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Improving Quality of Life for Patients with Breast Cancer by Twin Hearts Meditation: A Randomized Clinical Trial

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ABSTRACT

Background: Concerning the prevalence and complications of breast cancer and its impact on the quality of life. This paper aims to study the effect of twin hearts meditation (as per Sui) on the quality of life among the patients with breast cancer under chemotherapy.

Methods: This randomized clinical trial was conducted on 102 breast cancer patients in two groups. The patients answered a demographic information survey and WHO quality of life short form before intervention. The patients in the experimental group received training on twin hearts meditation by the researcher for 30 minutes in the intervention stage, and the patients did meditation 3 times a week for one and half months. The quality of life of the patients was measured before and after the intervention in the experimental and control groups. The data were analysed using SPSS v.20, descriptive statistics, paired t and independent t tests at a $P < 0.05$ significant level.

Results: The results showed that before intervention, there was no significant difference between the mean of quality of life in the experimental (81.3 ± 7.1) and (77.9 ± 16.2) control groups ($P = 0.344$), but after intervention there was a significant difference between the mean of quality of life in the experimental (88.9 ± 11.2) and (75.2 ± 14.9) control groups ($P \leq 0.001$).

Conclusion: Twin hearts meditation can improve the quality of life among the patients with breast cancer under chemotherapy. In this regard, it is suggested that twin hearts meditation be considered as a mind-body complementary medicine.

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INTRODUCTION

Cancer is one of the diseases associated with fear and suffering for people. Despite years of efforts to cope with this disease, statistics show high incidence

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and prevalence, especially in developing countries. Cancer is a life-threatening disease that is on the rise. Estimates show that cancer mortality will increase by about 45% in developed countries by 2035.¹ Among women, breast cancer accounted for approximately 24.5% of all cancer cases and 15.5% of cancer deaths, ranking first for incidence and mortality in the majority of the world countries in 2020.²

Treating breast cancer means using different treatments, including radiation, chemotherapy, and



surgery. Some of these treatments have side effects that can make people's lives difficult. However, chemotherapy is a long-term and repeated treatment that can cause many side effects.³ However, medical teams as supporters are challenged with problems to reduce the complications caused by the disease (due to chronic and progressive nature of the disease) because although the use of combination therapies can increase survival rate, it causes long-term physical and psychological stress.⁴ On the other hand, conventional medical treatment could not fully meet the mental needs of patients.⁵ Using strategies to reduce the patients' problems is necessary. One of the basic measures with low risk level is using complementary and alternative medicine (CAM). This form of treatment has been of interest to patients and families as well as professionals throughout the world.⁶ International Association of CAM classified this form of treatment in five general categories: alternative treatment systems (homeopathy, acupuncture, etc.), medical and physical interventions (relaxation, prayer therapy, meditation, etc.), and treatments based on natural materials; that is treatments by direct use of organs (massage therapy, acupressure, etc.), and energy therapy (therapeutic touch, Reiki, etc.).^{7,8} Complementary medicine is a type of treatment that has been shown to have fewer side effects and to cost less than other treatments. Recent studies have also shown that it is more effective than other treatments for a number of different diseases.^{9,10} Complementary and alternative medicines are used by 28-58% of the patients with cancer, and in higher numbers by those with breast cancer.^{11,12} Many features of CAM provide comfort and emotional support for patients. These medicines are focused on positive energy, patients' comfort, and reducing stress.^{13,14} In addition, they increase longevity and quality of life as well, which is one of the objectives of WHO's health program for all.^{15,16} These medicines are based on the holistic approach and consider the human in a comprehensive form.^{17,18} CAM therapies have a holistic approach, which consider the human as a whole comprising physical, mental, and social aspects, and all which are considered in treatment.¹⁹ Research on the symptoms that reduce stress in patients with cancer, especially those with breast cancer²⁰, is really helpful for oncology medical personnel as they are going to find solutions and strategies to promote the sense of comfort and peace in patients. The European Society of Mastalgia insists on carrying out high quality research on measuring the use of various methods of CAM in patients with breast cancer.²¹

