

Effect of Group-Based Dhikr Therapy on Health-Related Quality of Life (HRQoL) in Women with Breast Cancer: A Single-Center Randomized Controlled Trial

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ABSTRACT

Background: Breast cancer and its treatments significantly impair patients' health-related quality of life (HRQoL). Spiritually oriented interventions, such as Dhikr therapy — the rhythmic recitation of Islamic holy words and phrases — aim to promote physiological and psychological relaxation. Although such approaches have shown promise in improving quality of life, evidence on structured, group-based Dhikr programs in oncology populations remains limited. This study aimed to evaluate the effectiveness of a six-session group-based Dhikr therapy program on HRQoL in women with breast cancer.

Materials and Methods: This two-arm, parallel-group randomized controlled trial included 60 women aged 25–55 years with confirmed breast cancer. Participants were randomly allocated (1:1) to either the intervention group (n=30), which received a structured 6-week group-based Dhikr therapy, or the control group (n=30), which received standard oncology care. The intervention consisted of weekly 90-minute sessions incorporating Quranic reflection, gratitude practice, guided visualization, and facilitated group sharing. The primary outcome was HRQoL, assessed using the EORTC QLQ-C30 and QLQ-BR23 questionnaires at baseline and within one week after intervention completion. The trial was registered with the institutional ethics committee (IR.SBMU.CRC.REC.1403.005). Statistical analysis was performed using SPSS v.31. Continuous data are presented as mean ± SD and categorical data as frequencies (%). Group differences were assessed with independent t-test, Mann-Whitney U, and chi-square tests as appropriate. Intervention effects on HRQoL were analyzed by two-way repeated-measures ANOVA. Significance was set at $P \leq 0.05$.

Results: Compared with the control group, women in the Dhikr therapy group showed statistically significant improvements in all domains of the QLQ-C30: Symptom subscale (mean change: -17.40 vs. +9.38; $P < 0.001$), Function subscale (+9.58 vs. -20.08; $P < 0.001$), Single Items subscale (a global symptom index; -14.26 vs. +9.08; $P < 0.001$), and total score (intervention: 53.89 ± 32.51 to 75.83 ± 19.25 ; control: 70.28 ± 22.07 to 52.22 ± 16.07 ; $P < 0.001$). Similarly, the intervention group demonstrated significant improvements in the QLQ-BR23: Symptom subscale (-10.97 vs. +5.14; $P = 0.001$) and Function subscale (+15.41 vs. -32.91; $P = 0.001$), while the control group showed deterioration in both subscales.

Conclusion: A structured, group-based Dhikr therapy program improved both general and breast cancer-specific HRQoL among women with breast cancer. These findings support the integration of culturally appropriate spiritual interventions into standard supportive oncology care.

Keywords: Breast cancer; Dhikr therapy; Health-related quality of life; Randomized controlled trial

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INTRODUCTION

Breast cancer, one of the major causes of morbidity and mortality worldwide, arises from the uncontrolled proliferation of epithelial or lobular cells in breast tissue. Breast cancer is responsible for roughly 630,000 deaths each year globally. In recent years, Iran has experienced a steady increase in breast cancer incidence, with approximately 7,000 new cases diagnosed annually⁽¹⁻⁷⁾. Significant progress in oncology treatments has improved patients' survival rates. However, the disease and its treatment often cause side effects such as fatigue, pain, financial burdens, and social isolation, and negatively affect patients' physical, psychological, and social functioning, collectively contributing to a marked decline in health-related quality of life (HRQoL). All of these make HRQoL a critical prognostic indicator and a central focus of supportive care interventions⁸⁻¹². Consequently, there is an increasing demand for holistic therapeutic approaches that comprehensively address the needs of breast cancer patients across their treatment course¹³.

