

## Palliative Physiotherapy in Breast Cancer Survivors - A Systematic Review

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### ABSTRACT

**Background** -Palliative care is one of the most important type of treatment in a breast cancer survivor. Post-surgery the patient experiences pain over the shoulder due to which the patient is reluctant to move the affected limb. This can lead to lymphadenopathy and various other secondary complications such as immobilizing of shoulder joint and scar tissue. The surgery can cause various symptoms that need treatment such as pain management, scar mobilization and range of motion exercises. Any type of care that can help in increasing the quality of life of the patient is helpful for the patient. The following articles have reviewed various treatment options to better the quality of life of the patient. All reviewed articles used did give physiotherapy intervention for the breast cancer survivor.

**Aim/Objectives:** The aim of this research study was to conduct a systematic review on palliative physiotherapy in breast cancer survivors.

**Method:** Electronic databases including Google Scholar, PubMed, Research Gate, PEDro, Cumulative Index to Nursing and Allied Health Literature (CINAHL) were used to carry out the literature search. Studies published between 2013 to 2023 were included if they evaluated palliative physiotherapy in breast cancer survivors. Using key words screened by 2 independent reviewers. RCTs in English language were included.

**Conclusion:** This article was carefully reviewed and provided an overview of physical therapy interventions for breast cancer survivors. They assessed and comprehended the value of physiotherapy interventions to enhance patients' quality of life.

**Keywords:** *Breast Cancer, Quality of Life, Palliative Physiotherapy*

### 1. INTRODUCTION

Cancer is one of the chronic disabilities that can affect the quality of life and health of an individual and propose long-term consequences seen in patients<sup>1</sup>. Breast cancer is one of the most common type of cancer in the female anatomy. Following a diagnosis of breast cancer, a patient is given multiple options to choose from and a best course outcome is reached. About 5- 10 % of diagnosed breast cancer are metastatic in nature<sup>2,3</sup>. Based on the prognosis of the patient the palliative treatment can be decided. Breast cancer has a high rate of recorded fall in quality of life and a substantial effect on psychosocial well-being<sup>4</sup>. There are many physical manifestations of breast cancer, antineoplastic treatment included hormonal therapy, chemotherapy and biological therapies can help prolong the disease progression. Female breast cancer has a prevalence of about 12 percent globally<sup>5</sup>. There are various risk factors for a patient to acquire breast cancer, few of them include obesity, sedentary lifestyle, excessive alcohol consumption and unhealthy diet. Hormone replacement therapy also gives a high risk for a patient to acquire breast cancer<sup>6</sup>.

Breast cancer is the cancer originating in the inside layer of the milk duct or the lobules that supply the milk duct<sup>7</sup>. In cancer cells, there is cell proliferation and tumour growth due to the process of disruption and unregulated process. There are two types of cancer which are non-invasive, invasive. The invasive breast cancer are the types which break through the lobular wall and the ducts and will invade the fatty cells and surrounding tissues<sup>8</sup>. The patient will present with various symptoms such as feeling of a lump or swelling the breast tissue, unusual of persistent tenderness, pain and discomfort, etc. these symptoms can help us come to an early diagnosis<sup>9</sup>. Stage 4 is the stage when cancer can be categorized as metastatic, where

the cancer irrespective of the site of origin has spread to the neighbouring bones and tissues<sup>10</sup>.

There are three major treatment opportunities which can be chosen based on the stage or the extent of the cancer. In surgery either a lumpectomy can be performed in which the affected lump will be extracted or either a mastectomy where the entire breast is going to be surgically removed<sup>11</sup>. The next is the radiation Therapy in which the gamma rays or high energy Gamma rays are used to target the tumour or post-surgical area after the tumour is excised. Radiation therapy is an integral part post-surgical intervention for breast cancer to conserve the breast tissue<sup>12</sup>. Chemotherapy is also an integral part of cancer treatment where there is use of anti-cancer drugs. Chemotherapy can be given before or after the treatment depending on what purpose needs to be served. It can be given before surgery to prevent indulging in a complete mastectomy or it can be given post-surgery to prevent the recurrence<sup>13</sup>.

After any and all treatments the patient will have some deficits such as pain over the scar, restricted range of motion of the affected shoulder joint and reduced quality of life. Various treatment plans can be administered to the patients in order to increase the quality of life of the patient.

## **REVIEW**

### **2. METHODOLOGY**

A systematic review on the palliative care options in breast cancer survivors was performed. The review was performed with electronic search using google scholar, PUBMED, Physiotherapy Based Evidence (PEDro) and research gate database from 2012 to 2023, where breast cancer, quality of life, HRQoL was used as the MeSH search terms. Articles were selected based on capability, self-awareness, and philosophical practice. In addition to this, appropriate books were also searched.

