

Systematic Review Article

Effectiveness of modified wedge for post surgical breast Cancer patients to prevention and management of Lymphedema

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Abstract

The most frequent health problem affecting women is breast cancer, and the top post-breast surgery consequence for breast cancer patients is Lymphedema. This study's goal is to lower the risk of Lymphedema in the arms by managing and preventing the condition with a Modified Wedge. Researches depicted that post-breast cancer survivors faced difficulty with ADL (activities of daily living) and have restricted productivity. It was documented in many studies that management of Lymphedema by wedge elevation of the limb was associated with reduction in swelling and oedema of the limb. Studies showed a positive correlation between Lymphedema management using a wedge with restored mobility, increased independence and achieved better performance outcomes and productivity. Future studies are also required to examine the relationship between quality of life and access to services for people with disabilities, including association of socioeconomic status and women's health.

Key words: Oedema, Axillary Lymph Nodes, Carcinogenesis, Lymphorrhea.

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Introduction

More than one in every ten new cases of cancer in women is diagnosed with breast cancer each year. It is the second most frequent cause of cancer-related mortality among women worldwide. Anatomically, the breast's milk-producing glands are located in front of the chest wall. They rest on the pectoralis major muscle and are supported by ligaments that join the breast to the chest wall. There are fifteen to twenty lobes in the breast, arranged in a circle. The size and shape of the breasts are determined by the amount of fat covering the lobes. Each lobe is made up of lobules that contain the glands that produce milk when hormones are stimulated. Always developing silently is breast cancer [1].

Risk factors of breast cancer: Age, family history, estrogen levels, life style are some of the known risk factors for breast cancer.

Breast cancer-related Lymphedema is a group of symptoms caused by abnormal swelling and blockage or disruption of the lymphatic system as a result of cancer therapy. According to research, the volume of the limbs of breast cancer survivors as more symptoms were recorded.

Breast cancer-related Lymphedema, also known as Lymphedema, is a syndrome of abnormal swelling and other symptoms brought on by blockage or disturbance of the lymphatic system as a result of cancer treatment (such as axillary surgery and/or radiotherapy). One to six breast cancer survivors who have Lymphedema in the ipsilateral upper extremity describe having several symptoms at once, including arm swelling, heaviness, tightness, hardness, discomfort, numbness, stiffness, and decreased limb movement. According to researches, the volume of the limbs of breast cancer survivors increased, as more symptoms were recorded. Breast cancer survivors' comments of arm swelling, heaviness, soreness, and hardness have greatly enhanced the amount of limb volume changes (LVC) that the infrared perometer can detect.

Lymphedema effect on quality of life -

The effect of Lymphedema on quality of life necessitates taking into account the possibility of arm symptoms both with and without Lymphedema. It was predicted that particular arm symptoms and pain, whether caused by Lymphedema or not, would be more closely linked to quality-of-life outcomes than arm swelling. The relationship between arm oedema and arm symptoms and their intensity after breast cancer therapy as well as a variety of quality-of-life outcomes.

The likelihood of arm symptoms both with and without Lymphedema must be taken into consideration when analysing the impact of Lymphedema on quality of life. It was hypothesised that specific arm symptoms and discomfort, regardless of whether they were brought on by Lymphedema, would be more closely related to quality-of-life outcomes than arm swelling. Relationships between arm oedema, arm symptoms, and the severity of such symptoms during breast cancer treatment, as well as various quality-of-life results. Moreover, it is anticipated that both survivors with and without Lymphedema who experience discomfort will have considerably worse results in QOL areas.

Significance of the study

After breast cancer therapy, patients' quality of life was significantly impacted. In the findings regarding the QOL of patients with breast cancer, it was mentioned that the most prevalent difficulties for the patients were pain and exhaustion, as well as nausea, loss of appetite, alopecia, dyspnea, vomiting, sleeplessness, heartburn, digestive disorders, vision loss and headache. Many of these issues make it difficult for cancer patients to live functionally. According to research by patients who underwent breast cancer surgery scored considerably lower on measures of quality of life, physical function, difficulties in performing ADL, vitality and overall health than healthy controls.