Mindfulness-based stress reduction¹⁴, yoga¹⁵, exercise¹⁶ poetry therapy², and group counseling⁴ are the various interventions employed for the psychosocial burden of breast cancer. A recent study using Masnavi-based poetry therapy reported notable decreases in anxiety, depression, and stress levels among women with breast cancer, further underscoring the therapeutic potential of spiritually oriented approaches¹⁷. Among these strategies, religion- and spirituality-based therapies have attracted growing interest for their capacity for meaning-making, emotional regulation, and psychological resilience. Dhikr therapy, which involves the rhythmic recitation of sacred Islamic words and phrases, is one such promising modality^{7,18}. Based on Rumi's spiritual teachings, Dhikr (invocation) refers to the remembrance of God through repeating specific words or phrases¹⁹. The benefits of Dhikr therapy are thought to stem from its ability to promote spiritual peace, induce physiological and psychological relaxation, and facilitate emotional regulation through subconscious mechanisms, particularly when practiced in a supportive group setting⁷. This intervention

resonates strongly with patients' spiritual values and effectively targets their emotional, social, and existential concerns²⁰. Considering humanity's natural inclination toward spirituality²¹ and the holistic perspective of Islam^{22,23}, spiritually grounded interventions are especially appropriate for Muslim populations.

Previous research has linked Dhikr practice to lower anxiety and better psychological well-being, especially among patients on hemodialysis²⁴ and primiparous women²⁰. However, studies specifically evaluating structured group-based Dhikr therapy in breast cancer patients are still limited. Most prior interventions have addressed only selected aspects of well-being, lacked extended follow-up periods, or failed to adequately incorporate patients' cultural and spiritual values^{2,25,26}. Compared to other psychosocial interventions (e.g., mindfulness or poetry therapy), Dhikr therapy may offer distinct advantages in Muslim populations due to its deep cultural and religious alignment, low cost, ease of group delivery, and integration of rhythmic recitation that addresses spiritual, emotional, and physiological relaxation²⁷⁻²⁹. This gap is particularly significant given that HRQoL is a crucial resource associated with improved treatment adherence and better survival outcomes. Since women play a central role in both family and society, prioritizing their overall well-being is of maximum importance.

In our previous study conducted in the same population, we demonstrated that participation in this structured Dhikr program significantly enhanced dispositional hope and alleviated psychological distress. Building upon these findings, we hypothesized that the same six-session, group-based Dhikr intervention would also lead to significant improvements in both overall and breast cancer-specific health-related quality of life (HRQoL), as assessed using the EORTC QLQ-C30 and EORTC QLQ-BR23 questionnaires, compared with standard care. Accordingly, the present study aimed to evaluate the effects of this intervention on HRQoL among patients with breast cancer.

MATERIALS AND METHODS

Study Design

This study was designed as a parallel-group randomized controlled trial to evaluate the effects of group-based Dhikr therapy on health-related quality of life (HRQoL) among women with breast cancer. Participant recruitment, randomization, follow-up, and analysis are summarized in the CONSORT flow diagram (Figure 1). The study was conducted at the

Cancer Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

The study protocol was approved by the Ethics Committee of the Cancer Research Center, Shahid Beheshti University of Medical Sciences (Ethics code: IR.SBMU.CRC.REC.1403.005). All participants provided written informed consent before enrollment.

