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The Effectiveness of Solution-Focused Brief Therapy (SFBT) on Depression and Perceived Stress in Patients with Breast Cancer

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ARTICLE INFO	ABSTRACT
<p>Article History: Received 23 June 2024 Received in revised form 20 August 2024 Accepted 8 September 2024 Available online 12 September 2024</p>	<p>The present study aimed to investigate the effectiveness of Solution-Focused Brief Therapy (SFBT) in reducing depression and perceived stress among patients diagnosed with breast cancer. This quasi-experimental research employed a pretest-posttest control group design and was conducted during the summer of 2018. A total of 30 female patients with breast cancer who were referred to Imam Khomeini Hospital in Tehran were selected through convenience sampling and randomly assigned to experimental (n=15) and control (n=15) groups. Participants were assessed at baseline using the Cohen Perceived Stress Scale (PSS) and the Center for Epidemiological Studies Depression Scale (CES-D). The experimental group received six sessions of SFBT, while the control group received no psychological intervention. At the conclusion of the intervention, both groups were reassessed using the same measures. Data were analyzed using SPSS version 21 and multivariate repeated-measures analysis of variance. The findings revealed a statistically significant difference between the experimental and control groups following the intervention ($p < 0.001$). Specifically, the mean scores for depression and perceived stress in the experimental group significantly decreased compared to the control group. Based on these results, it can be concluded that SFBT is effective in reducing depression and perceived stress in patients with breast cancer. The findings suggest the potential value of incorporating psychological screening and, when necessary, structured clinical interventions to enhance the mental well-being of this patient population.</p>
<p>Keywords: Breast cancer, perceived stress, depression, Solution-Focused Brief Therapy (SFBT)</p>	

1. INTRODUCTION

The increasing global prevalence of cancer in recent years and its multidimensional impact physically, psychologically, and socially have positioned it as one of the most significant public health challenges of the 21st century [1]. Cancer is a common non-communicable disease characterized by abnormal patterns of cell proliferation and differentiation, which, through infiltration and destruction of healthy tissues, can lead to severe illness and ultimately death [2]. Cancer is not a single disease but a spectrum of conditions, each with distinct etiologies, treatment protocols, and prognoses [3].

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Among women, breast cancer is not only the most frequently diagnosed cancer but also one of the most emotionally and psychologically distressing types [1]. Despite its relatively high five-year survival rate estimated between 80% and 95% in many countries [4] the diagnosis and treatment process remains profoundly stressful [5]. Today, many studies have been conducted on the diagnosis of breast cancer and the type of breast cancer [6-10]. In fact, with advances in early detection and treatment, breast cancer is increasingly being regarded as a treatable condition rather than a terminal illness [5]. However, the psychological burden of living with the disease including the distress of diagnosis, long-term treatment, and uncertainty about prognosis has been widely recognized [4].

Prolonged psychological stress in patients with breast cancer significantly increases the risk of developing depressive symptoms [11]. Depression is not only common among these patients but has been shown to be a significant predictor of morbidity and mortality. The prevalence of depression in women with breast cancer is estimated to be over 37% [4], while many others experience subthreshold depressive symptoms that, despite not meeting full criteria for major depressive disorder, have a serious impact on quality of life and overall functioning [11]. Central to this psychological burden is an intense fear of recurrence or metastasis, which is frequently cited as a key factor in the onset and persistence of depressive states in this population [12]. Other contributing factors include treatment side effects, body image disturbances, sexual dysfunction, fear of death, concern for family members' futures, and diminished daily functioning [1,13].

Another critical psychological variable, widely cited in the literature as a major predictor of suicidal ideation among women with breast cancer, is perceived stress [14]. Stress is a multifaceted state resulting from the interaction of biological, psychological, and environmental factors [15]. Numerous studies have shown that stress can exacerbate disease progression, accelerate tumor growth, and lead to a host of negative physiological and psychological outcomes in cancer patients [16]. Perceived stress, in particular, refers to an individual's subjective evaluation of the severity and uncontrollability of personal and environmental stressors. As such, both personal dispositions and external circumstances play vital roles in shaping one's perception of stress [15]. Given the profound impact of both depression and perceived stress on cancer outcomes, identifying effective psychological interventions aimed at reducing these variables is of high clinical importance.