The most frequent health problem affecting women is breast cancer, and the top post-breast surgery consequence for breast cancer patients is Lymphedema. The goal of the present study was to lower the risk of Lymphedema in the arms by managing and

preventing the condition with a Modified Wedge. For the purpose of elevating the leg and reducing fluid buildup in the axillary lymph nodes, a Modified Wedge was utilised.

Research Methodology

Observation studies were included in the review best on the objectives of the current review inclusion and exclusion criteria were prepared and based on that various data base was used in the selection of the study. The collected studies were checked for clarity and content and then used for the review.

Criteria for the sample collection

2-criterias, via inclusion and exclusion criteria were used for the collection of sample.

Inclusion criteria

Participants must be a breast cancer survivor.

- Age: 20 - 50 years
- Only females
- Subjects who had post operative condition

Exclusion criteria

- Patients with pre breast cancer surgery
- Male Participants
- Age to be below 20 years

Electronic database searching

The data base searched include PubMed, online journal, access open, Google scholar.

Data extraction and quality assessment

PRISMA flow diagram was used to select the articles eligibility criteria were assessed for extracted data included studies were evaluated on the basis of relevance appropriateness clarity and methodology.

Those studies that met the criteria were included. Articles selected for review were assessed by two independence reviewers, the data extracted included participant, year of publication, study method, type of intervention and outcome.

Analysis

Steps in the analysis:

Step 1: - Obtain data were tabulated and classified as author, study design, year of publication, setting, method, sample, size, type of intervention, components of intervention and outcome.

Step 2: - Identifying the findings of the studies. The studies were identifying with their setting, method and sample size, type of intervention and component of intervention.

Step 3: - Categorising the findings, finding were categorised under the headings of the effect of enhanced occupational therapy intervention on the study the effect of participation in leisure and recreational activities on quality of life among parents of children with autism spectrum disorders.

Results & Discussion

The reviewed study included 250 potentially relevant articles out of which 200 studies were included as duplicate, 25 articles were excluded as they did not meet inclusion and exclusion criteria. 15 articles did not mention the category of the participants and 10 studies were included for the review.

Characteristics of the Articles

S.N o.	Author	Year of publication	Research design	No. of participation	Sample characteristics	Theme	Sub theme
1	Frederik C. Gulmark Hansen, Mads Gustaf Jørgensen et.al ^[2]	2023	A Prospective, Open-Label, Single-Arm, Phase II Pilot Trial	Data were stored in a REDCap database via the Open Patient data Explorati	Breast Cancer-Related Lymphedema	This study hypothesized that treatment with topical tacrolimus would reduce the arm volume and symptoms of BCRL,	According to the International Society of Lymphology, the purpose of this clinical trial was to assess the safety, effectiveness, and viability of tacrolimus in

				ve Network		resulting in an improved HRQoL.	females with stage I or II BCRL.
2	Nigel Bundred , Phil Foden, Chris Tod, Julie Morris, et.al ^[3]	2020	multicentr e prospecti ve study	1100	pre- and post-ANC surgery for breast cancer.	The most effective diagnostic method for lymphoedem a was RAVI measuremen t. BIS by itself was not suitable for diagnosing or screening lymphoedem a.	This study aimed to (1) identify factors associated with the development of lymphoedema and its impact on quality of life, and (2) evaluate which test has superior diagnostic accuracy.
3	Electra D .Paskett et.al. ^[4]	2020	A randomiz ed study	554	Cancer and Leukemia Group B(CALGB) and (Lymphede ma education and prevention [LEAP])	Lymphedem a incidence did not differ by intervention group at 18 months. One possible factor could have been the LEAP group's poor adherence. Physical therapy, however, might	This clinical trial aimed to examine two therapies' efficaciousness on the incidence of Lymphedema in a randomized cooperative group setting. Comparing the intervention group's overall health-related quality of life (HRQL), ROM

						expedite ROM recovery. In order to effectively lower the frequency and severity of Lymphedema in breast cancer patients, more study is required. Further research is needed to effectively reduce the incidence and severity of Lymphedema in patients who have breast cancer.	of the affected arm, compliance to Lymphedema preventative measures tasks, and Lymphedema severity were the secondary goals.
4	Eunice Jeffs et.al. ^[5]	2015	A qualitative research design following Grounded Theory	25	Hospice-based lymphoedema patients	The women who participated in this study showed varying degrees of acceptance	The purpose of this study was to determine the variables affecting patients' perceptions of their level of

