

Review Article

Characteristics and outcome measures of guided imagery interventions in breast cancer care: A scoping review

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ABSTRACT

Background & Aim: Guided imagery is a mind-body intervention increasingly explored in oncology supportive care, particularly among breast cancer patients. Published studies vary in terms of intervention characteristics, delivery methods, and outcome measures. This scoping review aimed to map the existing literature on guided imagery interventions in breast cancer populations, describe intervention characteristics and reported outcomes, and identify gaps to inform future research directions.

Methods & Materials: A scoping review was conducted in accordance with PRISMA-ScR guidelines. Five electronic databases were systematically searched for studies published between 2016 and 2025 that evaluated guided imagery interventions in breast cancer or broader oncology populations. Eligible studies included randomized controlled trials, quasi-experimental studies, and mixed-methods research. Data were synthesized narratively with a focus on intervention characteristics, delivery modalities, reported outcomes, and standardization-related issues.

Results: Twenty-three studies were included. The review identified substantial heterogeneity in intervention characteristics, including session duration, frequency, delivery modality, and combination with other techniques. Frequently assessed outcomes included anxiety, depression, pain, fatigue, and quality of life. Variability in intervention protocols and outcome measures limited cross-study comparability.

Conclusion: The literature reveals considerable heterogeneity in guided imagery interventions and outcome measurement in breast cancer care. This variability highlights the need for clearer intervention reporting and greater consistency in outcome measurement to support future rigorous effectiveness research.

Introduction

Breast cancer remains one of the most prevalent malignancies worldwide, frequently accompanied by substantial psychological and emotional distress throughout diagnosis, active treatment, survivorship, and rehabilitation phases. Patients often experience anxiety, depression, fatigue, pain, and impaired quality of life, which may negatively influence overall well-being and treatment adherence. Comprehensive evidence supports the need for psychosocial support to address these challenges in oncology care (1).

In recent years, guided imagery has gained increasing recognition as a complementary and integrative intervention within oncology supportive care. Guided imagery is a mind-body technique involving the

intentional use of mental visualization to promote relaxation, positive affect, and psychological coping. Previous systematic reviews and meta-analyses have reported potential benefits of guided imagery in reducing anxiety and depression and improving quality of life in adults with cancer, suggesting its relevance as a supportive intervention during treatment and rehabilitation (1, 2).

Guided imagery interventions have been applied in breast cancer populations to address psychological distress and enhance emotional well-being. Some studies have reported reductions in anxiety, depression, insomnia, and symptom distress among breast cancer patients receiving chemotherapy when guided imagery was combined with relaxation techniques (3). Additional evidence suggests



that guided imagery and related relaxation practices may contribute to stress reduction and improved quality of life in this population (4).

Despite these findings, the implementation of guided imagery in clinical and research settings remains inconsistent and highly heterogeneous. Existing studies differ widely in session duration, frequency, delivery mode (e.g., therapist-led, audio-guided, or self-administered), and intervention structure, contributing to variability in reported outcomes and limiting reproducibility (1, 5, 6). This heterogeneity presents challenges for cross-study comparison and interpretation.

A notable gap in the literature is the absence of consensus regarding commonly used intervention parameters, particularly session duration and frequency. Without clearly described and consistently applied protocols, guided imagery interventions vary substantially across studies, limiting comparability and synthesis. Furthermore, while short-term psychological outcomes have been reported, evidence regarding long-term effects remains limited, highlighting areas requiring further investigation (7, 2).

Given these considerations, there is a need to systematically map and describe the existing literature on guided imagery interventions for breast cancer patients, with particular attention to intervention characteristics and reported outcome measures. Therefore, this scoping review aims to systematically map and describe the characteristics of guided imagery interventions and the range of reported outcomes in breast cancer populations. By identifying patterns, variations, and reporting gaps within the literature, this review seeks to inform future research directions and support efforts toward improved transparency and standardization in intervention reporting.

Methods

Study design

This study employed a scoping review design to systematically map and synthesize the available evidence on guided imagery interventions in breast cancer patients. The

review methodology was developed a priori and conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR), ensuring transparency, methodological rigor, and reproducibility (8).

A scoping review approach was considered appropriate due to the substantial heterogeneity of guided imagery interventions, particularly in terms of session duration, frequency, delivery mode, and intervention structure, as well as variability in reporting and implementation characteristics.

Search strategy

The literature search focused on two primary concepts: breast cancer and guided imagery. Controlled vocabulary terms (e.g., MeSH headings) and free-text keywords, together with relevant synonyms, were combined using Boolean operators to ensure a comprehensive and sensitive search strategy.

Five electronic databases were systematically searched: PubMed, Embase, Web of Science, CINAHL, and Scopus. The final search was conducted in January 2026 to capture the most recent and relevant evidence. All retrieved records were imported into the Rayyan software, where duplicate entries were identified and manually removed prior to the screening process.

Study selection

Study selection was conducted in two sequential phases. In the first phase, titles and abstracts were independently screened by reviewers to identify potentially eligible studies. In the second phase, full-text articles were assessed for inclusion. Studies were included if they: Involved adult patients (≥ 18 years) with breast cancer or breast cancer survivors; Examined guided imagery interventions, either as standalone interventions or combined with other mind-body approaches (e.g., relaxation techniques, music, or progressive muscle relaxation); Reported outcomes related to psychological distress (e.g., anxiety, depression) and/or quality of life; Employed quantitative, qualitative, or mixed-methods

study designs; Were published in English or Indonesian.

Studies were excluded if they: Did not specifically focus on breast cancer populations; Used imagery without guided or structured facilitation; Were reviews, editorials, commentaries, study protocols, conference abstracts, or book chapters; Lacked accessible full-text versions.

Disagreements during the screening process were resolved through discussion and consensus among the reviewers.

Data extraction and synthesis

Data extraction was performed using a structured extraction framework developed specifically for this scoping review. The extracted data included:

- Author(s) and year of publication
- Country or region

- Study design and sample characteristics
- Guided imagery intervention details (duration, frequency, delivery mode, and structure)
- Outcome measures related to psychological well-being and quality of life
- Key findings
- Limitations related to intervention standardization

All extracted information was synthesized and summarized in a single synthesis grid (Table 1) to facilitate comparison across studies. A descriptive and narrative synthesis approach was applied to identify patterns, similarities, and differences among guided imagery interventions, with particular emphasis on challenges related to standardization and implications for future research standardization.