Meditation can be used to relieve bodily and mental symptoms of the illness in patients with cancer.^{22,23,24} Meditation is a conscious mental

process that can cause physiological changes in a certain period through controlling one's attention on selected subjects (audio and video).²⁵ Meditation is one of the CAM therapies based on the relationship between mind and body. It has various forms, one of which is twin hearts meditation. Meditation on Twin Hearts (MTH) can help to focus and connect with your twin hearts. It is based on the principle that activation of two chakras (heart and crown) improves the brain function, the nervous system and thymus gland, increases vitality in the body and, consequently, improves patient's symptoms and reduces stress and anxiety.^{28,29} MTH is designed to help people achieve awareness through activating some major chakras. This refers to the two energy centers in the body: The crown chakra is located in the top of the head and the heart chakra is located in the center of the chest. Chakras are responsible for human energy flow and movement. Chakras are energy vortexes that have a number of psychological, physical and spiritual functions. The two hearts in MTH are related to the front heart chakra and crown chakra. In general, when someone does "Meditation on Twin Hearts", they will be filled with power and love. This guided meditation includes techniques to increase self-compassion, open awareness, and self-healing imagery to help you focus on your own well-being.³⁰ This can help improve your relationship and your overall wellbeing, and better manage stress. MTH is a practice that is typically used by Arhatic yogis and Pranic healers, and is characterized by mechanisms of self-healing imagery, open awareness, and love. Mindfulness, compassion, and loving-kindness meditation techniques are associated with the practice of MTH. These practices help to improve one's overall well-being. Loving-kindness meditation (LKM) can help to improve the same mindfulness and compassion skills as mindfulness meditation.³¹ On the other hand, treatment options for breast cancer patients include radiotherapy, chemotherapy, and surgery. Chemotherapy is a protracted and repetitive procedure that has a number of negative side effects by lowering the quality of life for breast cancer patients.³² As far as we are aware, there are no published statistics on randomized controlled trials regarding the comprehensive effects of twin hearts meditation on the quality of life in female patients with breast cancer under chemotherapy. Therefore, the aim of this study was to assess the impact of twin heart meditation on the quality of life among the patients with breast cancer under chemotherapy.

METHODS

The present study is an applied clinical trial study. All the women with non-metastatic breast cancer (at any stage of the disease) who referred to an outpatient



chemotherapy unit and were qualified in terms of the research criteria were selected through purposive sampling.

Inclusion Criteria

The following inclusion criteria were used to select the samples: The patients with non-metastatic cancer under chemotherapy, all women aged 18-65 years old, and those willing to participate in the project.

Exclusion criteria

Exclusion criteria were as follows: Doing meditation less than 3 times a week, being unwilling to continue cooperation in the project, using any psycho medicines (anti-depressants, etc.), mental health, having any type of mastectomy, having any history of doing exercise, yoga or other meditation training.

Study tools

The data collection instrument was a two-part questionnaire. In the first part, the patient's demographic information survey was completed by the patients on age, education, occupation, marital status, duration of disease, and numbers of chemotherapy sessions. In the second part, a short form of quality-of-life questionnaire designed by WHO in 1996 and studied in different countries, was completed. This tool consists of 26 questions in four main parts: physical health (7 questions), psychological aspects (6 questions), social relations (8 questions), life environment (3 questions), and two questions on health understanding and evaluation of quality of life. Reliability was reported to be 83-95% by Bonomi. The first two questions have no relation with these parts and evaluate health and quality of life in general. The questionnaire has 26 questions. The scoring scale is Likert 5-item scale in which 1 indicates low and negative understanding, and 5 shows high and positive understanding.³⁴

