Self-managed non-pharmacological interventions for breast cancer survivors: systematic quality appraisal and content analysis of clinical practice guidelines

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Abstract

Background: A growing number of clinical practice guidelines (CPGs) with regards to non-pharmacological interventions for breast cancer survivors are available. However, given the limitations in guideline development methodologies and inconsistency of recommendations, it remains uncertain how best to design and implement such non-pharmacological strategies to tailor interventions for breast cancer survivors with varied health conditions, healthcare needs, and preferences.

Aim: To critically appraise and summarise available non-pharmacological interventions for symptom management and health promotion that can be self-managed by breast cancer survivors based on the recommendations of the CPGs.

Methods: Clinical practice guidelines which were published between January 2016 and September 2021 and described non-pharmacological interventions for breast cancer survivors were systematically searched in six electronic databases, nine relevant guideline databases, and five cancer care society websites. The quality of the included CPGs was assessed by four evaluators using the Appraisal of Guidelines for REsearch and Evaluation, second edition tool. Content analysis was conducted to synthesise the characteristics of the non-pharmacological interventions that were recommended by the included CPGs, such as the intervention's form, duration and frequency, level of evidence, grade of recommendation, and source of evidence.

Results: Fourteen CPGs were identified and analysed. Of the 14 CPGs appraised, only five were rated as high quality. The domain with the highest standardised percentage was "scope and purpose" (84.61%), while the "applicability" domain had the lowest standardised percentage (51.04%). Five guidelines were assessed as "recommended", seven were rated as "recommended with modifications", and the remaining two were considered "not recommended". Regarding the content analysis, physical activity/exercise, meditation, hypnosis, yoga, music therapy, stress management, relaxation, massage, and acupressure were the common self-managed non-pharmacological interventions recommended by the 14 CPGs. Physical activity/exercise was the only self-managed non-pharmacological intervention that was mostly recommended for psychological and physical symptom management by the included CPGs. However, there were significant disparities in terms of level of evidence and grade of recommendation in the included CPGs.

Conclusion: The recommendations for the self-managed non-pharmacological interventions were varied and limited among the 14 CPGs, and some were based on medium- and low-quality evidence. More rigorous methods are required to develop high-quality CPGs in order to guide clinicians in offering high-quality and tailored breast cancer survivorship care.

Keywords: Breast cancer, self-management, non-pharmacological interventions, clinical practice guidelines, content analysis

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1. INTRODUCTION

Appropriately 2.3 million women were diagnosed with breast cancer worldwide in 2020, and breast cancer resulted in more lost disability-adjusted life years than other types of cancers around the world (World Health Organization, 2021). Breast cancer poses an extensive threat to women's physical and psychological well-being globally (Liu & Wang, 2020). Advances in treatments have contributed to improvements in survival globally (Ahmad, 2019), in particular, the average five-year survival rate for women with non-metastatic breast cancer reached 96% in Australia (Cancer Council, 2021). Newer treatments and interventions have shifted breast cancer from a fatal illness to a chronic condition, which has resulted in more breast cancer survivors living with persistent symptoms, such as nausea, vomiting, distress, fatigue, pain, and sleep disturbance (Wyatt et al., 2017). Breast cancer survivors' quality of life (QoL) can be influenced by these distress symptoms, which should be addressed by multidisciplinary healthcare professionals throughout the breast cancer trajectory (Cheng et al., 2016).

To deal with the multitude of distressing symptoms, breast cancer survivors often explore different approaches, ranging from pharmacological to non-pharmacological modalities. Due to some potential unpleasant reactions, such as nausea, vomiting, skin reactions, headaches, and drug-drug interactions, in conventional pharmacological treatment (Palesh et al., 2018), it is necessary to explore safe and effective nonpharmacological approaches for individuals with breast cancer. In addition, due to the current oncologist-led model of care that substantially emphasises detecting recurrences, there is a lack of sufficient support from healthcare professionals to manage unpleasant long-term physical and psychological symptoms in breast cancer survivors during the follow-up period (Horton et al., 2020). As a result, it can be difficult to meet the comprehensive physical, psychological, and social needs of breast cancer survivors (Foster et al., 2018; Halpern et al., 2015).

