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Effectiveness of Compassion-Focused Therapy Training on Reducing Depression and Anxiety and Increasing Quality of Life in Women with Breast Cancer in Tehran

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A B S T R A C T

Objective: The present study aimed to assess the effectiveness of compassion-focused therapy (CFT) training on reducing depression and anxiety and increasing the quality of life in women with breast cancer in Tehran.

Materials and Methods: This research employed a quasi-experimental design with a pre-test, post-test, control group, and follow-up. The statistical population included all women with breast cancer undergoing treatment in Tehran hospitals in 2022. A total of 30 volunteers were selected through purposive sampling and assigned to experimental and control groups. Beck's Depression and Anxiety Inventory and the World Health Organization Quality of Life (WHOQOL) questionnaire were used for assessment. Pre-tests for depression, anxiety, and quality of life were administered to both groups before the intervention. The experimental group received CFT training according to an educational protocol over eight sessions, while the control group received no intervention. Post-tests were conducted for both groups after the intervention and again 45 days later.

Findings: Data were analyzed using a mixed-design analysis of variance (ANOVA). The results indicated that CFT training was effective in reducing depression and anxiety and increasing the quality of life in women, with these effects remaining stable after 45 days ($p < 0.05$).

Conclusion: Given the effectiveness and stability of CFT training, it is recommended that health and medical centers utilize such therapeutic methods to improve the mental health of cancer patients.

Keywords: *Compassion-focused therapy, Depression, Anxiety, Quality of life, Breast cancer.*

1. Introduction

Cancer is considered one of the leading causes of mortality (Goebel & Mehdorn, 2019) and is the second leading cause of death after heart diseases in developed countries. It is predicted to become the primary and most significant cause of death by 2030, thus posing a major threat to global public health (Siegel et al., 2019). Cancer claims more than 7.6 million lives annually (Taheri & Jabalameli, 2021). Although advances in the past three decades have increased the recovery rate of cancer patients to about 80%, transforming it from an acute and fatal disease to a chronic illness with higher survival rates (Deka et al., 2016), it still causes significant changes in the lives of patients and their families (Figueroa et al., 2021).

According to the World Health Organization (WHO), breast cancer is the most common type of cancer among women, with an 11.7% prevalence rate, and it is also the deadliest, with a 24.5% mortality rate. The Global Cancer Observatory estimates that the prevalence of breast cancer will increase from 2 million patients in 2018 to over 3 million patients by 2046, indicating a 46% increase (Siegel et al., 2019). Additionally, 7,000 women in Iran are diagnosed with this disease annually (Taheri & Jabalameli, 2021). A recent study by Iranian researchers predicts a 63% increase in breast cancer incidence by 2025. In Iran, the age of onset for breast cancer is between 45 and 55 years, whereas in Western countries, it is between 50 and 60 years (Abedin et al., 2023).

Breast cancer marks the beginning of psychological distress for women diagnosed with the disease, leading to feelings of imminent death. These patients face numerous issues and questions, resulting in fear of death, anxiety, and depression (Whisenant et al., 2020). The complications from the individual's reaction to the diagnosis and treatment of breast cancer, hospitalization, financial stress due to treatment costs, the incurability of the disease, the appearance of patients due to hair loss or the loss of a body part (Figueroa et al., 2021), and the additional environmental and psychological pressures impose significant stress on these patients (Kusch et al., 2022). Notably, the breast is a symbol of femininity, and the thought of losing one or both breasts is intolerable for many women (Ghalyanee et al., 2021). Therefore, the problems that arise following a breast cancer diagnosis reduce efficiency and quality of life, which cannot be easily overlooked (Ghalyanee et al., 2021).

Research findings indicate significant consequences of breast cancer, such as physical problems (pain and fatigue), psychological issues (depression and anxiety), and other psychosocial problems in patients, leading to a decreased quality of life, especially among younger women. Given the statistics on the incidence and mortality from breast cancer in recent years and the various physical and psychological harms these individuals face, along with the lack of treatment, recurrence, or metastasis of the disease, women with breast cancer experience psychological problems such as anxiety, stress, depression, and issues related to growth and development after the illness (Neff et al., 2018). Considering the alarming increase in the number of these patients each year and the numerous problems faced by patients and their families, a serious warning has been sounded for everyone. This issue can be somewhat moderated by employing psychological treatments (Pérez-Aranda et al., 2021).

