

Effectiveness of Group Schema Therapy on Stress Coping Styles (Problem-Focused, Emotion-Focused, and Avoidance-Oriented) in Patients With Breast Cancer

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ABSTRACT

This study aimed to investigate the effectiveness of group schema therapy on stress coping styles (problem-focused, emotion-focused, and avoidance-oriented) among patients with breast cancer admitted to Imam Reza Hospital in Tabriz. The present study employed a quasi-experimental design with pretest, posttest, and follow-up assessments and a control group. The statistical population consisted of patients with breast cancer who attended Imam Reza Hospital in Tabriz. From this population, 30 patients were selected using convenience sampling and randomly assigned to an experimental group and a control group, with 15 participants in each group. The experimental group received group schema therapy in eight weekly two-hour sessions, whereas the control group received no intervention. The research instrument was the Coping Inventory for Stressful Situations (CISS) developed by Endler and Parker (1990). Data were collected at three assessment points—pretest, posttest, and follow-up—and analyzed using repeated-measures analysis of variance. The results indicated that group schema therapy significantly increased problem-focused coping and significantly reduced emotion-focused and avoidance-oriented coping in the experimental group compared with the control group. These changes were also maintained at the follow-up assessment ($p < .05$). Accordingly, group schema therapy can be considered an effective psychological intervention for modifying and improving stress coping strategies among patients with breast cancer.

Keywords: group schema therapy, stress coping styles, problem-focused coping, emotion-focused coping, avoidance-oriented coping, breast cancer.

1. Introduction

Breast cancer is one of the most consequential health conditions affecting women, not only because of its physical burden and potentially life-threatening course, but

also because of the substantial psychological, emotional, interpersonal, and social challenges that accompany diagnosis and treatment. For many patients, the experience of breast cancer extends far beyond the biological dimensions of the disease and becomes a persistent source

of uncertainty, fear, distress, changes in self-perception, concerns about treatment outcomes, and disruption of everyday roles. Psychological adaptation therefore represents a central component of the overall disease experience. Research examining the psychological dimensions of breast cancer has consistently emphasized that patients may encounter elevated levels of anxiety, distress, body image concerns, uncertainty regarding the future, emotional dysregulation, and difficulties in adapting to the demands of treatment and survivorship (Çivgin, 2025). These challenges may become particularly pronounced during chemotherapy and radiotherapy, when repeated exposure to treatment-related symptoms and uncertainty can increase the perceived burden of illness. Consequently, psychological variables influencing how patients interpret and manage cancer-related stressors have become increasingly important targets for psycho-oncological assessment and intervention.

One of the most important psychological processes involved in adaptation to cancer is coping with stress. Coping refers to the cognitive, emotional, and behavioral efforts individuals employ to manage internal or external demands that are perceived as stressful or exceeding their available resources. The way in which patients cope with cancer can influence their emotional adjustment, treatment participation, perceived control, quality of life, and general psychological functioning. Stress-coping strategies are not uniform, and individuals may rely on different patterns depending on their psychological characteristics, previous learning experiences, social environment, and the perceived controllability of the stressor. Problem-focused coping generally involves active attempts to understand, manage, modify, or solve the source of stress through behaviors such as information seeking, planning, decision-making, and practical problem solving. Emotion-focused coping primarily involves attempts to regulate the emotional reactions generated by stressful circumstances, whereas avoidance-oriented coping may involve behavioral withdrawal, distraction, denial, or disengagement from the stressor. Evidence from populations experiencing demanding life circumstances suggests that the type of coping strategy employed can be meaningfully associated with psychological adjustment and quality of life (Torabi, 2026). In cancer care, this issue becomes especially important because the demands associated with diagnosis, medical procedures, symptom management, uncertainty, and family responsibilities may persist over extended periods.

The role of coping has received increasing attention specifically among women with breast cancer. Fear of disease progression, treatment-related uncertainty, physical changes, and concerns about recurrence may activate coping responses that vary considerably from one patient to another. Some patients may respond through active information seeking, treatment planning, and constructive problem solving, whereas others may become increasingly emotionally preoccupied or avoid confronting aspects of their condition. In a study examining fear of progression and coping strategies among women with breast cancer, coping processes were identified as important psychological correlates of adaptation to the disease experience (Lim et al., 2025). Such findings highlight the importance of considering not only the intensity of cancer-related stress but also the strategies used to regulate and respond to that stress. Psychoeducational approaches delivered to patients undergoing chemotherapy have similarly emphasized the possibility of strengthening coping strategies and reducing psychological distress through structured psychological support (Saiwan & Al-showaily, 2025). These observations suggest that coping should not be viewed merely as a fixed personality characteristic but as a modifiable psychological process that may be improved through targeted intervention.

The psychological mechanisms underlying coping patterns may, however, extend beyond immediate responses to illness-related stress. Contemporary psychological models suggest that longstanding cognitive-emotional structures can influence how individuals perceive threatening events, regulate emotional reactions, and select coping responses. Among the most influential frameworks in this regard is schema therapy, which proposes that early maladaptive schemas are enduring cognitive-emotional patterns that develop primarily through unmet emotional needs and adverse or dysfunctional developmental experiences. These schemas shape the way individuals perceive themselves, others, relationships, vulnerability, control, safety, failure, abandonment, defectiveness, and other core psychological themes. Once activated by stressful life events, early maladaptive schemas may influence cognition, affect, behavior, interpersonal functioning, and coping. Serious illnesses such as cancer can function as powerful activating events because they may challenge deeply held assumptions regarding safety, predictability, bodily integrity, autonomy, self-worth, and the future. As a consequence, illness-related experiences may activate pre-existing maladaptive schemas and contribute to rigid or ineffective coping responses.

