patients, for whom repeated physical discomfort, uncertainty regarding symptoms, and frustration with treatment can undermine perceived competence. A compassionate response to these experiences may preserve confidence in coping capacity and reduce the tendency to disengage after setbacks. Self-compassion may therefore affect both principal outcomes of the present study by reducing learned helplessness and supporting self-efficacy through decreased self-criticism, increased acceptance, and greater persistence.

A further factor that may shape treatment effectiveness is perceived social support. Social support refers not only to the objective presence of family members, friends, or significant others, but also to the individual's subjective perception that meaningful assistance, understanding, and emotional availability are accessible when needed. Perceived support can function as a psychological resource by reducing isolation, facilitating adaptive coping, reinforcing treatment engagement, and strengthening beliefs that difficult circumstances can be managed. In medical populations, perceived social support has repeatedly been associated with better psychological adjustment. In patients with lung cancer, social support has been linked to lower learned helplessness through resilience and self-efficacy (2), while related work has shown that helplessness and self-efficacy can mediate the relationship between social support and depression (3). These findings suggest that social support is not merely an external contextual factor but may influence internal psychological mechanisms that are directly relevant to treatment outcomes.

The association between social support and self-compassion is also increasingly recognized. In parents facing developmental and behavioral challenges in their children, perceived social support has been linked to burnout through the mediating role of self-compassion, indicating that supportive relationships may help individuals develop more adaptive internal responses to distress (21). Similarly, among postoperative breast cancer patients, both social support and self-compassion have been identified as mediators linking alexithymia to quality of life, suggesting that interpersonal and intrapersonal resources operate jointly in adaptation to serious illness (22). These findings are particularly relevant to psychosomatic populations because difficulties identifying and processing emotions may coexist with somatic symptom expression, while social relationships may either reinforce or reduce maladaptive emotional responses. Social support may therefore strengthen the effects of psychological treatment by providing external reinforcement for newly acquired emotion-regulation or self-compassion skills.

The potential moderating role of social support is especially important when considering the maintenance of therapeutic gains. Immediate improvement following psychotherapy may be driven primarily by intervention-specific learning, but the persistence of these gains after treatment ends may depend partly on the interpersonal environment in which newly learned skills are practiced. Individuals with higher perceived support may receive more encouragement, validation, and opportunities to apply coping skills, whereas

those with lower support may return to environments that provide fewer resources for sustaining behavioral and emotional change. Recent findings showing that social support moderates associations between self-compassion and self-efficacy further suggest that the effectiveness of intrapersonal psychological resources may depend on interpersonal context (20). In this sense, social support may be particularly influential during follow-up, when structured therapist contact is no longer available and patients must rely more heavily on personal and interpersonal resources to preserve treatment gains.

The broader literature on psychological intervention in chronic illness also supports examining self-efficacy, emotional regulation, self-compassion, and social resources within an integrated framework. Mindfulness-based interventions have been shown to promote coping and self-efficacy among patients with cancer, partly by enhancing awareness, acceptance, and adaptive responses to distress (4). Similarly, interventions targeting emotion regulation and mindfulness in rheumatoid arthritis have demonstrated benefits extending beyond symptom management to cognitive and executive functioning (13). These findings suggest that therapeutic approaches capable of altering how patients relate to emotions, bodily sensations, and difficult thoughts may produce broad effects on perceived control and coping competence. At the same time, the literature indicates that different therapeutic approaches may reach similar outcomes through distinct mechanisms. ERBT emphasizes identification, acceptance, reappraisal, distress tolerance, and goal-directed behavior, whereas SCBT emphasizes self-kindness, common humanity, mindful awareness, and reduction of self-criticism. Comparing these approaches is therefore clinically valuable because both may improve self-efficacy and helplessness, but their relative effectiveness and durability may differ.

Despite growing evidence supporting emotion regulation and self-compassion interventions individually, direct comparisons between these approaches in psychosomatic patients remain limited. Much of the existing research has focused on cancer, chronic pain, dermatological conditions, rheumatoid arthritis, substance dependence, mood problems, or nonclinical populations (7, 13, 16, 17). Moreover, studies often evaluate emotional distress, quality of life, mindfulness, or general coping outcomes without simultaneously examining learned helplessness and self-efficacy as conceptually linked indicators of perceived control. There is also a need to distinguish immediate treatment effects from their longer-term maintenance. A treatment may produce meaningful post-intervention improvement but differ substantially in whether its benefits persist after structured sessions have ended. This distinction is particularly important for psychosomatic disorders, in which recurrent symptoms and continuing life stressors may challenge the durability of psychological gains.

Another gap concerns the role of social support as a moderator rather than merely as a correlate or mediator. Although studies have documented links among social support, self-efficacy, helplessness, self-compassion, and psychological adaptation (2, 3, 20-22), fewer intervention studies have examined whether the magnitude of treatment response itself varies according to patients' level of perceived support. This distinction has practical implications because identifying moderation can help clinicians determine which patients are most likely to maintain treatment gains and whether individuals with low social support may require additional interpersonal or community-based support following therapy. Given the psychosomatic nature of the target population, such moderation is theoretically plausible because both emotional regulation and self-compassion may be more easily maintained when patients perceive that supportive others are available to reinforce adaptive coping.

Recent work also continues to emphasize the interconnectedness of emotional, cognitive, and interpersonal processes across health contexts. Self-efficacy has been linked to resilience and anxiety in chronic illness (9); emotion-regulation interventions have shown efficacy in reducing maladaptive behavior and improving coping capacities (11, 12); self-compassion has emerged as a protective factor against helplessness and distress (18, 19); and social support has been shown to shape both psychological resources and health-related adaptation (20, 22). Even in contexts not directly involving psychosomatic illness, psychological functioning appears to depend on the dynamic interaction among perceived competence, emotional regulation, interpersonal resources, and adaptive responses to adversity. Findings concerning loneliness and self-efficacy further illustrate how broader behavioral and contextual factors can alter perceived personal competence (10). Collectively, this literature supports a multilevel approach in which psychosomatic adaptation is understood not solely as a consequence of symptoms, but as a product of how individuals regulate emotions, interpret adversity, evaluate their own coping capacities, and experience support from others.

