



RESEARCH ARTICLE

EFFECTIVENESS OF DEEP BREATHING EXERCISE TO REDUCE ANXIETY AND IMPROVE QUALITY OF LIFE AMONG BREAST CANCER PATIENTS: A NARRATIVE REVIEW

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ABSTRACT

Background: Cancer is a leading cause of death worldwide, with breast cancer being the most prevalent type of cancer among women. It occurs when abnormal cells in the breast grow uncontrollably. Anxiety and depression are common psychological responses among breast cancer patients, which can significantly impact their quality of life (QoL). This study aims to evaluate the anxiety and quality of life in breast cancer patients and explore the effectiveness of deep breathing exercise in alleviating anxiety and improving QoL. **Methods:** A review of the literature published between 2015 and 2025 was conducted using databases such as PubMed, Google Scholar, Scopus, ResearchGate, and CINHALL. The search utilized MeSH terms including "Breast Cancer," "Anxiety," "Quality of Life," and "Deep breathing exercise." A total of 12 studies that met the inclusion criteria were included in this narrative review. **Results:** The majority of studies reported a high prevalence of anxiety and depression among breast cancer patients, which negatively affects their quality of life. Several studies highlighted the positive impact of complementary therapies, including deep breathing exercise, in improving psychological well-being and health-related quality of life (HRQoL) among these patients. **Conclusion:** Deep breathing exercise is a simple and effective therapy that can help reduce anxiety in breast cancer patients. Combined interventions using deep breathing exercise and other complementary therapies may further enhance the psychological and physical health of patients.

INTRODUCTION

Breast cancer is a disease in which abnormal breast cells grow out of control and form tumours. If left unchecked, the tumours can spread throughout the body and become fatal. Breast cancer cells begin inside the milk ducts and/or the milk-producing lobules of the breast. The earliest form (in situ) is not life-threatening and can be detected in early stages. Cancer cells can spread into nearby breast tissue (invasion). This creates tumours that cause lumps or thickening. Invasive cancers can spread to nearby lymph nodes or other organs (metastasize). Metastasis can be life-threatening and fatal. Female gender is the strongest breast cancer risk factor. Approximately 99% of breast cancers occur in women and 0.5–1% of breast cancers occur in men. Treatment for breast cancer depends on the subtype of cancer and how much it has spread outside of the breast to lymph nodes (stages II or III) or to other parts of the body (stage IV).

Global Impact: Breast cancer is the most common cancer in India, accounting for 28.2% of all female cancers, with an estimated 216,108 cases by 2022. Epidemiological studies have shown that the global burden of Breast Cancer is expected to cross almost 2 million by the year 2030. In 2025, 232,832 women are expected to be diagnosed with breast cancer. The states of Tamil Nadu, Telangana, Karnataka, and Delhi have a higher burden of breast cancer than other states.

Deep Breathing Exercise: A relaxation technique in which a person focuses on taking slow, deep breaths. Deep breathing involves breathing in slowly through the nose and then out through the mouth using the diaphragm (the thin muscle that separates the chest from the abdomen) and abdominal muscles. This helps boost the amount of oxygen in the blood, lowers blood pressure and heart rate, and reduces muscle tension. Deep breathing may be used to help relieve stress, pain, and anxiety. Also called abdominal breathing and diaphragmatic breathing.

Steps:

1. Lie on the back with knees slightly bent and head on a pillow.
2. Place a pillow under knees for support.
3. Place one hand on the upper chest and one hand below the rib cage and feel the movement of diaphragm.
4. Slowly inhale through nose and feel the stomach pressing into hand.
5. Keep the other hand as still as possible.
6. Exhale using pursed lips while tighten the abdominal muscles, keeping upper hand completely still.