#### **Search strategy.**

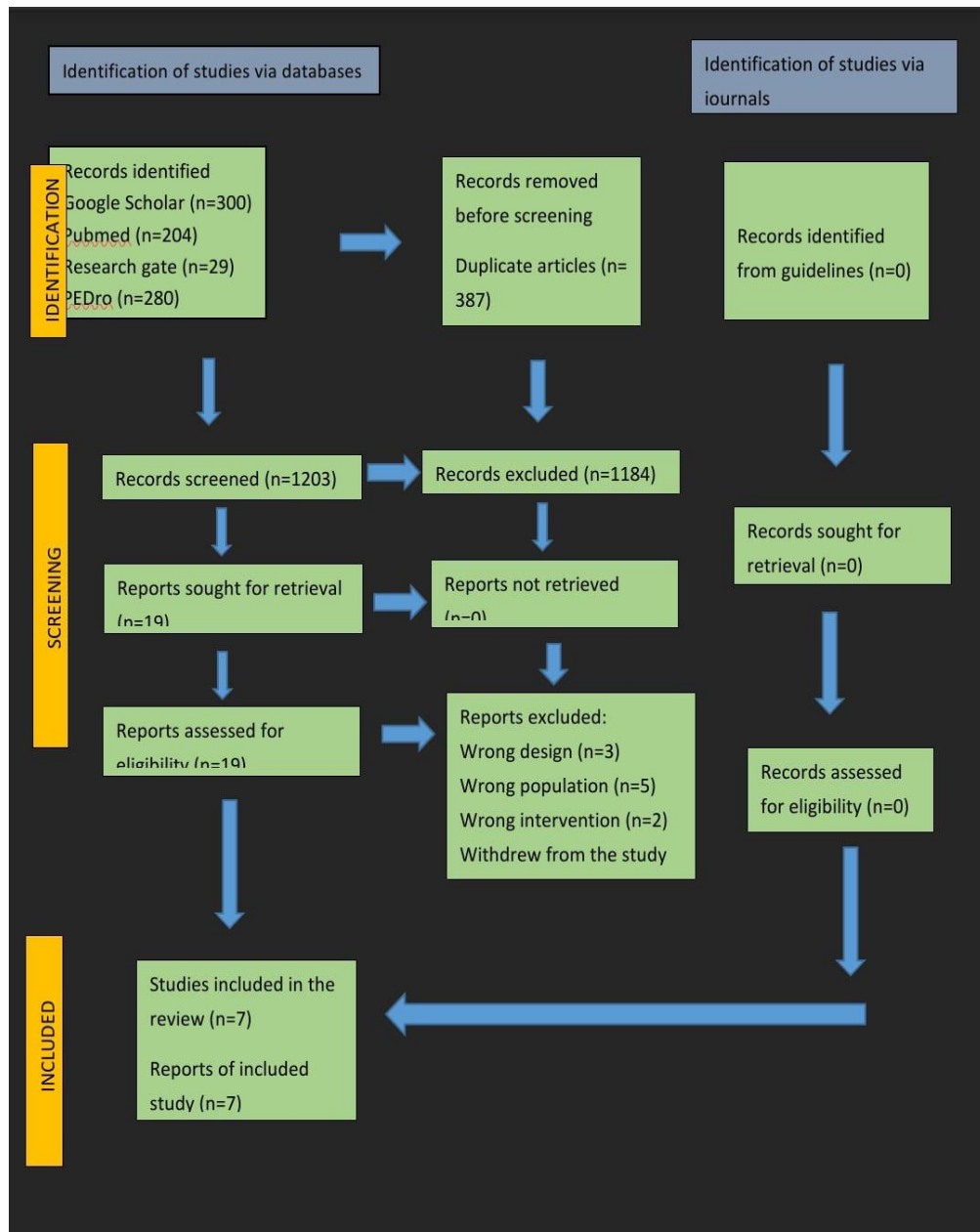
Articles were searched from Google Scholar, PubMed, Research Gate, PEDro, Cumulative Index to Nursing and Allied Health Literature (CINAHL) between January 15, 2025 and February 15, 2025. Reference lists for eligible articles were formed and authors were contacted for additional data, unpublished articles, and full-text articles.

#### **Inclusion criteria**

All relevant articles which were published from 2013 to 2023. Addressing the following criteria which included keywords liked quality of life, breast cancer, shoulder pain on Effects of Different Exercise Interventions on Quality of Life in Breast Cancer Patients: A Randomized Controlled Trial.