Accordingly, a comparative evaluation of ERBT and SCBT can contribute to both clinical practice and theory. If both treatments improve self-efficacy but differ in their effects on helplessness, this may indicate that emotion regulation and self-compassion share some therapeutic pathways while exerting differential effects on perceived uncontrollability. If social support modifies treatment effects, particularly during follow-up, it would further suggest that the maintenance of psychological gains depends on more than the intervention itself and may be shaped by the interpersonal environment. Such findings could help refine treatment selection, guide relapse-prevention planning, and identify patients who may benefit from additional social-support enhancement. They could also provide a clearer understanding of how intrapersonal and interpersonal resources jointly contribute to adaptation among individuals whose physical symptoms are closely intertwined with emotional and cognitive processes.

The present study aimed to compare the effectiveness of Emotion Regulation–Based Therapy and Self-Compassion–Based Therapy on learned helplessness and self-efficacy in patients with psychosomatic disorders and to examine the moderating role of perceived social support in these treatment effects.

## Methods and Materials

### *Study Design and Participants*

The present study employed a quasi-experimental design with a three-month follow-up and three parallel groups, consisting of two experimental groups receiving Emotion Regulation–Based Therapy (ERBT) and Self-Compassion–Based Therapy (SCBT), respectively, and one control group. The statistical population comprised all patients with psychosomatic disorders in Tehran, Iran, during 2025 whose diagnoses had been established and confirmed by medical specialists at the hospital where the study was conducted. Initially, 45 eligible patients were recruited through purposive sampling and were allocated to the three groups, with 15 participants in each group. Group allocation was performed randomly using a participant-based draw procedure in which patients were asked to select numbered slips from an envelope, with the selected number determining assignment to the ERBT, SCBT, or control condition. The adequacy of the initial sample size was assessed using G*Power software by considering an alpha level of 0.05, an effect size of 0.80, and statistical power of 0.95 (Kang, 2021). During the study, however, several participants withdrew from

treatment or provided invalid questionnaire responses, either intentionally or unintentionally, including repetitive response patterns or responses unrelated to item content. Consequently, the final analytic sample consisted of 38 patients. The control group retained 15 participants and therefore constituted the largest group, accounting for 39.5% of the final sample, whereas the ERBT and SCBT groups included 12 and 11 participants, respectively, jointly representing approximately 60.5% of the final sample. Eligibility criteria included a confirmed clinical diagnosis of a psychosomatic disorder by a physician or psychiatrist at the participating hospital, a minimum age of 20 years, sufficient ability to read and respond to Persian-language questionnaires, willingness to participate voluntarily and provide written informed consent, and adequate physical and psychological capacity to attend the therapeutic sessions. Exclusion criteria included withdrawal from treatment sessions or questionnaire completion during the study, provision of clearly invalid or unreliable questionnaire responses, and any clinically significant change in the participant's condition requiring an alternative or additional course of treatment. After receiving the required institutional and research approvals, the researchers attended Imam Khomeini Governmental Hospital in Tehran and identified patients meeting the study criteria. Eligible patients were invited to an initial interview in which the objectives, procedures, potential expectations, and ethical principles of the study were explained, questions were answered, and written informed consent was obtained. Participants were informed that involvement was entirely voluntary and that they could discontinue participation at any stage without obligation or penalty. Confidentiality of all personal and research information was maintained, and collected data were used solely for scientific purposes. Following baseline assessment, participants were assigned to the three study conditions. Both intervention groups received their respective treatment programs, while the control group received no active psychological intervention during the study and remained on a waiting list. For ethical reasons, after completion of the research procedures, participants in the control group were offered an intensive online version of the therapeutic sessions. All face-to-face intervention sessions were conducted in an appropriate training and consultation room within the hospital. Participants in the experimental groups completed the outcome measures again immediately after the intervention, and follow-up assessment was conducted three months later.

### *Data Collection Tools*

The Learned Helplessness Scale (LHS) was used to assess the participants' level of learned helplessness. This instrument was developed by Quinless and McDermott in 1995, based on Seligman's theoretical model of learned helplessness and earlier psychometric work reported by Quinless and Nelson. The questionnaire consists of 27 items that assess individuals' perceptions and reactions across situations associated with helplessness and perceived lack of control. Responses are scored on a five-point Likert scale ranging from 1, indicating strong disagreement, to 5, indicating strong agreement. Accordingly, total scores can range from 27 to 135, with higher scores reflecting greater levels of learned helplessness. Previous psychometric investigations reported reliability coefficients of approximately 0.85, and evidence of concurrent validity has been demonstrated through meaningful associations with established measures such as the Beck Depression Inventory and measures of self-esteem. In Iranian studies, the internal consistency of the scale has also been supported, with a Cronbach's alpha coefficient of 0.78 reported in previous research. In the present study,

the Cronbach's alpha coefficient for the Learned Helplessness Scale was 0.711, indicating an acceptable level of internal consistency for the study sample.

The General Self-Efficacy Scale, 17-item version (GSE-17), was administered to evaluate general self-efficacy. The instrument was originally developed by Sherer and colleagues in 1982 and is designed to measure generalized expectations of personal competence and the perceived ability to initiate and persist in goal-directed behavior. The scale contains 17 items scored on a four-point Likert response format ranging from strong disagreement to strong agreement. Conceptually, the instrument assesses several behavioral aspects of self-efficacy, including willingness to initiate behavior, persistence in continuing efforts toward goal completion, and resistance or perseverance when confronting obstacles and difficulties. Total scores range from 17 to 68, with higher scores indicating greater general self-efficacy. Previous Iranian investigations have reported satisfactory internal consistency, including a reliability coefficient of approximately 0.83. In the current study, Cronbach's alpha for the GSE-17 was 0.766, indicating adequate internal consistency. In addition, convergent validity was examined and yielded a coefficient of 0.714, providing further support for the construct validity of the measure in the present sample.

The Multidimensional Scale of Perceived Social Support (MSPSS) was used to assess participants' perceived availability of social support. The MSPSS is a self-report instrument originally developed by Zimet and colleagues and subsequently reported by Dahlem and colleagues. It consists of 12 items scored on a seven-point Likert scale ranging from 1, representing strong disagreement, to 7, representing strong agreement. The scale measures perceived social support from three principal sources, namely family, friends, and significant others. Item scores are summed to derive a total perceived social support score ranging from 12 to 84, with higher scores indicating stronger perceived social support. The MSPSS has demonstrated favorable reliability and validity in different populations and has also been psychometrically evaluated in Iran. Previous Iranian research reported a Cronbach's alpha coefficient of 0.88, indicating high internal consistency. In the present study, the Cronbach's alpha coefficient for the MSPSS was 0.77, demonstrating satisfactory reliability. The total MSPSS score was also incorporated into the inferential analyses as a potential moderator of the effects of the two therapeutic interventions on learned helplessness and self-efficacy over time.