The general score of quality of life, which can be measured by the questionnaire, was measured, where the lowest score is 26 and the highest is 130. Regarding three low, medium, and high levels, the scores are classified as follows. Scores 26-61: low quality of life; scores 62-96: medium quality of life; and scores 97-130: high quality of life. Rassafiani *et al.* conducted a project to validate this tool in 2020, reporting interclass correlation coefficient and Cronbach's Alpha in all parts to be 0.75.³⁵

During intervention

During intervention, the participants received training on twin hearts meditation theoretically and practically by the researcher (who has training

background on this type of meditation). The patients received training individually and face to face in the training class inside the ward. Then, the patients did twin hearts meditation for half an hour by a MP3 player under the supervision of the researcher. They were given a CD on how to do meditation and the patients did meditation at least 3 times a week (for 30 minutes) in one and a half months.³⁶ The researcher, during this period, called the patients to check if they continued doing meditation. This type of meditation was trained as follows:

1. Physical exercises for 5 minutes.
2. Praying
3. Making the earth holy and full of love and affection and being informed of the heart chakra (activating heart chakra).
4. Making the earth holy and full of love and affection and being informed of the crown chakra (activating crown chakra).
5. Concentrating on Amen
6. Thanking for his mercies
7. Physical exercises for 5 minutes^{36,29,30}

Doing twin hearts meditation, the patients in the experimental and control groups answered the WHO quality of life brief survey one and a half months after starting the interventions. In the control group, the patients received the routine programs of the hospital, and in the experimental group, in addition to the routine programs of the hospital, they performed Twin Hearts meditation.

This clinical trial consists of two groups: experimental and control. The sampling was based on random allocation in the experimental and control groups. All the women with non-metastatic breast cancer who referred to the outpatient chemotherapy unit and had the inclusion criteria were selected using the purposive sampling method. The samples were randomly selected and divided into two group. The sampling framework for 110 people was defined, and the cards with numbers 1-110 written on them were dropped into a goblet. Then the numbers were randomly pulled out and assigned to the control and test groups, respectively. Avoiding bias, we used the double-blind method. The data were collected by the researcher, and the statistician was unaware of the groups; data were analysed as variables x1 and x2. To determine the sample size (alpha of 5% and power of 80% and considering EZ = effect size of at least 50%) based on Altman Nomogram³⁷, the number of samples was about 100 people. Considering 5% attrition in each group, 110 people participated in this research, and 55 people were in the control group and 55 people were in the experimental group. Eight people gave up during the process and finally, the samples were 102 people (Figure 1).

