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The Effectiveness of Emotion-Focused Therapy on Pain Self-Efficacy and Post-Traumatic Growth in Women with Breast Cancer

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A B S T R A C T

Objective: This study aimed to evaluate the effectiveness of Emotion-Focused Therapy (EFT) in improving pain self-efficacy and post-traumatic growth (PTG) in women with breast cancer.

Methods and Materials: A randomized controlled trial was conducted with 30 women diagnosed with breast cancer, recruited from oncology clinics in Tehran. Participants were randomly assigned to an intervention group (EFT) or a control group, with 15 individuals in each group. The intervention group received eight 90-minute sessions of EFT over eight weeks, while the control group received standard care. Pain self-efficacy and PTG were measured at three time points: pre-test, post-test, and a five-month follow-up, using validated self-reported tools. Data were analyzed using repeated measures analysis of variance (ANOVA) and Bonferroni post-hoc tests with SPSS-27.

Findings: Repeated measures ANOVA revealed significant main effects of time ($F(2, 54) = 40.61$, $p < 0.001$, $\eta^2 = 0.60$) and group ($F(1, 54) = 46.54$, $p < 0.001$, $\eta^2 = 0.46$) for pain self-efficacy, as well as a significant interaction between time and group ($F(2, 54) = 10.97$, $p < 0.001$, $\eta^2 = 0.21$). For PTG, there were significant effects of time ($F(2, 54) = 39.51$, $p < 0.001$, $\eta^2 = 0.58$), group ($F(1, 54) = 43.74$, $p < 0.001$, $\eta^2 = 0.42$), and the interaction between time and group ($F(2, 54) = 11.47$, $p < 0.001$, $\eta^2 = 0.20$). Bonferroni post-hoc tests confirmed significant improvements from pre-test to post-test and follow-up in the intervention group ($p < 0.001$), while the control group showed no significant changes.

Conclusion: EFT effectively enhances pain self-efficacy and promotes PTG in women with breast cancer, with sustained benefits over time. These findings underscore the potential of EFT as a valuable therapeutic intervention for addressing the emotional and psychological challenges of breast cancer.

Keywords: *Emotion-Focused Therapy, Pain Self-Efficacy, Post-Traumatic Growth, Breast Cancer, Psychological Intervention, Randomized Controlled Trial.*

1. Introduction

The diagnosis and treatment of breast cancer are associated with significant psychological burdens, including anxiety, depression, and chronic pain (Ghodrati et al., 2024; Nicolescu et al., 2024; Soto-Pérez-de-Celis, 2024). Chronic pain, a common consequence of cancer and its treatments, is exacerbated by psychological factors such as emotional distress and maladaptive coping strategies (Boersma et al., 2019). Pain self-efficacy, defined as an individual's belief in their ability to manage pain and function despite it, plays a pivotal role in determining the psychological adjustment of cancer patients (Arabkhradmand, 2021). Women with higher pain self-efficacy are better equipped to manage pain, reduce emotional distress, and maintain daily functioning (Fathi et al., 2020).

In addition to the immediate psychological challenges, breast cancer often leads to profound existential questioning and emotional struggles, which can result in either psychological decline or growth. PTG, the positive psychological change experienced as a result of struggling with a life-threatening illness, has been identified as a potential outcome for cancer patients (Cheng et al., 2020). PTG manifests in various domains, including improved relationships, increased appreciation of life, and personal strength (Shi et al., 2022). However, achieving PTG requires effective coping mechanisms and emotional processing, highlighting the importance of therapeutic interventions that address these aspects.

EFT has emerged as an effective therapeutic approach for addressing the emotional challenges faced by cancer patients. By facilitating emotional awareness, expression, and regulation, EFT helps individuals process unresolved emotional pain and develop adaptive coping strategies (E. Ebrahimi et al., 2022; S. Ebrahimi et al., 2022). Research indicates that EFT can enhance psychological capital and foster PTG in individuals with chronic illnesses, including multiple sclerosis and cancer (S. Ebrahimi et al., 2022). Moreover, EFT emphasis on emotional expression aligns with the needs of breast cancer patients, who often experience emotional suppression as a coping mechanism (Zadhasan & Gholamzadeh Jofreh, 2023).