Anxiety: Anxiety is a feeling of uneasiness and worry, usually generalized and unfocused as an overreaction to a situation (carcinoma of breast). GAD-7 scale will be used to assess anxiety of breast cancer patients. The Generalized Anxiety Disorder 7-item (GAD-7) scale was developed in 2006 by Robert L. Spitzer and colleagues. It is a self-administered seven-item questionnaire that is used to measure or assess the severity of generalised anxiety disorder (GAD). Each item asks the individual to rate the severity of his or her symptoms over the past two weeks. Response options include “not at all”, “several days”, “more than half the days” and “nearly every day”.

Scoring: This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of “not at all,” “several days,” “more than half the days,” and “nearly every day.”

GAD-7 total score for the seven items ranges from 0 to 21.

0–4: minimal anxiety, 5–9: mild anxiety, 10–14: moderate anxiety, 15–21: severe anxiety

Quality of life- Health-related quality of life (HRQoL) focuses on how health impacts a person's ability to live a fulfilling life, encompassing physical, psychological, social, and emotional well-being among breast cancer patients. The EORTC core quality of life questionnaire (QLQ-C30) will be used to measure the quality of life of breast cancer patients.

Significance of the study: Breathing exercise is very effective in alleviating chronic pain, anxiety and depression, and improving quality of life for breast cancer survivors. (Haiying Wang et al. 2024). Women who received PMR and abdominal breath exercise techniques had lower anxiety and depression levels than those who only received normal nursing care. (Mosleh Kareem et al. 2022).

Aim of the study

1. To find studies related to anxiety & quality of life among breast cancer patients.
2. To find studies related to effectiveness of Deep breathing exercise on anxiety among breast cancer patients.
3. To find studies related to effectiveness of Deep breathing exercise on quality of life among breast cancer patients.

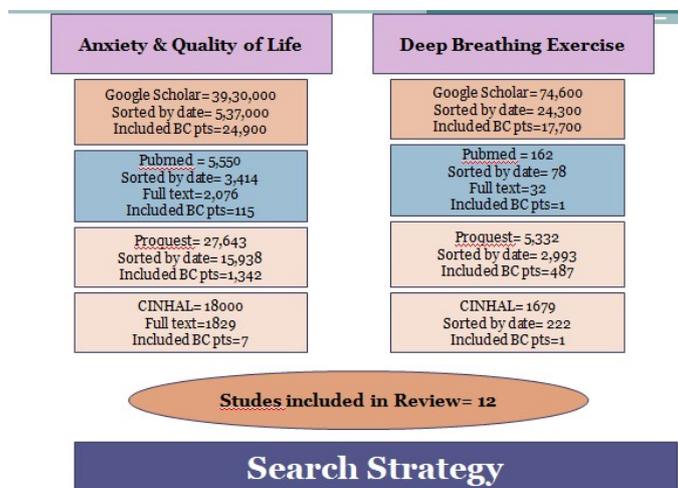
METHODOLOGY

Study Design: A narrative review.

Study selection: screened using their titles and abstracts.

Date: Literature from 2015 to 2025.

Mesh terms: “deep breathing exercise” OR “abdominal breathing” OR “diaphragmatic breathing” OR “breathing exercise” AND “anxiety” AND “quality of life” OR “breast cancer patients” OR “cancer patients” AND “breast carcinoma”

**Inclusion Criteria**

1. Research papers related to anxiety & quality of life among breast cancer patients.
2. Research papers related to deep breathing exercise and its effectiveness on anxiety and quality of life among breast cancer patients.
3. The research paper which is easily accessible online with full text available.
4. The studies which was published in English language.

5. Research articles published from the year 2015 onwards.

Exclusion Criteria

1. Systemic review studies and meta-analysis not included.
2. The studies which are not available in journal database.
3. Research paper published in language other than English.
4. The research paper which is not available with full text.
5. Studies published in low quality journals.