#### **Exclusion criteria**

All studies that were duplicates and studies that did not include palliative care, quality of life or breast cancer were excluded from the study. The detailed information of the search strategy, inclusion and exclusion criteria are mentioned below.



### Data collection and analysis

#### Data Extraction

One investigator selected the studies according to the inclusion criteria. The reviewer reviewed the titles and abstract of all the studies. Full texts of appropriate articles were reviewed and were selected if they were in line with the inclusion criteria. The following data was extracted from the related: study design, study population, physiotherapy intervention, physical impact, selected outcome, and key finding.

#### Assessment of Study's Risk of Bias

The methodological quantity of the chosen studies was reviewed by two investigators independently and studies which included a high-risk bias was not included.

### 3. RESULTS

After searching several databases 1,203 abstracts were extracted. The searches identified 7 appropriately significant studies which met the set inclusion criteria for further analysis.

#### Demographics

All studies included were of the same study design i.e. randomized control trial. Over 30 samples sizes population was included with the constant outcome measure used for quality of life HRQoL. These studies have shown favorable outcomes in the quality of life of breast cancer survivors by physiotherapy intervention for the areas of issues such as pain, reduced range of motion etc.

S R · N O	TITLE	AIM OF THE STUDY	STU DY DES IGN	SA MP LE SIZ E	STUD Y DUR ATIO N	OUTC OME MEASU RES	INTERVENTION
1	Variables related to health-related quality of life among breast cancer survivors after participation in an interdisciplinary treatment combining mindfulness and physiotherapy 2023	The objective of this study was to assess the effects of an interdisciplinary intervention during follow-up in BCS and identify variables related to improvements in HRQoL.	RCT	60	12 Sessions	HRQoL (EuroQol and EORTC-QLQ-C30)	This involved (non-aerobic) warming, stretching and muscle-strengthening exercises performed in a standing, sitting and reclining position, with no machine weights. A physiotherapist taught the 6-week, 45-min-per-week sessions, which included shoulder exercises combined with functional activities and educational strategy
2.	Effects of Different Exercise Interventions on Quality of Life in Breast Cancer Patients: A Randomized Controlled Trial. 2019	The aim of the present study was to evaluate the effects of different exercise interventions on quality of life parameters in breast cancer patients during 1 year of outpatient rehabilitation.	RCT	125	1 YEAR	Functional Assessment of Cancer Therapy questionnaire	the intervention sessions lasted 60 minutes. Group A consists of aquatic therapy Group B Consists of Pilates. Group C received yoga exercises based on the Hatha yoga
3	Effect of water physical therapy on quality of life in breast cancer survivors 2018	The purpose of the study was to evaluate the effectiveness of an individualized 12-week water physical therapy program on quality of life parameters in breast cancer survivors.	RCT	68	12 weeks	European organization for Research and Treatment of Cancer (EORTC)	Group a was given water aquatic therapy group b was given pilates
4	THE IMPACT OF PHYSICAL	To evaluate the impact of physical therapy on the quality of life of	RCT	16	20 sessions	European	Physical therapy exercises such as

	THERAPY ON THE QUALITY OF LIFE OF WOMEN AFTER BREAST CANCER SURGERY 2018	patients after breast cancer surgery.			ns	Organization for Research and Quality of Life Questionnaire C-30 (EORTC QLQ C-30) and the Breast Cancer Module (EORTC QLQ BR-23) questionnaire.	range of motion and mfr
	Effectiveness of Physiotherapy Intervention on the Quality of Life of Women with Breast Cancer who Underwent Sentinel Lymph Node Biopsy 2017	To evaluate if physiotherapy can contribute to the quality of service provided to Women with Breast Cancer who underwent sentinel lymph node biopsy	RCT	172 women	12 sessions	EORTC C30 and BR23 questionnaires	Techniques were used to increase articular amplitudes through maneuvers that promote pain relief and scar mobilization, and that work in breast and chest wall edemas, web syndrome, and sensitivity alterations (mobilization of the shoulder girdle, mobilization of the scar, manual lymphatic drainage, muscle stretching and neurodynamic exercises).
5	Health related quality of life improvement in breast cancer patients: Secondary outcome from a simple blinded, randomised clinical trial 2015	To determine the effectiveness of an early physiotherapy intervention for the prevention of secondary lymphoedema on health-related quality of life in women who also received an education program after breast cancer surgery.	RCT	153	3 week intervention	EORTC QLQ-C30 and EORTC QLQ-BR23	manual lymphatic drainage on chest and arm (third proximal to shoulder); scar massage; shoulder active kinesiotherapy, combined with functional activities; and proprioceptive neuromuscular facilitation exercise with no resistance.