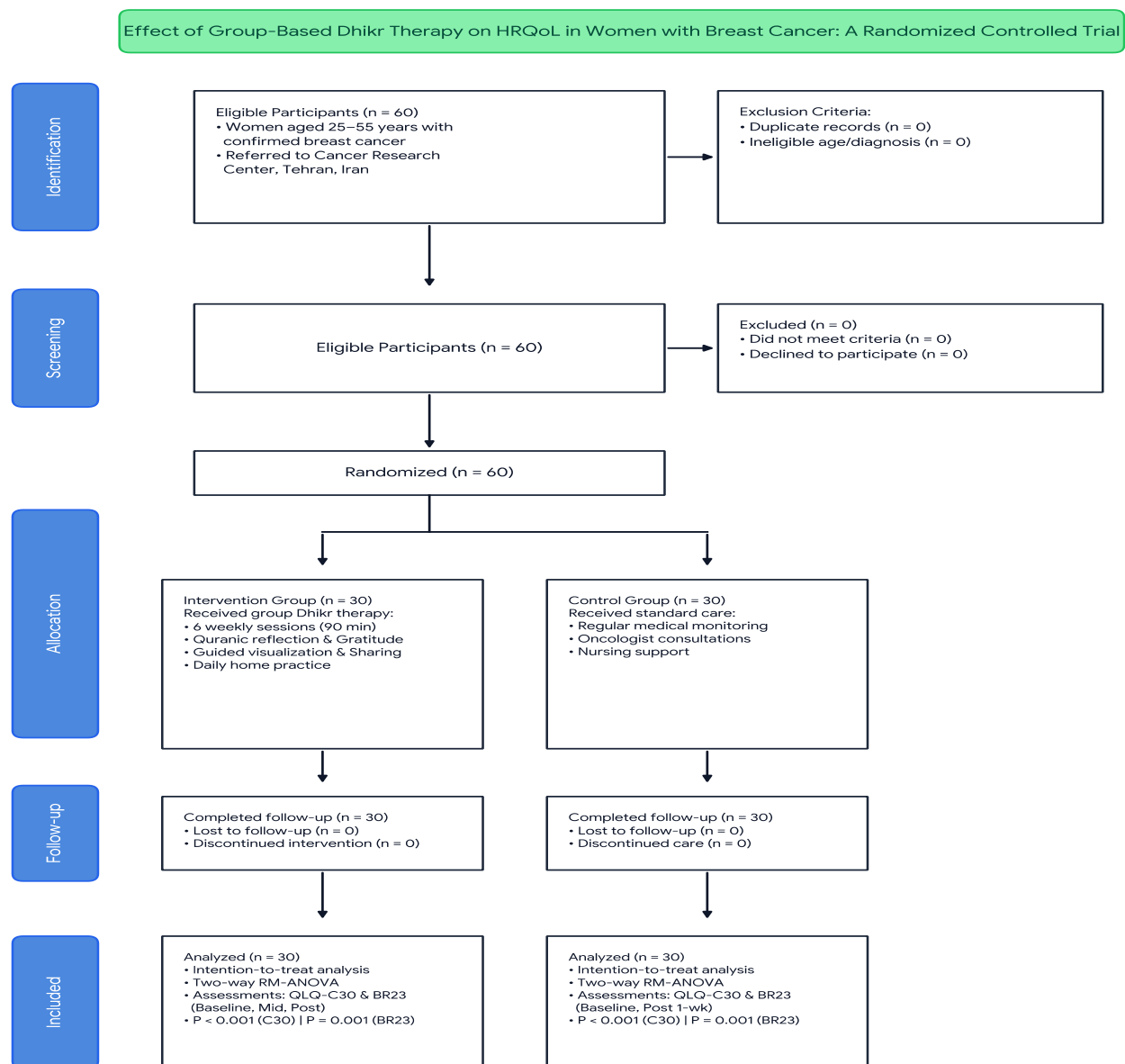


Figure 1. CONSORT flow diagram of participant recruitment, randomization, allocation, and follow-up. Sixty eligible women with breast cancer were randomly allocated to the group-based Dhikr therapy (n = 30) or control (n = 30) groups. All randomized participants completed the study, with no patients lost to follow-up or discontinuing the intervention or standard care (0% attrition).

Sample Size Calculation

The sample size was calculated based on the primary outcome of HRQoL. According to previous study by considering mean difference (SD) of HRQoL between two groups (30), and type I and II error 0.05 and 0.2 respectively, the minimum required sample size was estimated to be 30 participants per group using sample size for comparing two means. Considering the possibility of attrition, sixty participants were ultimately enrolled and randomly allocated to the intervention and control groups.

Participants and Eligibility Criteria

The study population consisted of 25- to 55-year-old women with a diagnosis of breast cancer. To be included, participants had to be female, aged 25–55, have a documented breast cancer diagnosis, and express readiness to participate in the study and attend every scheduled session. Individuals were excluded if they had a diagnosis of depression, a history of or existing other cancers, or were already involved in any additional psychological, spiritual, or supportive programs. In total, sixty eligible patients were equally randomized (1:1 ratio) into either the intervention group (n=30) or the control group (n=30) through computer-generated block randomization, with allocation concealment implemented.