Table 1. Synthesis grid of included studies

No.	Author(s)/ Year(s)	Country / Region	Study design	Population	Guided imagery protocol (Duration, frequency, Structure)	Main clinical outcomes	Key limitations related to standardization	Implications for best practice guidelines
1.	Gülnaz Ata, Dilek Kılıç, Derya Gürcan Yıldırım (2025)	Turkey	Randomize d controlled experimenta l study with a double- blind pretest- posttest control group design	Individuals diagnosed with breast cancer who resided in the relevant region and completed the treatment process (N= 291)	- Duration: 12 weeks for the overall intervention; 29 minutes per session - Frequency: Once a day for six weeks - Structure: Initial application via "Google Meet" for three days; daily practice at home; includes relaxation, breathing exercises, and visualizations for healthy lifestyle behaviors and quality of life	- Significant improvement in healthy lifestyle behaviors as measured by the Healthy Lifestyle Behaviors Scale. - Significant improvement in quality of life as measured by the SF-36 Quality of Life Questionnaire. - Significant decrease in weight and BMI in the experimental group.	The main limitation related to standardization is that the study's generalizability is limited to breast cancer patients registered at a university hospital. While efforts were made to standardize the intervention through expert input and training, the lack of detailed information on standardizing guided imagery sessions across participants is a notable limitation.	- Include guided imagery based on the health promotion model as a standard nursing practice. - Integrate these practices into nursing curricula to raise awareness and knowledge. - Organize training programs and courses on guided imagery and health promotion model practices. - Conduct randomized controlled trials to further demonstrate the effects of these practices.
2.	Evangelia Papanikola o, Cathy H. McKinney, N. Hannibal, G. Tsouvelas, Theodore Panoskaltsi s, Sofia Karageorg opoulou (2023)	Not mentione d (the abstract does not specify the country or region where the study was conducte d)	Randomize d Controlled Trial (RCT) pilot	Female patients undergoing chemotherapy treatment for breast or gynecologic cancer	- Duration: Short (no specific duration mentioned)- Frequency: Six individual sessions - Structure: Individual sessions (no specific structure details provided)	- Increasing hope - Decreasing fatigue - Mitigating distressed mood	The study had limitations related to standardization, as indicated by the secondary aim to suggest performance improvements for future studies. The intervention and control groups received different numbers of sessions, which could affect standardization. Specific details on the standardization of GIM sessions are not provided.	The study suggests that a brief series of Guided Imagery and Music (GIM) sessions may be beneficial for increasing hope, decreasing fatigue, and mitigating distressed mood in female breast cancer patients undergoing chemotherapy. This implies that GIM could be considered as part of the best practice guidelines for implementing guided imagery in breast cancer patients.
3.	A. Charalamb ous, M. Giannakop oulou, E.	Cyprus	Randomize d Control Trial (RCT)	- Total participants: 208 - Gender distribution: 104 male, 104	- Duration: 15 minutes for the guided imagery component, with the entire session	- Reduced fatigue - Reduced pain - Reduced nausea,	- Inability to perform a double-blind randomized control trial due to difficulty in masking the intervention, affecting control over the	The study suggests that Guided Imagery and Progressive Muscle Relaxation can be effective in managing symptom

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	Bozas, Y. Marcou, P. Kitsios, L. Paikousis (2016)			female - Age groups: Majority in 51- 60 and 41-50 age groups - Cancer types: Breast cancer (clinical stage T3N1M0), Prostate cancer (stage T3a, Gleason score 8; stage T3b, Gleason score 9) - Geographic representation: All regions in Cyprus	lasting 27 minutes (2 minutes breathing exercise + 10 minutes progressive muscle relaxation + 15 minutes guided imagery). - Frequency: Daily unsupervised sessions, with 4 weekly supervised sessions. - Structure: The guided imagery session was part of a larger protocol that included a breathing exercise and progressive muscle relaxation. It was designed to be pleasant and included sensory elements like auditory, tactile, and olfactory images, accompanied by soft music and alpha wave pulses.	vomiting, and retching - Improved Health Related Quality of Life (HRQoL) - Reduced anxiety and depression	placebo effect. - Lack of verification of adherence to the daily sessions of GI and PMR, as it was self-reported. - Uncontrolled environment during unsupervised sessions, which could affect consistency. - Potential for interruptions during unsupervised sessions, impacting effectiveness.	clusters in breast cancer patients and should be considered for integration into comprehensive symptom management as part of best practice guidelines.
4.	Zeliha Buyukbayram, Seyhan Çitlik Sarıtaş (2020)	Turkey	Quasi- experimental study with a pretest and posttest design	180 oncology patients at the oncology clinic of Dicle University Hospital in Turkey	- Duration: 25-30 minutes (mean: 15.53 minutes) - Frequency: Three consecutive days - Structure: Not mentioned	Pain and fatigue reduction	The study is a quasi- experimental design, which may lack the control of a randomized controlled trial. The interventions were conducted over three consecutive days with some variability in duration (mean: 15.53 minutes), but specific details on standardization of content or delivery are not provided.	Guided imagery should be considered as part of the best practice guidelines for managing pain and fatigue in breast cancer patients, as it has been shown to be effective in reducing these symptoms in oncology patients. Oncology nurses are recommended to use guided imagery in patient care.
5.	Di Shao, Huihui Zhang, N. Cui, Jiwei Sun, Jie Li, F. Cao (2020)	China	Randomized Controlled Trial (RCT)	Women with breast cancer in China, specifically those diagnosed with stage I through IV breast cancer, aged 18 or older, who have undergone surgery, and are able to use a smartphone and WeChat.	- Duration: 20- minute guided audio files - Frequency: 5 days per week for 6 consecutive weeks - Structure: Seven 20-minute recordings covering mindfulness principles and attitudes; home practice includes focusing on the breath, body scan, and open awareness; weekly interactions with a researcher for coaching and feedback	- Primary outcome: Depression - Secondary outcomes: Anxiety, Sleep disorder symptoms - Significant improvements: Depression, Sleep disorder symptoms - No significant change: Anxiety	- Use of a wait-list control group limits comparison with active controls or alternative therapies. - Sample recruitment from a single tertiary hospital limits generalizability to the broader population. - Subjective self-reporting of adherence to mindfulness practice lacks objective measurement. - Lack of data on researcher- participant interaction time and the social exposure role.	- Implementing GSH-MBIs can reduce depressive and sleep disorder symptoms in breast cancer patients. - GSH-MBIs offer increased access and availability, especially for remotely located individuals or those with reduced mobility. - These interventions can reduce stigma associated with mental health care and lower healthcare costs. - Future research should investigate other mechanisms of change and evaluate moderators to support participants. - Cost-effectiveness analyses are recommended to support the adoption of GSH-MBIs as a medical care strategy.
6.	Millstine D.M., Bhagra A., Jenkins S.M., Croghan I.T., Stan D.L., Boughey J.C., Nguyen M.D.T., Pruthi S. (2019)	United States / Minnesota	Randomized controlled trial with two groups: intervention group using a wearable EEG device for guided meditation and control group receiving CD-based	Women aged 20-75 years with newly diagnosed breast cancer who are planning to undergo surgical treatment.	- Duration: Each session lasts a recommended minimum of 3 minutes. - Frequency: The median number of sessions completed by participants in the Muse group was 29. - Structure: Participants receive meditation instruction through	- Fatigue: Both groups showed improvements in fatigue levels post-surgery. - Quality of Life: Improvements in quality of life were observed in both groups, with significant improvements in emotional well-being in	- Small sample size limited data for comparison of clinical outcomes. - The control group received a non-standard stress-management resource, potentially introducing a placebo effect. - Educational background differences between groups could influence willingness to participate in mind-body practices.	The use of wearable EEG devices like Muse for guided meditation is a feasible and effective strategy for improving fatigue, quality of life, and stress in breast cancer patients. These devices are practical, low-risk, and easy to integrate into patient care, suggesting their inclusion in best practice guidelines for implementing guided