Cancer patients are very vulnerable psychologically and may suffer from numerous psychological harms. This can significantly impact their physical resistance and the disease's progression (Spiegel & Riba, 2015). Half of the cancer patients struggle with significant emotional problems and extensive psychosocial stress during the disease's persistence, treatment, and subsequent care. Therefore, many countries have developed special psycho-oncology programs to address the psychosocial problems of cancer patients, aiming to improve their quality of life (Kusch et al., 2022). Various psychological interventions have shown that appropriate psychological interventions can be very effective alongside drug therapy for these patients. Thus, in addition to treatments such as surgery, radiotherapy, chemotherapy, and other biological therapies, interventions can reduce patients' stress and anxiety, improve mental health, and ultimately enhance their quality of life (Gilbert, 2010).

Various psychological treatments have been employed to enhance positive variables and reduce negative variables in cancer patients. One prominent approach in this field is Compassion-Focused Therapy (CFT). Based on research in the field of CFT and complementary therapies that focus on self-compassion, this structured therapy can be utilized effectively. CFT, alongside other new therapeutic approaches in third-wave psychology, aims to reduce pain, suffering, worry, and depression (Neff, 2003).

Neff (2003) defines self-compassion as a three-component construct comprising self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. The combination of these components characterizes individuals who practice

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self-compassion. Self-compassion means that individuals treat themselves with the same kindness and care they show to others during difficult times. It is closely related to mental health (Neff, 2003) and can help reduce the emotional and psychological burden of cancer patients, alleviating the suffering and hardships of the disease (Neff, 2003).

Compassion-Focused Therapy is positively related to mental health and psychological adjustment. Conversely, low levels of self-compassion are associated with symptoms of depression, anxiety, rumination, shame, self-criticism, and fear of failure (Gilbert, 2010). Research findings indicate that the more self-compassion patients have, the more kindness to themselves, acceptance of life's problems as part of shared human experiences, and awareness of painful thoughts and feelings, the more motivated they are to pursue their goals and follow medical treatments as a means to achieve physical health (Pérez-Aranda et al., 2021). Given the improvements in psychological state and quality of life that CFT provides for cancer patients, this method is one of the most important psychological treatments to aid the treatment process and endure the disease.

Research (Kauser et al., 2022) has shown the effectiveness of CFT in improving the quality of life of individuals with breast cancer. Additionally, the role of CFT in reducing depression and anxiety in breast cancer patients has been observed in various studies. Research (Pérez-Aranda et al., 2021; Salarirad et al., 2022; Zhu et al., 2018) indicates the impact of CFT on reducing depression in breast cancer patients. Studies by Zhu et al. (2018) and Pérez-Aranda et al. (2021) also demonstrate the effectiveness of CFT in reducing anxiety in breast cancer patients.

The choice of this therapy was due to its rapid short-term effectiveness in reducing depression and anxiety and improving the quality of life of cancer patients, given their physical and psychological fragility and inability to allocate time and resources for a prolonged period. Considering the various physical and psychological damages that breast cancer imposes on women, in addition to the disease's burden, they also face the loss of a sexual organ. The results of numerous studies indicating the effectiveness of psychological treatments in reducing damages and improving the quality of life of these patients led the researcher to investigate whether CFT is effective and sustainable in reducing depression and anxiety and increasing the quality of life of women in Tehran with breast cancer.

2. Methods and Materials

2.1. Study design and Participant

This study employed a quasi-experimental design with a pre-test, post-test, control group, and 45-day follow-up. The statistical population included all women with breast cancer undergoing treatment in Tehran hospitals in the summer of 2022. A sample of 30 patients was selected voluntarily and purposively, then randomly assigned to two groups of 15 (CFT intervention group and control group) with random replacement. Inclusion criteria included single and married women with only breast cancer, aged 30 to 60 years, a diagnosis made at least 2 months but no more than 6 months prior, not using medications other than those for cancer, no significant psychological disorders, undergoing radiotherapy, not participating in other psychological interventions simultaneously, and providing informed consent. Exclusion criteria included worsening of the patient's condition due to disease progression or severe radiotherapy side effects leading to hospitalization, any major psychiatric illness such as psychosis or bipolar disorder, absence from more than two sessions, simultaneous participation in any other psychological intervention, and lack of willingness to continue participation. A 45-day follow-up was conducted after the post-test. After completing the intervention, 3 participants from the intervention group and 3 from the control group were excluded from the study, leaving a total of 24 participants for final analysis.