### *Interventions*

The Emotion Regulation–Based Therapy intervention was delivered according to a structured eight-session protocol adapted from emotion regulation training implemented in Iranian research in 2023 (Yavari & Khoshakhlagh, 2023). Participants assigned to this group attended eight 90-minute sessions conducted twice weekly. The first session introduced the central assumptions of the emotion regulation model and explained the relevance of emotional processes to psychosomatic symptoms. Treatment goals were clarified, initial emotional engagement was explored, and participants were trained to distinguish among emotions, physiological arousal, and behavioral reactions, while the therapist simultaneously focused on establishing a therapeutic alliance. The second session emphasized recognizing, differentiating, and labeling emotions. Mindfulness-oriented exercises were used to help participants observe moment-to-moment emotional experiences without judgment and to reduce habitual tendencies toward emotional avoidance or suppression. The third session focused on emotional acceptance, with participants learning that attempts to

immediately eliminate or control unpleasant emotional states may paradoxically intensify emotional and somatic distress. Practical exercises emphasized nonjudgmental and nonavoidant acceptance of emotional and bodily arousal as temporary experiences. The fourth session introduced cognitive reappraisal as a core emotion regulation strategy. Participants were trained to identify and reconsider cognitive interpretations of distressing situations rather than relying on suppression or avoidance, thereby modifying emotional responses and strengthening perceived competence in dealing with difficult circumstances. The fifth session concentrated on active emotion regulation strategies designed to counter behavioral passivity associated with learned helplessness. Adaptive behavioral planning, purposeful engagement, and directing emotional energy toward constructive goal-oriented activity were practiced as alternatives to withdrawal and avoidance. The sixth session addressed distress tolerance for situations in which immediate change was not possible. Participants learned methods for managing intense emotional and physiological distress, including rapid self-soothing techniques and adaptive distraction strategies to tolerate acute peaks in psychological or somatic discomfort. The seventh session focused on integrating the previously acquired skills. Participants identified high-risk situations in which they were particularly vulnerable to dysfunctional emotional responses or renewed helplessness and developed individualized action plans combining emotional acceptance, cognitive reappraisal, and active coping strategies. The eighth and final session consolidated treatment gains, reviewed the full set of learned skills, and emphasized relapse prevention and continued application of emotion regulation techniques after treatment termination. The importance of social support as a potential resource for maintaining effective emotion regulation was also discussed, and the immediate posttest assessment was administered following completion of the session.

The Self-Compassion–Based Therapy intervention consisted of eight 60-minute sessions conducted twice weekly and was based on a structured protocol derived from the study by Arabi et al. (2021). The first session introduced the three principal components of self-compassion, including self-kindness, common humanity, and mindfulness, and clarified the conceptual distinction between self-compassion and self-esteem. Given the tendency of patients with psychosomatic disorders to engage in harsh self-criticism, the initial session focused on creating a psychologically safe therapeutic environment and helping participants identify situations in which they judged or blamed themselves excessively. The second session emphasized self-kindness and trained participants to respond to psychological distress, physical symptoms, and perceived failure with understanding and supportive internal dialogue rather than criticism. A central exercise involved writing a compassionate and supportive letter to oneself in response to a personally difficult experience. The third session addressed common humanity by helping participants understand that suffering, limitation, and imperfection are universal aspects of the human condition rather than evidence of unique personal inadequacy. This component was intended to reduce feelings of isolation and helplessness associated with beliefs that one's difficulties are singular or uniquely burdensome. The fourth session focused on mindfulness as a means of observing thoughts, emotions, and self-critical reactions without overidentifying with them. In this intervention, mindfulness was specifically framed as an accepting and compassionate awareness of self-directed thoughts and emotions rather than merely an emotion-identification technique. The fifth session emphasized active self-compassion in response to failure or setbacks. Participants practiced responding compassionately to experiences such as delayed recovery, symptom recurrence, or perceived inability, with the aim of preventing rapid deterioration in self-efficacy.

The sixth session centered on developing a compassionate inner voice. Participants learned techniques for transforming a punitive internal critic into a supportive internal dialogue and practiced challenging dysfunctional core beliefs that could contribute to helplessness. The seventh session emphasized self-compassion as a motivational system rather than as self-indulgence or self-praise. Participants were taught that compassionate self-responding can facilitate adaptive change, persistence, and renewed effort after setbacks and can therefore function as a direct countermeasure to helplessness. The eighth session reviewed all treatment components and focused on consolidation, maintenance, and internalization of self-compassion practices. Participants developed individualized plans for maintaining self-kindness during future stressful experiences and discussed the potential role of social support in reinforcing compassionate responses toward oneself and one's environment. The immediate posttest assessment was administered after completion of the final session.

### *Data Analysis*

Data were analyzed using IBM SPSS Statistics version 27. Descriptive statistics, including means and standard deviations, were calculated to summarize the principal study variables across groups and measurement occasions. Prior to the main inferential analyses, the homogeneity of variances assumption was examined using Levene's test. Because the study involved three independent treatment conditions and repeated assessments across time, inferential analyses were selected to examine both between-group and within-participant changes. The Kruskal–Wallis H test was employed where appropriate for comparisons among the three groups when distributional or parametric assumptions were not adequately satisfied. Repeated-measures analysis of covariance was used to evaluate changes in learned helplessness and self-efficacy across baseline, posttest, and three-month follow-up, while simultaneously examining group effects and time-by-group interactions. Perceived social support was incorporated into the analytical models to examine its potential moderating role in the effectiveness of ERBT and SCBT, particularly through interaction effects involving time, treatment group, and social support. When statistically significant omnibus differences were observed, Bonferroni-adjusted post hoc comparisons were conducted to identify specific differences between treatment conditions while controlling for inflation of Type I error arising from multiple comparisons. All statistical tests were interpreted at a two-sided significance level of $p < 0.05$, and effect-size indices were considered alongside significance tests where applicable to provide an estimate of the magnitude of treatment effects.