6	A multimodal physiotherapy programme plus deep water running for improving cancer-related fatigue and quality of life in breast cancer survivors 2013	The aim of the study was to assess the feasibility and effectiveness of aquatic-based exercise in the form of deep water running (DWR) as part of a multimodal physiotherapy programme (MMPP) for breast cancer survivors.	RCT	42	3 times a week, for an 8-week period	Piper Fatigue Scale-	DWR and an individualised MMPP of therapeutic exercises combined with education based on cognitive-behavioural principles. Each session was comprised of 30 min of land-based exercise followed by 20 min of DWR, with an additional 10 min of warm-up and cool down time.
7	Effectiveness of Core Stability Exercises and Recovery Myofascial Release Massage on Fatigue in Breast Cancer Survivors: A Randomized Controlled Clinical Trial 2012	The purpose of the present paper was to evaluate the effects of an 8-week multimodal program focused on core stability exercises and recovery massage with DVD support for a 6-month period in physical and psychological outcomes in breast cancer survivors.	RCT	78	8 weeks	Profile of Mood State (POMS) questionnaire.	Multimodal program consisted of 24 hours of individual physical training and 12 hours of recovery procedures, conducted 3 times/week for 90 min each. This period included stretching of the muscles used during exercise and massage

#### Clinical characteristics and management strategies

Josune Martín et al conducted in his study in which the study sample comprised 87 patients with breast cancer. Of these, 60 patients agreed to participate; all completed the instruments at baseline and 6 weeks and 3 months following the intervention. Patients who received the interdisciplinary intervention reported being very satisfied with their treatment. An improvement in HRQoL was seen<sup>14</sup>.

Tetiana Odynets et al conducted a study in which the effects of Different Exercise Interventions was checked on the Quality of Life in Breast Cancer Patients. 115 patients were chosen for the study and were randomly allocated into 3 groups. Group A was given aquatic based intervention, Group B was given Pilates and Group C was given yoga intervention. Post intervention it was found that water based exercises showed an improvement in emotional well-being while yoga was more effective in improving social and family well-being<sup>15</sup>.

Yuriy Briskin et al conducted a study to understand the effects of water therapy on breast cancer survivors. 68 women were chosen in the study and were allocated in two groups. Group A was given water therapy and Group B was given pilates exercises. After a 12 week intervention it was seen that water therapy was more effective in reducing fatigues, improving quality of life, range of motion of the affected shoulder joint in the patient<sup>16</sup>.

Felipe Bernardino Rezende Maués et al The impact of physical therapy on the quality of life of women after breast cancer surgery. 16 females were chosen for the study and a 20 week intervention was given to the females. Quality of life was

assessed by European Organization for Research and Quality of Life Questionnaire C-30 (EORTC QLQ C-30) and the Breast Cancer Module (EORTC QLQ BR-23) questionnaire was taken. The physiotherapy intervention was given for 45 minutes per session<sup>17</sup>.

Nuno Duarte et al conducted a study to understand the effectiveness of Physiotherapy Intervention on the Quality of Life of Women with Breast Cancer who Underwent Sentinel Lymph Node Biopsy. 172 women were chosen for the study. Physiotherapy intervention was given to the patient to check the effect of physiotherapy on quality of life. The physiotherapy intervention was given and the intervention group showed significantly higher results as in comparison to control group<sup>18</sup>.

MaríaJoseYusteSanchez et al conducted a study for the Health related quality of life improvement in breast cancer patients: Secondary outcome from a simple blinded, randomized clinical trial. 153 subjects were chosen for the study and were given physiotherapy intervention and therapeutic education on how physiotherapy has an effect on the quality of life of the patient. EORTCQLQ-C30 and EORTCQLQ-BR23 questionnaire was used to assess the pre and post outcome results<sup>19</sup>.

A.I. CUESTA-VARGAS et al conducted a study on the effects of multimodal physiotherapy programme plus deep water running for improving cancer-related fatigue and quality of life in breast cancer survivors. 42 breast cancer survivors were chosen for 8 week protocol and were divided into two groups. Group A was given a Physiotherapy intervention and Group B was given deep water running. Group B showed significant results in reducing fatigue and improving quality of life<sup>20</sup>.

Irene Cantarero-Villanueva et al conducted a study on the Effectiveness of Core Stability Exercises and Recovery Myofascial Release Massage on Fatigue in Breast Cancer Survivors: A Randomized Controlled Clinical Trial. 78 participants were chosen in the study and core exercises and myofascial release were administered over a course of 8 weeks. Pre and post assessment were taken. And reduction in fatigue and improvement in mod was seen patients<sup>21</sup>.