The depression, anxiety, and quality of life questionnaires were completed by all 30 patients as pre-test scores. The patients were then randomly assigned to two groups of 15. The experimental group underwent eight 90-minute sessions of Compassion-Focused Therapy, while the control group received no intervention. After the intervention, both groups completed the same pre-test questionnaires. A follow-up assessment was conducted 45 days later. The study experienced a dropout of 3 participants from each group, resulting in 24 participants for final analysis. To maintain ethical standards, the control group received educational sessions after the study.

2.2. Measures

2.2.1. Depression

The Beck Depression Inventory (Beck, 1972), consisting of 13 items in two dimensions: negative affect towards

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oneself and anhedonia, was used to measure depression in women. It employs a 4-point Likert scale ranging from 0 to 3, with scores from 0 to 39. The severity of depression is categorized as follows: scores of 0-4 indicate no or minimal depression; 5-7 indicate mild depression; 8-15 indicate moderate depression; and 16-39 indicate severe depression. This questionnaire has high reliability and validity. Rajabi (2023) evaluated its content, face, and criterion validity as appropriate. The calculated Cronbach's alpha coefficient was above 0.7 and estimated at 0.81, confirming its reliability (Salemi et al., 2023; Tayebmanesh & Saadati, 2023). In this study, the reliability was confirmed with a Cronbach's alpha of >0.7.

2.2.2. *Anxiety*

The Beck Anxiety Inventory (Beck et al., 1988), consisting of 21 items, was used to measure anxiety in women. It employs a 4-point Likert scale ranging from 0 to 3, with scores from 0 to 63. The severity of anxiety is categorized as follows: scores below 9 indicate no anxiety; 10-20 indicate mild anxiety; 21-30 indicate moderate anxiety; and scores above 31 indicate severe anxiety. This questionnaire has high reliability and validity. Its internal consistency coefficient (alpha coefficient) is 0.92, and its test-retest reliability over a one-week interval is 0.75, with item correlations ranging from 0.30 to 0.76. The Persian version of the BAI is suitable for clinical and research assessments in the Iranian population (Emami Khotbesara et al., 2024). In this study, the reliability was confirmed with a Cronbach's alpha of >0.7.

2.2.3. *Quality of Life*

The WHO Quality of Life (WHOQOL-BREF) questionnaire (WHO Quality of Life Group, 1996), consisting of 26 items, was used to measure the quality of life in women. It has subscales for physical health, psychological health, social relationships, environmental health, and overall quality of life and general health, using a 5-point Likert scale ranging from 1 to 5. The total score of all 26 items represents the overall quality of life. It is noteworthy that items 3, 4, and 26 are reverse-scored. Scores range from 26 to 130. A study on 1,167 people in Tehran assessed its validity and reliability. The test-retest reliability for the subscales was as follows: physical health 0.77, psychological health 0.77, social relationships 0.75, environmental health 0.84, and overall quality of life and general health 0.79 (Kahaki, 2024; Karimi Dastaki & Mahmudi, 2024). In this study, the reliability was confirmed with a Cronbach's alpha of >0.7.

2.3. *Intervention*

2.3.1. *Compassion-Focused Therapy*

The Compassion-Focused Therapy training protocol, consisting of eight 90-minute sessions designed according to Gilbert's (2010) protocol, was used for the intervention group (Gilbert, 2010). The sessions were conducted by the researcher in collaboration with an experienced therapist.