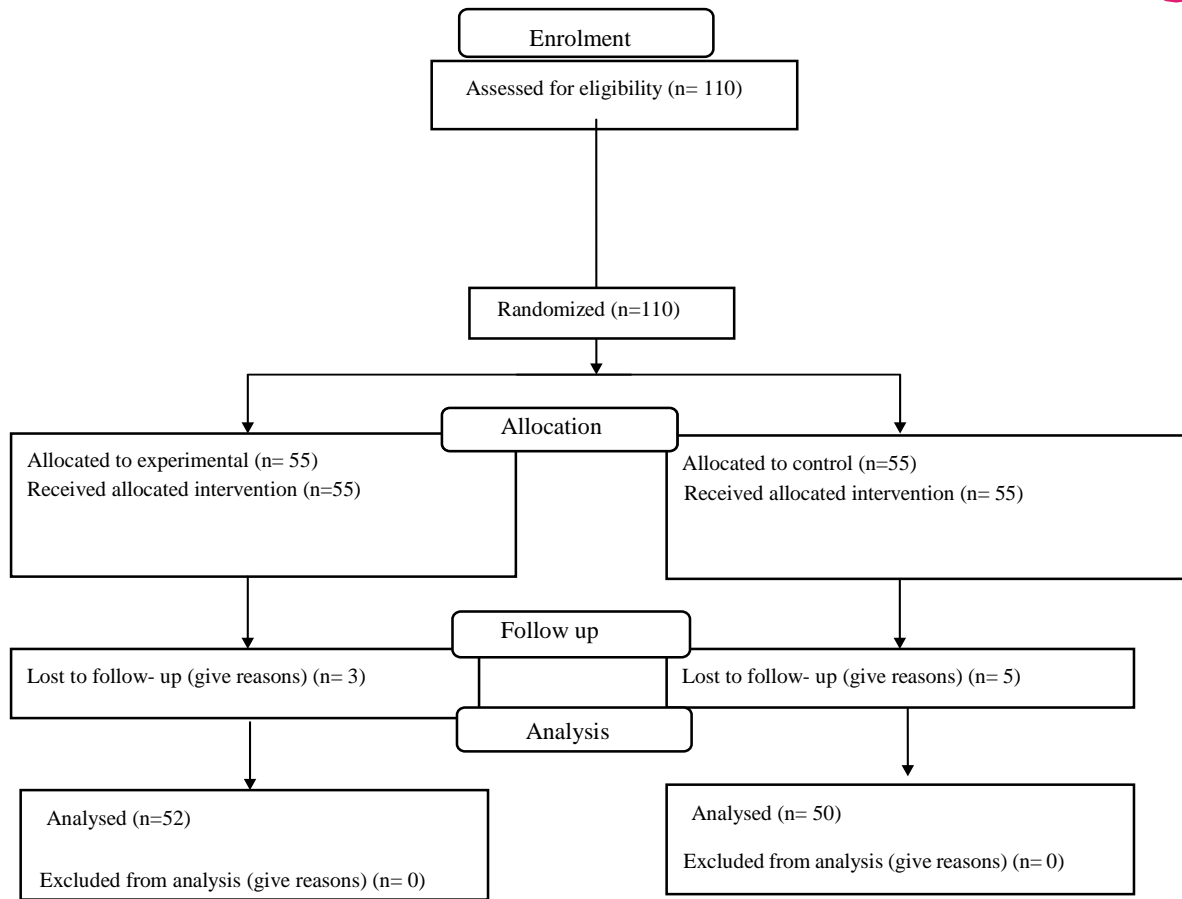


Figure 1. CONSORT flow diagram of the study participants

Data Analysis

The patients answered the quality-of-life questionnaire before the intervention by the experimental and control groups in order to determine their quality of life. The data were analysed using SPSS v.20 (SPSS Inc., Chicago, IL, USA), descriptive statistics, paired t and independent t tests at the P<0.05 significant level.

RESULTS

The results showed no significant difference in age between the two groups (P=0.510). The mean age

in the experimental group was 49.13±11.46 and in the control group, it was 50.7±12.42. The majority of the patients in the experimental group (98.1%) and in the control group (96%) lived in the city. Most of the patients in the experimental group (69.2%) and the control (62%) were housewives. The majority of the patients had a diploma, were married and lived in the city, were housewives, and were under chemotherapy. There was no significant difference in education, marital status, living place, occupation, and type of treatment between the two groups (Table 1).

Table 1. Patients’ socio-demographic characteristics.

Title		Intervention group	Control group	P value
Age (years)	Mean ± SD	49.13 ± 11.5	50.7 ± 12.4	P=0.510, NS**
Marriage	Single	(12) , 23%	(11) , 22%	P=0.654, NS**
	Married	(40) , 76.9%	(39) , 78%	
	Graduate	(42) , 80.7%	(42) , 84%	
Education Level	Bachelor	(8) , 15.4%	(7) , 14%	P=0.913, NS**
	MSc.	(2) , 3.8%	(1) , 2%	
	Practitioner	(9) , 17.3%	(4) , 8%	
Occupation	Retired	(7) , 13.5%	(11) , 22%	P=0.833, NS**
	Unemployed	(0) , 0%	(4) , 8%	
	Housewife	(36) , 69.2%	(31) , 62%	
Location	Village	(1) , 1.9%	(2) , 4%	P=0.537, NS**
	City	(51) , 98.1%	(48) , 96%	