			methodology			and adjustment to life with lymphoedema. This appeared to directly impact their ability to self-manage lymphoedema. A better understanding of factors facilitating patients to become experts in their condition may improve longer term outcomes and reduce cost pressures on lymphoedema services.	benefit and success with self-management of breast cancer-related
5	Mei R Deborah Axelrod Charles M Cleland Zeyuan QiuAmbe	2015	cross-sectional study	250	250 women, including healthy female adults, breast cancer survivors	Lymphedema and related symptoms are among the most important factors that elicit daily	The goals of this study were to: 1) assess the efficacy, sensitivity, and specificity of symptoms in identifying

	r a Guth, et.al ^[6]				with Lymphedem a, and those at risk for Lymphedem a.	stress in breast cancer patients and negatively influence their quality of life.	Lymphedema associated with breast cancer; and 2) identify the optimal clinical cutoff point for the number of symptoms that optimized the sum of sensitivity and specificity.
6	M. Pinto et.al, ^[7]	2013	Cross- sectional survey	347	surgery (quadrantect omy or wide excision) with unilateral axillary lymphadene ctomy for breast cancer	In our population the presence of BCRL certainly affects upper limb functioning and related activities even though HRQoL was not perceived differently	The purpose of this study was to evaluate the upper limb impairment and perceived health-related quality of life (HRQoL) of a group of women with breast cancer-related Lymphedema (BCRL) to a group of women without Lymphedema.
7	Karin Johansso n & Elin Branje ^[8]	2010	a retrospect ively designed study with a nested	292	breast cancer related arm lymphoede ma (BCRL).	BCRL can be detected early in terms of the amount of edema and	The aim was to figure out the incidence, period of initiation, progression/reg

			case control analysis.			the period of diagnosis following surgery, and the edema volume can be maintained at a low level for a minimum of ten years. It seems that a small LRV at the time of diagnosis matters more for preventing LRV advancemen t than the time of diagnosis following surgery.	ression, and associated factors of breast cancer relapse ten years following the diagnosis.
8	Betty Smoot et.al ^[9]	2010	A cross- sectional study design	144	Lymphedem a and non- Lymphedem a women	Women who have Lymphedem a report pain more often, have bilateral impairments in upper extremity strength and	This study compares impairments and activity of the upper extremities (UE) in women with and without Lymphedema

						shoulder range of motion, and have more limitations when it comes to upper limb activities. Based on the results of this study, physical rehabilitation should be included in the management of sequelae following breast 176 J Cancer Survivor	following BC therapy.
9	Dorit Tidhar et.al ^[10]	2009	single-blind randomized clinical trial	48	Lymphedem a relative volume women	ALT was found to be a safe method, with high adherence, in treating women who suffer from mild to moderate Lymphedem a. A significant	The purpose of this study was to examine the safety of ALT and possible variations in limb volume, quality of life, and adherence between women who just take on self-management

						immediate and insignificant long-term effect on limb volume was noted.	treatment and those who participate in ALT.
10	Sandra C. Hayes, Monika Janda, Bruce Cornish, Diana Battistutta et.al ^[11]	2008	NA	287	Breast cancer with Lymphedema	Lymphedema is a public health issue deserving greater attention. More systematic surveillance for earlier detection and the potential benefits of physical activity to prevent Lymphedema and mitigate symptoms warrant further clinical integration and research	The frequency and occurrence of Lymphedema between six and eighteen months following BC therapy, as well as the behavioral, therapeutic, and personal correlates of Lymphedema status, are discussed in this article along with the existence of additional upper-body symptoms (UBS) and function (UBF).

Every review that was included in the ten papers that made up the review was a qualitative study. Majority of the studies were conducted in the hospital settings. These studies were published between 2008 to 2023.