Guided imagery in breast cancer

No.	Author(s)/ Year(s)	Country / Region	Study design	Population	Guided imagery protocol (Duration, frequency, Structure)	Main clinical outcomes	Key limitations related to standardization	Implications for best practice guidelines
			stress- reduction education. The study evaluated the feasibility and effects on fatigue, quality of life, and stress over multiple time points.		the Muse app and are led through attention-focusing sessions to reach a calm state. The app provides reminders to participate in sessions regularly.	the Muse group. - Stress: Stress levels decreased significantly in both groups post-surgery.		imagery in breast cancer patients.
7.	Nader Aghakhani, Navid Faraji, Vahid Alinejad, Rasoul Goli, Jafar Kazemzadeh (2022)	Iran	Single- blinded randomized controlled trial	Burn patients	- Duration: Four consecutive days - Frequency: One session per day - Structure: Not explicitly mentioned; delivered using a headphone	- Reduction in the quality and severity of pain - Reduction in pain-related anxiety	The key limitation related to standardization in this study is the use of convenience sampling, which may not ensure a representative sample of the population. However, the intervention protocol and data collection methods were standardized using established scales and statistical analysis.	The study suggests that guided imagery could be a useful complementary method for managing stress, anxiety, and pain in medical settings. Its effectiveness in burn patients implies potential applicability to other patient groups, such as breast cancer patients, as part of best practice guidelines. However, specific guidelines for breast cancer patients are not provided in the abstract.
8.	Alison Cieslak, G. Elkins, T. Banerjee, J. Marsack, Kimberly Hickman, Alisa J. Johnson, N. Henry, D. Barton (2016)	United States	A five- week, uncontrolled, unblinded feasibility intervention study.	Female breast cancer survivors and a breast and gynecologic cancer survivor	- Duration: Face-to- face sessions lasted 40-60 minutes. - Frequency: Four face-to-face sessions. - Structure: Not specified in the abstract.	- Decrease in stress from body changes - Improvement in sexual self- schema - Improvement in sexual function - Improvement in body image	The study is uncontrolled and unblinded, which are significant limitations in terms of standardization. The intervention had some standardized elements, such as the number and duration of sessions, but the variability in session length and lack of control groups are limitations. The need for additional testing suggests that further standardization and validation are required.	Hypnotic relaxation therapy is a promising intervention for improving body image and sexual health in breast cancer survivors. It is feasible and could be offered by nurses and other behavioral therapists. However, additional testing is warranted before full integration into best practice guidelines.
9.	Yun-Chen Chang, Gen-Min Lin, Tzuhui Angie Tseng, Elsa Vitale, Ching-Hsu Yang, Ya- Ling Yang (2023)	Taiwan	Qualitative study using focus groups and semi- structured interviews to explore the experiences of 26 women with breast cancer participating in a mindfulness- based stress reduction (MBSR) program.	26 female patients with breast cancer, aged 18 years or older, diagnosed with breast cancer (stages 0-IV) within the previous 5 years.	- Duration: 6 consecutive weeks - Frequency: 2-hour sessions, with meditation sessions lasting at least 10- 15 minutes, conducted five or six times a week - Structure: Led by a qualified instructor, with home-based practice using MP3 and YouTube formats for meditation instruction; participants required to write down personal experiences	- Alleviation of hot flashes and night sweats - Improvement in sleep quality - Enhanced body image - Increased psychological support - Positive effect on emotional state through patient support groups	- Subjective qualitative data analysis - Absence of control groups and quantitative measurements - Small sample size	- Identify main coping strategies for menopausal symptoms and negative mental health. - Continually assess menopausal symptoms and body image in patients receiving MBSR education. - Implement group-based MBSR programs to improve emotional states through patient support groups. - Use MBSR to alleviate menopausal symptoms, improve sleep quality, and enhance body image. - Inform clinical practices to improve the quality of life for breast cancer patients.
10.	Weny Amelia, Dewi Irawaty, Riri Maria (2020)	Indonesia, West Sumatra	Quasi- experimental using pretest- posttest with a control group and consecutive sampling	All breast cancer patients were admitted to the female surgical wards of Dr. M. Djamil Padang Hospital.	The Guided Imagery protocol was insufficiently described in terms of duration, frequency, and procedural structure.	The main clinical outcome is the significant reduction in pain scale in breast cancer patients using Guided Imagery, with a significant relationship between age and pain scale. The study	- Small sample size (n=30), which may limit generalizability. - Use of a quasi-experimental design instead of a randomized controlled trial. - Subjective pain measurement using the Numeric Rating Scale (NRS). - Lack of control for other factors influencing pain perception (e.g., anxiety, gender, attention, meaning of pain, coping style, family and social support). - Insufficient detail	Guided Imagery is recommended as a nursing intervention to reduce pain in breast cancer patients, suggesting its potential as a best practice guideline. It is effective in reducing pain by distracting from painful stimuli and can be used as a non-pharmacological strategy. However, specific guidelines or protocols for implementation are not provided in the paper.