Emerging evidence supports the relevance of early maladaptive schemas within oncology populations. Research examining patients with cancer has demonstrated meaningful associations between early maladaptive schemas and psychologically distressing experiences such as guilt and self-blame (Nikandish et al., 2026). These associations are clinically important because cancer patients may interpret illness, treatment limitations, altered family roles, or changes in functioning through maladaptive cognitive frameworks that intensify distress and reinforce dysfunctional emotional responses. In breast cancer specifically, early maladaptive schemas have also been implicated in psychological adjustment. Karveli and colleagues found that early maladaptive schemas played a mediating role in the relationship between attachment styles and adjustment to early-stage breast cancer, highlighting the possibility that schemas constitute an important psychological mechanism through which longstanding relational and cognitive patterns influence adaptation to the illness (Karveli et al., 2025). Such findings provide a theoretical basis for examining schema-focused interventions in breast cancer, because they suggest that difficulties in adaptation may not be explained solely by the objective characteristics of the disease but also by the underlying psychological structures through which the disease is interpreted.

Schema therapy was originally developed to address enduring maladaptive patterns that may be insufficiently responsive to interventions focused exclusively on surface-level cognitions or behaviors. The approach integrates cognitive, behavioral, experiential, and interpersonal techniques and is designed to identify and modify early maladaptive schemas, dysfunctional coping responses, and schema modes. Within a cancer context, schema therapy may be especially relevant because a major medical diagnosis can activate themes of vulnerability, loss of control, dependency, abandonment, defectiveness, failure, or emotional deprivation. Bal and Örnek have specifically discussed the application of schema therapy in cancer, emphasizing its potential utility for understanding and addressing the deeper cognitive-emotional structures that may shape patients' psychological responses to illness (Bal & Örnek, 2025). Rather than addressing only transient emotional symptoms, schema therapy attempts to modify persistent patterns that influence how stressors are interpreted and managed. Through cognitive restructuring, experiential techniques, emotion-focused work, behavioral pattern breaking, and strengthening of adaptive responses,

patients may become better able to recognize schema activation and replace rigid coping responses with more functional strategies.

The potential link between maladaptive schemas and coping is also supported by research outside oncology. Kaynak and Pirim Düşgör examined early maladaptive schemas, emotion regulation, coping with stress, quality of life, and psychological symptoms in individuals with psoriasis and demonstrated the importance of considering schemas together with stress-coping and emotional processes in chronic disease (Kaynak & Pirim Düşgör, 2026). Although psoriasis and breast cancer differ substantially in etiology, severity, and treatment, both represent health conditions in which chronic stress and psychological adaptation may interact with underlying cognitive-emotional patterns. This broader evidence reinforces the theoretical proposition that schemas may influence the manner in which patients respond to health-related stressors. From this perspective, a schema-focused intervention may modify coping indirectly by helping individuals identify maladaptive interpretations, tolerate distress more effectively, regulate emotions, and adopt more active and flexible responses to challenging circumstances.

A growing body of research has also demonstrated the psychological benefits of schema-based interventions across diverse populations. Schema therapy has been shown to improve cognitive-emotional regulation, distress tolerance, and quality of life among women facing substantial psychosocial burdens (Sadri Damirchi et al., 2026). Similarly, schema therapy has been compared with mindfulness-based cognitive therapy in relation to self-esteem and psychological well-being, with findings supporting the potential of schema-focused treatment for modifying broader psychological functioning (Nosrati et al., 2026). Although these studies were not conducted specifically among women with breast cancer, they are relevant because emotion regulation, distress tolerance, self-esteem, and psychological well-being are closely related to the capacity to cope adaptively with stressful experiences. Improvements in these domains may facilitate a transition from emotionally reactive or avoidant coping patterns toward more deliberate and problem-oriented responses.

Schema-oriented interventions have also been investigated directly among women with cancer. Emotional schema therapy has demonstrated beneficial effects on perceived stress and meaning in life among women with cancer, suggesting that interventions targeting individuals' interpretations and regulation of emotional experiences can

modify important psychological consequences of the disease (Mardi & Jahtalab, 2025). Similarly, Beykzadeh and colleagues compared self-healing training with emotional schema therapy among women with breast cancer and reported effects on health locus of control, pain self-efficacy, and positive meta-emotion (Beykzadeh et al., 2025). These variables are conceptually relevant to coping because individuals who perceive greater control, experience stronger confidence in managing symptoms, and develop more adaptive beliefs about emotions may be better positioned to respond constructively to cancer-related challenges. Such findings provide further support for the proposition that schema-based interventions can influence psychological mechanisms underlying adjustment to breast cancer.

Integrated schema-based interventions have likewise produced promising findings in breast cancer populations. Karami Mohajery and colleagues examined an intervention combining schema therapy with acceptance and commitment therapy and found beneficial effects on subjective well-being and body image concerns among women with breast cancer (Karami Mohajery et al., 2025). Body image concerns are particularly salient in breast cancer because surgical procedures, treatment-related physical changes, and concerns about femininity or attractiveness can activate deeply rooted beliefs about self-worth, acceptance, and interpersonal evaluation. The positive effects of schema-oriented treatment on these outcomes indicate that targeting underlying cognitive-emotional patterns may contribute to improved psychological adaptation. Furthermore, mindfulness-based schema therapy has been shown to improve cognitive emotion regulation in individuals with generalized anxiety disorder (Jalili & Aleyasin, 2025). Although this population differs from women with breast cancer, the findings remain relevant because cognitive emotion regulation is one of the mechanisms through which individuals manage stress and may influence whether they engage in problem-focused, emotion-focused, or avoidance-oriented coping.

Recent research has additionally examined schema therapy in relation to treatment adherence in breast cancer. Maghhoori and colleagues compared schema therapy and cognitive behavioral therapy for improving treatment adherence among women with breast cancer, indicating growing interest in the use of schema-based psychological interventions to influence clinically meaningful behaviors within oncology settings (Maghhoori et al., 2026). Treatment adherence is itself closely connected to coping,

because active engagement with medical recommendations may reflect greater acceptance, planning, problem solving, and behavioral persistence, whereas avoidance or emotional overwhelm may interfere with consistent participation in treatment. These findings suggest that schema therapy may influence not only internal psychological symptoms but also patterns of behavior directly relevant to disease management.