Conclusion

After studying the many articles pertaining to the research on the management and prevention of Lymphedema management in post-breast cancer surgery patients, this review was carried out to determine the effectiveness of a modified wedge in the management and prevention of breast cancer Lymphedema. The numerous aspects of Lymphedema have an impact on the quality of life of people with breast cancer patients. Axillary Lymphedema can result in swelling, soreness, discomfort, and decreased range of motion, which can affect everyday activities and reduce independence on both a physical and mental level.

Post-breast cancer survivors have difficulty with ADL (activities of daily living) and have restricted productivity. It is suggested to management of Lymphedema by wedge elevation of the limb, which can reduce swelling and Oedema in the limb. Numerous studies have shown that Lymphedema may impact a patient's quality of life both physically and mentally. Women who have had a mastectomy experience difficulty moving and have a terrible breast appearance, which can have an adverse psychological impact. It is suggested a Lymphedema management regimen and a wedge were utilised to help patients restore mobility, increase their independence, and achieve better performance outcomes and productivity. Future studies should continue to examine the relationship between quality of life and access to services for people with disabilities, as well as how these correlations may be influenced by contextual factors including socioeconomic status and the health of women. The analysis supported prior claims that quality of life of women.

The findings of the previously mentioned study article indicated that additional research is required to better understand the relationship between ADL participation and quality of life among post-breast cancer patients. This additional research will also add new

perspectives and dimensions to this research in the area of occupational therapy to investigate women's health and quality of life in order to better inform future studies.

References

1. Alkabban FM, Ferguson T. Breast Cancer. [Updated 2022 Sep 26]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023
2. Gulmark Hansen FC, Jørgensen MG, Sørensen JA. Treatment of breast cancer-related Lymphedema with topical tacrolimus: A prospective open-label, single-arm, Phase II Pilot Trial. *J Breast Cancer*. 2023; 26(1): 46-59. <https://doi.org/10.4048/jbc.2023.26.e2>
3. Bundred N, Foden P, Todd C *et al*. Increases in arm volume predict lymphoedema and quality of life deficits after axillary surgery: a prospective cohort study. *Br. J. Cancer*. 2020; **123**: 17–25. <https://doi.org/10.1038/s41416-020-0844-4>
4. Paskett ED, Le-Rademacher J, Oliveri JM, Liu H, Seisler DK, Sloan JA, Armer JM, Naughton MJ, Hock K, Schwartz M, Unzeitig G. A randomized study to prevent Lymphedema in women treated for breast cancer: CALGB 70305 (Alliance). *Cancer*. 2021; 127(2): 291-9. <https://doi.org/10.1002/cncr.33183>
5. Jeffs E, Ream E, Shewbridge A, Cowan-Dickie S, Crawshaw D, Huit M, Wiseman T. Exploring patient perception of success and benefit in self-management of breast cancer-related arm lymphoedema. *European Journal of Oncology Nursing*. 2016; 120: 173-83. <https://doi.org/10.1016/j.ejon.2015.08.001>
6. Mei Fu M. Symptom report in detecting breast cancer-related Lymphedema. <https://doi.org/10.2147/BCTT.S87854>
7. Pinto M, Gimigliano F, Tatangelo F, Megna M, Izzo F, Gimigliano R, Iolascon G. Upper limb function and quality of life in breast cancer related Lymphedema: a cross-sectional study. *Eur. J. Phys. Rehabil. Med*. 2013; 49(5): 665-73.
8. Johansson K, Branje E. Arm lymphoedema in a cohort of breast cancer survivors 10 years after diagnosis. *Acta Oncologica*. 2010; 49(2): 166-73.

9. Smoot B, Wong J, Cooper B, Wanek L, Topp K, Byl N, Dodd M. Upper extremity impairments in women with or without Lymphedema following breast cancer treatment. *J. Cancer Surviv.* 2010; 4:167-78
10. Tidhar D, Katz-Leurer M. Aqua lymphatic therapy in women who suffer from breast cancer treatment-related Lymphedema: a randomized controlled study. *Support Care Cancer.* 2010; 18: 383–392. <https://doi.org/10.1007/s00520-009-0669-4>
11. Hayes SC, Jsanda M, Cornish B, Battistutta D, Newman B. Lymphedema after breast cancer: incidence, risk factors, and effect on upper body function. *Journal of Clinical Oncology.* 2008; 26(21): 3536-42.