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						recommends Guided Imagery as a nursing intervention to reduce pain.	on the standardization of Guided Imagery intervention.	
11.	A. Saleh, Sitti Maryam Bachtiar, Elly L Sjattar, Eva Arna Abrar (2020)	Indonesi a	Quasi- experimenta l design	Breast cancer patients who experience pain in the ambulatory surgery in the treatment room and the chemo room	Guided imagery was administered during the intervention phase prior to post-test measurement, but the frequency of sessions was not clearly reported.	- Primary clinical outcome: Reduction in pain intensity - Secondary clinical outcomes: Reduction in pulse rate, reduction in systolic blood pressure	Absence of a standardized guided imagery protocol, including unclear session duration, frequency, delivery procedures, and fidelity assurance, restricting dose- response interpretation and cross-study comparability.	Guided imagery is effective in reducing pain intensity, pulse rate, and systolic blood pressure in breast cancer patients, suggesting its potential inclusion in best practice guidelines for pain management in this population.
12.	M. Mahdizade h, Batoool Tirgari, O. S. R. R. Abadi, Kambiz Bahaadinb eigy (2019)	Iran	Randomize d Controlled Trial (RCT) with pre- and postinterve ntion assessment	Patients with various types of cancer undergoing chemotherapy	- Duration: 20 minutes - Frequency: Daily for one week - Structure: Listening to a guided imagery audio file	- Significant decrease in anxiety and depression - Improvement in all side effect categories - Greatest improvement in pain, insomnia, appetite, and nausea	The intervention relied on a single standardized audio- guided imagery protocol (20 minutes/day for one week) without individual customization or fidelity monitoring, potentially limiting responsiveness to patient-specific needs and broader applicability.	Guided imagery may be recommended as a nonpharmacologic intervention to reduce anxiety, depression, and selected side effects in cancer patients undergoing chemotherapy, potentially informing best practice guidelines for breast cancer patients.
13.	Angela Nooner, K. Dwyer, L. Deshea, T. Yeo (2016)	United States (USA)	Pilot study with a randomized controlled trial design	Adult patients with cancer	Patient-controlled guided imagery without detailed procedural steps or fidelity monitoring	- High degree of satisfaction with relaxation and guided imagery interventions - Trend toward improvement in fatigue scores - Trend toward improvement in sleep disturbance scores - No significant improvement in pain management - Trend toward improvement in sleep quality	- Insufficient sample size due to difficulties in recruiting participants. - Noisy hospital environments potentially affect the standardization of the intervention environment.	- Patient-controlled relaxation and guided imagery interventions are feasible and acceptable for managing pain, fatigue, and sleep disturbances in cancer patients. - These interventions show trends towards improving fatigue and sleep disturbance scores. - They may facilitate rest and sleep in noisy hospital environments. - High patient satisfaction suggests they could be well-received by patients. - Challenges in participant recruitment should be considered in future studies and guidelines.
14.	Kadriye Acar, Hasan Ersöz (2023)	Turkey	Controlled trial with an intervention group and a control group	Cancer patients undergoing port catheterization with local anesthesia	Duration: Not specified Frequency: Two sessions (before and during procedure) Structure: Guided imagery before and during port catheterization; no detailed protocol	- Reduced pain - Lower anxiety scores - Higher patient satisfaction - Increased comfort - Lower respiratory rate - Lower heart rate	Lack of detailed reporting on duration, imagery content, delivery mode, and fidelity monitoring	Guided imagery is recommended as a practical, low-cost complementary therapy for patients receiving local anesthesia, as it reduces pain and anxiety, increases patient satisfaction and comfort, and has a positive effect on respiratory and heart rates.
15.	Renu B Pattanshet ty, C. C. Moniz, S. Patil (2018)	India	Clinical trial	Patients undergoing chemotherapy treatment	- Duration: Three weeks - Frequency: Thrice a week - Structure: Audio recording	- Decrease in cancer-related fatigue - Decrease in anxiety - Improvement in quality of life	Although guided imagery was implemented as an intervention, the study did not report standardized parameters such as session length, detailed imagery scripts, delivery modality, or adherence monitoring, limiting reproducibility and cross-study comparison.	Guided imagery may be used as a strategic tool to reduce fatigue, anxiety, and improve quality of life in patients undergoing chemotherapy, suggesting its potential inclusion in best practice guidelines for managing cancer-related symptoms in clinical settings.
16.	T. Priya, N. Ganapathy, P. Padmavath i (2018)	India, Tamil Nadu	Evaluative research approach, quasi- experimenta l time series research design	- Age: Majority 50-59 years - Education: Degree and above - Occupatio n: Homemakers	Guided imagery was administered post-chemotherapy across five treatment cycles; duration, session frequency, and protocol structure	- Heart rate: Significant improvement from pretest to final posttest ($P<0.001$) - Systolic blood pressure:	- Small sample size (20 participants) - Quasi-experimental time series research design - Purposive sampling technique - Study conducted in a single hospital setting	Guided imagery can effectively reduce bio- physiological parameters that rise due to chemotherapy, suggesting its potential as an adjunctive therapy to manage side effects.