Session 1: The first session focuses on establishing a therapeutic relationship. The group leader introduces themselves and explains the group rules. Members are introduced to each other, and a discussion about the disease and the limitations it imposes is initiated. The session includes an overview of the brain structure and automatic thoughts. Emotions and the concept of shared humanity (the first component of compassion) are discussed, emphasizing the commonalities among people in similar situations. An introduction to the concept of compassion and a brief overview of compassion therapy are provided.

Session 2: This session begins with a review of the previous session and assigned tasks. The focus then shifts to explaining the emotional regulation systems. The importance of self-compassion, self-support, and self-care (acting with kindness, the second component of compassion) is discussed. The session also covers neurobiological experiments in the field of compassion and distinguishes between compassion and pity.

Session 3: The third session involves reviewing the previous session's assignments. Characteristics of compassion are explained in detail, with practical examples provided for traits such as kindness and empathy.

Session 4: In this session, the previous session is reviewed, and the necessity of compassion is discussed. The characteristics of compassion, including courage and wisdom, are explained with practical examples. The concept of "fear of compassion" is introduced, and the idea of daily compassionate self-correction instead of self-criticism is discussed.

Session 5: The fifth session reviews the exercises from the previous session and addresses any challenges encountered. Various visualization and practical techniques are explained, including mindfulness (the third component of compassion) and calming breathing techniques.

Session 6: This session reviews the exercises and assignments from the previous session and introduces body

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scan and relaxation exercises (along with expressions of gratitude). The elements of compassion (three components) are explained in detail with related exercises. The differences between satisfaction and pleasure are discussed. Exercises include visualizing a safe place, imagining a compassionate self, creating emotional experiences, daily compassion review, and body memory exercises.

Session 7: The seventh session involves imagining compassion for others, demonstrating compassionate behaviors, and visualizing receiving compassion from others using memories. Participants are also guided to visualize compassion from an ideal compassionate figure and practice writing daily compassion letters.

Session 8: The final session reviews the previous session's assignments and exercises. The difference between self-compassion and narcissism is explained. Exercises include chair work and soothing touch practices. Participants learn a mindfulness exercise called anchoring with the ACE formula. The session concludes with a review and practice of the skills learned, preparing members for the end of the sessions.

2.4. Data Analysis

Data analysis was performed using SPSS version 24, with descriptive statistics (mean and standard deviation) and inferential statistics (assumptions and hypothesis testing using mixed-design ANOVA).

3. Findings and Results

Table 1 indicates changes in depression, anxiety, and quality of life scores in the post-test for the experimental group compared to the pre-test, showing decreased depression and anxiety scores and increased quality of life scores. The data were analyzed using a mixed-design analysis of variance (ANOVA). The use of this test requires several initial assumptions. The most important assumptions for using this test are the normal distribution of scores, M. Box, Levene, and Mauchly's tests to examine the homogeneity of variances.

Table 1

Descriptive Statistics of Variables Based on Intervention Stages and Control Group

Group	Variable	Stage	Mean	Standard Deviation
Compassion-Focused Therapy	Depression	Pre-test	20.66	5.92
		Post-test	12.91	6.50
		Follow-up	10.58	3.80
	Anxiety	Pre-test	33.75	9.15
		Post-test	20.83	8.78
		Follow-up	16.58	8.24
	Quality of Life	Pre-test	81.83	14.06
		Post-test	101.58	20.18
		Follow-up	103.50	19.50
Control	Depression	Pre-test	21.91	5.35
		Post-test	19.41	4.67
		Follow-up	20.25	6.09
	Anxiety	Pre-test	32.83	6.36
		Post-test	30.50	4.75
		Follow-up	30.50	4.54
	Quality of Life	Pre-test	75.08	11.38
		Post-test	81.41	11.16
		Follow-up	82.91	9.39

The results showed that the significance level of the Shapiro-Wilk test for depression, anxiety, and quality of life were 0.67, 0.34, and 0.42, respectively ($p > .05$). Therefore, the null hypothesis that the data for depression, anxiety, and quality of life are normally distributed was confirmed. The M. Box test for equality of covariance matrices was not significant ($p > .001$). Additionally, the F values from Levene's test for homogeneity of variances were not significant for any variables ($p > .05$), confirming the assumption of equal variances for the research variables. However, the significance level of Mauchly's sphericity test for the chi-square estimate was less than 0.05, indicating a violation of this assumption. Thus, the Greenhouse-Geisser correction was used for interpreting the within-subject effects.