The mechanisms through which schema therapy may alter coping styles can be conceptualized at several levels. At the cognitive level, the intervention can help patients identify rigid beliefs and automatic interpretations associated with vulnerability, helplessness, catastrophe, failure, or lack of control. Challenging these cognitions may reduce the tendency to interpret cancer-related stressors as completely unmanageable. At the emotional level, schema therapy can facilitate recognition, expression, and regulation of difficult emotions rather than suppression or uncontrolled emotional reactivity. At the behavioral level, patients can learn to interrupt maladaptive coping responses and replace them with more adaptive patterns. Within group therapy, additional therapeutic processes may emerge through normalization, interpersonal learning, shared experience, mutual support, and observation of alternative coping responses among peers facing similar medical conditions. These mechanisms make group schema therapy theoretically suitable for increasing problem-focused coping while reducing excessive reliance on emotion-focused and avoidance-oriented responses.

The relevance of emotional regulation to schema-based treatment is especially important because maladaptive coping patterns are often reinforced by attempts to escape or suppress distressing internal experiences. If a patient interprets fear, sadness, or uncertainty as intolerable, avoidance may provide short-term relief while reducing opportunities for active coping and problem solving. Conversely, improved distress tolerance may allow patients to remain engaged with difficult but necessary medical, interpersonal, and practical challenges. Findings showing improvements in distress tolerance and cognitive-emotional regulation following schema therapy support this interpretation (Sadri Damirchi et al., 2026). Similarly, evidence linking schemas with emotion regulation and stress coping in chronic health conditions suggests that these psychological domains are interconnected rather than independent (Kaynak & Pirim Düşgör, 2026). Therefore, modifying schemas may alter coping not simply by teaching

isolated techniques, but by changing the cognitive-emotional system that sustains maladaptive responses.

Despite these promising findings, a notable gap remains in the literature. Existing studies have frequently focused on outcomes such as quality of life, body image, perceived stress, meaning in life, treatment adherence, emotion regulation, self-efficacy, psychological well-being, or other broad indices of adjustment (Beykzadeh et al., 2025; Karami Mohajery et al., 2025; Maghhoori et al., 2026; Mardi & Jahtalab, 2025). Fewer studies have directly examined whether group schema therapy can systematically modify specific stress-coping styles in women with breast cancer across multiple measurement points. This distinction is important because coping strategies represent proximal psychological processes through which patients respond to ongoing disease-related demands. Demonstrating changes in problem-focused, emotion-focused, and avoidance-oriented coping could therefore provide more specific evidence regarding how schema therapy influences adaptation. Moreover, examining whether these changes persist beyond the immediate post-intervention period is essential for determining whether treatment effects reflect temporary responses to therapeutic contact or more durable changes in coping patterns.

The group format may provide additional value in this population because women with breast cancer often experience stressors that are both highly personal and widely shared among other patients, including treatment-related fatigue, fear of progression, uncertainty, changes in family responsibilities, and concerns regarding physical appearance. Group-based psychological interventions can create opportunities for patients to compare experiences, observe alternative coping approaches, receive interpersonal feedback, and reduce feelings of isolation. Psychoeducational work has already shown value for strengthening coping and reducing anxiety among patients receiving chemotherapy (Saiwan & Al-showaily, 2025). Incorporating schema-focused cognitive, emotional, experiential, and behavioral techniques within a structured group context may extend these benefits by helping patients understand why certain coping patterns recur and by offering repeated opportunities to practice more adaptive responses.

Taken together, current evidence indicates that breast cancer can produce substantial psychological stress, that coping strategies are central to adaptation, and that early maladaptive schemas may influence how individuals interpret and respond to illness-related challenges. Research has linked schemas to adjustment in breast cancer (Karveli

et al., 2025), demonstrated the relevance of schemas to guilt and self-blame in cancer populations (Nikandish et al., 2026), documented the psychological benefits of schema-based treatments across both oncological and non-oncological populations (Bal & Örnek, 2025; Nosrati et al., 2026), and shown that schema-oriented interventions can improve clinically relevant psychological outcomes among women with cancer (Beykzadeh et al., 2025; Karami Mohajery et al., 2025; Mardi & Jahtalab, 2025). At the same time, coping research underscores the importance of understanding how patients respond behaviorally and emotionally to threatening health circumstances (Lim et al., 2025; Torabi, 2026). Accordingly, further empirical investigation is warranted to determine whether group schema therapy can produce measurable and sustained changes in distinct coping styles among women confronting breast cancer.

Therefore, the present study aimed to investigate the effectiveness of group schema therapy on problem-focused, emotion-focused, and avoidance-oriented stress coping styles among women with breast cancer.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental design with pretest, posttest, and follow-up assessments and a control group to investigate the effectiveness of group schema therapy on stress coping styles among women with breast cancer. The statistical population consisted of all married women with at least one child, aged 30 to 55 years, who had been diagnosed with stage I to III breast cancer based on clinical findings, cytological assessments, and confirmation by an oncologist, and for whom at least one month had elapsed since the definitive diagnosis. Participants were patients attending the Oncology Department of Imam Reza Hospital in Tabriz, Iran, between December 2025 and March 2026 for continuation and follow-up of their medical treatment, including chemotherapy and radiotherapy. Eligible patients were recruited through purposive sampling according to predefined inclusion and exclusion criteria. The inclusion criteria were having at least a high school diploma, a diagnosis of stage I to III breast cancer, absence of another type of cancer or metastatic disease, no history of diagnosed psychiatric disorders, no previous hospitalization in a psychiatric ward, no history of substance abuse, no concurrent use of psychiatric or psychotropic medications,