## Findings and Results

The demographic characteristics of participants were examined to determine the comparability of the Emotion Regulation–Based Therapy (ERBT), Self-Compassion–Based Therapy (SCBT), and control groups with respect to marital status, educational level, gender, employment status, and age. The Kruskal–Wallis test revealed no statistically significant differences among the three groups in marital status ($H = 1.191$, $p = 0.551$), indicating a relatively similar distribution of single, married, and divorced participants across the groups. Educational level was also comparable among the groups ($H = 0.342$, $p = 0.843$), with no significant differences in the distribution of participants holding diploma, bachelor's, or master's degrees. Similarly, no significant between-group difference was observed for gender ($H = 0.572$, $p = 0.751$), indicating that the

proportions of male and female participants were sufficiently comparable across the three conditions. Employment status was also homogeneous across groups (H = 0.137, p = 0.934), with similar distributions of participants employed in government positions, freelance occupations, or as homemakers. Finally, there was no significant difference among the groups in age categories of 20–30, 30–40, and 40–45 years (H = 0.684, p = 0.710). Overall, all demographic comparisons yielded nonsignificant results (p > 0.05), indicating adequate demographic comparability of the ERBT, SCBT, and control groups. Accordingly, the subsequent between-group differences in the study outcomes were unlikely to be attributable to systematic differences in the demographic composition of the groups.

**Table 1. Descriptive Statistics of the Research Variables**

| Variable | Time | Group | N | Mean | SD | Median | IQR | Min | Max | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Self-Efficacy | Pre-test | ERBT | 12 | 40.917 | 2.314 | 40.5 | 3.25 | 38 | 45 | 0.385 | -0.940 |
| | | SCBT | 11 | 41.545 | 2.067 | 42.0 | 2.00 | 38 | 45 | -0.079 | -0.258 |
| | | Control | 15 | 42.933 | 7.516 | 41.0 | 3.50 | 38 | 69 | 3.356 | 12.190 |
| | Post-test | ERBT | 12 | 45.667 | 1.073 | 46.0 | 1.25 | 44 | 47 | -0.255 | -0.996 |
| | | SCBT | 11 | 47.091 | 1.446 | 47.0 | 2.00 | 45 | 49 | -0.190 | -1.245 |
| | | Control | 15 | 43.467 | 7.328 | 42.0 | 2.50 | 38 | 69 | 3.409 | 12.495 |
| | Follow-up | ERBT | 12 | 46.833 | 1.528 | 46.5 | 2.25 | 45 | 49 | 0.150 | -1.574 |
| | | SCBT | 11 | 49.091 | 1.221 | 49.0 | 2.00 | 47 | 51 | -0.206 | -0.919 |
| | | Control | 15 | 44.467 | 6.958 | 43.0 | 2.50 | 40 | 69 | 3.554 | 13.258 |
| Learned Helplessness | Pre-test | ERBT | 12 | 71.833 | 2.250 | 71.0 | 4.00 | 69 | 75 | 0.248 | -1.572 |
| | | SCBT | 11 | 71.727 | 2.412 | 71.0 | 3.50 | 69 | 76 | 0.652 | -0.881 |
| | | Control | 15 | 72.667 | 2.320 | 73.0 | 3.50 | 69 | 76 | -0.324 | -1.275 |
| | Post-test | ERBT | 12 | 66.667 | 1.155 | 67.0 | 1.00 | 65 | 69 | 0.362 | 0.300 |
| | | SCBT | 11 | 69.182 | 0.405 | 69.0 | 0.00 | 69 | 70 | 1.923 | 2.037 |
| | | Control | 15 | 72.067 | 1.907 | 71.0 | 2.50 | 69 | 75 | 0.176 | -1.198 |
| | Follow-up | ERBT | 12 | 64.417 | 1.621 | 65.0 | 1.50 | 61 | 66 | -1.127 | 0.387 |
| | | SCBT | 11 | 67.455 | 0.522 | 67.0 | 1.00 | 67 | 68 | 0.213 | -2.444 |
| | | Control | 15 | 72.067 | 1.907 | 71.0 | 2.50 | 69 | 75 | 0.176 | -1.198 |
| Social Support | — | ERBT | 12 | 53.750 | 2.701 | 53.5 | 4.50 | 50 | 58 | 0.284 | -1.350 |
| | — | SCBT | 11 | 54.182 | 3.093 | 54.0 | 5.50 | 50 | 58 | 0.016 | -1.925 |
| | — | Control | 15 | 52.533 | 1.598 | 52.0 | 3.00 | 50 | 55 | 0.173 | -1.213 |

As shown in Table 1, baseline self-efficacy scores were relatively similar across the ERBT (M = 40.917, SD = 2.314), SCBT (M = 41.545, SD = 2.067), and control (M = 42.933, SD = 7.516) groups. Following the interventions, mean self-efficacy increased to 45.667 (SD = 1.073) in the ERBT group and 47.091 (SD = 1.446) in the SCBT group, whereas only a small increase was observed in the control group (M = 43.467, SD = 7.328). This pattern was maintained at the three-month follow-up, when mean self-efficacy reached 46.833 (SD = 1.528) in the ERBT group and 49.091 (SD = 1.221) in the SCBT group, compared with 44.467 (SD = 6.958) in the control group. A similar baseline equivalence was observed for learned helplessness, with pre-test means of 71.833 (SD = 2.250), 71.727 (SD = 2.412), and 72.667 (SD = 2.320) in the ERBT, SCBT, and control groups, respectively. At post-test, learned helplessness decreased to 66.667 (SD = 1.155) in the ERBT group and 69.182 (SD = 0.405) in the SCBT group, whereas the control group remained relatively unchanged at 72.067 (SD = 1.907). Further reductions were evident at follow-up in the ERBT (M = 64.417, SD = 1.621) and SCBT (M = 67.455, SD = 0.522) groups, while the control group remained unchanged (M = 72.067, SD = 1.907). Mean perceived social support scores were relatively similar across ERBT (M = 53.750, SD = 2.701), SCBT (M = 54.182, SD = 3.093), and control (M = 52.533, SD = 1.598) groups. Overall, the descriptive pattern

suggested improvement in self-efficacy and reduction in learned helplessness following both interventions, with the strongest descriptive reduction in learned helplessness observed in the ERBT group.

Before conducting the inferential analyses, the assumption of homogeneity of variances was evaluated using Levene's test for the post-test and follow-up scores. The results indicated statistically significant heterogeneity of variance for self-efficacy at both post-test, $F(2, 35) = 7.304$, $p = 0.002$, and follow-up, $F(2, 35) = 6.131$, $p = 0.005$. The homogeneity assumption was also violated for learned helplessness at post-test, $F(2, 35) = 10.060$, $p < 0.001$, and follow-up, $F(2, 35) = 8.714$, $p < 0.001$. Thus, the assumption of equal variances was not satisfied for either dependent variable. Given this violation and the unequal final group sizes, Welch's robust test was additionally employed for between-group comparisons at the post-test and follow-up stages. The repeated-measures covariance analyses were interpreted alongside these robust statistics to reduce the potential influence of variance heterogeneity on the inferential conclusions.