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Table 2

Results of Mixed ANOVA in Experimental and Control Groups at Pre-test, Post-test, and Follow-up Stages Using Greenhouse-Geisser Correction

Variable	Source	Source of Variance	Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Depression	Within-groups	Intervention stages	504.25	1.86	270.61	30.45	.000	.58
		Stages × Group	205.52	1.86	110.30	12.41	.000	.36
	Between-groups	Group	589.38	1	589.38	7.85	.01	.26
Anxiety	Within-groups	Intervention stages	1261.75	1.73	727.28	24.08	.000	.52
		Stages × Group	700.19	1.73	403.60	13.36	.000	.37
	Between-groups	Group	1027.55	1	1027.55	9.88	.005	.31
Quality of Life	Within-groups	Intervention stages	3124.52	1.77	1760.05	17.53	.000	.44
		Stages × Group	743.08	1.77	418.58	4.16	.02	.16
	Between-groups	Group	4512.50	1	4512.50	10.63	.004	.32

In examining the research hypotheses regarding the effectiveness of compassion-focused therapy on reducing depression and anxiety and increasing the quality of life in women, the results in Table 2 indicate that the intervention significantly reduced depression scores ($\eta^2 = .26$, $p = .01$), reduced anxiety scores ($\eta^2 = .31$, $p = .005$), and increased quality of life scores ($\eta^2 = .32$, $p = .004$).

Table 3

Bonferroni Post-Hoc Test Results for Comparing Effectiveness and Stability at Follow-Up Stage

Variable	Stage 1	Stage 2	Mean Difference	p
Depression	Pre-test	Post-test	5.12	.000
		Follow-up	6.00	.000
	Post-test	Pre-test	-5.12	.000
		Follow-up	0.87	.86
	Follow-up	Pre-test	-6.00	.000
		Post-test	-0.87	.86
Anxiety	Pre-test	Post-test	7.62	.000
		Follow-up	9.75	.000
	Post-test	Pre-test	-7.62	.000
		Follow-up	2.12	.23
	Follow-up	Pre-test	-9.75	.000
		Post-test	-2.12	.23
Quality of Life	Pre-test	Post-test	-13.04	.000
		Follow-up	-14.75	.000
	Post-test	Pre-test	13.04	.000
		Follow-up	-1.70	.90
	Follow-up	Pre-test	14.75	.000
		Post-test	1.70	.90

Comparison of changes in Table 3 indicates significant differences in depression, anxiety, and quality of life scores between post-test and follow-up stages compared to pre-test in the experimental group, with effects persisting at follow-up. In the control group, these differences were not significant.

4. Discussion and Conclusion

The present study aimed to evaluate the effectiveness of compassion-focused therapy (CFT) on reducing depression and anxiety and increasing the quality of life in women with breast cancer in Tehran. The results showed that CFT significantly reduced depression (26%), and this effect remained stable after 45 days. These findings align with various national and international studies on the effectiveness of CFT in reducing depression in breast cancer

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patients. Depression in patients is closely related to negative emotions. In such situations, patients experience guilt, shame, worthlessness, severe self-criticism, and a sense of inefficacy. However, in self-compassion, individuals do not relate their behavior to their personality because the goal is solely personal growth and development. Compassionate exercises and practical techniques in CFT activate the soothing system (calmness), helping individuals experience relaxation. The sense of shared humanity in compassion helps depressed patients tolerate their problems, flaws, illness, and deficiencies as natural human experiences shared by others, reducing isolation and fostering a sense of connection with others. Teaching self-compassion to patients leads to rational and compassionate behaviors towards themselves, emotionally affecting their psychological state. Patients are taught to face pain and illness instead of avoiding them. Gilbert (2010) emphasizes that everyone will eventually get sick and die. Throughout life, we will experience failures repeatedly, and life is generally difficult. Without self-compassion, we cannot navigate such a challenging life (Gilbert, 2010). Compassion can serve as a healing force to alleviate pain and stress, develop healthier relationships, and facilitate treatment progress. Compassionate behavior increases empathy, motivation, support, and encouragement, thus reducing depression.