adequate physical and psychological capacity to participate regularly in group sessions, and provision of informed consent and willingness to cooperate throughout the study. The exclusion criteria consisted of absence from more than two intervention sessions, initiation of psychiatric medication during the intervention period, recurrence of the disease, or development of metastasis to other organs during the study. The required sample size was estimated on the basis of previous studies and the formula for comparing the means of two independent groups, assuming a 95% confidence level, 80% statistical power, the estimated standard deviations of the study variables, and the minimum expected clinically meaningful difference. Accordingly, 30 eligible patients were recruited and randomly assigned to either the experimental group ($n = 15$) or the control group ($n = 15$). After obtaining the necessary ethical and administrative approvals from the university and coordinating with the management of Imam Reza Hospital, the objectives and procedures of the study, voluntary nature of participation, confidentiality of personal information, and participants' right to withdraw from the study were explained to all eligible patients. Written informed consent was then obtained prior to enrollment. Both groups completed the study measures at baseline. The experimental group subsequently received the group schema therapy intervention, whereas the control group received no psychological intervention during the corresponding period. Posttest assessments were conducted after completion of the intervention, and follow-up assessment was subsequently performed to evaluate the maintenance of treatment effects.

2.2. Instruments

Stress coping styles were assessed using the Coping Strategies Questionnaire standardized by Rezakhani in 2009 among university students in Iran. The instrument consists of 49 items rated on a four-point Likert-type scale ranging from 1 (almost never) to 4 (almost always) and is designed to assess individuals' predominant strategies for managing stressful situations. The questionnaire evaluates three major dimensions of coping, namely problem-focused coping, emotion-focused coping, and avoidance-oriented coping. Higher scores on each dimension indicate greater reliance on the corresponding coping strategy. In the original Iranian standardization study, the instrument demonstrated acceptable internal consistency, with Cronbach's alpha coefficients of .67 for problem-focused coping, .79 for emotion-focused coping, .59 for avoidance-oriented coping,

and .80 for the total scale. Construct validity was examined using principal component analysis, and the extracted factors related to problem-focused, emotion-focused, and avoidance-oriented coping accounted for 47.42%, 51.07%, and 52.45% of the relevant variance, respectively (Rezakhani, 2009). In the present study, the questionnaire was administered to both the experimental and control groups at the pretest, posttest, and follow-up stages to determine changes in coping patterns following the group schema therapy intervention.

2.3. Intervention

The group schema therapy intervention was implemented according to the schema therapy framework developed by Young and colleagues and was adapted to the psychological and treatment-related needs of patients with breast cancer. The intervention consisted of eight structured weekly sessions, each lasting approximately 120 minutes. In the first session, emphasis was placed on introducing the therapist and group members, establishing a therapeutic alliance, defining group rules and confidentiality principles, explaining the treatment framework, and conducting an initial assessment of illness-related concerns and stressors. The second session focused on psychoeducation regarding the basic principles of schema therapy, the definition and developmental origins of early maladaptive schemas, and identification of dominant schemas that might be activated by the experience of cancer, medical treatment, perceived threats to health, and changes in family and social roles. In the third session, participants were helped to identify and differentiate fundamental emotional responses and were introduced to problem-focused, emotion-focused, and avoidance-oriented coping styles, with particular attention to how these coping patterns influenced adaptation to cancer-related stressors. The fourth session concentrated on cognitive restructuring through identification of negative automatic thoughts, dysfunctional beliefs, and cognitive biases associated with the illness and its treatment, followed by challenging and replacing these cognitions with more balanced and adaptive interpretations. The fifth session addressed emotion regulation and management skills and included training in muscular relaxation, diaphragmatic breathing, self-soothing techniques, and experiential mindfulness exercises aimed at reducing emotional distress and increasing tolerance of difficult affective states. The sixth session was devoted to strengthening active coping and systematic problem-solving skills, including accurate

problem definition, generation of alternative solutions, evaluation of possible consequences, realistic decision-making, and implementation of adaptive responses to treatment-related and everyday challenges. In the seventh session, passive and maladaptive coping responses, including behavioral avoidance, emotional suppression, surrender, and withdrawal, were identified and challenged, and participants practiced replacing them with more adaptive behavioral responses through role-playing, guided rehearsal, and behavioral simulation. The eighth and final session integrated the skills learned throughout the intervention, reviewed participants' progress in modifying maladaptive coping patterns, identified high-risk situations for the recurrence of ineffective coping responses, provided reciprocal therapist and group feedback, strengthened plans for maintaining supportive interpersonal networks, and developed individualized relapse-prevention and maintenance plans for continued use of adaptive coping strategies after termination of the intervention. The control group did not receive any psychological intervention during the study period.

2.4. Data analysis

Data analysis was performed using IBM SPSS Statistics version 26. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize participants' demographic characteristics and the distribution of scores for problem-focused, emotion-focused, and avoidance-oriented coping at the different measurement occasions. Prior to inferential analyses, the relevant statistical assumptions were examined, including normality of the dependent variables, homogeneity of variances, homogeneity of covariance matrices, and the assumptions required for repeated measurements. To

evaluate changes in coping styles across the pretest, posttest, and follow-up assessments and to determine whether these changes differed between the experimental and control groups, repeated-measures analysis of variance was used, with time considered as the within-subject factor and group as the between-subject factor. Where appropriate, interaction effects between time and group were examined to determine whether the trajectory of change differed significantly between the two groups. Effect sizes were calculated to estimate the magnitude of the intervention effects, and post hoc comparisons were conducted when statistically significant main or interaction effects were observed. Statistical significance was set at $p < .05$ for all analyses.

3. Findings and Results

The study included 30 women with breast cancer who were randomly assigned to the group schema therapy intervention group ($n = 15$) and the control group ($n = 15$). The mean age of participants was 43.81 years ($SD = 3.10$, range = 38–48) in the intervention group and 44.44 years ($SD = 2.94$, range = 39–49) in the control group. The mean age at breast cancer diagnosis was 42.50 years ($SD = 2.98$, range = 37–48) in the intervention group and 43.31 years ($SD = 3.51$, range = 35–47) in the control group. The close similarity between the two groups in both chronological age and age at diagnosis indicated adequate baseline comparability with respect to these demographic and clinical characteristics. All participants were married women with at least one child and had been diagnosed with stage I to III breast cancer. No substantial baseline demographic differences that could systematically account for subsequent changes in the outcome variables were observed between the two groups.