No.	Author(s)/ Year(s)	Country / Region	Study design	Population	Guided imagery protocol (Duration, frequency, Structure)	Main clinical outcomes	Key limitations related to standardization	Implications for best practice guidelines
				- Family Structure: Nuclear family - Residence: Urban area - Children: More than two - Social Habits: None - Gender: 50% male, 50% female - Cancer Type: Stomach cancer - Cancer Stage: Half in 2nd and 3rd stages - Chemotherapy: Adplatin - Additional Treatment: Ayurvedic treatment	were not specified.	Improved from 139.0±8.8mm/ Hg to 123.0±4.8mm/ Hg (P<0.001) - Diastolic blood pressure: Improved from 91.0±5.7mm/H g to 77.0±8.2mm/H g (P<0.01)	- Lack of detailed standardization protocols for guided imagery administration and outcome measurement	However, specific guidelines for breast cancer patients are not mentioned in the abstract.
17.	M. Esplen, J. Wong, E. Warner, B. Toner (2018)	Canada	Prospective, randomized controlled trial	Breast cancer survivors with concerns about negative body image and/or difficulties with sexual functioning	Duration: 90 minutes per session Frequency: Weekly, for 8 weeks Structure: Manual- based group intervention integrating expressive guided imagery, psychotherapy, and psychoeducation with fidelity monitoring	- Significant reduction in concern/distress about body appearance - Decreased body stigma - Lower level of breast cancer- related concerns - Improved breast cancer- related quality of life - No significant difference in sexual functioning	The abstract does not explicitly mention any key limitations related to standardization. However, it implies a standardized approach through the use of a manual-based intervention and educational components, which can be adapted to different settings.	The study suggests that guided imagery integrated within a group therapy approach can be an effective method for addressing body image concerns and improving quality of life in breast cancer survivors. The manual-based intervention can be easily adapted to both cancer centers and primary care settings, indicating its potential as a best practice guideline for implementing guided imagery in breast cancer patients.
18.	K. Acar, D. Aygin (2019)	Japan	Prospective Randomize d Controlled Study	Adult cancer patients with cancer-related pain	Frequency: Applied once preoperatively, once on the first postoperative day, twice on the second and third postoperative days, for a total of six times. Duration and structure are not mentioned.	- Reduced anxiety - Reduced intensity of pain - Improved satisfaction - Improved sleep quality	Lack of a detailed standardized guided imagery protocol; unclear duration, frequency, content structure, and absence of an intervention manual, limiting reproducibility	Guided imagery can be useful in improving perioperative symptoms and can be integrated into nursing care as part of best practice guidelines for managing postoperative symptoms in breast cancer patients.
19.	M. Soo, J. Jarosz, Anava A. Wren, Adrianne E Soo, Yvonne M. Mowery, Karen S. Johnson, Sora C. Yoon, Connie Kim, E. S. Hwang, F. Keefe, R. Shelby (2016)	United States	Randomize d Controlled Trial (RCT)	121 women needing percutaneous imaging- guided breast biopsy	- Duration: Not mentioned - Frequency: Not mentioned - Structure: Audio- recorded, guided, loving-kindness meditation	- Anxiety reduction: Both meditation and music groups showed a significant reduction compared to the standard-care control group. - Pain reduction: The meditation group showed significantly lower pain during biopsy compared to the music group. - Fatigue reduction: Both meditation and music groups reported reduced fatigue after biopsy, while the standard-care	A key limitation related to standardization is the lack of uniformity in the standard- care control condition, particularly regarding radiologist-patient communication, procedure duration, and operator variability, which may have influenced patient-reported outcomes independently of the intervention.	Guided meditation and music interventions can be recommended as best practices to reduce anxiety, pain, and fatigue during imaging-guided breast biopsy. These interventions are simple, inexpensive, and do not compromise radiologist-patient communication, making them suitable for inclusion in best practice guidelines for breast cancer patients.

No.	Author(s)/ Year(s)	Country / Region	Study design	Population	Guided imagery protocol (Duration, frequency, Structure)	Main clinical outcomes	Key limitations related to standardization	Implications for best practice guidelines
						control group reported increased fatigue.		
20.	M. Shahriari, M. Dehghan, S. Pahlavan, A. Hazini (2017)	Iran	Randomized controlled trial	Elderly patients with breast or prostate cancer	20 minutes per session, delivered before each chemotherapy session, using a standardized, non-personalized audio recording	Improvement in Quality of Life (QoL) and Physical Functioning	non-individualized imagery content, uncontrolled participant engagement, variability in chemotherapy context, single-center study design, and lack of blinding	The study suggests that incorporating progressive muscle relaxation, guided imagery, and deep diaphragmatic breathing into care plans can improve QoL in elderly breast cancer patients, indicating a potential best practice guideline for implementing guided imagery in this population.
21.	Nurmianing, A. Yasin, Rosyidah Arafat, Andi Masyitha Irwan (2025)	Indonesia	Quasi-experimental design	Breast cancer outpatients	Approximately 7 minutes per session, once daily for 10 days, delivered via a standardized audio recording with pleasant imagery, deep-breathing relaxation, and background natural music; self-administered at home using earphones, with daily telephone monitoring and one supervised video-call session.	The main clinical outcome is a significant reduction in pain intensity in breast cancer outpatients when using a combination of pro-self-pain control and guided imagery, with a small effect size.	- Use of quasi-experimental design without randomization. - Convenience sampling may introduce bias and limit generalizability. - Lack of detailed information on standardization protocols for guided imagery intervention. - Small effect size may indicate issues with standardization or consistency.	Best practice guidelines for implementing guided imagery in breast cancer patients should include educational components for patient self-management and the use of guided imagery as part of pain management strategies. Comprehensive health education programs are recommended to enable patients to self-manage their pain effectively.
22.	Giulia De Paolis, A. Naccarato, Filomena Cibelli, Andrea D'Ale, C. Mastroianni, L. Surdo, G. Casale, C. Magnani (2019)	Italy	Multicentre randomised controlled trial	Hospice patients with terminal cancer	Single-session PMR (~5 min) followed by facilitator-led interactive guided imagery; individual, face-to-face intervention delivered in hospice settings, with outcomes assessed 2 hours post-intervention	- Pain Intensity Difference: 1.83 in Group A, 0.55 in Group B ($p < 0.0001$) - Total Symptom Distress Score: declined by 8.83 in Group A, by 1.84 in Group B - Emotional symptoms subscore (anxiety and depression): 2.93 in Group A ($p < 0.0001$), 0.07 in Group B ($p > 0.05$)	facilitator-dependent delivery, single-session design, limited protocol replicability, multicentre variability, and lack of blinding	The results suggest that PMR-IGI may be considered as an effective adjuvant in alleviating pain-related distress in terminal cancer patients, which could inform best practice guidelines. However, further studies are recommended to assess the effectiveness of repeated interventions. This study does not provide specific guidelines for breast cancer patients.
23.	Evangelia Papanikolaou, Cathy H. McKinney, N. Hannibal (2020)	Greece	Mixed-methods study	4 women with gynecologic cancer undergoing active treatment in a Greek hospital setting	A series of short, therapist-led Guided Imagery and Music (GIM) sessions delivered during active gynecologic cancer treatment; sessions were flexible in timing and location, individualized to patient condition, and involved music listening with guided imagery and reflective processing.	- Improvements in hope - Improvements in fatigue - No consistent changes in self-reported anxiety and depression - Helped participants cope with the disease and address interpersonal and spiritual issues	The need for flexibility in scheduling and location may limit standardization in implementing Guided Imagery and Music (GIM) sessions.	GIM can be feasible for cancer patients, with improvements in hope and fatigue. Flexibility in scheduling and location is crucial for successful implementation.