RESULT AND DISCUSSION

Author & Year	Title	Research Design	Sampling Technique	Sample Size	Data Collection Tool	Result
Fatima Khazi et al. 2024	Assessment of quality of life among breast cancer patients undergoing different Treatment Modalities at tertiary hospitals in north Karnataka, India	Cross-sectional study	Purposive sampling technique	428	European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire Core 30 (QLQ C30)	The overall QoL of breast cancer patients in the present study was moderate and breast cancer treatment significantly affected their QoL. Severe side effects of chemotherapy drugs and hair-loss worsened the QoL of patients undergoing chemotherapy.
Mohammad Yousaf et al. 2023	Quality of Life (QoL) among Pakistani Women with Breast Cancer Undergoing Chemotherapy	Cross-sectional correlational study	Purposive sampling technique	110	Functional Assessment of Cancer Therapy Breast (FACT-B) version 4.0	Result showed that most of the participants 59(53.6%) had moderate QoL and Chemotherapy also showed moderate impacts on different domains: physical, functional emotional, social, and sexual well-being of the women.
Nidhi Gupta et al. 2022	Health-related quality of life among breast cancer patients in India	Cross-sectional study	NA	534	EuroQoL five dimensions questionnaire with five levels (EQ-5D-5L), EuroQoL Visual Analogue Scale (EQ VAS), and the EORTC QLQ-BR23	The most frequently reported problem was pain/discomfort (in 84.3% patients), followed by anxiety/depression (83.5%). Utility value: 0.602 (SD = 0.311) Mean EQ VAS score: 75 (SD = 12.3)
Jamilah Yusoff et al. 2022	Quality of life of women with breast cancer in a tertiary referral university hospital	Cross-sectional study	Universal sampling	173	EuroQoL EQ-5D-5L	The pain/discomfort domain was the worst QoL domain. Traditional medicine use and household income influenced the QoL outcome. VAS Mean & SD: 79.65& 15.985 Utility value Mean & SD: 0.78 &0.220
Nuworza Kugbey et al. 2020	Depression, anxiety and quality of life among women living with breast cancer in Ghana: mediating roles of social support and religiosity	Cross-sectional survey design	Purposive sampling	205	Functional assessment of cancer therapy (FACT-B) The Hospital Anxiety and Depression Scale	Result showed that women living with breast cancer experience significant anxiety and depression which are associated with decreased quality of life.
Monique Binotto et al. 2020	Health-related quality of life before and during chemotherapy in patients with early-stage breast cancer	Prospective cohort study	NA	33	EORTC QLQ-C30 and EORTC QLQ-BR23	The HRQoL of BC patients is generally worse during the third month of chemotherapy when compared to the period before the start of treatment. Functional scales obtained lower scores in the second evaluation at (p = 0.0005).
Didem Ondas et al. 2020	The effect of breathing exercise on nausea, vomiting and functional status in breast cancer patients undergoing chemotherapy	Randomized controlled trial	Simple random sampling	60	Visual Analog Scale (VAS) & Functional Living Index-Cancer (FLI-C)	Result showed that breathing exercise decreased severity of chemotherapy-induced nausea vomiting, and retching episodes and increased their quality of life by increasing functional status in patients with breast cancer.
Mosleh Kareem et al. 2022					Hospital Anxiety and Depression Scale (HADS)	Result showed that the women who received PMR and abdominal breath exercise techniques had lower anxiety and depression levels than those who only received normal nursing care.
Zahraa Jasim Alwan et al. 2023	Effectiveness of slow deep breathing exercises on fatigue in patients undergoing chemotherapy	Quasi-experimental study	NA	48	Fatigue severity scale	Result showed that slow, deep breathing exercise is effective in reducing fatigue level and improving quality of life among cancer patients receiving chemotherapy. Pre test mean&SD Intervention group: 5.20 ± 0.59 Control group: 5.59 ± 0.84 Post test mean&SD Intervention group: 4.05 ± 0.47 Control group: 5.80 ± 0.83
Rajita Devi et al. 2016	Effectiveness of programmed deep breathing exercises on reducing the level of fatigue during external radiation therapy	Experimental, pretest- post-test control group designed	Simple random sampling	60	Cancer Fatigue Scale	Deep breathing exercises are an effective intervention in reducing fatigue among cancer patients and to improve their quality of life. Pre intervention mean & SD: Experimental group (21.63&4.00) Control group (22.90&4.25) Post intervention mean & SD: Experimental group (18.37 & 3.03) Control group (24.57&3.77)