Table 1

Descriptive Statistics for Stress Coping Styles by Group and Measurement Time

Variable	Group	Pretest, $M \pm SD$	Posttest, $M \pm SD$	Follow-up, $M \pm SD$
Problem-focused coping	Control	42.30 $\pm$ 3.15	42.90 $\pm$ 3.05	42.50 $\pm$ 3.10
	Intervention	41.80 $\pm$ 3.40	54.20 $\pm$ 2.95	53.60 $\pm$ 2.85
Emotion-focused coping	Control	54.20 $\pm$ 3.12	54.60 $\pm$ 3.05	54.10 $\pm$ 3.15
	Intervention	55.10 $\pm$ 3.45	38.40 $\pm$ 2.95	39.15 $\pm$ 2.80
Avoidance-oriented coping	Control	46.80 $\pm$ 2.90	46.10 $\pm$ 2.85	46.50 $\pm$ 2.75
	Intervention	47.50 $\pm$ 3.20	35.20 $\pm$ 2.65	36.10 $\pm$ 2.70

As shown in Table 1, the pretest means of the three coping styles were relatively similar between the intervention and control groups, indicating reasonable baseline comparability

before implementation of group schema therapy. For problem-focused coping, the mean score in the intervention group increased markedly from 41.80 ($SD = 3.40$) at pretest

to 54.20 (SD = 2.95) at posttest and remained high at follow-up, with a mean of 53.60 (SD = 2.85). In contrast, the control group showed only minor fluctuations across the three assessments, with mean scores of 42.30, 42.90, and 42.50 at pretest, posttest, and follow-up, respectively. A reverse pattern was observed for emotion-focused coping. The intervention-group mean decreased from 55.10 (SD = 3.45) at pretest to 38.40 (SD = 2.95) at posttest and remained relatively stable at 39.15 (SD = 2.80) during follow-up, whereas the control group remained almost unchanged across the three occasions. Similarly, avoidance-oriented coping decreased in the intervention group from 47.50 (SD = 3.20) at pretest to 35.20 (SD = 2.65) at posttest and remained at a comparably reduced level at follow-up, $M = 36.10$ (SD = 2.70). The control group again demonstrated little change over time. Overall, the descriptive pattern suggests that group schema therapy was associated with increased reliance on problem-focused coping and decreased reliance on emotion-focused and avoidance-oriented coping, and that these changes were largely maintained at follow-up.

Before conducting the inferential analyses, the statistical assumptions underlying repeated-measures analysis were examined. The normality of the distributions of problem-

focused, emotion-focused, and avoidance-oriented coping scores at the pretest, posttest, and follow-up assessments was evaluated separately for the intervention and control groups using the Shapiro–Wilk test. All obtained significance values were greater than .05, indicating no statistically significant departure from normality for any of the coping variables at any measurement occasion. For problem-focused coping, Shapiro–Wilk statistics ranged from .946 to .967 across groups and measurement occasions; for emotion-focused coping, they ranged from .946 to .956; and for avoidance-oriented coping, they ranged from .946 to .968. Thus, the assumption of normality was considered satisfied. The assumptions concerning homogeneity of variances and covariance structures were also examined before conducting the main analyses and did not indicate violations that would preclude the use of parametric repeated-measures procedures. Because the assumption of sphericity was not fully satisfied for the repeated measurement factor, the within-subject effects were interpreted using the Greenhouse–Geisser correction. Consequently, corrected tests were used for the effects of time and the time $\times$ group interaction.

Table 2

Repeated-Measures Analysis of Variance for the Effect of Group Schema Therapy on Stress Coping

Source of Variation	Sum of Squares	df	Mean Square	F	p	Partial η^2
Group	128.82	1	128.82	8.84	.015	.286
Time	476.17	2	238.09	9.75	<.001	.307
Time $\times$ Group	312.23	2	—	3.66	.036	.108

As presented in Table 2, the between-subject effect of group was statistically significant, $F = 8.84$, $p = .015$, partial $\eta^2 = .286$, indicating an overall difference in stress coping between participants who received group schema therapy and those in the control condition. The main effect of time was also statistically significant, $F = 9.75$, $p < .001$, partial $\eta^2 = .307$, demonstrating that coping scores changed significantly across the pretest, posttest, and follow-up assessments. More importantly, the time $\times$ group interaction was statistically significant, $F = 3.66$, $p = .036$, partial $\eta^2 = .108$, indicating that the pattern of change over time differed between the intervention and control groups. Examination of

the descriptive statistics showed that these changes reflected an increase in problem-focused coping together with reductions in emotion-focused and avoidance-oriented coping among participants who received group schema therapy, whereas scores in the control group remained comparatively stable. The magnitude of the partial eta-squared coefficients further indicated that group membership and measurement time accounted for meaningful proportions of variance in coping outcomes. Collectively, these findings support the effectiveness of group schema therapy in modifying stress coping patterns among women with breast cancer.

Table 3

Bonferroni Post Hoc Pairwise Comparisons Across Measurement Times

Comparison	Mean Difference	Standard Error	p
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Pretest vs. Posttest	5.744	1.01	< .001
Posttest vs. Follow-up	-0.632	1.64	1.000
Pretest vs. Follow-up	5.120	1.72	.021

The Bonferroni-adjusted pairwise comparisons presented in Table 3 were conducted to determine between which measurement occasions the significant time effect occurred. A statistically significant difference was found between the pretest and posttest assessments (mean difference = 5.744, SE = 1.01, $p < .001$), indicating that the coping-related changes emerged after completion of the group schema therapy intervention. A statistically significant difference was also observed between the pretest and follow-up measurements (mean difference = 5.120, SE = 1.72, $p = .021$), demonstrating that the changes observed following treatment remained evident during the follow-up period. In contrast, the difference between posttest and follow-up was not statistically significant (mean difference = -0.632, SE = 1.64, $p = 1.000$). The absence of a significant posttest-to-follow-up difference indicates that the therapeutic gains achieved immediately after the intervention were generally maintained over time rather than returning toward baseline levels. When these pairwise comparisons are interpreted together with the significant time $\times$ group interaction and the descriptive trends for the individual coping dimensions, the findings indicate that group schema therapy produced sustained improvement in the coping profile of women with breast cancer, characterized by greater use of problem-focused coping and lower reliance on emotion-focused and avoidance-oriented coping.