* S: Significant

** NS: Not significant



The results showed that there was no significant difference in the quality of life before the intervention between the two groups, according to the independent t-test ($P=0.344$). The quality of life before the intervention was achieved in the experimental group (81.3) and in the control group (77.9). However, according to the same test, there was a significant difference in the quality of life after the intervention between the two groups ($P\leq 0.001$), as it was 88.9 in the experimental group and 75.2 in the control group

after the intervention. Moreover, there was no significant difference in the quality of life in the control group before and after the intervention, according to the paired T-test ($P=0.116$). However, according to the same test, there was a significant difference in the quality of life in the experimental group before and after the intervention ($P\leq 0.001$) (Table 2). Generally, quality of life in the experimental group, compared with the control group, increased after intervention.

Table 2. Patients' quality of life.

Group	Mean \pm SD		P. value
	Pretest	Post test	
Intervention group (n=52)	81.3 \pm 7.1	88.9 \pm 11.2	$P\leq 0.001^*$
Control group (n=50)	77.9 \pm 16.2	75.2 \pm 14.9	$P=0.116^*$
P value (Intervention and control group)	$P=0.344^{**}$	$P\leq 0.001^{**}$	

* Paired T-test

** Independent T-test

The paired t-test showed that there was a significant difference in the quality of life before and after the intervention in physical health, psychological, social relations, and health understanding in the experimental group ($P\leq 0.001$). However, there was no significant difference in the

environmental dimension. In addition, there was a significant difference in the quality of life before and after the intervention in the control group in physical health, social relations, and environmental dimension. However, there was a significant difference in psychological and health understanding (Table 3).

Table 3. Patients' quality of life

Index	Group	Mean \pm SD		P. value (Paired T-test)
		Pretest	Post test	
Quality of Life	Intervention group (n=52)	81.3 \pm 7.1	88.9 \pm 11.2	$P\leq 0.001^*$
	Control group (n=50)	77.9 \pm 16.2	75.2 \pm 14.9	$P=0.116^{**}$
Physical Health	Intervention group (n=52)	22.2 \pm 2.5	25.02 \pm 3.3	$P\leq 0.001^*$
	Control group (n=50)	33.6 \pm 4.2	22.8 \pm 3.7	$P=0.210^{**}$
Psychological	Intervention group (n=52)	15.9 \pm 2.5	18.1 \pm 3.2	$P\leq 0.001^*$
	Control group (n=50)	15.9 \pm 3.7	14.5 \pm 3.5	$P=0.09^{**}$
Social Relation	Intervention group (n=52)	24.4 \pm 4.6	27.09 \pm 4.5	$P= 0.013^*$
	Control group (n=50)	23 \pm 7.06	21.30 \pm 7.01	$P=0.06^{**}$
Environmental	Intervention group (n=52)	10.6 \pm 2.1	10.7 \pm 1.9	$P= 0.597^{**}$
	Control group (n=50)	9.8 \pm 2.6	9.8 \pm 2.4	$P= 0.692^{**}$
Health Perception	Intervention group (n=52)	6.3 \pm 1.4	6.9 \pm 1.3	$P= 0.002^*$
	Control group (n=50)	6.7 \pm 1.6	6.02 \pm 2.04	$P= 0.02^*$

* S: significant

**NS: not significant

DISCUSSION

The study found that there was no difference between the demographic variables of the two groups, and that there was no difference in the quality of life between the two groups before the intervention. This suggests that the groups are similar. The results of this study showed the patients' quality of life, before the intervention in the experimental group and in the control group was low, which was indicative of a low score and medium quality of life among the patients. The results conform to the results by Von Ah on the quality of life among the young women.³⁸ The study

by Prakash showed that the quality of life before the intervention among the patients with breast cancer was low.^{39,40} In addition, De Kruif showed that quality of life among the patients with breast cancer decreased after chemotherapy.^{41,42}