Hence, there has been a shift towards self-management, which has been proposed as a strategy to address breast cancer survivors' long-term health needs physically and psychologically (Shneerson et al., 2015). Self-management refers to the ability of patients, with or without the support of their family and/or community and along with the oversight of clinicians, to handle the psychosocial and physical aspects of their chronic condition (Chandler et al., 2019; Cuthbert et al., 2019). Self-management strategies are regarded as an essential part of cancer survivorship care as they can enhance survivors' self-efficacy and empower them in managing their condition, and thereby sustain a satisfactory QoL (Boland et al., 2018). A large body of evidence has demonstrated that self-management approaches have the potential to enhance a wide range of physical and psychosocial outcomes (e.g., fatigue, psychological distress, sleep disturbance, etc.) and reduce healthcare use among individuals with chronic conditions (Hammer et al., 2015; Richardson et al., 2014), including breast cancer (Cuthbert et al., 2019)

Clinical practice guidelines (CPGs) are evidence-based reference documents, including recommendations for diagnosis and treatment and care of certain type of diseases, which can help end-users promote clinical practices (Woolf et al., 1999). The use of oncology CPGs has been demonstrated to enhance overall survival and management of cancer (Del-Rosal-Jurado et al., 2020; Tyagi & Dhesy-Thind, 2018). Although efforts to integrate the evidence have resulted in the development of several CPGs pertaining to self-managed non-pharmacological

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approaches for breast cancer survivors (de la Pena et al., 2019; Kaplan et al., 2020; Lyman et al., 2018; Shimoi et al., 2020; Simpson et al., 2019), the CPGs used their own specific methodologies for guideline development and evidence grading, emphasising specific breast cancer samples and stages and particular types of clinical outcomes, which has contributed to inconsistent recommendations across CPGs (Alliance, 2018; de la Pena et al., 2019; Greenlee et al., 2017; Kaplan et al., 2020; Lyman et al., 2018; Shimoi et al., 2020; Simpson et al., 2019; Sisler et al., 2016), which has further hindered clinicians in decision-making as well as guiding best practices in breast cancer management.

To the best of our knowledge, no previous systematic appraisal of CPGs for self-managed non-pharmacological approaches during breast cancer survivorship has been conducted. Hence, in response to growing calls for the promotion of self-management for breast cancer survivors as well as the limitations of recommendations in the current CPGs on this topic, a review of CPGs that have explored self-managed non-pharmacological interventions for breast cancer survivors was conducted to summarise the best available evidence.

Specifically, the objectives of this review were: (1) to critically appraise the quality of the analysed CPGs; (2) to identify the level of evidence and degree of recommendation for each non-pharmacological self-management intervention; and (3) to summarise and analyse the contents of the available non-pharmacological interventions that can be self-managed by breast cancer survivors.

2. METHODS

A structured umbrella review was carried out in line with the methodology suggested by Smith et al. (2011). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist (Page et al., 2021) was adopted to guide this review.

2.1 Search Strategy

A comprehensive electronic literature search was conducted in September 2021 to identify relevant CPGs published within the last five years, including: **(1) six academic databases –** PubMed, Medline, Cochrane Library, Web of Science, PsycINFO, and CINAHL; **(2) nine guideline repositories –** the National Comprehensive Cancer Network, the Guideline International Network, the National Guideline Clearinghouse, the Australian Clinical Practice Guidelines Portal, the Scottish Intercollegiate Guidelines Network, the New Zealand Guidelines Group, the National Institute for Health and Care Excellence (NICE; United Kingdom), the Canadian Medical Association Infobase, and the Trip Medical Database; and **(3) five professional cancer association websites –** the Cancer Council Australia, the Multinational Association of Supportive Care in Cancer, the Oncology Nursing Society (ONS), the American Cancer Society (ACS), and the American Society of Clinical Oncology (ASCO). The following key terms were used to identify possible guidelines: breast cancer, breast neoplasm, breast carcinoma, guideline, practice guideline, best practice, recommendation, consensus, and experts opinion. A representative search strategy in PubMed is presented in **Table 1**.

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Table 1. Search strategy in PubMed

1	breast neoplasm [MeSH Terms]
#2	((((((((((((Breast Neoplasm*[Title/Abstract]) OR (Breast tumor*[Title/Abstract])) OR (Breast cancer*[Title/Abstract])) OR (Breast carcinoma*[Title/Abstract])) OR (Mammary cancer*[Title/Abstract])) OR (Mammary carcinoma*[Title/Abstract])) OR (Mammary neoplasm*[Title/Abstract])) OR (Mammary tumor*[Title/Abstract])) OR (Malignant neoplasm of breast[Title/Abstract])) OR (Breast malignant neoplasm*[Title/Abstract]))) OR (Malignant tumor of breast[Title/Abstract])) OR (Breast malignant tumor*[Title/Abstract])) OR (Cancer of breast[Title/Abstract])
#3	#1 OR #2
#4	guideline [MeSH Terms]
#5	((((((((((guideline[Publication Type]) OR (Practice Guideline[Publication Type]))) OR (guideline*[Title/Abstract])) OR (Best Practice*[Title/Abstract])) OR (Recommendation*[Title/Abstract])) OR (Consensus*[Title/Abstract])) OR (Experts Opinion*[Title/Abstract])
#6	#4 OR #5
#7	#3 AND #6