One such promising intervention is Solution-Focused Brief Therapy (SFBT) a strengths-based, goal-oriented therapeutic approach designed to help individuals identify and implement practical solutions to their problems [12]. Originating in the early 1980s at the Brief Family Therapy Center in Milwaukee, SFBT was developed by social workers Steve de Shazer and Insoo Kim Berg, along with their colleagues, who sought to design effective, short-term therapeutic strategies for promoting meaningful change in clients [18].

Although relatively young in its historical development, SFBT has gained widespread acceptance among mental health professionals globally in recent years [19]. Its growing popularity is largely attributed to its focus on rapid change and its respect for the client's perspective both of which align well with the principles of patient-centered care. Like other therapeutic models, SFBT aims to enhance clients' overall well-being by helping them construct solutions that lead to a more positive and fulfilling life. Importantly, evidence suggests that SFBT can yield significant outcomes even in high-stress and crisis settings, including oncology care.

Given the theoretical foundations and clinical promise of SFBT, it appears that this approach may be particularly effective in reducing depression and perceived stress among women with breast cancer. Accordingly, the present study was designed to evaluate the effectiveness of Solution-Focused Brief Therapy in mitigating psychological distress in this population.

2. METHOD

This study employed a quasi-experimental design with pre-test and post-test assessments and a control group. The statistical population consisted of all female breast cancer patients referred to Imam Hossein Hospital in Tehran at the time of the study. According to methodological recommendations that suggest a minimum of 15 participants per group for experimental studies [20], the sample size was set at 15 for each group.

Inclusion criteria for participation included:

- A confirmed diagnosis of stage 1, 2, or 3 breast cancer based on clinical evaluations and cytological findings as verified by a specialist;
- Informed consent and willingness to participate in the study;
- The physical and psychological stability required to attend sessions and complete assignments (i.e., absence of acute medical symptoms or significant psychological distress such as recurrence or metastasis during the study);
- A depression score above the average threshold;
- A time lapse of more than one month since diagnosis;
- Education level above junior high school;
- Age range between 30 and 55 years.

Exclusion criteria included:

- Diagnosis of any other type of cancer;
- Being under treatment for another physical or psychological condition;
- Cognitive impairments or dysfunctions that could hinder participation;
- Severe clinical symptoms rendering participation difficult or impossible;
- Presence of other psychological disorders (e.g., generalized anxiety disorder).

From among the eligible patients with medical records at Imam Hossein Hospital, participants were randomly selected. Those meeting the inclusion criteria were randomly assigned to either the experimental or control group using a block randomization method.

The study used a pre-test/post-test design to examine the effectiveness of Solution-Focused Brief Therapy (SFBT) in reducing depression and perceived stress in breast cancer patients. The procedural steps were as follows:

First, 30 eligible participants who regularly attended medical checkups at Imam Khomeini Hospital in Tehran were selected. Then, 30 cards were prepared 15 labeled “A” and 15 labeled “B.” During the pre-test, each participant completed the Structured Clinical Interview for DSM Disorders (SCID), the Cohen Perceived Stress Scale (PSS), and the Center for Epidemiologic Studies Depression Scale (CES-D). Each participant was then asked to randomly choose one card, resulting in random assignment into two groups (A and B). One group was later designated as the control group, while the other received the SFBT intervention.

Participants in the experimental group received six weekly sessions of Solution-Focused Brief Therapy (each lasting 2 hours) at the oncology department of Imam Khomeini Hospital. Therapy was conducted by a health psychology Ph.D. who had completed formal training in SFBT and had extensive experience in its clinical application. The SFBT session protocol is detailed in Table 1. The instruments used in this study included:

2.1. Demographic Questionnaire

This form gathered data on participants’ age, education level, marital status, and other basic demographic variables.

2.2. Cohen’s Perceived Stress Scale (PSS)

Originally developed by Sheldon Cohen in 1983, this instrument has 4-item, 10-item, and 14-item versions designed to measure general stress perception over the past month. Items are rated on a 5-point Likert scale ranging from 0 (never) to 4 (very often). Items 4, 5, 7, 9, 10, and 13 are reverse-scored. Total scores range from 0 to 56, with higher scores indicating higher levels of perceived stress [21]. Reported Cronbach’s alpha values range from 0.84 to 0.86 across various studies [22].