**Table 2. Results of Repeated-Measures Covariance Analysis and Welch's Robust Tests**

| Variable | Effect/Stage | Source | SS | MS | F | p | $\eta^2$ |
|---|---|---|---|---|---|---|---|
| Self-Efficacy | Within-subjects | Time | 0.161 | 0.161 | 0.134 | 0.717 | 0.004 |
| | | Time × Pre-test | 0.198 | 0.198 | 0.164 | 0.688 | 0.005 |
| | | Time × Social Support | 0.763 | 0.763 | 0.632 | 0.432 | 0.019 |
| | | Time × Group | 2.521 | 1.260 | 1.044 | 0.363 | 0.060 |
| | Between-subjects | Group | 314.486 | 157.243 | 11.994 | <0.001 | 0.421 |
| | Welch | Post-test | 87.007 | 43.503 | 4.393 | 0.025 | 0.100 |
| | | Follow-up | 137.086 | 68.543 | 9.507 | 0.001 | 0.160 |
| Learned Helplessness | Within-subjects | Time | 1.373 | 1.373 | 0.803 | 0.377 | 0.024 |
| | | Time × Pre-test | 0.939 | 0.939 | 0.550 | 0.464 | 0.016 |
| | | Time × Social Support | 1.571 | 1.571 | 0.919 | 0.345 | 0.027 |
| | | Time × Group | 16.163 | 8.082 | 4.729 | 0.016 | 0.223 |
| | Between-subjects | Group | 510.991 | 255.496 | 102.848 | <0.001 | 0.862 |
| | Welch | Post-test | 196.237 | 98.119 | 43.401 | <0.001 | 0.745 |
| | | Follow-up | 401.633 | 200.817 | 62.492 | <0.001 | 0.829 |

As presented in Table 2, for self-efficacy, the main effect of time was not statistically significant, $F = 0.134$, $p = 0.717$, $\eta^2 = 0.004$, indicating that there was no uniform change in self-efficacy over time irrespective of treatment condition. The Time × Pre-test interaction, $F = 0.164$, $p = 0.688$, $\eta^2 = 0.005$, and the Time × Social Support interaction, $F = 0.632$, $p = 0.432$, $\eta^2 = 0.019$, were also nonsignificant. Moreover, the Time × Group interaction did not reach statistical significance, $F = 1.044$, $p = 0.363$, $\eta^2 = 0.060$, suggesting that the longitudinal pattern of self-efficacy did not differ significantly among the three groups when considered as an overall interaction. Nevertheless, the between-subjects effect of treatment group was statistically significant, $F = 11.994$, $p < 0.001$, $\eta^2 = 0.421$, indicating substantial overall differences in adjusted self-efficacy scores among the groups. Because homogeneity of variance was violated, Welch's robust tests were considered, and these confirmed significant between-group differences at both post-test, $F = 4.393$, $p = 0.025$, $\eta^2 = 0.100$, and follow-up, $F = 9.507$, $p = 0.001$, $\eta^2 = 0.160$. For learned helplessness, the main effect of time was not significant, $F = 0.803$, $p = 0.377$, $\eta^2 = 0.024$, nor were the Time × Pre-test, $F = 0.550$, $p = 0.464$, $\eta^2 = 0.016$, or Time × Social Support interactions, $F = 0.919$, $p = 0.345$, $\eta^2 = 0.027$. In contrast, the Time × Group interaction was statistically significant, $F = 4.729$, $p = 0.016$, $\eta^2 = 0.223$, demonstrating that changes in learned helplessness across measurement occasions differed according to treatment condition. The between-subjects group effect was also highly significant, $F = 102.848$, $p < 0.001$, $\eta^2 = 0.862$, representing a very large treatment-group effect. Welch's tests further confirmed substantial between-group

differences at post-test, $F = 43.401$, $p < 0.001$, $\eta^2 = 0.745$, and follow-up, $F = 62.492$, $p < 0.001$, $\eta^2 = 0.829$. Collectively, these findings indicate that both interventions were associated with favorable outcomes compared with the control condition, while the pattern of change in learned helplessness differed significantly across the treatment groups and remained evident at follow-up.

**Table 3. Bonferroni-Adjusted Post Hoc Comparisons**

| Variable | Comparison 1 | Comparison 2 | Mean Difference | SE | t | pBonf |
|---|---|---|---|---|---|---|
| Learned Helplessness | ERBT, Post-test | SCBT, Post-test | -2.527 | 0.577 | -4.382 | <0.001 |
| | ERBT, Post-test | Control, Post-test | -5.307 | 0.541 | -9.801 | <0.001 |
| | ERBT, Post-test | ERBT, Follow-up | 2.265 | 0.535 | 4.238 | <0.001 |
| | ERBT, Post-test | SCBT, Follow-up | -0.779 | 0.617 | -1.263 | 0.430 |
| | ERBT, Post-test | Control, Follow-up | -5.334 | 0.570 | -9.359 | <0.001 |
| | SCBT, Post-test | Control, Post-test | -2.780 | 0.556 | -4.996 | <0.001 |
| | SCBT, Post-test | ERBT, Follow-up | 4.792 | 0.613 | 7.812 | <0.001 |
| | SCBT, Post-test | SCBT, Follow-up | 1.748 | 0.559 | 3.125 | 0.011 |
| | SCBT, Post-test | Control, Follow-up | -2.807 | 0.583 | -4.812 | <0.001 |
| | Control, Post-test | ERBT, Follow-up | 7.572 | 0.577 | 13.129 | <0.001 |
| | Control, Post-test | SCBT, Follow-up | 4.527 | 0.593 | 7.630 | <0.001 |
| | Control, Post-test | Control, Follow-up | -0.027 | 0.482 | -0.057 | 0.955 |
| | ERBT, Follow-up | SCBT, Follow-up | -3.044 | 0.648 | -4.699 | <0.001 |
| | ERBT, Follow-up | Control, Follow-up | -7.599 | 0.608 | -12.492 | <0.001 |
| | SCBT, Follow-up | Control, Follow-up | -4.555 | 0.625 | -7.287 | <0.001 |
| Self-Efficacy | ERBT | SCBT | -1.365 | 1.065 | -1.282 | 0.208 |
| | ERBT | Control | 3.809 | 1.002 | 3.803 | 0.001 |
| | SCBT | Control | 5.174 | 1.018 | 5.082 | <0.001 |