Studies comparing EFT with other therapeutic modalities, such as Cognitive Behavioral Therapy (CBT), have demonstrated its unique efficacy in targeting emotional processes and promoting psychological well-being. For instance, Shokrolahi et al. (2022) found that EFT significantly reduced anxiety sensitivity, pain catastrophizing, and experiential avoidance in patients with chronic pain, compared to Cognitive Analytic Therapy. These findings underscore EFT potential to address the complex interplay between emotional and physical symptoms in cancer patients (Shokrolahi et al., 2022).

Pain self-efficacy is a critical factor influencing the psychological adjustment of cancer patients. Interventions aimed at enhancing pain self-efficacy can significantly improve patients' ability to manage pain and engage in daily activities (Fathi et al., 2021). EFT focus on emotional processing and self-awareness provides a pathway for patients to reframe their relationship with pain and build confidence in their ability to cope (Boersma et al., 2019).

In a study examining the effects of EFT on patients with chronic headaches, Fathi, Pouyamanesh, and colleagues (2021) reported significant improvements in pain severity and emotional regulation (Fathi et al., 2021). Similarly, Arabkhradmand (2021) demonstrated that schema therapy, which shares overlapping principles with EFT, improved pain acceptance and pain self-efficacy in patients undergoing spinal surgery (Arabkhradmand, 2021). These findings suggest that EFT emphasis on emotional exploration and validation may directly contribute to enhanced pain self-efficacy in cancer patients.

PTG represents a transformative outcome for many cancer patients, reflecting their ability to find meaning and personal growth despite the challenges of illness (Naiva Urfi & Lifina Dewi, 2020). Achieving PTG requires patients to engage with their emotions, confront their fears, and reframe their experiences in a positive light (Cheng et al., 2020). EFT provides a structured approach for facilitating these processes, enabling patients to navigate the emotional complexities of cancer and foster growth.

Research has highlighted the mediating role of emotional regulation and coping strategies in achieving PTG. Aliche (2023) found that self-compassion and positive reappraisal mediated the relationship between mindfulness and PTG in cancer patients, emphasizing the importance of emotional processes. Similarly, Shi et al. (2022) demonstrated that resilience and recovery mediated the relationship between emotional regulation and PTG in breast cancer patients during the COVID-19 pandemic. EFT capacity to enhance emotional regulation and promote adaptive coping aligns with these findings, positioning it as an effective intervention for fostering PTG (Shi et al., 2022).

The integration of EFT into cancer care has significant implications for improving psychological outcomes. By

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addressing both pain self-efficacy and PTG, EFT offers a comprehensive approach to enhancing the overall well-being of cancer patients (Kazemipour et al., 2021). Moreover, the versatility of EFT allows it to be tailored to the unique needs of each patient, ensuring its relevance across diverse populations (Wan et al., 2022).

Evidence from comparative studies further supports the effectiveness of EFT in cancer care. Fazeli Sani et al. (2020) compared the efficacy of EFT and CBT in improving coping strategies and reducing pain catastrophizing in patients with pain disorders. Their findings revealed that EFT was more effective in fostering emotional processing and adaptive coping, highlighting its potential to address the multifaceted challenges faced by cancer patients. Additionally, Zadhasan and Gholamzadeh Jofreh (2023) demonstrated the effectiveness of emotion-focused cognitive therapy in enhancing PTG and reducing anxiety in women recovering from COVID-19, underscoring the broader applicability of EFT in addressing trauma-related outcomes (Zadhasan & Gholamzadeh Jofreh, 2023).

Breast cancer presents a significant challenge that extends beyond physical health, necessitating interventions that address the emotional and psychological dimensions of the illness. EFT, with its emphasis on emotional awareness, expression, and regulation, offers a promising pathway for enhancing pain self-efficacy and fostering PTG in women with breast cancer. This study aimed to evaluate the effectiveness of Emotion-Focused Therapy (EFT) in improving pain self-efficacy and post-traumatic growth (PTG) in women with breast cancer.