2.2 Inclusion and Exclusion Criteria

Clinical practice guidelines that met the following criteria were included: (1) published in English-language peer-reviewed journals, guideline databases, or relevant professional bodies within the last five years (since January 2016); (2) focused on breast cancer survivors regardless of types of cancer treatment and stages of cancer diagnosis; (3) contained any type of non-pharmacological intervention that can be self-managed by breast cancer survivors with any kind of format and delivery methods, such as physical exercise, yoga, meditation, music therapy, relaxation, massage, acupressure, etc; (4) included only the latest version if successive editions existed; and (5) included only the English version if different language/translated versions existed. Exclusion criteria were: (1) discussed pharmacological or surgical interventions only; and (2) patient-used guidelines, which provide evidence-based survivorship care recommendations for patients without detailing evidence analysis, auditing criteria, grade of recommendation, etc.

2.3 Study Selection and Data Extraction

Duplications were identified and removed via the literature management software EndNote X9. Two independent reviewers (JZ and TW) read the titles and abstracts of the remaining CPGs to select and analyse those that could be potentially included. Then, full-text reviews of the potentially eligible CPGs were conducted by the same two reviewers. Eligible CPGs were eventually included based upon the inclusion and exclusion criteria. Key information in each CPG was extracted using predefined tables, including: (1) the characteristics of the included guidelines, such as the name of the CPG, developer, year published, whether publication was in a journal, evidence analysis, quality tool referral, etc.; and (2) the contents of the non-pharmacological interventions that were recommended by the included guidelines, such as form, duration and frequency, level of evidence (LoE), source of evidence (SoE), and grade of recommendation (GoR). In any case of disagreement, a team meeting was organised to resolve the issues during the retrieval and extraction process.

2.4 Quality Assessment

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The Appraisal of Guidelines for REsearch and Evaluation, second edition (AGREE II) was adopted to evaluate the quality of the included CPGs. The AGREE II has 23 items that appraise the quality of CPGs' development, transparency, and methodological rigor in six domains: "scope and purpose", "stakeholder involvement", "rigor of development", "clarity and presentation", "applicability", and "editorial independence". A 7-point Likert scale was used to rate each item (from 1 = strongly disagree to 7 = strongly agree) (Brouwers et al., 2016). In order to determine the global quality and level of the recommendations, it was decided a priori that a guideline would be considered high quality ("recommended") if the mean percentages of the six standardised domains was > 70%, moderate quality ("recommended with modifications") if the standardised percentages were 40% to 70% in more than three domains, and low quality ("not recommended") if the standardised percentages were < 40% in more than three domains (Consortium, 2017). The quality of each CPG was evaluated by four independent assessors. Disagreements among the four reviewers were discussed and consensus was obtained. All four assessors were experienced researchers with more than 10 years of extensive research experience in evidence-based practice, oncology nursing, and guideline appraisal. Each assessor read the AGREE II Overview Tutorial and completed the online AGREE II Tutorial and Practice Exercise (Brouwers et al., 2016) to ensure the effective application of the instrument.

2.5 Data Analysis

Consistency among the assessors in the quality assessment of the CPGs was examined using the intraclass correlation coefficient (ICC): ICC > 0.75 suggests satisfactory consistency as per the recommendations (Koo & Li, 2016). The statistical analyses for the ICC were conducted using SPSS 25. A value of $p < 0.05$ indicated statistical significance. Content analysis (Elo & Kyngäs, 2008), with the aim of compressing the text into content-related themes, was adopted to summarise and categorise the contents of the self-managed non-pharmacological approaches in the included CPGs. Building upon prior knowledge of the CPGs that made recommendations on a range of clinical outcomes across breast cancer survivorship, clinical symptoms (e.g., anxiety/depression, fatigue, pain, etc.), quality of life, and risk of recurrence were predetermined themes for analysis. Via multiple iterative, deductive, and inductive processes (Elo & Kyngäs, 2008), the "health promotion" theme was added to ensure that all relevant critical information in the CPGs would be picked up in the analysis.