The Bonferroni-adjusted comparisons presented in Table 3 clarified the nature of the significant between-group differences. At post-test, the ERBT group demonstrated significantly lower learned helplessness than the SCBT group, with a mean difference of -2.527 ($p < 0.001$), indicating a greater immediate reduction following ERBT. The ERBT group also reported significantly lower learned helplessness than the control group at post-test (MD = -5.307, $p < 0.001$). Similarly, SCBT was significantly more effective than the control condition at post-test (MD = -2.780, $p < 0.001$). At the three-month follow-up, ERBT maintained its advantage over SCBT, with significantly lower learned helplessness scores (MD = -3.044, $p < 0.001$). ERBT also remained significantly superior to the control condition at follow-up (MD = -7.599, $p < 0.001$), while SCBT continued to produce significantly lower learned helplessness than the control group (MD = -4.555, $p < 0.001$). Within the control group, no significant difference emerged between post-test and follow-up (MD = -0.027, $p = 0.955$), suggesting that learned helplessness remained essentially unchanged in the absence of therapeutic intervention. Significant within-treatment changes were also evident from post-test to follow-up, including further reductions within ERBT (MD = 2.265, $p < 0.001$) and SCBT (MD = 1.748, $p = 0.011$). Regarding self-efficacy, the difference between ERBT and SCBT was not statistically significant (MD = -1.365, $p = 0.208$), indicating comparable effectiveness of the two active interventions on this outcome. However, ERBT demonstrated significantly higher self-efficacy than the control group (MD = 3.809, $p = 0.001$), and SCBT likewise produced significantly higher self-efficacy than the control group (MD = 5.174, $p < 0.001$). Thus, although both interventions effectively improved self-efficacy relative to the control condition, neither active intervention was statistically superior to the other. In contrast, ERBT demonstrated

greater effectiveness than SCBT in reducing learned helplessness, and this superiority was maintained through the follow-up period.

**Table 4. Moderation and Simple Slope Estimates for Perceived Social Support**

| Outcome/Stage | Predictor | Estimate | SE | Z | p |
|---|---|---|---|---|---|
| Learned Helplessness, Post-test | Group | 2.6043 | 0.2525 | 10.313 | <0.001 |
| | Social Support | -0.1286 | 0.0855 | -1.504 | 0.133 |
| | Group × Social Support | -0.0861 | 0.1156 | -0.745 | 0.456 |
| Learned Helplessness, Follow-up | Group | 3.819 | 0.2610 | 14.63 | <0.001 |
| | Social Support | -0.145 | 0.0884 | -1.64 | 0.102 |
| | Group × Social Support | 0.277 | 0.1194 | 2.32 | 0.020 |
| Simple Slopes at Follow-up | Mean Social Support | 3.82 | 0.284 | 13.47 | <0.001 |
| | Low Social Support (-1 SD) | 3.14 | 0.397 | 7.90 | <0.001 |
| | High Social Support (+1 SD) | 4.50 | 0.435 | 10.36 | <0.001 |

As shown in Table 4, moderation analyses were conducted separately at post-test and follow-up to determine whether perceived social support modified the association between treatment group and learned helplessness. At post-test, the main effect of treatment group was statistically significant ($\beta = 2.6043$, SE = 0.2525, Z = 10.313, $p < 0.001$), whereas the main effect of social support was not significant ($\beta = -0.1286$, SE = 0.0855, Z = -1.504, $p = 0.133$). More importantly, the Group × Social Support interaction was nonsignificant at post-test ($\beta = -0.0861$, SE = 0.1156, Z = -0.745, $p = 0.456$), indicating that perceived social support did not significantly moderate the immediate effect of treatment on learned helplessness. At the three-month follow-up, the main effect of treatment group remained statistically significant ($\beta = 3.819$, SE = 0.2610, Z = 14.63, $p < 0.001$), while the independent effect of social support remained nonsignificant ($\beta = -0.145$, SE = 0.0884, Z = -1.64, $p = 0.102$). However, the Group × Social Support interaction became statistically significant at follow-up ($\beta = 0.277$, SE = 0.1194, Z = 2.32, $p = 0.020$), demonstrating that perceived social support significantly moderated the longer-term association between treatment condition and learned helplessness. Simple slope analyses further showed that the treatment effect remained significant at all examined levels of social support, but its magnitude increased progressively as perceived social support increased. At low social support (-1 SD), the estimated treatment effect was $\beta = 3.14$ (SE = 0.397, Z = 7.90, $p < 0.001$); at the mean level of social support, it increased to $\beta = 3.82$ (SE = 0.284, Z = 13.47, $p < 0.001$); and at high social support (+1 SD), it reached $\beta = 4.50$ (SE = 0.435, Z = 10.36, $p < 0.001$). These findings indicate that perceived social support did not significantly influence the immediate treatment response but strengthened the maintenance of treatment-related differences in learned helplessness over the three-month follow-up period. In other words, higher levels of perceived social support were associated with a larger and more sustained therapeutic effect on learned helplessness.

## Discussion and Conclusion

The present study compared the effectiveness of Emotion Regulation–Based Therapy (ERBT) and Self-Compassion–Based Therapy (SCBT) on learned helplessness and self-efficacy in patients with psychosomatic disorders and examined the moderating role of perceived social support. The findings showed that both ERBT and SCBT produced significant improvements in self-efficacy compared with the control group, although the difference between the two active treatment groups was not statistically significant. In contrast, both interventions significantly reduced learned helplessness compared with the control condition,

but ERBT produced a greater reduction than SCBT at both post-test and follow-up. Moreover, the superiority of ERBT in reducing learned helplessness persisted over the three-month follow-up period. Regarding social support, the results showed that perceived social support did not significantly moderate the treatment effects on self-efficacy. For learned helplessness, however, social support did not significantly moderate the immediate post-test treatment effect but became a significant moderator at follow-up. Simple slope analyses indicated that the treatment effect on learned helplessness remained significant at low, average, and high levels of social support, with the magnitude of the treatment effect increasing as perceived social support increased. These findings suggest that ERBT and SCBT both strengthen adaptive psychological functioning in psychosomatic patients, but ERBT may have a particularly strong and durable effect on perceptions of uncontrollability and helplessness.

The significant improvement in self-efficacy following both interventions is consistent with the broader literature identifying self-efficacy as a modifiable psychological resource that can be strengthened through interventions targeting emotional, cognitive, and coping processes. Self-efficacy reflects individuals' beliefs about their capacity to initiate and sustain effective actions in difficult situations, and such beliefs are particularly relevant among patients with persistent physical and psychological symptoms. Previous research has shown that self-efficacy is associated with more adaptive health behaviors, greater persistence, better psychological functioning, and reduced vulnerability to negative emotional states (8, 9). The present finding that both ERBT and SCBT enhanced self-efficacy relative to the control condition therefore supports the view that therapeutic changes in emotional and self-relational processes can strengthen patients' confidence in their ability to cope with symptoms and stressful circumstances.