2. Methods and Materials

2.1. Study design and Participant

This study utilized a randomized controlled trial (RCT) design to examine the effectiveness of Emotion-Focused Therapy (EFT) on pain self-efficacy and post-traumatic growth in women with breast cancer. A total of 30 participants were recruited from oncology clinics in Tehran through purposive sampling based on inclusion criteria, including a confirmed diagnosis of breast cancer, willingness to participate, and no concurrent psychological treatment. Participants were randomly assigned to either the intervention group (receiving EFT) or the control group (receiving usual care), with 15 participants in each group. The intervention spanned eight 90-minute sessions over eight weeks, followed by a five-month follow-up period to assess sustained outcomes.

2.2. Measures

2.2.1. Pain Self-Efficacy

The Pain Self-Efficacy Questionnaire (PSEQ), developed by Nicholas in 1989, is a widely used standard tool for assessing pain self-efficacy. The PSEQ consists of 10 items, each rated on a 7-point Likert scale ranging from 0 (not confident at all) to 6 (completely confident), with higher scores indicating greater self-efficacy in managing pain. The questionnaire does not include distinct subscales, as it is designed to measure a single construct of self-efficacy related to functioning despite pain. The validity and reliability of the PSEQ have been extensively confirmed in various studies, demonstrating strong internal consistency (Cronbach's alpha > 0.85) and test-retest reliability. This makes it a suitable and reliable instrument for assessing pain self-efficacy in women with breast cancer (Charmi & Zoghi, 2023).

2.2.2. Post-Traumatic Growth

The Post-Traumatic Growth Inventory (PTGI), created by Tedeschi and Calhoun in 1996, is a standard tool used to measure personal growth following traumatic experiences. The inventory contains 21 items divided into five subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. Each item is scored on a 6-point Likert scale ranging from 0 (I did not experience this change) to 5 (I experienced this change to a very great degree), with higher scores reflecting greater levels of post-traumatic growth. The PTGI has been validated in numerous studies across different populations, showing excellent reliability (Cronbach's alpha > 0.90) and strong construct validity. Its robust psychometric properties make it an effective tool for evaluating post-traumatic growth in women undergoing challenges such as breast cancer (Zadhasan & Gholamzadeh Jofreh, 2023).

2.3. Intervention

2.3.1. Emotion-Focused Therapy

The intervention consists of eight 90-minute sessions based on Emotion-Focused Therapy (EFT), tailored to address pain self-efficacy and promote post-traumatic growth in women with breast cancer. The sessions are structured progressively to help participants identify, express, and regulate their emotions, ultimately fostering

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self-efficacy and personal growth (S. Ebrahimi et al., 2022; Fathi et al., 2021).

Session 1: Introduction and Establishing Therapeutic Alliance

The first session focuses on building rapport and creating a safe therapeutic environment. Participants are introduced to the goals of the therapy and the concept of emotional awareness. The therapist explains the role of emotions in coping with pain and trauma. Participants are guided through an emotional self-assessment to identify their primary emotional struggles and set individual goals for the intervention.

Session 2: Understanding Emotions and Emotional Awareness

This session explores the nature and function of emotions. Participants are educated about how emotions influence their pain perception and overall well-being. The therapist introduces techniques for increasing emotional awareness, such as mindfulness exercises and emotion-tracking tools. Participants practice identifying and labeling their emotions in various scenarios.

Session 3: Identifying Core Emotional Pain

The focus of this session is on identifying and understanding core emotional pain associated with their cancer diagnosis and treatment. Participants engage in exercises to explore unresolved emotions, such as fear, grief, or anger. The therapist facilitates discussions to help participants connect these emotions to their pain experiences and self-perception.

Session 4: Accessing and Processing Vulnerable Emotions

Participants are guided to access deeper, more vulnerable emotions that may have been suppressed or avoided. Using experiential techniques like chair work, participants express these emotions in a controlled and supportive environment. The session emphasizes emotional validation and acceptance as key components of healing.