#### 4. DISCUSSION

The above analysis is of the past 11 years' worth of published randomized control trials over the subject of physiotherapy palliative care for breast cancer survivors. Randomized controlled trials provided the preponderance of evidence for this study. Nonetheless there were some discrepancies among the study criteria and results. These discrepancies are partially explained by the methodology used to review the selected articles, the type of study chosen and the emphasis of the objectives of the studies. Resulting in a high caliber study the importance of palliative care intervention in improving the quality of life status of a breast cancer survivor. Many databases were explored to avoid excluding many references and widening the search option and achieving a more specific link between the chosen articles. However, Google Scholar and PubMed were the main databases chosen for majority of the articles while other databases were also explored.

Josune Martín concluded in the study about Variables related to health-related quality of life among breast cancer survivors after participation in an interdisciplinary treatment combining mindfulness and physiotherapy. In which using interdisciplinary approach, coordinated physiotherapeutic and psychological aspect compared to conventional approach showed better results in improving the anxiety, depression, fatigue and improving quality of life in a six week intervention study<sup>14</sup>. TetianaOdynets et al conducted a study to understand the effects of Different Exercise Interventions on the Quality of Life in Breast Cancer Patients. As aquatic therapy showed better results in improving the quality of life of breast cancer survivor's due to the various effect of aquatic therapy. The use of aquatic therapy helps in reducing lymphedema and pain in the post-surgical area, while pilates help in improving breathing and increases strength in affected limb and yoga helps in reducing depression, fatigue and improve sleep<sup>15</sup>. YuriyBriskin et al conducted a study to understand the effects of water therapy on breast cancer survivors and helped to understand that water therapy helping in increasing range of motion reducing the edema in the affected shoulder and chest region, help with scar mobility and help in strengthening the shoulder joints using dumbbells due to the special properties of water such as buoyancy etc<sup>16</sup>. Felipe Bernardino RezendeMaués et al conducted a study to understand the impact of physical therapy on the quality of life of women after breast cancer surgery. Where necessary range of motion exercises were given to the patient to reduce the pain and increased mobility of the affected shoulder. The patient normally doesn't indulge in moving the post operated shoulder as she experiences pain and once movement and pain reduction techniques are given this can help the patient perform activities of daily living<sup>17</sup>. Nuno Duarte et al came to a conclusion that the Effectiveness of Physiotherapy Intervention on the Quality of Life of Women with Breast Cancer who Underwent Sentinel Lymph Node Biopsy was significantly seen as the patient has notable reduction in fatigue and increase in quality of life. As indulging in a physiotherapy intervention helped the patient to significantly reduce the pain experienced post operatively<sup>18</sup>. MaríaJoseYusteSanchez et al conducted a study for the Health related quality of life improvement in breast cancer patients: Secondary outcome from a simple blinded, randomized clinical trial. In which the patient was given physiotherapy intervention to prevent the onset of lymphedema. Early mobilization and movement in the affected shoulder can help in reducing the chances of lymphedema to set in<sup>19</sup>. A.I. CUESTA-VARGAS et al conducted a study on the effects of multimodal physiotherapy programme plus deep water running for improving cancer-related fatigue and quality of life in breast cancer survivors. The administering of deep water running showed a significantly higher result that physiotherapy intervention. As deep water running helped in easy mobility of the joint without much efforts taken by

the body and reduction in body weight feeling as the special characteristics of water help in these effects<sup>20</sup>. Irene Cantarero-Villanueva et al conducted a study on the Effectiveness of Core Stability Exercises and Recovery Myofascial Release Massage on Fatigue in Breast Cancer Survivors: A Randomized Controlled Clinical Trial where core exercises incorporated with upper limb exercise helped in increasing mobility of the joint and myofascial release helped in breaking any adherence that prevented the complete range of motion of the shoulder joint<sup>21</sup>.

## 5. SUMMARY

A total of eight articles were included. The study design for all the reviewed articles were consistent, i.e., randomized controlled trial. Three articles that were included had a study duration for minimum of three weeks. One article used Profile of Mood State (POMS) questionnaire as their outcome measure. All studies had a component of Physiotherapy intervention for breast cancer patients.

## 6. CONCLUSION

All the articles were examined thoroughly and gave a summary of physiotherapy intervention in breast cancer survivors. They evaluated and understood the importance of physiotherapy intervention to improve the quality of life of the patient.

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