The effect of ERBT on self-efficacy can be explained by the structure of emotion regulation training itself. ERBT teaches patients to identify emotional states, distinguish emotions from bodily arousal, tolerate distress, reinterpret challenging situations, and replace passive or avoidant responses with more purposeful behavior. These processes can directly strengthen mastery experiences and perceived control, which are central foundations of self-efficacy. When individuals learn that they can regulate intense emotional experiences without becoming overwhelmed by them, they are likely to develop greater confidence in their ability to manage future stressors. This interpretation is consistent with research showing that emotion-focused interventions can improve coping self-efficacy and related adaptive functioning (12). It is also compatible with findings from mindfulness-based and emotion-regulation-oriented interventions showing improved coping competence and psychological adaptation among patients with chronic health conditions (4, 13). Emotion regulation may therefore enhance self-efficacy because it transforms previously uncontrollable emotional experiences into manageable psychological events.

The improvement in self-efficacy observed in the SCBT group is also theoretically meaningful. Self-compassion reduces harsh self-criticism and promotes a more accepting and supportive response to personal failure, physical discomfort, and perceived inadequacy. Patients with psychosomatic disorders may repeatedly encounter symptoms that are difficult to predict or control, and such experiences can undermine confidence in their own coping abilities. By learning to respond to setbacks with self-kindness, common humanity, and balanced awareness, patients may become more willing to continue trying adaptive coping strategies rather than interpreting temporary difficulties as evidence of incompetence. Previous research has demonstrated a meaningful association between self-compassion and self-efficacy, suggesting that

compassionate self-relating may preserve coping confidence during difficult experiences (20). The finding is also consistent with research demonstrating that self-compassion training can reduce maladaptive attitudes and psychological distress while improving adjustment (18). In this sense, SCBT may strengthen self-efficacy indirectly by reducing the internal criticism that otherwise erodes persistence and confidence.

The absence of a significant difference between ERBT and SCBT in self-efficacy suggests that the two interventions may reach similar outcomes through different therapeutic pathways. ERBT appears to strengthen self-efficacy primarily through skill acquisition, emotional mastery, cognitive reappraisal, and behavioral activation, whereas SCBT may do so by reducing self-judgment, increasing emotional acceptance, and maintaining motivation after failure. The convergence of these different mechanisms may explain why both treatments significantly outperformed the control condition but did not differ significantly from each other. This interpretation is compatible with previous evidence showing that multiple psychological treatment models can improve self-efficacy even when their theoretical emphases differ (7). It is also consistent with research suggesting that interventions involving mindfulness, emotional awareness, and acceptance can promote coping and self-efficacy across chronic illness populations (4).

The findings concerning learned helplessness were more differentiated. Both ERBT and SCBT significantly reduced learned helplessness relative to the control group, but ERBT demonstrated greater efficacy than SCBT at both post-test and follow-up. This is an important result because learned helplessness is characterized by the expectation that one's actions will not meaningfully influence outcomes. Such a belief can be particularly pronounced among psychosomatic patients who experience recurrent or poorly controlled symptoms and may gradually conclude that efforts to manage their condition are ineffective. Previous studies have shown that learned helplessness can be reduced through psychological interventions that alter cognitive interpretations and perceptions of control (5). The present findings extend this evidence by suggesting that emotion regulation training may be particularly effective in modifying helplessness when compared with an intervention focused primarily on compassionate self-relating.

One possible explanation for the greater effectiveness of ERBT is that learned helplessness is fundamentally linked to perceived uncontrollability, and ERBT directly targets the processes through which individuals respond to uncontrollable internal experiences. The intervention teaches patients to identify emotional triggers, tolerate distress, reappraise stressful situations, and take active behavioral steps instead of withdrawing or remaining passive. These components directly oppose the cognitive and behavioral profile of learned helplessness. In other words, ERBT does not merely help patients feel better about distress; it teaches them that they can influence their own responses even when they cannot immediately change the external situation. This increase in perceived regulatory control may weaken generalized beliefs that personal action is ineffective. Evidence from research on emotion regulation also indicates that adaptive regulation strategies influence recovery after emotionally destabilizing events and facilitate more effective return to functioning (14). This helps explain why ERBT may have produced a stronger reduction in learned helplessness than SCBT.

The superiority of ERBT may also be related to its emphasis on active coping and behavioral engagement. Learned helplessness often develops through repeated experiences of unsuccessful action followed by reduced motivation to initiate new responses. Behavioral activation and structured problem-oriented action can therefore be especially important in reversing this pattern. Within ERBT, participants were encouraged

to develop adaptive plans, reinterpret distressing situations, and direct emotional energy toward purposeful behavior. These components likely increased experiences of agency and weakened passivity. Research indicating that emotion regulation and emotion efficacy interventions can improve coping and adaptive functioning supports this explanation (11, 12). Thus, ERBT may have been particularly effective because its mechanisms map directly onto the core cognitive and behavioral processes that sustain helplessness.

SCBT nevertheless also produced substantial reductions in learned helplessness compared with the control group. This finding is consistent with studies identifying self-compassion as a protective factor against helplessness. Self-compassion may reduce the tendency to interpret difficulty as evidence of permanent personal inadequacy and may prevent temporary setbacks from becoming generalized conclusions about uncontrollability. Recent evidence has shown that self-compassion, together with resilience-related characteristics, can protect against learned helplessness (19). Similarly, self-compassion interventions have been shown to reduce psychological distress and improve quality of life among individuals with chronic physical conditions (16, 17). These findings support the present result that SCBT can meaningfully reduce learned helplessness, even if its effect was smaller than that of ERBT.

The maintenance of treatment gains at follow-up is another important aspect of the findings. Learned helplessness continued to decline in both experimental groups after treatment, whereas the control group remained essentially unchanged. This pattern suggests that the interventions may have produced effects that extended beyond immediate symptom improvement. In the ERBT group, continued reductions may reflect ongoing application of emotion regulation skills in daily life. As participants repeatedly practiced acceptance, reappraisal, distress tolerance, and active coping, these strategies may have become more integrated into their habitual responses. In the SCBT group, continued improvement may reflect the gradual internalization of a less punitive and more compassionate style of self-relating. This interpretation is consistent with evidence showing that both emotion regulation and self-compassion interventions can generate sustained changes in coping and psychological adaptation (15, 16).