2.3. Center for Epidemiologic Studies Depression Scale (CES-D)

The CES-D is a 20-item self-report scale designed to assess depressive symptoms. Participants rate the frequency of each symptom over the past week using a 4-point Likert scale. The total score ranges from 0 to 60, with higher scores reflecting more severe depressive symptoms. The CES-D has demonstrated strong internal consistency, with

Cronbach’s alpha ranging from 0.84 to 0.90 in prior studies. It also shows good convergent and discriminant validity, and the scale’s factorial structure has been confirmed across various cultural populations [23]. The CES-D has been widely used in Iranian research and has demonstrated satisfactory reliability and validity. For example, in a study by Bakhtiarpour et al. [24], the scale’s internal consistency (Cronbach’s alpha) was reported as 0.91. Its concurrent validity was also confirmed through a significant correlation with the Beck Depression Inventory ($r = 0.90$, $p < 0.0001$).

3. STATISTICAL ANALYSIS

Data were analyzed using SPSS version 21. Descriptive statistics (means, standard deviations, frequencies) and inferential statistics (multivariate repeated-measures ANOVA) were used to evaluate the effects of the intervention.

Table 1. Protocol of Solution-Focused Brief Therapy Sessions

Session	Intervention Activities
Session 1	Problem definition, asking clients to express their issue in one word and transform it into a sentence; setting achievable goals; problem discussion.
Session 2	Reviewing prior homework; goal setting; identifying potential solutions; formulating problem-solving loops.
Session 3	Summary of previous session; future-oriented conversation; applying “miracle questions” and “exceptions technique”; identifying positive narratives.
Session 4	Review and discussion of previous tasks; introduction and application of “key technique”; use of scaling questions.
Session 5	Homework review; reinforcement of the “key technique”; use of imaginative tasks; application of solution-focused questions and paradoxical interventions.
Session 6	Final review and discussion; scaling questions to assess progress; evaluation of goal achievement; post-test and follow-up coordination.

Table 2 presents the demographic characteristics of the study sample.

Table 2. Demographic Characteristics of Participants

Variable	Category	Experimental Group (n = 15)	Control Group (n = 15)
Age (years)	20–25	2 (13.3%)	3 (20%)
	26–30	4 (26.7%)	2 (13.3%)
	31–35	2 (13.3%)	3 (20%)
	35–40	5 (33.3%)	2 (13.3%)
	41–45	2 (13.3%)	5 (33.3%)
	Mean ± SD	32.67 ± 7.69	34.80 ± 6.03
Education	Below high school	7 (46.7%)	7 (46.7%)
	High school	6 (40%)	7 (46.7%)
	Above high school	2 (13.3%)	1 (6.7%)
Marital status	Married	10 (66.7%)	11 (73.3%)
	Single	5 (33.3%)	4 (26.7%)

Note: Data are reported as frequency (percentage) unless otherwise indicated.

4. SUMMARY STATEMENT

Following this, the means and standard deviations of the variable’s depression and perceived stress in both the experimental and control groups, across the pre-test and post-test phases, are presented in Table 3.

Table 3. Mean and Standard Deviation of Depression and Perceived Stress in Breast Cancer Patients by Time (Pre-test – Post-test)

Control Group (n = 15)		Experimental Group (n = 15)		Variable
Post-test (Mean ± SD)	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	Pre-test (Mean ± SD)	
41.67 ± 4.38	42.93 ± 4.81	29.60 ± 5.11	43.07 ± 5.09	Depression
33.60 ± 4.10	34.40 ± 4.59	23.53 ± 4.91	35.27 ± 3.78	Perceived Stress

As shown in Table 3, both depression and perceived stress scores significantly decreased in the experimental group from pre-test to post-test. Conversely, the control group did not show notable changes across the same period.

To evaluate the effectiveness of Solution-Focused Brief Therapy (SFBT), a multivariate repeated-measures analysis of covariance (MANCOVA) was performed. In this model, pre-test scores were treated as covariates, post-test scores as dependent variables, and time as the moderating variable. Prior to conducting the main analysis, assumptions for model validity were tested.