Another result showed that CFT significantly reduced anxiety (31%) and this effect remained stable after 45 days. These findings are consistent with various national and international studies on the effectiveness of CFT in reducing anxiety in breast cancer patients. In explaining this finding, it can be stated that patients in CFT learn not to criticize themselves when experiencing negative emotions and anxiety. According to the principle of shared humanity, they realize that everyone in similar circumstances experiences similar feelings. This fosters empathy and understanding of their own thoughts, feelings, and behaviors. Patients practice soothing touch to the area of pain (physical or emotional) with kindness, reminding themselves that pain is not inherently bad. Pain signifies life and being alive. In these compassionate and non-judgmental practices filled with acceptance, patients' perceptions of themselves change, enhancing their ability to cope with emotional storms and creating inner calm and relief. CFT helps patients understand the origins of their suffering and develop skills to cope with it healthily, responding to their emotions with kindness. Anxiety management without control, through empathy, mindfulness, and present-moment awareness, is facilitated by this approach. Reducing anxiety symptoms includes increased psychological flexibility, reduced stress levels, improved mood, enhanced relationships, better coping mechanisms, greater life satisfaction, and maintaining realistic expectations of oneself. Teaching CFT and emphasizing managing negative emotions and compassionate, supportive behavior towards oneself reduces patients' anxiety (Neff, 2003; Taheri & Jabalameli, 2021).

The study also showed that CFT significantly increased the quality of life (32%) and this effect remained stable after 45 days. These findings align with various studies on the effectiveness of CFT in improving the quality of life in breast cancer patients. Compassionate understanding of fears, threats, and finding effective strategies are achieved in CFT. Compassionate skills and imagery exercises, through practice, create emotions and strengthen the brain's soothing system, creating feelings of calmness and balance. These effects lead to physical relaxation and joy, affecting neurological, cardiovascular, and hormonal changes. Mindfulness exercises strengthen the evolved part of the brain (prefrontal cortex) and create compassionate awareness, fostering acceptance, creativity, kindness, empathy, non-judgmental relationships, and inner peace. Soothing and comforting exercises promote physical relaxation and activate soothing systems, enhancing internal self-compassion and improving social and supportive relationships. In CFT, patients are taught to be emotionally open and mindful towards their pain and suffering. They learn to support and care for themselves without shame and self-criticism. They learn that part of compassion involves being sensitive to their pain and prioritizing their needs, achieved through rationality and realism via compassion-focused imagery and strengthening the soothing system. This enhances patients' quality of life.

5. Limitations and Suggestions

The present study has several limitations. First, the sample size was relatively small, comprising only 30 participants, which may limit the generalizability of the findings to the broader population of women with breast cancer. Second, the study was conducted within a specific cultural context in Tehran, which may not reflect the experiences of women in different geographical or cultural settings. Third, the reliance on self-reported measures for depression, anxiety, and quality of life could introduce response bias. Additionally, the follow-up period was limited to 45 days, which may not capture long-term effects

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and sustainability of the intervention. Finally, the lack of a placebo or alternative therapy control group makes it difficult to attribute the observed effects solely to the compassion-focused therapy. Future research should address these limitations by including larger, more diverse samples, employing longer follow-up periods, and utilizing more robust control conditions.

Given the effectiveness of CFT in reducing depression and anxiety and increasing patients' quality of life, it is recommended that CFT be used as a complementary therapy alongside medication in treatment centers, provided by experienced therapists for cancer patients. The results should also be shared with psychologists and counselors working in oncology to use this therapy to reduce depression and anxiety and enhance patients' quality of life. Additionally, in the context of psycho-oncology, the results should be shared with oncologists working with cancer patients to improve their interactions and approaches to these patients.

Authors' Contributions

Authors contributed equally to this article.

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. Prior to the study, ethical approval was obtained with the code IR.IAU.R.REC.1401.041. Written consent was obtained from the patients. Additionally, ethical codes from the American Psychological Association, including confidentiality of results, the possibility of withdrawal, providing sufficient information about the study, and ensuring no physical harm from the intervention, were followed.

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