The moderating role of perceived social support provides a further contribution to the findings. Social support did not significantly moderate the treatment effect on learned helplessness immediately after intervention, but it became significant at the three-month follow-up. This temporal pattern suggests that social support may be less important during the active treatment phase, when participants receive structured therapeutic contact, guidance, and reinforcement, but may become increasingly important after formal treatment ends. During follow-up, patients must rely more heavily on their own environments to sustain newly learned psychological skills. Those with stronger perceived support may receive encouragement, validation, practical assistance, and opportunities to maintain adaptive coping, whereas those with lower support may have fewer interpersonal resources reinforcing treatment gains.

This result is strongly aligned with previous research demonstrating that social support can influence learned helplessness through resilience and self-efficacy (2). It is also consistent with findings showing that learned helplessness and self-efficacy mediate associations between social support and depression in medical populations (3). These studies suggest that social support can strengthen perceptions of competence and reduce the sense of uncontrollability that characterizes helplessness. The present moderation finding extends this literature by indicating that social support may not simply correlate with helplessness but may actually alter the magnitude of treatment-related change over time.

The simple slope findings further clarify this pattern. The treatment effect on learned helplessness was significant at all levels of social support, but it became progressively stronger from low to average to high social support. This means that treatment was beneficial even for participants with relatively limited perceived support, but the durability and magnitude of the effect were greater among those with stronger supportive resources. Such a finding is consistent with research showing that social support interacts with intrapersonal psychological resources such as self-compassion and self-efficacy (20). It also aligns with evidence that social support and self-compassion jointly contribute to quality of life and psychological adaptation in patients coping with significant medical conditions (22). Thus, supportive interpersonal environments may amplify the effects of therapeutic changes by helping patients preserve confidence, sustain coping behaviors, and avoid returning to helpless patterns after treatment has ended.

By contrast, social support did not significantly moderate changes in self-efficacy. This may indicate that the enhancement of self-efficacy produced by the interventions was driven primarily by intrapersonal therapeutic mechanisms rather than by the participants' social environment. During both ERBT and SCBT, participants directly practiced skills that could strengthen personal competence and self-trust, which may have reduced the relative importance of external support. Self-efficacy is also closely linked to mastery and perceived competence, and these processes may respond more strongly to direct therapeutic learning than to interpersonal reinforcement. Nevertheless, previous research has demonstrated associations between social support and self-efficacy (2, 20). The lack of moderation in the current study therefore should not be interpreted as evidence that social support is irrelevant to self-efficacy, but rather that it did not significantly alter the magnitude of treatment-related changes in this particular sample.

Taken together, the findings demonstrate that ERBT and SCBT are both effective psychological approaches for improving important cognitive and emotional outcomes among patients with psychosomatic disorders. The results also suggest that the two interventions are not entirely equivalent in their effects. While both treatments produced comparable improvements in self-efficacy, ERBT had a stronger effect on learned helplessness and maintained this advantage at follow-up. This pattern may reflect the stronger direct correspondence between emotion regulation processes and perceived control over internal experiences. At the same time, the significant moderating role of social support at follow-up indicates that treatment effects cannot be understood solely in terms of intrapersonal change. The broader interpersonal environment appears to play an important role in sustaining reductions in helplessness after structured treatment has ended. These results are consistent with the growing body of literature emphasizing the interplay among emotion regulation, self-compassion, self-efficacy, resilience, and social support in health-related psychological adaptation (1, 2, 21, 22).

Several limitations should be considered when interpreting these findings. The final sample size was relatively small, and attrition resulted in unequal group sizes, which may reduce statistical power and limit the precision of effect estimates. Participants were recruited purposively from a single governmental hospital in Tehran, which restricts the generalizability of the findings to other clinical settings, geographic regions, or psychosomatic populations with different demographic and cultural characteristics. The study relied primarily on self-report measures, making the results potentially susceptible to response bias, social desirability, and individual differences in interpretation of questionnaire items. Homogeneity of variance was violated for some outcomes, although robust procedures were used to address this issue. The follow-up

period was limited to three months and therefore does not establish whether treatment gains would persist over longer periods. In addition, psychosomatic disorders encompass heterogeneous clinical presentations, and the study did not separately analyze treatment effects according to specific diagnostic categories or symptom severity. Finally, social support was assessed as perceived support rather than through objective measures of network size, frequency of contact, or actual supportive behaviors.

Future research should replicate these findings in larger, multisite samples and include more balanced group sizes to increase statistical precision and external validity. Longer follow-up periods, such as six months or one year, would provide a clearer understanding of the durability of treatment effects and the temporal role of social support. Future studies could compare ERBT and SCBT across specific psychosomatic diagnostic subgroups to determine whether certain symptom patterns respond more strongly to one intervention. Incorporating clinician-rated outcomes, behavioral measures, physiological indicators, and ecological momentary assessment would reduce reliance on self-report data and provide a more comprehensive picture of treatment response. Researchers could also examine mediating mechanisms such as emotional awareness, cognitive reappraisal, experiential avoidance, self-criticism, resilience, and perceived control to identify how each treatment produces change. It would also be valuable to assess whether changes in social support during treatment, rather than baseline support alone, predict maintenance of gains. Finally, dismantling or component-based studies could clarify which specific elements of ERBT and SCBT are most responsible for improving self-efficacy and reducing learned helplessness.

From a clinical perspective, both ERBT and SCBT may be considered useful interventions for patients with psychosomatic disorders who experience reduced self-efficacy and elevated learned helplessness. ERBT may be particularly appropriate when patients display marked emotional dysregulation, avoidance, passivity, or a strong sense of uncontrollability, whereas SCBT may be especially useful when self-criticism, shame, and harsh self-evaluation are prominent. Clinicians should also assess patients' perceived social support because stronger interpersonal resources may help preserve treatment gains after formal therapy ends. Where social support is limited, treatment planning may benefit from including family involvement, peer support, structured follow-up contacts, or community-based resources. Relapse-prevention plans should explicitly encourage continued use of emotion regulation or self-compassion skills in everyday contexts and should identify supportive individuals who can reinforce adaptive coping. Integrating psychological treatment with broader interpersonal support may therefore improve both the immediate effectiveness and longer-term sustainability of intervention outcomes in psychosomatic care.

## Acknowledgments

The authors express their deep gratitude to all participants who contributed to this study.

## Authors' Contributions

All authors equally contributed to this study.

## Declaration of Interest

The authors of this article declared no conflict of interest.

## Ethical Considerations

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

## Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

## Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

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