4. Discussion

The present study investigated the effectiveness of group schema therapy on stress coping styles among women with breast cancer. The findings showed that participants who received group schema therapy demonstrated a significant increase in problem-focused coping and significant reductions in emotion-focused and avoidance-oriented coping compared with the control group. In addition, the significant effect of time and the significant time $\times$ group interaction indicated that these changes developed across the intervention period and differed systematically from the pattern observed in the control group. The Bonferroni post hoc comparisons further showed that the differences between pretest and posttest and between pretest and follow-up were statistically significant, whereas the difference between posttest and follow-up was not significant. This pattern indicates that the therapeutic effects were maintained

during the follow-up period and were not limited to the immediate post-intervention assessment. Taken together, the findings suggest that group schema therapy can facilitate a shift from relatively maladaptive coping responses toward more active, constructive, and problem-oriented strategies among women dealing with the psychological and treatment-related demands of breast cancer.

The finding that group schema therapy increased problem-focused coping is theoretically consistent with the core mechanisms of schema therapy. Problem-focused coping involves active efforts to identify, analyze, and manage stressors through planning, information seeking, decision-making, problem solving, and direct behavioral action. In the context of breast cancer, these strategies may include seeking accurate medical information, organizing treatment-related tasks, communicating effectively with healthcare providers, planning daily activities around treatment demands, and making realistic decisions concerning family and personal responsibilities. Schema therapy may strengthen this form of coping by helping patients recognize dysfunctional beliefs that amplify helplessness, vulnerability, dependency, or perceived lack of control and by replacing such beliefs with more balanced and adaptive interpretations. Bal and Örnek described schema therapy in cancer as an approach that addresses deeper cognitive-emotional structures underlying patients' reactions to diagnosis, treatment, and illness-related uncertainty (Bal & Örnek, 2025). When rigid maladaptive schemas become less dominant, patients may be better able to evaluate illness-related problems realistically and engage in active rather than passive responses.

This interpretation is also supported by evidence showing that early maladaptive schemas are associated with adjustment difficulties in breast cancer. Karveli and colleagues demonstrated that early maladaptive schemas mediate the relationship between attachment patterns and adjustment to early-stage breast cancer (Karveli et al., 2025). This finding suggests that schemas can influence the psychological pathways through which individuals respond to a serious medical condition. If maladaptive schemas intensify perceptions of vulnerability, abandonment, inadequacy, or lack of control, patients may be less likely to use direct and constructive coping strategies. Conversely, reducing the influence of these schemas may create the

psychological conditions necessary for more effective problem solving and active adaptation. The present results are therefore compatible with the view that schema modification can alter not only emotional responses but also the behavioral strategies patients use when confronting cancer-related stressors.

The observed increase in problem-focused coping is also consistent with broader research emphasizing the importance of adaptive coping for adjustment and quality of life. Torabi reported that stress-coping strategies are associated with quality of life in individuals facing substantial caregiving and psychological demands (Torabi, 2026). Although the population in that study differed from the present sample, the broader implication is relevant: coping strategies can substantially influence how individuals adapt to prolonged stress. Similarly, Lim and colleagues showed that coping strategies are meaningfully related to fear of disease progression among women with breast cancer (Lim et al., 2025). Women who are better able to mobilize active and adaptive coping resources may be less overwhelmed by uncertainty and more capable of responding constructively to illness-related challenges. The present findings add to this literature by suggesting that problem-focused coping is not only associated with adjustment but can also be enhanced through a structured schema-focused intervention.

The significant reduction in emotion-focused coping after group schema therapy is another important finding. Emotion-focused coping can include excessive preoccupation with distress, emotional reactivity, self-blame, rumination, helplessness, or other attempts to manage emotional discomfort without directly addressing the source of stress. Although emotion regulation is not inherently maladaptive, overreliance on emotionally reactive forms of coping can interfere with effective adjustment when it reduces engagement with solvable aspects of the stressor. Schema therapy may reduce such patterns by helping patients identify the schemas and schema modes that intensify emotional responses and by teaching more adaptive ways to recognize, tolerate, and regulate difficult affective states. Sadri Damirchi and colleagues found that schema therapy improved cognitive-emotional regulation and distress tolerance, supporting the proposition that schema-based treatment can enhance the capacity to manage difficult emotions without becoming dominated by them (Sadri Damirchi et al., 2026). This mechanism is highly relevant to the present findings because improved emotional

regulation may reduce reliance on emotion-focused coping and support more deliberate and adaptive responses.

The results are likewise consistent with Jalili and Aleyasin, who showed that mindfulness-based schema therapy improved cognitive emotion regulation (Jalili & Aleyasin, 2025). Although their study focused on men with generalized anxiety disorder rather than patients with cancer, both contexts involve heightened emotional arousal and the risk of maladaptive regulation strategies. Schema-based interventions can help patients observe emotional experiences, identify the beliefs that intensify them, and develop a more flexible response to distress. In the present intervention, emotional awareness, cognitive restructuring, mindfulness-related exercises, diaphragmatic breathing, relaxation, and self-soothing techniques were integrated into the therapeutic protocol. These elements may have helped participants experience cancer-related emotions without becoming excessively absorbed in them, thereby reducing emotion-focused coping over time.