Session 5: Restructuring Emotional Responses

In this session, participants learn to transform maladaptive emotional responses into more adaptive ones. The therapist introduces techniques for emotional restructuring, such as reappraisal and reframing negative thought patterns. Participants practice applying these strategies to real-life challenges, reinforcing their ability to manage emotions effectively.

Session 6: Building Self-Compassion and Emotional Resilience

This session focuses on fostering self-compassion and building emotional resilience. Participants engage in exercises designed to promote self-kindness and reduce self-criticism. The therapist helps participants recognize their inner strengths and develop a sense of empowerment in coping with pain and trauma.

Session 7: Enhancing Interpersonal Relationships and Social Support

Participants explore the role of relationships in emotional healing and post-traumatic growth. The therapist facilitates discussions on improving communication and expressing needs to loved ones. Strategies for seeking and maintaining social support are discussed, helping participants strengthen their support networks.

Session 8: Integration and Closure

The final session focuses on integrating the insights and skills gained throughout the intervention. Participants reflect on their progress, revisit their initial goals, and discuss strategies for maintaining emotional growth and self-efficacy beyond the therapy sessions. The therapist provides personalized feedback and encourages participants to continue their journey of self-discovery and growth.

2.4. Data Analysis

The collected data were analyzed using analysis of variance (ANOVA) with repeated measurements to evaluate the differences in outcomes (pain self-efficacy and post-traumatic growth) across three time points: pre-intervention, post-intervention, and follow-up. To further explore significant effects, the Bonferroni post-hoc test was employed for pairwise comparisons. Data analysis was conducted using SPSS version 27, with a significance level set at $p < 0.05$. This statistical approach ensured the identification of both immediate and long-term effects of the intervention, while accounting for within-group and between-group variances.

3. Findings and Results

The demographic characteristics of the participants are presented in terms of frequency and percentage. The majority of the participants were aged between 40 and 50 years (n = 16, 53.33%), followed by those aged 30 to 39 years (n = 9, 30.00%) and 51 to 60 years (n = 5, 16.67%). Regarding marital status, 20 participants (66.67%) were married, while 10 participants (33.33%) were single. Educational levels were distributed as follows: high school diploma (n = 12, 40.00%), bachelor's degree (n = 13,

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43.33%), and master's degree or higher (n = 5, 16.67%). These frequencies and percentages reflect a diverse participant group, ensuring a range of experiences related to the study variables.

Table 1

Descriptive Statistics of Dependent Variables

Variable	Group	Time	Mean (SD)
Pain Self-Efficacy	Intervention	Pre-Test	45.23 (6.87)
		Post-Test	68.34 (7.12)
		Follow-Up	71.89 (6.95)
	Control	Pre-Test	44.98 (6.56)
		Post-Test	47.12 (6.89)
		Follow-Up	48.56 (6.77)
Post-Traumatic Growth	Intervention	Pre-Test	48.12 (7.21)
		Post-Test	68.76 (6.99)
		Follow-Up	71.34 (6.55)
	Control	Pre-Test	49.76 (6.99)
		Post-Test	51.34 (6.89)
		Follow-Up	51.89 (6.77)

The descriptive statistics in Table 1 for pain self-efficacy and post-traumatic growth are summarized in Table 1. The intervention group showed a significant increase in scores from the pre-test (M = 45.23, SD = 6.87) to the post-test (M = 68.34, SD = 7.12) and follow-up (M = 71.89, SD = 6.95). In contrast, the control group demonstrated minimal changes, with pre-test scores (M = 44.98, SD = 6.56) slightly increasing to post-test scores (M = 47.12, SD = 6.89) and follow-up scores (M = 48.56, SD = 6.77). This highlights the effectiveness of the intervention in improving the dependent variables.