Methodological quality appraisal

Although formal risk-of-bias assessment is not mandatory in scoping reviews conducted in accordance with the PRISMA extension for

scoping reviews (PRISMA ScR), a descriptive methodological appraisal was undertaken to enhance interpretive transparency. The methodological quality of the included studies was assessed using the Mixed Methods

Appraisal Tool (MMAT), which allows appraisal across multiple study designs, including randomized controlled trials, non-randomized studies, qualitative research, quantitative descriptive studies, and mixed-methods studies. The appraisal was conducted descriptively and was not used as a basis for study exclusion. Instead, it served to contextualize the strengths and limitations of the mapped evidence.

Ethical considerations

Ethical approval was not required for this study, as it was based exclusively on the analysis of previously published literature.

Results

Literature search and study selection

The systematic literature search identified a total of 12,486 records across the five selected electronic databases. After the removal of 4,912 duplicate records using Rayyan software, 7,574 unique citations remained and were screened based on titles and abstracts during the initial screening phase. Of these, 7,301 records were excluded for not meeting the predefined eligibility criteria.

In the second screening phase, 273 full-text articles were assessed for eligibility. Following a comprehensive full-text evaluation, 23 studies fulfilled all inclusion criteria and were included in the final synthesis. The overall study identification and selection process is illustrated in the PRISMA flow diagram (Figure 1).

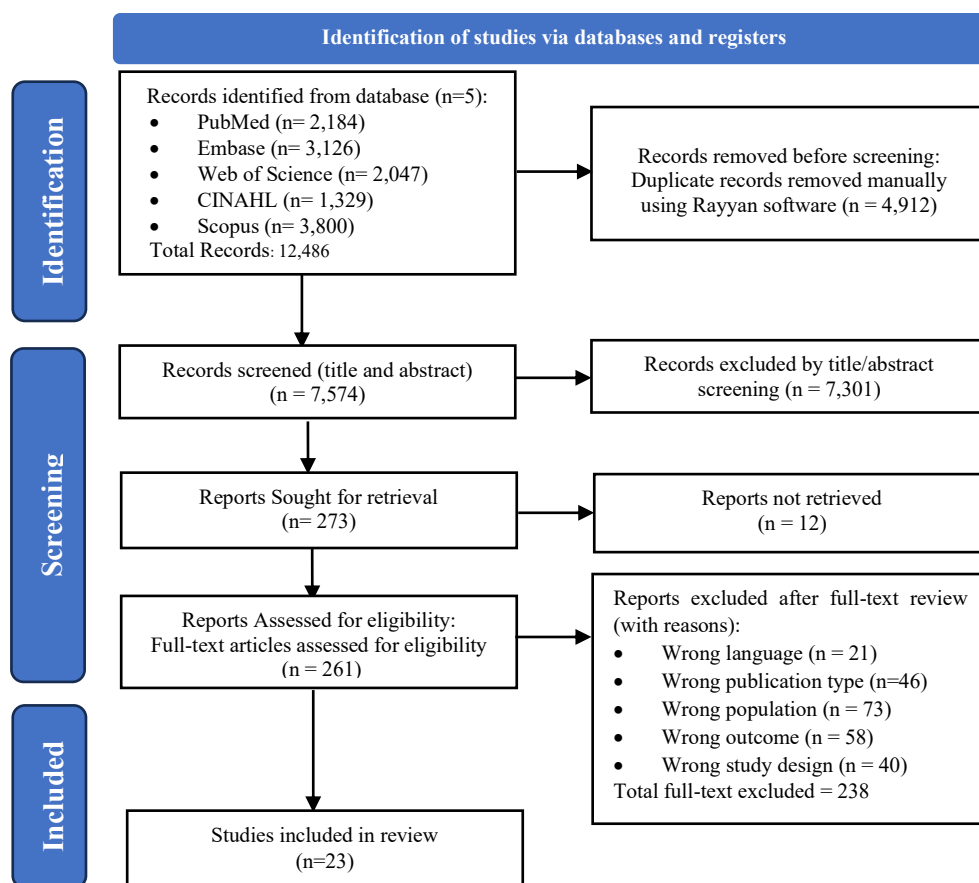


Figure 1. PRISMA flow diagram

Characteristics of included studies

A total of 23 studies were included in this scoping review. The included studies were published between 2016 and 2025, indicating a sustained and growing research interest in

guided imagery-based interventions within oncology and breast cancer care (9, 10, 11, 2). The studies were conducted across a wide range of geographical regions, including Asia (China, Iran, Indonesia, Taiwan, India, Japan), Europe (Turkey, Greece, Cyprus, Italy), and

North America (United States and Canada), reflecting the global applicability of guided imagery interventions in cancer care (12, 13, 14, 15, 16, 17).