3. RESULTS

The literature search in the databases generated 6,998 results, while the guideline repositories and professional cancer care website searches yielded 27 results. In total, 7,025 records were located, 2,834 of which were removed for duplication. After screening the titles and abstracts, 4,129 records were further excluded. The remaining 62 full-text records were reviewed for eligibility. A further 48 records were excluded, which led to the final inclusion of 14 guidelines **(Fig. 1)**.

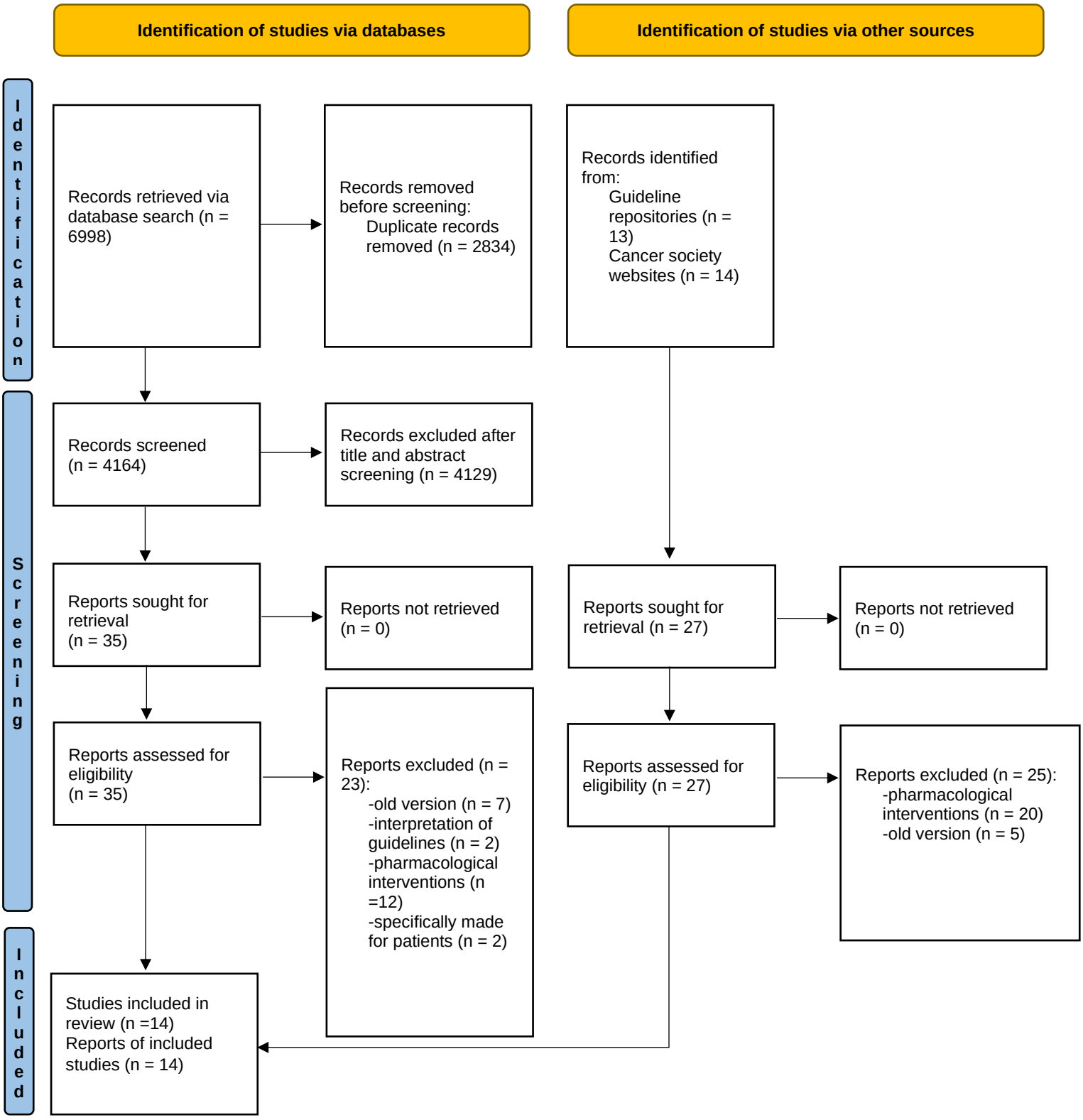

Fig. 1. PRISMA flow diagram of study selection

Adapted from: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71.