Randomization and Allocation Concealment

Participants were randomly assigned to the intervention or control groups using computer-generated block randomization with a 1:1 allocation ratio. Allocation concealment was ensured by an independent researcher who was not involved in participant recruitment, intervention delivery, or outcome assessment. Because of the nature of the intervention, blinding of participants and facilitators was not feasible. However, questionnaire administration, data entry, and statistical analyses were performed using anonymized datasets.

Intervention

Women assigned to the intervention group participated in a structured 6-week group Dhikr therapy program. The sessions took place once per week, each lasting 90 minutes, and were led by

trained facilitators with expertise in Islamic Dhikr practices and group psychotherapy. This program integrated several elements, including Quranic reflection, gratitude exercises, guided visualization, and group discussions, to address the physical, psychological, and social aspects of well-being. In addition, participants were instructed to practice the selected Dhikr exercises daily at home.

To ensure intervention fidelity, all sessions were conducted according to a standardized protocol by the same trained facilitators. Session attendance was recorded throughout the intervention. Participants were encouraged to perform daily home-based Dhikr exercises, and adherence was reviewed at the beginning of each weekly session through participant self-report.

Control Group

Participants in the control group received routine standard oncology care. This included regular medical monitoring, scheduled consultations with the oncologist, and ongoing nursing support. To meet ethical requirements, these women were offered the full Dhikr therapy program after all post-intervention data had been collected.

Outcome Measures

Data were collected using the following validated instruments:

- **Demographic and Clinical Questionnaire:** A structured form developed based on literature, capturing age, education, marital status, occupation, income, family characteristics, cancer history, family history of breast cancer, and previous psychiatric consultations.
- **EORTC QLQ-C30 (Version 3.0):** A 30-item cancer-specific questionnaire assessing global health status/quality of life, five functional domains (physical, role, emotional, cognitive, social), and eight symptom scales. Scores were linearly transformed to a 0–100 scale. The Persian version has been validated in Iranian cancer populations³¹.
- **EORTC QLQ-BR23:** A 23-item breast cancer-specific module evaluating body image, sexual functioning, treatment side effects, arm and breast symptoms, and future perspective. The Persian version has demonstrated acceptable reliability and validity³¹.

Data Collection Procedure

All participants completed baseline evaluations, which included a demographic questionnaire along with the QLQ-C30 and QLQ-BR23, before undergoing randomization. Post-intervention assessments took place within one week following the last session. Additionally, the intervention group completed the QLQ-C30 and QLQ-BR23 questionnaires at the mid-point of the intervention period. Every questionnaire was self-completed by the participants under the direct supervision of a trained researcher to guarantee full completion and data accuracy.

Statistical analysis

Data analysis was performed using SPSS version 31. Continuous variables are presented as mean $\pm$ standard deviation (SD), whereas categorical variables are reported as frequencies and percentages. The normality of continuous variables was assessed using the Shapiro–Wilk test and visual inspection of histograms. Baseline differences between the intervention and control groups were examined using independent-samples T-tests for normally distributed variables and Mann–Whitney U tests for non-normally distributed variables. Categorical variables were compared using the chi-square test. The effects of the intervention on HRQoL outcomes were evaluated using two-way repeated-measures analysis of variance (ANOVA), with group as the between-subject factor and time as the within-subject factor. Assumptions of normality and sphericity were assessed prior to analysis. Statistical significance was defined as a two-sided $P \leq 0.05$.

RESULT

Participants Characteristics

This study was conducted on the same population of women with breast cancer as our previously published randomized controlled trial on the effect of group-based Dhikr therapy on hope and psychological distress. Sixty eligible participants were randomly assigned in a 1:1 ratio to the intervention group ($n=30$) or the control group ($n=30$). All 60 participants completed the study and were included in the final analysis. No participants were lost to follow-up or discontinued the intervention or standard care in either group (0%

attrition) (Figure 1). Detailed sociodemographic and clinical characteristics of the participants are presented in the previous article (Table 1). In brief, baseline characteristics were well-balanced between the two groups (all $P > 0.05$), indicating successful randomization. All participants were female Muslims, with a mean age of approximately 50 years. The majority had a high-school diploma or lower education, were married, and were homemakers. Approximately half of the participants in each group reported a first-degree family history of breast cancer.