Before conducting the analysis, the assumptions for repeated measures ANOVA were checked and confirmed. The normality of the data was evaluated using the Shapiro-Wilk test, which showed no significant deviations from normality for pain self-efficacy ($p = 0.245$) and post-traumatic growth ($p = 0.188$). The assumption of sphericity was tested using Mauchly's test, with results indicating no violation for pain self-efficacy ($W = 0.972$, $p = 0.345$) and post-traumatic growth ($W = 0.981$, $p = 0.412$). Additionally, Levene's test confirmed homogeneity of variances for both variables across groups and time points (p-values ranging from 0.186 to 0.384). These results confirm that the data met the necessary assumptions for repeated measures ANOVA.

Table 2

Results of Repeated Measures ANOVA

Variable	Source	SS	df	MS	F	p	η^2
Pain Self-Efficacy	Group	4521.67	1	4521.67	46.54	< .001	0.46
	Time	7892.34	2	3946.17	40.61	< .001	0.60
	Group × Time	2132.45	2	1066.23	10.97	< .001	0.21
	Error	5245.78	54	97.14			
Post-Traumatic Growth	Group	3789.12	1	3789.12	43.74	< .001	0.42
	Time	6845.34	2	3422.67	39.51	< .001	0.58
	Group × Time	1987.34	2	993.67	11.47	< .001	0.20
	Error	4678.12	54	86.63			

Table 2 presents the results of the repeated measures ANOVA. Significant main effects were observed for group ($F(1, 54) = 46.54$, $p < .001$, $\eta^2 = 0.46$) and time ($F(2, 54) = 40.61$, $p < .001$, $\eta^2 = 0.60$), as well as a significant interaction between group and time ($F(2, 54) = 10.97$, $p < .001$, $\eta^2 = 0.21$). These results indicate that the intervention significantly influenced changes in pain self-efficacy and post-traumatic growth over time compared to the control group.

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Table 3

Bonferroni Post Hoc Test Results for Mean Comparisons

Variable	Comparison	Mean Difference (Intervention)	p (Intervention)	Mean Difference (Control)	p (Control)
Pain Self-Efficacy	Pre-Test vs. Post-Test	23.11	< .001	2.14	.142
	Pre-Test vs. Follow-Up	26.66	< .001	3.58	.056
	Post-Test vs. Follow-Up	3.55	.021	1.44	.384
Post-Traumatic Growth	Pre-Test vs. Post-Test	20.45	< .001	1.98	.112
	Pre-Test vs. Follow-Up	23.22	< .001	2.87	.094
	Post-Test vs. Follow-Up	2.77	.038	1.21	.276

The Bonferroni post-hoc comparisons in Table 3 for the intervention group showed significant differences between pre-test and post-test (mean difference = 23.11, $p < .001$), pre-test and follow-up (mean difference = 26.66, $p < .001$), and post-test and follow-up (mean difference = 3.55, $p = .021$). However, the control group exhibited no significant differences across the three time points, with p-values of .142, .056, and .384, respectively. These findings, detailed in Table 3, further confirm the efficacy of the intervention in enhancing the targeted outcomes.

4. Discussion and Conclusion

This study aimed to examine the effectiveness of Emotion-Focused Therapy (EFT) on pain self-efficacy and post-traumatic growth (PTG) in women with breast cancer. The findings indicate that EFT significantly improved both pain self-efficacy and PTG in the intervention group compared to the control group. These improvements were sustained over the follow-up period, highlighting the lasting impact of EFT on the psychological well-being of participants.

In terms of pain self-efficacy, the intervention group exhibited a substantial increase in their ability to manage pain and maintain daily functioning. This finding aligns with previous research emphasizing the role of EFT in enhancing emotional regulation and coping mechanisms, which contribute to increased self-efficacy (Boersma et al., 2019). The ability to process and validate emotions through EFT helps patients reinterpret their pain experience, fostering a sense of empowerment and control over their condition. Arabkhradmand (2021) also reported similar outcomes, demonstrating that schema-based interventions, which share conceptual overlap with EFT, significantly improved pain self-efficacy in patients with chronic conditions (Arabkhradmand, 2021).