Table 4. Levene’s Test for Equality of Variances (Post-test Scores)

Variable	Stage	F	df1	df2	p-value
Depression	Post-test	0.322	1	28	0.575
Perceived Stress	Post-test	0.766	1	28	0.389

As shown in Table 4, the null hypothesis of equality of variances between the two groups for the variables of depression and perceived stress is confirmed. This indicates that the variances of the two groups in the population are equal and do not differ significantly. Therefore, given that the Levene’s assumption is met, conducting repeated measures ANOVA to test the research hypotheses is permissible.

Mauchly’s test results for the depression variable indicate that the assumption of sphericity is violated (Mauchly’s $W = 0.651$, $df = 2$, $p = 0.003$). Consequently, due to the violation of the variance-covariance matrix equality assumption, the Huynh-Feldt correction was applied. The corrected test showed a significant main effect of time (pre-test to post-test) ($F = 206.156$, $p < 0.001$, Partial Eta Squared = 0.880) and a significant interaction effect between time and group ($F = 163.828$, $p < 0.001$, Partial Eta Squared = 0.854) within groups.

Multivariate tests further revealed that the effect of time (pre-test vs. post-test) on depression was significant (Pillai’s Trace = 0.912, $F = 140.353$, $p < 0.001$, Partial Eta Squared = 0.912). Moreover, the interaction effect between time and group was significant (Pillai’s Trace = 0.881, $F = 99.559$, $p < 0.001$, Partial Eta Squared = 0.881). Considering the significant difference between the experimental and control groups, as well as the findings in Table 3 indicating that the experimental group’s post-test mean was lower than that of the control group, it can be concluded that the independent variable (short-term solution-focused therapy) had a significant effect on reducing depression.

Similarly, Mauchly’s test for the perceived stress variable showed that the assumption of sphericity was violated (Mauchly’s $W = 0.327$, $df = 2$, $p = 0.001$). Therefore, the Huynh-Feldt correction was again applied due to the inequality of the variance-covariance matrix. The corrected results revealed a significant main effect of time ($F = 88.221$, $p < 0.001$, Partial Eta Squared = 0.759) and a significant interaction effect between time and group ($F = 78.643$, $p < 0.001$, Partial Eta Squared = 0.737) within groups.

Multivariate analyses also showed a significant effect of time on perceived stress (Pillai’s Trace = 0.807, $F = 56.554$, $p < 0.001$, Partial Eta Squared = 0.807), as well as a significant interaction between time and group (Pillai’s Trace = 0.756, $F = 41.782$, $p < 0.001$, Partial Eta Squared = 0.756). Given the significant difference between the experimental and control groups, and the results presented in Table 3 where the experimental group’s post-test mean

was lower than that of the control group, it can be stated that the independent variable (short-term solution-focused therapy) significantly contributed to reducing perceived stress.

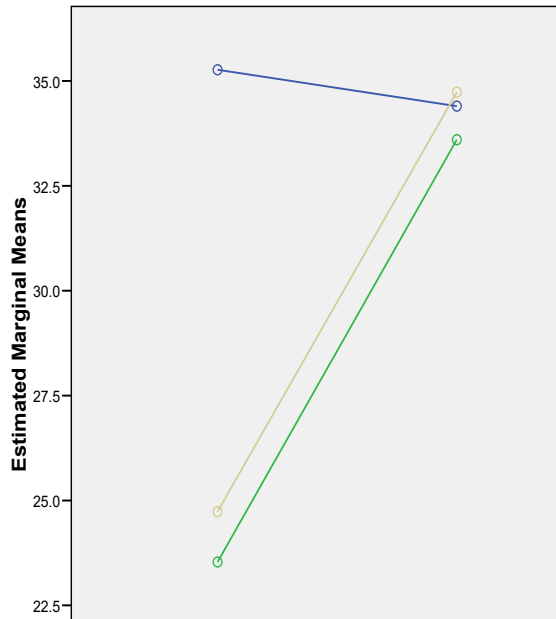


Fig. 1. Interaction effect of time and group on perceived stress.