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3.1 Characteristics of the Included Clinical Practice Guidelines

Fourteen guidelines issued or updated between 2016 and 2021 were evaluated in this review **(Table 2)**, of which four originated from Europe, four from the United States, two from the United Kingdom, two from Spain, and one each from German and Canada, respectively. Regarding the update frequency, eight of the 14 guidelines (57.14%) were updates, and the remaining were newly developed. The majority of the guidelines (12/14, 85.71%) were specifically designed for breast cancer survivors, while the remaining two guidelines (Kaplan et al., 2020; Reese et al., 2017) included recommendations for prostate cancer and colorectal cancer as well. Twelve of the 14 (85.71%) guidelines were published in a journal, while two guidelines were published on The NICE website (Alliance, 2018; Health & Excellence, 2017).

For stakeholder involvement, seven guidelines (50.00%) engaged with patients in the guideline development. With regards to the methodologies used for the development of the guidelines, only four guidelines specifically adopted a systematic review approach involving comprehensive database searching strategies, inclusion criteria, data selection/extraction, and synthesis. Regarding quality tool referral, only two guidelines (NICE guidelines) adopted the AGREE II tool in the formulation of its guidelines.

3.2 Methodological Quality of the Included Clinical Practice Guidelines

The ICC between the four reviewers for each guideline ranged from 0.956 to 0.995, with an average of 0.980. This result suggested a high consistency of rating scores among the four reviewers. According to the AGREE II instrument, the mean overall standardised percentage of the guidelines was 67.49%, ranging from 36.12% to 93.82% **(Table 2)**. The following five guidelines were rated as high quality, with an indication of recommended for use: the NICE (CG81) guideline (Health & Excellence, 2017), the NICE (NG101) guideline (Alliance, 2018), the Society of Interventional Oncology (SIO) guideline (Greenlee et al., 2017), the ONS guideline (Kaplan et al., 2020), and the ACS-ASCO guideline (Runowicz et al., 2016). The Barnadas et al. (2018) and Sociodad Española de Oncolgía Médica (SEOM 2018) (de la Pena et al., 2019) guidelines were low quality overall and therefore were not recommended for use. The remaining guidelines (50%) were rated as moderate quality (recommended with modifications).

The AGREE II domain scores for each guideline varied **(Table 3)**. The results indicated that the “scope and purpose” domain had the highest mean scores (mean: 84.61%; range: 69.4% - 100%), whereas the “applicability” domain had the lowest mean scores (mean: 51.04%; range: 12.5% - 91.7%). More heterogeneous scores were demonstrated in the “stakeholder involvement” domain (mean: 71.43%; range: 36.1% - 100%), “clarity and presentation” domain (mean: 66.15%; range: 31.9% - 97.2%), “rigour of development” domain (mean: 62.32%; range: 18.2% - 92.7%), and “editorial independence” domain (mean: 72.19%; range 33.3% - 91.7%).

3.3 Summary of the Self-managed Non-pharmacological Interventions

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The 14 included guidelines recommended a number of self-managed non-pharmacological interventions for breast cancer survivors that supported self-management. Details of the non-pharmacological interventions recommended by the included guidelines are summarised in **Table 4**.

3.3.1 Anxiety, depression, and distress

Two CPGs (Cardoso et al., 2020; Greenlee et al., 2017) recommended the use of meditation, in particular, mindfulness-based stress reduction (MBSR) and yoga, to alleviate the symptoms of anxiety, depression, and distress. For example, one CPG (Greenlee et al., 2017) mentioned a published randomised controlled trial (RCT) using the Mindful Movement Program, including mindful moving, body parts exploration, deliberate and active movement, and group discussion for anxiety/stress reduction. In addition, massage therapy (kneading, rhythmic stroking, and acupressure) (Greenlee et al., 2017), passive music therapy (Greenlee et al., 2017), and hypnosis (Cardoso et al., 2020) were also recommended by the two CPGs. In terms of duration and frequency of massage, 30-minute classic massage therapy performed biweekly for five weeks was recommended by five out of the six RCTs included in Greenlee et al. (2017). The two guidelines (Cardoso et al., 2020; Greenlee et al., 2017) did not describe the specific elements and duration of music and hypnosis therapy. One CPG (Greenlee et al., 2017) contemplated specifically in its recommendations the adoption of stress management (self-administered or cognitive-behavioural stress-management) for anxiety reduction, and relaxation (progressive muscle relaxation, guided imagery, visualisation techniques, and autogenic training) for depression alleviation. There was a similarity in terms of the SoE, and all evidence was from RCTs and/or systematic reviews.