Fatma Gündogdu et al. 2023	Using Pranayama and Deep Breathing Exercises to Reduce Cancer-Related Fatigue and Insomnia During Radiotherapy: A Randomized Controlled Study	Randomized controlled design	NA	60	Piper Fatigue Scale and the Pittsburgh Sleep Quality Index	Pranayama and deep breathing exercises are effective in reducing fatigue and insomnia to improve quality of life in patients receiving radiotherapy due to breast cancer.
Pranav Deshpande et al. 2023	Effectiveness of Jacobson Progressive Muscle Relaxation and Deep Breathing Exercises on Quality of Life in Prolonged Hospitalised Patients	Randomized control trial	NA	30	Sleep disturbance scale & anxiety inventory scale	The results of the deep breathing exercises and the Jacobson progressive muscle relaxation technique demonstrated a significant reduction in anxiety as well as an improvement in the quality of life and sleep.

DISCUSSION

The overall QoL of breast cancer patients was moderate and breast cancer treatment significantly affected their QoL. Treatment and hair loss were the main factors which affected QoL of breast cancer patients. (Fatima Khazi et al. 2024). Similar study was conducted among pakistani women by Mohammad Yousaf et al. 2023, and result showed that most of the participants (Breast cancer patients) i.e, 53.6% had moderate QoL. Nidhi Gupta et al. 2022 conducted a study and concluded that most frequently reported problem was pain/discomfort (84.3% patients), followed by anxiety/depression (83.5%) which affected QoL among breast cancer patients. Similar result was found in a study conducted by Jamilah Yusoff et al. in 2022. Pain/discomfort domain was the worst QoL domain among breast cancer patients. Women living with breast cancer experience significant anxiety and depression which are associated with decreased quality of life among breast cancer patients (Monique Binotto et al. 2020). Didem Ondas et al. 2020. proved that breathing exercise is effective in improving quality of life by increasing functional status of breast cancer patients. Similar study was conducted by Rajita Devi et al. 2016, deep breathing exercises are an effective intervention in reducing fatigue among cancer patients and to improve their quality of life. Pranav Deshpande et al. 2023 concluded that the results of the deep breathing exercises and the Jacobson progressive muscle relaxation technique are very effective in reducing anxiety and improvement in the quality of life and sleep among prolonged hospitalised patients.

CONCLUSION

Anxiety and depression significantly reduce the quality of life among breast cancer patients. Various relaxation therapies can serve as effective complementary interventions to alleviate these psychological burdens. Among these, deep breathing exercises, when practiced at least three times daily for 8–10 minutes per session, have shown potential in reducing anxiety and stress. Furthermore, individual therapy sessions tend to yield better outcomes compared to group-based approaches. To assess improvements in quality of life, the EORTC QLQ-C30 and EORTC QLQ-BR23 questionnaires are frequently employed in clinical settings. Overall, complementary therapies are most effective when applied consistently over an extended period, contributing to reduced anxiety and improved quality of life in breast cancer patients.

Future Scope: Deep breathing exercises can be effectively integrated into comprehensive treatment plans to reduce anxiety and improve the quality of life (QoL) among breast cancer patients. Combining multiple therapeutic approaches may enhance outcomes, particularly in addressing psychological distress. Similar studies can be conducted in other settings, such as educational institutions, workplaces, and schools, to assess the broader impact of such interventions. Anxiety and depression significantly impair the QoL of breast cancer patients, highlighting the need for complementary therapies that target psychological well-being and overall health-related quality of life.

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