Effects of Dhikr Therapy on HRQoL (QLQ-C30)

The analysis of the QLQ-C30 questionnaire revealed statistically significant improvements across all quality-of-life domains among women who received the six-session group-based Dhikr therapy compared with the control group.

In the intervention group, the Symptom subscale score decreased from 41.23 ± 22.26 to 23.83 ± 15.40 , while it increased from 26.30 ± 18.15 to 35.68 ± 17.05 in the control group ($P < 0.001$). The Function subscale score rose from 22.56 ± 16.85 to 32.14 ± 15.69 in the Dhikr therapy group; whereas it declined from 38.97 ± 22.60 to 18.89 ± 17.51 in the control group ($P < 0.001$). The Single Items score dropped from 36.30 ± 20.57 to 22.04 ± 17.66 in the intervention group, in contrast to an increase from 19.44 ± 17.80 to 28.52 ± 17.50 in the control group ($P < 0.001$).

Furthermore, the Total QLQ-C30 score showed substantial improvement in the intervention group, rising from 53.89 ± 32.51 to 75.83 ± 19.25 , whereas it decreased in the control group from 70.28 ± 22.07 to 52.22 ± 16.07 ($P < 0.001$).

Overall, these findings indicate that the structured group-based Dhikr therapy led to significant enhancements in all QLQ-C30 quality-of-life scales among women with breast cancer. The mean scores for the various subscales and the total score of the QLQ-C30 before and after the intervention are presented in Table 1.

Table 1: Comparison of QLQ-C30 scores before and after Dhikr therapy in intervention and control groups

Features	Intervention (n=30)		Control (n=30)		P
	Before	After	Before	After	
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Symptom	41.23 (22.26)	23.83 (15.40)	26.30 (18.15)	35.68 (17.05)	< 0.001
Function	22.56 (16.85)	32.14 (15.69)	38.97 (22.60)	18.89 (17.51)	< 0.001
Single items	36.30 (20.57)	22.04 (17.66)	19.44 (17.80)	28.52 (17.50)	< 0.001
Total	53.89 (32.51)	75.83 (19.25)	70.28 (22.07)	52.22 (16.07)	< 0.001

Effects of Dhikr Therapy on HRQoL (QLQ-BR23)

Analysis of quality of life using the QLQ-BR23 also revealed significant improvements in quality-of-life domains among the intervention group that received the six-session group-based Dhikr therapy compared with the control group.

In the Dhikr therapy group, the function subscale score increased from 45.42 ± 54.35 at baseline to 60.83 ± 47.08 after the intervention, while the control group showed a decrease from 79.58 ± 67.40 to 46.67 ± 51.97 ; $P = 0.001$.

The Symptom scale score declined from 37.64 ± 22.46 to 26.67 ± 17.32 in the intervention group, while in the control group it increased from 26.25 ± 18.12 to 31.39 ± 15.70 ($P = 0.001$).

The findings indicate that structured group Dhikr therapy significantly reduced disease symptoms and enhanced functions in women with breast cancer.

Table 2 presents the average QLQ-BR23 subscale scores before and after the intervention.

Table 2: Comparison of QLQ-BR23 scores before and after Dhikr therapy in intervention and control groups

Features	Intervention (n=30)		Control (n=30)		P
	Before	After	Before	After	
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	
Symptom	37.64 (22.46)	26.67 (17.32)	26.25 (18.12)	31.39 (15.70)	0.001
Function	45.42 (54.35)	60.83 (47.08)	79.58 (67.40)	46.67 (51.97)	0.001

Trajectory of Changes: Trend Analysis for HRQoL

Repeated-measures ANOVA with polynomial contrasts was used to evaluate the pattern of changes in quality-of-life scores across the three assessment time points (pre-intervention, mid-intervention, and post-intervention). Mauchly's test revealed a violation of the sphericity assumption for most subscales ($P < 0.05$); therefore, Greenhouse-Geisser corrected values were reported.