Regarding study design, the majority of included studies employed randomized controlled trial (RCT) designs, including single-blind, double-blind, pilot, and multicentre RCTs (9, 18, 19, 17). Several studies adopted quasi-experimental designs (20, 21, 22, 23), while others used mixed-methods, qualitative, or feasibility study approaches (24).

The study populations primarily comprised adult women diagnosed with breast cancer, including patients undergoing chemotherapy, surgery, diagnostic procedures, or survivorship and rehabilitation phases (10, 11, 2, 13). Several studies also included mixed oncology populations (breast and gynecologic or prostate cancer), hospice patients, or broader cancer samples, with findings cautiously interpreted for breast cancer applicability (9, 12, 17).

Methodological quality of included studies

The methodological quality of the included studies varied across study designs based on appraisal using the MMAT (2018)

(25). Most randomized controlled trials clearly defined research questions and employed validated outcome measures assessing anxiety, depression, pain, fatigue, and quality of life. However, incomplete reporting of allocation concealment, blinding procedures, and intervention adherence monitoring was observed in several trials.

Quasi-experimental and non-randomized studies generally provided adequate descriptions of intervention protocols and outcome assessment procedures but frequently lacked explicit strategies for controlling potential confounding variables. Qualitative and mixed-methods studies presented clearly articulated research aims and appropriate methodological approaches; however, integration between qualitative and quantitative components and reflexivity reporting were inconsistently described.

Overall, while the majority of studies met core MMAT criteria relevant to their respective designs, variability in methodological rigor and reporting transparency should be considered when interpreting the mapped findings. Detailed MMAT appraisal results for each included study are presented in Supplementary Table 2.

Table 2. Summary of methodological appraisal using MMAT (2018)

Study Design	Number of Studies (n=23)	Key MMAT Observations
Randomized controlled trials	12	Clear research questions and appropriate outcome measures were reported in most studies; limited reporting of allocation concealment and blinding procedures in several trials.
Quasi-experimental / Non-randomized	6	Intervention and outcome measures were clearly described; confounding control and adherence monitoring were inconsistently reported.
Qualitative	2	Clear aims and appropriate qualitative approaches; limited detail on data integration and reflexivity in some studies.
Mixed-methods/ Feasibility	3	Rationale for mixed design generally appropriate; integration between qualitative and quantitative components variably described.

Characteristics of guided imagery interventions

Considerable heterogeneity was observed in the guided imagery intervention protocols across the included studies. Session duration ranged from as short as 3 minutes to as long as 90 minutes, with most interventions lasting 15–30 minutes per session (19, 12, 25, 11). Several studies did not clearly report

session duration, highlighting inconsistencies in protocol reporting (21, 26). Intervention frequency varied substantially, including single-session interventions [17], daily sessions [9, 12, 23], multiple sessions per week (25, 13), and weekly programs lasting up to 12 weeks (2, 11).

Notably, interventions delivered as a single session or over very short durations were frequently described in relation to short-

term reductions in anxiety or pain; however, limited exposure restricts interpretation regarding the sustainability of outcomes. This variability in intervention “dose” complicates comparison across studies and limits the ability to identify consistent intervention patterns.

In terms of intervention structure, guided imagery was delivered via audio-recorded scripts, therapist-led individual sessions, group-based interventions, or technology-assisted platforms, including smartphone applications, wearable EEG devices, and videoconferencing (19, 13, 2). Many studies implemented guided imagery as part of multicomponent interventions, frequently combined with progressive muscle relaxation, breathing exercises, mindfulness practices, music, or psychoeducation (9, 18, 17, 15).

Reported clinical outcomes

Reported outcomes across the included studies primarily focused on psychological symptoms, physical symptoms, and quality-of-life indicators. Frequently reported outcomes included anxiety, depression, pain, fatigue, and quality of life (12, 13, 14, 2).

Several studies described reductions in pain in breast cancer-specific and broader oncology populations (21, 22, 26, 10). Additional reported outcomes included sleep quality, body image, sexual self-schema,

physiological indicators, and coping-related variables such as hope and patient satisfaction (11, 24, 16). Findings varied across studies, reflecting differences in intervention characteristics, delivery formats, outcome measures, and methodological approaches.

Standardization challenges identified in the literature

A central finding of this scoping review is the substantial heterogeneity in guided imagery interventions for breast cancer patients. Variability was observed in session duration, frequency, delivery modality, imagery content, intervention components, and fidelity monitoring procedures (12, 25, 21). Several studies provided limited detail regarding intervention protocols, adherence monitoring, and blinding procedures, which restricts reproducibility and cross-study comparison (9, 18, 17, 27). In addition, outcome measures varied widely across studies, further complicating synthesis and comparison.

This heterogeneity limits the ability to identify consistent intervention characteristics and underscores the need for improved reporting transparency and more standardized intervention descriptions in future research. Based on this descriptive synthesis, a conceptual mapping model illustrating the variability in intervention characteristics and reported outcomes was developed (Figure 2).