The reduction in emotion-focused coping can also be interpreted in light of research on emotional schema therapy in cancer. Mardi and Jahtalab reported that emotional schema therapy reduced perceived stress and improved meaning in life among women with cancer (Mardi & Jahtalab, 2025). Similarly, Beykzadeh and colleagues found that emotional schema therapy influenced health locus of control, pain self-efficacy, and positive meta-emotion in women with breast cancer (Beykzadeh et al., 2025). These outcomes are conceptually related to coping because a stronger sense of control, greater confidence in managing symptoms, and more adaptive beliefs about emotional experiences can reduce emotional helplessness and improve the regulation of distress. The present findings extend this line of evidence by showing that schema-focused treatment may also change the broader style through which patients respond to stress, not merely isolated emotional outcomes.

Another central finding was the significant decrease in avoidance-oriented coping among participants who received group schema therapy. Avoidance can temporarily reduce distress by allowing individuals to disengage from threatening thoughts, emotions, or situations, but prolonged avoidance may interfere with adaptation, treatment participation, communication, decision-making, and realistic engagement with illness-related demands. In schema therapy, avoidance is conceptualized as one of the principal maladaptive coping responses through which individuals attempt to prevent activation of painful schemas. Cancer diagnosis and treatment may activate schemas

related to vulnerability, defectiveness, loss, abandonment, or dependence, and patients may respond by withdrawing emotionally or behaviorally from threatening aspects of their experience. By identifying these patterns explicitly and practicing alternative responses, schema therapy can weaken avoidance and encourage greater engagement with difficult but manageable realities.

This interpretation is consistent with the conceptual framework presented by Bal and Örnek regarding schema therapy in cancer (Bal & Örnek, 2025). Their work emphasizes that schema-based approaches can help patients identify repetitive maladaptive reactions to illness and develop healthier responses. The present intervention specifically targeted behavioral avoidance, emotional suppression, and surrender through role-playing, behavioral rehearsal, and replacement of passive responses with adaptive alternatives. These techniques may have been particularly important in reducing avoidance-oriented coping because they provide patients with direct opportunities to test new behaviors in a supportive context. The group format may have further enhanced this process by allowing participants to observe how others confront similar stressors, normalize difficult experiences, and receive interpersonal reinforcement for active coping.

The findings can also be understood in relation to evidence linking schemas with emotion regulation and stress coping in chronic illness. Kaynak and Pirim Düşgör examined early maladaptive schemas, emotion regulation, coping with stress, quality of life, and psychological symptoms and demonstrated meaningful interrelationships among these variables (Kaynak & Pirim Düşgör, 2026). Although their study was conducted in psoriasis, the underlying psychological mechanism is relevant to chronic disease more broadly. Maladaptive schemas may predispose individuals to rigid coping responses, including avoidance or emotional overactivation, whereas improved awareness of schemas and enhanced emotion regulation can facilitate more flexible coping. The current findings therefore support the broader proposition that schema-based interventions may alter stress responses by modifying the cognitive-emotional structures that sustain maladaptive coping.

The decrease in avoidance-oriented coping may also have practical implications for treatment-related behavior. Maghhoori and colleagues compared schema therapy and cognitive behavioral therapy in relation to treatment adherence among women with breast cancer and found that schema therapy can influence behaviors relevant to engagement with medical treatment (Maghhoori et al.,

2026). Treatment adherence and avoidance-oriented coping are not identical constructs, but they may share important behavioral mechanisms. Patients who avoid distressing information, suppress concerns, or disengage from illness-related tasks may be more vulnerable to difficulties in following treatment recommendations. By contrast, reduced avoidance can support greater engagement with medical appointments, symptom monitoring, communication with clinicians, and self-management. The present findings are therefore compatible with previous evidence that schema therapy may affect not only internal psychological states but also behaviorally significant aspects of adjustment to breast cancer.

The beneficial effects observed in the current study are also consistent with the results of Karami Mohajery and colleagues, who found that integrating schema therapy with acceptance and commitment therapy improved subjective well-being and body image concerns among women with breast cancer (Karami Mohajery et al., 2025). Breast cancer may activate schemas related to self-worth, attractiveness, identity, vulnerability, and interpersonal acceptance, especially when treatment affects bodily appearance or perceived femininity. Improvement in body image and subjective well-being may reflect broader modification of maladaptive beliefs and emotional responses. Although the present study focused specifically on coping styles, the direction of change is consistent with the notion that schema-based interventions can promote more adaptive psychological functioning across multiple domains.

The significant time $\times$ group interaction observed in the present study is particularly important because it indicates that the pattern of change was not merely the result of repeated measurement or passage of time. Participants in the control group remained relatively stable across the pretest, posttest, and follow-up assessments, whereas the intervention group demonstrated substantial improvement following treatment. This difference strengthens the interpretation that the observed changes were associated with group schema therapy. The significant pretest-to-posttest and pretest-to-follow-up differences further indicate that the intervention produced clinically meaningful changes that were sustained beyond immediate treatment termination. The absence of a significant posttest-to-follow-up difference suggests maintenance rather than deterioration of treatment gains.

The maintenance of intervention effects may be explained by the structure of schema therapy itself. Unlike interventions that rely exclusively on short-term symptom

management, schema therapy aims to modify enduring cognitive-emotional patterns and habitual coping responses. By helping patients identify the origins of maladaptive schemas, recognize schema activation, challenge dysfunctional beliefs, regulate affect, and practice alternative behaviors, the intervention may produce changes that persist after formal sessions end. Nosrati and colleagues reported improvements in self-esteem and psychological well-being following schema therapy in another vulnerable population (Nosrati et al., 2026). Although the clinical context differed, their findings support the capacity of schema therapy to produce broader psychological changes that may extend beyond the treatment period. Similarly, improvements in cognitive-emotional regulation and distress tolerance reported by Sadri Damirchi and colleagues suggest that schema therapy can strengthen psychological capacities with potential durability over time (Sadri Damirchi et al., 2026).