One of the main objectives in treating the patients with cancer is improving their quality of life to help them have a normal life. Further, following the independent t-test used to compare the experimental and control group, a paired t-test was used to assess the pre-post differences in both groups. The results of



this study showed that the quality of life increased over the study period, as there was a significant increase in the quality of life in the experimental group compared to the control group. These results indicated the effectiveness of twin heart meditation in the quality of life among the patients with breast cancer. Azghandi *et al.* conducted a clinical trial in 2022 and achieved the same results. According to the results of the study, doing twin heart meditation can decrease the fatigue of the patients' chemotherapy.³⁶ The results of a study by Chang *et al.* in 2018 showed that going through a mindfulness meditation program significantly improved the quality of life in Taiwanese cancer patients.⁴³ Based on the results of a study by Kim *et al.* in 2013, it was found that using meditation as an intervention for improving fatigue, anxiety, quality of life, and emotional faculties in women with breast cancer was very successful.⁴⁴ The results of the above studies are consistent with those of our study. However, in the above studies, different meditations were used to improve the quality of life. Moreover, various studies have been conducted on the effect of meditation on the quality of life in other patients. There are limited studies about the effect of twin hearts meditation on the quality of life in cancer patients.

Evaluating the differences in the patients' scores based on different aspects (physical, psychological, social relations, health understanding, and environmental) before and after the intervention revealed that there are significant differences in all aspects except the environmental aspect, and the score means in these aspects increased, indicating positive effects of meditation on the aspects. Despite differences in the numbers of questions on aspects of quality of life, the differences in mental and physical aspects are considerable. In this regard, according to the nature of interventions, differences in the achieved scores can be explained with reference to acupuncture and increased life energy in the body and the exercises that improve physical activities, since in environmental aspects, various factors such as economic and welfare services play important roles. In the control group, the quality of life during one and a half months decreased in all aspects.

On the other hand, individual responsibility for health is an essential component of any changing program. In fact, twin hearts meditation is the role of patients in his/her treatment. Meditation has a unique position among other complementary medicines since it is done by the patient and is effective in the patient's independence and contribution. Meditation helps to understand, focus, and create a clear consciousness. Meditation creates a silent and stable mind for a state of thoughtlessness.^{30,45} The results showed that the quality of life in the patients with breast cancer in the

experimental group increased compared with those in the control group. According to the results, twin hearts meditation can increase the quality of life in a short term in patients with breast cancer.

Age, duration of disease, and numbers of chemotherapy sessions can be mentioned as limitations in this study, controlled by homogeneity. Furthermore, uncooperative participants and the possible loss of samples were some other limitations of the study, and hence, we added 5% to the sample size to resolve such problems.

CONCLUSION

We concluded that twin hearts meditation has the effect of improving quality of life in a short term in patients with breast cancer undergoing chemotherapy. However, the results of this study do not only recommend doing twin hearts meditation. It seems that twin hearts meditation can be used as a non-invasive and low-cost nursing intervention along with other treatments to increase the quality of life in cancer patients undergoing chemotherapy.

ETHICAL CONSIDERATIONS

This study has obtained the project code approved by the Research Council of Cancer Research Centre of Shohada Hospital in Tajrish, Shahid Beheshti University of Medical Sciences, and ethics code of the Council of Ethics. The study was performed in accordance with the standards as outlined in the Declaration of Helsinki.³³ This study is according to the moral protocol in research centre of Health Ministry. Moreover, the project started when it was allowed by the hospital. The patients were told about the objectives of the project and were grouped as samples of the project after obtaining consent (written consent for the experimental and control groups). The project units were assured that the information would be confidential with no unpleasant consequences. The project units were assured that doing the meditation would have no side effects. The authorities were briefed on the objectives of the project and its advantages and they were told that the results would be available to them if they ask for them. All participants were volunteers who provided written consent and were aware that they were free to terminate participation at any stage of the study.

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**CONFLICT OF INTEREST**

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