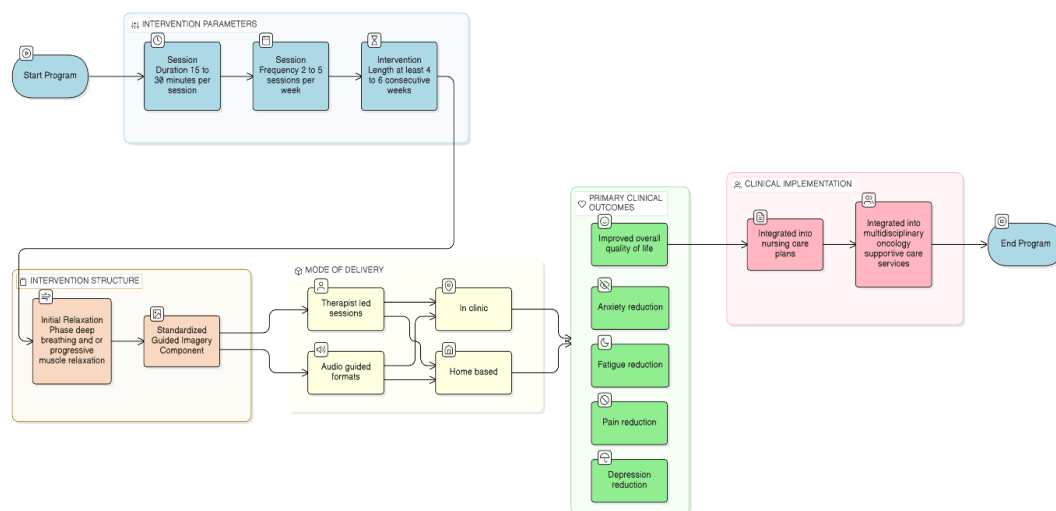


Figure 2. Conceptual mapping of guided imagery intervention characteristics

This scoping review mapped evidence from 23 studies examining guided imagery–based interventions in oncology care, predominantly among breast cancer populations. Across diverse study designs, clinical settings, and delivery modalities, substantial heterogeneity was identified in intervention characteristics and reported outcome measures. Variability was observed in session duration, frequency, imagery content, delivery format, and adherence monitoring procedures, as well as in psychological and symptom-related outcome assessments (28, 29). Such variability reflects the fragmented nature of the current evidence base and highlights important challenges in comparing and interpreting findings across studies.

To our knowledge, this is one of the first scoping reviews to systematically map the characteristics and variability of guided imagery interventions specifically in breast cancer populations, providing a foundation for future standardization and practice development. The observed heterogeneity can be understood in the context of the inherently flexible nature of guided imagery as a mind–body intervention. Unlike pharmacological therapies that follow standardized dosing regimens, guided imagery is typically adapted to individual patient needs, clinical contexts, and available resources (30). While this adaptability may enhance feasibility and acceptability in real-world clinical settings, it also contributes to variability in intervention design, delivery, and reporting. In addition, the absence of clearly defined clinical guidelines for guided imagery in oncology further contributes to inconsistencies in session duration, frequency, and delivery formats (31, 32).

Although many included studies reported reductions in anxiety, depression, pain, fatigue, and sleep disturbances, along with improvements in quality of life, these findings were derived from heterogeneous study designs and outcome measures (28, 29). As a result, meaningful comparison of effectiveness across studies remains limited within a scoping review framework. These findings are consistent with broader evidence in integrative oncology, where mind–body interventions are often associated with positive patient-reported outcomes but are

characterized by considerable methodological diversity (1, 33). Similarly, clinical practice guidelines recognize the potential role of mind–body therapies in supportive cancer care while emphasizing the need to improve reporting quality and support future guideline development (34, 32).

Inconsistencies in reporting allocation concealment, blinding procedures, practitioner training, and intervention fidelity were also identified across several studies (34, 35). Limited descriptions of imagery scripts and implementation procedures further restrict reproducibility and cross-study comparison. These reporting gaps highlight the need for clearer and more standardized descriptions of guided imagery interventions, consistent with recommendations from reporting frameworks for complex interventions (36).

From a clinical perspective, guided imagery appears to be a feasible and valuable supportive care intervention within nursing practice. As a non-invasive, low-cost, and relatively easy-to-administer approach, it can be integrated into routine care to address psychological distress, pain, fatigue, and overall quality of life in breast cancer patients (37). These findings support the role of nurses in delivering guided imagery as part of supportive care, particularly for managing anxiety, pain, and fatigue during treatment. Audio-guided formats offer a scalable and accessible option, especially in resource-limited or high-workload settings. Interventions of moderate duration (approximately 15–30 minutes per session) delivered on a regular basis were frequently reported and may support patient adherence and engagement (38, 39).

The diversity of outcome measures identified across studies suggests the absence of core outcome sets for guided imagery interventions in breast cancer care. Without greater standardization in outcome reporting, interpretation, and comparison of findings remains challenging. Importantly, this review highlights a critical need for improved clarity and consistency in both reporting and implementation (40). Several considerations may support future standardization efforts, including the use of structured intervention

formats (e.g., standardized audio recordings or trained facilitators), explicit reporting of session duration and frequency, and systematic monitoring of intervention fidelity and adherence. Such efforts may serve as a foundation for developing future evidence-informed best practice guidelines in guided imagery for oncology care (41).

Several limitations should be acknowledged when interpreting these findings. As a scoping review, this study was designed to map the breadth and characteristics of the available literature rather than to evaluate intervention effectiveness or generate pooled estimates. Consequently, no formal synthesis of effect size or causal inference was undertaken. The substantial heterogeneity across included studies also limits the ability to draw definitive conclusions regarding optimal intervention parameters. Furthermore, variability in reporting quality, including incomplete descriptions of intervention protocols and methodological procedures, may have influenced the depth and precision of the mapping process (42). Nevertheless, this review provides a structured overview of the current evidence landscape and identifies key gaps to inform future research.

Future research should prioritize the development and evaluation of more clearly defined and consistently reported guided imagery protocols tailored to breast cancer populations. Well-designed randomized controlled trials with transparent intervention descriptions, fidelity monitoring, and longer follow-up periods are needed to better understand the role of guided imagery in supportive cancer care. In addition, efforts to establish consensus on outcome measures and to explore implementation strategies in real-world clinical settings may further support integration into routine oncology and nursing practice (43). Emerging digital health approaches, including mobile and web-based delivery platforms, also offer promising opportunities to enhance accessibility and scalability of guided imagery interventions (5,44,45). Addressing these gaps may strengthen the evidence base and facilitate the integration of guided imagery into evidence-informed oncology and nursing practice.

Conclusion

This scoping review mapped the existing literature on guided imagery interventions in breast cancer and broader oncology populations. The review identified substantial heterogeneity in intervention protocols, including variation in session duration, frequency, delivery format, and outcome measurement.

While many included studies described improvements in psychological and symptom-related outcomes, variability in methodological approaches and reporting practices limits cross-study comparison and precludes conclusions regarding pooled effectiveness.

These findings underscore the need for greater standardization in intervention description, reporting transparency, and outcome measurement to facilitate future rigorous effectiveness evaluation. Further systematic reviews and meta-analytic studies are warranted to determine the magnitude and sustainability of reported effects.

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Conflict of interest

The authors declare no conflicts of interest related to this research, authorship, or publication

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