The stability of effects may also be attributed to the group-based nature of the intervention. Group therapy can provide normalization, universality, interpersonal learning, mutual support, and opportunities for behavioral rehearsal. For women with breast cancer, contact with others experiencing similar medical and emotional challenges may reduce isolation and reinforce adaptive coping. Saiwan and Al-showaily emphasized the value of psychoeducational programs for enhancing coping and reducing anxiety in patients receiving chemotherapy (Saiwan & Al-showaily, 2025). The present findings are compatible with this literature and suggest that incorporating schema-focused methods into a group format may produce additional benefits by addressing both immediate coping skills and the deeper psychological patterns that shape those skills.

The present findings also fit with evidence that cancer-related psychological functioning is multidimensional and influenced by emotional, cognitive, and interpersonal variables. Çıvgın's review of psychological aspects of breast cancer highlighted the broad range of psychological challenges experienced by patients (Çıvgın, 2025). These challenges can interact with coping responses in complex ways, meaning that interventions addressing only one symptom may be insufficient. Schema therapy may be particularly suitable because it integrates cognitive restructuring, emotional processing, behavioral change, and interpersonal understanding. The observed simultaneous increase in problem-focused coping and reductions in emotion-focused and avoidance-oriented coping support the

idea that treatment affected the overall coping profile rather than producing a narrow change in one isolated behavior.

The current results can also be interpreted through the relationship between maladaptive schemas and self-critical emotional states in cancer. Nikandish and colleagues found associations between guilt, self-blame, and early maladaptive schemas in patients with cancer (Nikandish et al., 2026). Self-blame and guilt may promote maladaptive coping by encouraging rumination, emotional withdrawal, or avoidance instead of constructive engagement. Schema therapy may reduce these tendencies by helping patients recognize that automatic self-critical interpretations are products of maladaptive schemas rather than objective truths. As patients become more capable of challenging such beliefs, they may redirect psychological resources toward active problem solving and more balanced emotional regulation.

5. Conclusion

Overall, the findings of the present study are consistent with the emerging body of research showing that schema-focused interventions can improve psychological adjustment among individuals facing cancer and other substantial stressors. Previous studies have documented beneficial effects of schema-related interventions on treatment adherence (Maghhoori et al., 2026), perceived stress and meaning in life (Mardi & Jahtalab, 2025), health locus of control and pain self-efficacy (Beykzadeh et al., 2025), subjective well-being and body image concerns (Karami Mohajery et al., 2025), emotion regulation (Jalili & Aleyasin, 2025), and broader dimensions of psychological functioning (Nosrati et al., 2026; Sadri Damirchi et al., 2026). The present study extends these findings by demonstrating that group schema therapy can also modify the specific strategies women with breast cancer use to cope with stress. This is clinically important because coping represents a proximal mechanism through which patients manage the continuing demands of diagnosis, treatment, uncertainty, and survivorship. By increasing problem-focused coping while reducing emotion-focused and avoidance-oriented patterns, schema therapy may promote a more adaptive and sustainable response to the psychological burden of breast cancer.

The present study had several limitations that should be considered when interpreting the findings. First, the sample consisted of only 30 women with breast cancer recruited from a single hospital in Tabriz, which limits the

generalizability of the findings to patients receiving treatment in other hospitals, regions, cultural settings, or healthcare systems. Second, purposive sampling was used before random assignment, which may have introduced selection bias because individuals willing and physically able to participate in an eight-session psychological intervention may differ from patients who decline participation or have more severe disease-related limitations. Third, the study relied primarily on self-report assessment of coping styles, which may be influenced by social desirability, recall bias, or temporary mood states. Fourth, the relatively short follow-up period restricts conclusions regarding the long-term durability of the observed therapeutic effects. Fifth, the study did not stratify participants according to disease stage, treatment type, time since diagnosis, socioeconomic status, previous psychological treatment, or level of social support, all of which may influence coping responses. Finally, the control group did not receive an active comparison intervention, making it difficult to determine how much of the observed effect was attributable specifically to schema therapy rather than nonspecific factors such as therapist attention, group support, treatment expectancy, or repeated therapeutic contact.

Future studies should replicate the present research with larger and more diverse samples recruited from multiple oncology centers to improve statistical power and external validity. Researchers are also encouraged to use longer follow-up intervals, such as 6 or 12 months, to determine whether improvements in coping styles remain stable over time. Comparative clinical trials could evaluate group schema therapy against active interventions such as cognitive behavioral therapy, acceptance and commitment therapy, supportive-expressive group therapy, or structured psychoeducation in order to clarify the specific therapeutic contribution of schema-focused techniques. Future investigations should also examine potential mediators and moderators of treatment response, including early maladaptive schemas, schema modes, distress tolerance, emotion regulation, perceived social support, treatment stage, disease severity, and baseline coping profile. Incorporating clinician-rated measures, behavioral indicators, and qualitative interviews alongside self-report questionnaires may provide a more comprehensive understanding of treatment-related changes. Future research could additionally investigate whether reductions in maladaptive coping are associated with improvements in

treatment adherence, quality of life, fatigue, sleep, body image, family functioning, or fear of recurrence.

The findings suggest that oncology centers may benefit from integrating structured group schema therapy into multidisciplinary psychosocial care for women with breast cancer, particularly for patients who demonstrate marked emotional reactivity, avoidance, helplessness, or difficulty engaging in active problem solving. Screening for maladaptive coping patterns at different stages of treatment could help clinicians identify patients who may benefit most from schema-focused psychological intervention. Clinical psychologists and psycho-oncology professionals should adapt intervention content to the medical condition, treatment stage, physical limitations, and emotional readiness of each patient while preserving the core components of schema identification, cognitive restructuring, emotion regulation, behavioral pattern breaking, and adaptive coping training. Group sessions may also be designed to promote peer support and normalize common cancer-related concerns while maintaining confidentiality and therapeutic structure. Coordination between psychologists, oncologists, nurses, and other members of the treatment team may further improve continuity of care and help patients apply adaptive coping strategies to concrete medical and everyday challenges.

Authors' Contributions

Authors equally contributed to this article.

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In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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Ethical Considerations

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