In the intervention group, a significant positive linear trend was observed in the Total QLQ-C30 scores ($P <$

0.001), with mean scores steadily rising from baseline ($M = 53.89$, $SD = 32.51$) to mid-intervention ($M = 69.17$, $SD = 20.43$) and further to post-intervention ($M = 75.83$, $SD = 19.25$). Similar significant linear improvement patterns ($P < 0.001$) were found for the Symptom, Function, and Single Items subscales, demonstrating that the group-based Dhikr therapy produced consistent progressive gains across multiple dimensions of quality of life. In contrast, no significant linear or quadratic trends were detected in the control group.

For the QLQ-BR23 questionnaire, the intervention group showed significant negative linear trends in the Symptom subscales, with scores decreasing Function scores exhibited a significant linear increase ($P = 0.001$), rising from baseline ($M = 45.42$, $SD = 54.35$) through mid-intervention ($M = 55.8$, $SD = 48.1$) to post-intervention ($M = 60.83$, $SD = 47.08$). Conversely, the control group displayed no significant linear or quadratic trends for any QLQ-BR23 subscales ($P > 0.05$), with scores remaining largely stable or showing slight deterioration over time.

These trend analyses indicate that the benefits of the Dhikr intervention were not limited to abrupt end-point changes but followed a gradual, cumulative trajectory consistent with the weekly session structure.

DISCUSSION

Building upon our previous findings of improved hope and reduced psychological distress, the present randomized controlled trial demonstrated that a structured six-session group-based Dhikr therapy program significantly improved HRQoL among women with breast cancer. Compared with the control group receiving standard oncology care, participants in the intervention group showed substantial enhancements across all domains of the QLQ-C30, including reductions in symptoms, improvements in functioning, and better overall scores. Similar benefits were observed in the breast cancer-specific QLQ-BR23, with notable decreases in symptom burden and increases in functional status. Trend analysis further revealed consistent positive linear improvements over time in the intervention group, indicating that the benefits gathered progressively with each weekly session rather than occurring only at the endpoint.

These findings align with growing evidence supporting the value of spiritually oriented interventions in oncology. Previous research has shown that spiritually grounded approaches, such as mindfulness-based practices, poetry therapy, and therapies rooted in Islamic mysticism, can effectively reduce psychological distress and enhance well-being in Iranian women with breast cancer^{2,3,7,17}. The current results extend this body of knowledge by

steadily from baseline ($M = 37.64$, $SD = 22.46$) to mid-intervention ($M = 29.72$, $SD = 19.39$) and post-intervention ($M = 26.67$, $SD = 17.32$; $P = 0.01$).

demonstrating that a structured, group-based Dhikr intervention can produce meaningful improvements in both general and disease-specific HRQoL measures. Notably, the gradual linear trajectory of improvement observed across pre-, mid-, and post-intervention assessments suggests that the weekly sessions, combined with daily home practice, fostered cumulative benefits consistent with the intervention's design.

Several mechanisms may underlie the observed improvements. The rhythmic recitation of sacred phrases, Quranic reflection, and guided visualization inherent in Dhikr therapy are likely to activate relaxation responses, reduce physiological arousal, and promote emotional regulation^{32,33}. By encouraging gratitude and meaning-making within a supportive group environment, the intervention may help women reframe their illness experience within a broader spiritual narrative, thereby enhancing coping capacity and reducing the emotional burden of cancer and its treatment^{34,35}. The group format further appears to provide social support, shared understanding, and a sense of community — factors known to contribute to better HRQoL in cancer populations³⁶. At the same time, it is important to define that the observed improvements cannot be attributed only to the specific spiritual content of Dhikr therapy. Non-specific effects commonly associated with psychosocial interventions, including placebo responses, expectancy effects, increased attention from facilitators, and the supportive nature of group participation, may have contributed to the positive outcomes. Because the intervention was culturally and religiously congruent with the beliefs of Iranian Muslim women, participants may have been particularly receptive to its content, potentially amplifying its effectiveness. Future studies incorporating active control groups and attention-matched interventions are needed to disentangle the specific effects of Dhikr practice from these contextual influences.