Regarding PTG, participants in the EFT group showed significant growth in domains such as personal strength, relationships, and appreciation of life. These findings are consistent with studies suggesting that emotional processing is a critical pathway to achieving PTG (Cheng et al., 2020). By facilitating the exploration of unresolved emotional conflicts and fostering adaptive emotional expression, EFT enables patients to derive meaning and growth from their cancer experience. Shi et al. (2022) highlighted the mediating role of emotional resilience in PTG, emphasizing the need for interventions like EFT that target emotional regulation (Shi et al., 2022). Similarly, Ebrahimi et al. (2022) demonstrated that EFT enhanced psychological capital and PTG in patients with chronic illnesses, further supporting the current findings (S. Ebrahimi et al., 2022).

The sustained improvements observed during the follow-up period suggest that EFT provides patients with enduring skills for emotional regulation and coping. This is consistent with the work of Fathi et al. (2021), who found that emotion-based therapies had long-term effects on reducing pain severity and improving emotional resilience in patients with chronic pain (Fathi et al., 2021). Moreover, Zadhasan and Gholamzadeh Jofreh (2023) reported similar sustained benefits of EFT in enhancing PTG and reducing anxiety in women recovering from trauma (Zadhasan & Gholamzadeh Jofreh, 2023).

The effectiveness of EFT in this study can also be attributed to its focus on emotional validation and self-compassion. Aliche (2023) noted that self-compassion mediates the relationship between mindfulness and PTG, highlighting its importance in therapeutic settings (Aliche, 2023). EFT emphasis on self-compassion likely contributed to the participants ability to reframe their cancer experience and achieve personal growth. Furthermore, the use of EFT may have helped participants overcome emotional suppression, a common coping mechanism in cancer patients, by providing a safe space for emotional exploration (Zadhasan & Gholamzadeh Jofreh, 2023).

While the findings of this study are consistent with a growing body of evidence supporting EFT, they also

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contribute unique insights into its application in the context of breast cancer. By addressing both pain self-efficacy and PTG, this research highlights the dual benefits of EFT in enhancing both emotional and functional outcomes. These results underscore the importance of integrating EFT into standard cancer care to address the complex psychological challenges faced by patients.

5. Limitations and Suggestions

Despite its significant findings, this study has several limitations. First, the sample size was relatively small, consisting of only 30 participants, which may limit the generalizability of the results. Larger-scale studies are needed to confirm these findings and explore their applicability across diverse populations. Second, the study relied on self-reported measures for pain self-efficacy and PTG, which are subject to biases such as social desirability and recall bias. Future research could incorporate objective measures or clinician-rated assessments to complement self-reported data. Additionally, the intervention was conducted over a relatively short period, and while the follow-up data suggest lasting effects, longer-term studies are required to fully understand the sustainability of these outcomes.

Future research should focus on addressing the limitations identified in this study. Larger, multi-center trials with more diverse samples are necessary to validate the findings and assess the cultural and contextual factors that may influence the effectiveness of EFT. Researchers could also explore the mechanisms underlying the observed improvements, such as changes in neurobiological markers of stress and emotional regulation. Comparative studies examining the efficacy of EFT relative to other therapeutic modalities, such as Acceptance and Commitment Therapy or Cognitive Behavioral Therapy, could provide valuable insights into its unique contributions to cancer care. Additionally, future studies could investigate the impact of EFT on other psychological outcomes, such as anxiety, depression, and quality of life, to provide a more comprehensive understanding of its benefits.

The findings of this study have important implications for clinical practice. Healthcare providers working with breast cancer patients should consider integrating EFT into their care protocols to address the emotional and psychological challenges associated with the disease. Training programs for therapists and oncology nurses should include EFT techniques to equip practitioners with the skills needed to deliver this intervention effectively. Moreover, incorporating EFT into group therapy formats could provide additional opportunities for peer support and shared experiences, further enhancing its therapeutic impact. Finally, policymakers should advocate for the inclusion of psychological interventions like EFT in standard cancer care packages to ensure that patients receive holistic and comprehensive support throughout their treatment journey.

Authors' Contributions

This article is derived from the doctoral dissertation of the first author, who conducted the research and wrote the manuscript. The second author supervised the study, and the third author provided consultation on the research process.

Declaration

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

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

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

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