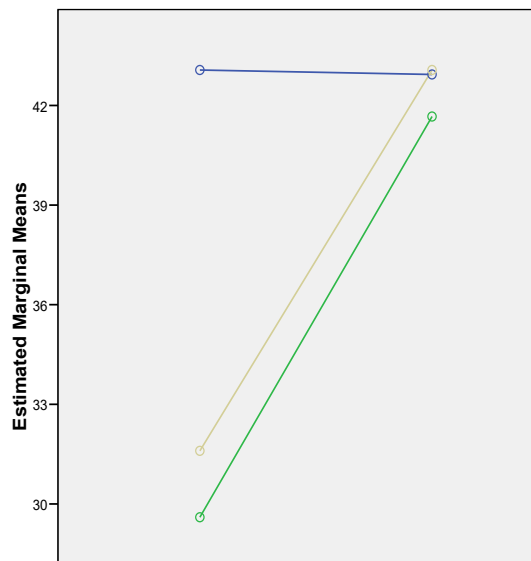


Fig. 2. Interaction effect of time and group on depression.

5. DISCUSSION AND CONCLUSION

Given the present study's aim to examine the effectiveness of short-term solution-focused brief therapy (SFBT) on depression and perceived stress in patients with breast cancer, the findings from the multivariate repeated measures ANOVA indicated that SFBT leads to a reduction in both depression and perceived stress among these patients. This result, that short-term solution-focused therapy reduces depression in breast cancer patients, is

consistent with the findings of Dashtizadeh et al. [18], Abbasi et al. [25], and Wichowicz et al. [26] across various samples and studies.

Dashtizadeh et al. [18], in explaining their similar findings, note that SFBT differs from many other therapies in that the therapist does not claim expert authority. Instead, it represents a different way of thinking about the helping process. Solution-focused therapists assume that change is sustainable and that clients possess unique initiatives to overcome their problems. The approach focuses on discovering solutions rather than analyzing problems. According to the [problem/exception] principle in SFBT, depression is conceptualized as a bipolar construct [depression/non-depression]. In other words, depression inherently includes distinct moments when the individual is not depressed. SFBT assumes that depression largely sustains itself because clients perceive it as a permanent, ongoing condition. The theory of change in SFBT posits that if clients can identify and amplify exceptions to the problem, they can effect profound change (i.e., turning exceptions into the new rule). This therapy holds that clients already have coping skills, abilities, and resources (exceptions) that play a vital role in reducing depressive and other clinical symptoms. If these exceptions are recognized and strengthened, a significant shift occurs in how the client perceives their depression. Furthermore, the finding that short-term solution-focused therapy reduces perceived stress in breast cancer patients aligns with the results of Shakeri et al. [27], Bochmin [28], and Wichowicz et al. [26] in various samples and studies.

This effect can be explained by the fact that solution-focused therapists employ multiple techniques that reduce clients' stress. One such technique is the use of scaling questions, often applied to measure progress throughout therapy sessions. Scaling questions ask clients to rate their status or goal on a scale from 1 to 10. For example, at the outset of therapy, a client experiencing stress may be asked to rate their stress level on the scale. After several sessions, the client re-rates their problem status, allowing them to visually observe reductions in problem severity with each rating. This technique helps clients recognize their progress and improvement during therapy.

This study had some limitations that should be considered when generalizing the results. These include the insufficient sample size meeting inclusion criteria to form third and fourth groups for comparison with other therapeutic methods. Therefore, it is recommended that future research emphasize comparing novel psychological treatments in reducing psychological symptoms of cancer patients. Additionally, other groups receiving pharmacotherapy and placebo alongside experimental and control groups should be examined to allow for broader comparisons. Another limitation of the present study was the lack of long-term follow-up (one year or longer) due to inability to access all participants over time. Consequently, future researchers are encouraged to design studies aiming to investigate the long-term effects of such interventions.

Declaration

We acknowledge that we used ChatGPT to enhance the academic writing of our manuscript while ensuring the originality and integrity of our work.

Transparency Statement

The data supporting this study are available upon reasonable request to the corresponding author, subject to ethical and confidentiality considerations.

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Declaration of Interest

The authors declare that they have no competing interests.

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