Beyond the psychological and social dimensions, several biological and psychoneuroimmunological mechanisms may also contribute to the observed

improvements in health-related quality of life³⁷. Practices involving rhythmic recitation, focused attention, and spiritual engagement have been associated with reduced activation of the hypothalamic–pituitary–adrenal axis, modulation of autonomic nervous system activity, and attenuation of physiological stress responses^{38,39}. Moreover, reductions in psychological distress and improvements in emotional regulation may indirectly influence immune and inflammatory pathways that are increasingly recognized as important determinants of symptom burden and quality of life in patients with cancer⁴⁰⁻⁴³. Although the present study did not evaluate neuroendocrine or inflammatory biomarkers, future investigations incorporating biological measures, such as cortisol levels and inflammatory cytokines, may help clarify the mechanisms underlying the beneficial effects of Dhikr-based interventions.

Strengths and Limitations

The present study has several strengths. It extends our previous findings in the same population by demonstrating that a structured Dhikr program can improve multiple interconnected domains of well-being, including hope, psychological distress, and health-related quality of life. In addition, the intervention was low-cost, culturally congruent, and readily implementable in routine supportive care settings, highlighting its potential applicability in Muslim-majority countries and similar sociocultural contexts. A notable strength of the study was the complete retention of participants throughout the study. This 0% attrition rate indicates excellent retention and supports the feasibility of delivering the intervention within this clinical population. The absence of attrition may also reflect good acceptance of the culturally and spiritually congruent Dhikr program among participating women with breast cancer.

Although the study was methodologically strong, it has some notable limitations. The trial was conducted at a single center with a relatively small sample size, which reduced the statistical power for subgroup analyses and may limit the broader applicability of the results. Additionally, because the intervention was specifically built around Islamic

spiritual practices and delivered to a culturally homogeneous group of Iranian Muslim women, its suitability for non-Muslim or culturally diverse populations needs to be examined in future research. Furthermore, outcome measures were collected only at baseline, mid-intervention (for the intervention group only), and one week after completion of the program. This short follow-up period prevents any conclusions about the long-term durability of improvements in HRQoL. Finally, reliance on self-reported questionnaires may have introduced response bias, and the open-label design of this behavioral-spiritual intervention made blinding of participants and facilitators impossible, a common limitation in psychosocial oncology research.

CONCLUSION

The findings of this randomized controlled trial indicate that participation in a structured six-session group-based Dhikr therapy program leads to significant improvements in HRQoL among women with breast cancer, as measured by the QLQ-C30 (Symptom, Function, and Single Items domains) and QLQ-BR23 (Symptom and Function domains). Owing to its low cost, minimal resource demands, strong cultural relevance, and complete participant retention in the present trial, this spiritually based group approach offers a practical and easily scalable addition to conventional supportive care in oncology for Muslim populations. Integrating such culturally adapted psychosocial-spiritual interventions into clinical practice has the potential to enhance psychological resilience and coping abilities and serve as a valuable complement to standard medical treatments. Further studies should focus on conducting multicenter trials that include active control groups, longer-term follow-up assessments, and broader outcome evaluations to establish sustained effectiveness, explore underlying mechanisms, and develop clear guidelines for implementing these programs across diverse oncology contexts.

Ethical Considerations

The study protocol was reviewed and approved by the Research Ethics Committee of Shahid Beheshti

University of Medical Sciences (Ethics code: IR.SBMU.CRC.REC.1403.005). Written informed consent was collected from all patients prior to the study. Patients were informed that withdrawal from the study would not affect their medical treatment. Privacy was maintained throughout the research.

Data availability

All data presented in this study are available as the tables, and figures. Additional datasets are available from the corresponding author on reasonable request.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interest relevant to this manuscript.

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Abbreviation	Full Term
ANOVA	Analysis of Variance
AT	Agency Thinking
CI	Confidence Interval
DASS-21	Depression, Anxiety, and Stress Scale (21 items version)
GLM	General Linear Model
HRQoL	Health-Related Quality of Life
IRT	Iranian Toman
PT	Pathways Thinking
RCT	Randomized Controlled Trial
SD	Standard Deviation
SHS	Snyder's Hope Scale
SPSS	Statistical Package for the Social Sciences

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