3.3.2 Fatigue

There was a consensus regarding the effectiveness of physical activity/exercise in reducing fatigue among breast cancer survivors, with five analysed CPGs highly to moderately recommendable (Cardoso et al., 2020; Health & Excellence, 2017; Reese et al., 2017; Runowicz et al., 2016; Sisler et al., 2016). In particular, one guideline with a high LoE (Level I) recommended physical sports/exercise which equalled three to five hours of moderate walking every week. Yoga was considered likely to improve fatigue by three CPGs (Cardoso et al., 2020; Greenlee et al., 2017; Sisler et al., 2016). Similarly, hypnosis therapy was recommended/considered by two CPGs to improve the symptom of fatigue (Cardoso et al., 2020; Greenlee et al., 2017), and MBSR was recommended by one of the CPGs (Cardoso et al., 2020), with a high LoE (Level I); however, neither of the included CPGs provided sufficient details about the doses of their interventions. It was highlighted that some of the CPGs (Cardoso et al., 2020; Greenlee et al., 2017; Sisler et al., 2016) that recommended interventions for reducing the symptom of fatigue did not report an LoE.

3.3.3 Pain

Two CPGs (Runowicz et al., 2016; Sisler et al., 2016), analysed with a high LoE (Level I), recommended applying physical activity to reduce pain. Nevertheless, these two guidelines did not specify the forms, duration, and frequency of the physical activities. Music therapy (after

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surgery) and hypnosis (after surgery) was considered for pain relief in one of the CPGs (Greenlee et al., 2017); however, the GoR presented by this CPG was Grade C (low).

3.3.4 Breast cancer-related lymphedema

Three CPGs recommended physiotherapy to reduce breast cancer-related lymphedema (BCRL) (Cardoso et al., 2019; Davies et al., 2020; Runowicz et al., 2016), while only one guideline (Davies et al., 2020) specified progressive resistance training (PRT) as a safe practice at least one month after surgery. For example, Davies et al. (2020) mentioned one RCT that applied supervised PRT to women with breast cancer for the first 20 weeks, followed by 30 weeks of self-managed resistance exercises (Ammitzbøll et al., 2019), but the RCT did not provide any evidence that PRT prevented lymphedema, rather, the results validated the safety of PRT. Davies et al. (2020) also recommended that aerobic exercise should be offered to women who have BCRL (Stage 0-III), with a high or medium LoE. For example, patients performed aquatic exercises in a proximal-to-distal sequence for 45 minutes in a 1.2 meter pool at 32 to 33 degrees Celsius while integrating self-massage and diaphragmatic breathing, and the frequency was once every week (Tidhar & Katz-Leurer, 2010). Although this protocol demonstrated a minor reduction in BCRL, a long-term effect was not shown at 12 weeks follow-up. In addition, two CPGs (Runowicz et al., 2016; Sisler et al., 2016) suggested weight management to reduce the risk of BCRL, but the specific amount of weight a patient should aim to lose was not reported. It is noteworthy that the LoE found in the two CPGs was low or very low (Level III or below).

3.3.5 Other symptoms

Only one of the included CPGs (Greenlee et al., 2017) considered the use of self-acupressure and relaxation to a moderate degree (Grade B and Grade C) to control chemotherapy-induced nausea and vomiting (CINV) in addition to drug treatment. The evidence from one review and one RCT demonstrated the effectiveness of Neiguan acupoint (P6) acupressure using a wristband on both arms to alleviate CINV (Lee et al., 2008; Noroozinia et al., 2013). Only one CPG (Runowicz et al., 2016) recommended the application of physical activity to lessen the neuropathies caused by the breast cancer itself or the surgery/chemotherapy treatments received, and the LoE was Level IA (high). Nevertheless, the form, duration, and frequency of physical activity was not reported. With regards to sleep disturbance, one CPG (Greenlee et al., 2017) reported that yoga should be considered to improve symptoms. In addition, another CPG (Reese et al., 2017), without reporting the LoE and GoR, suggested that relaxation training should be offered. One CPG with a low LoE (Kaplan et al., 2020) recommended physical activity to alleviate to a moderate degree vasomotor/hot flashes presented by breast cancer patients, such as exercise or yoga; in addition, this same guideline also recommended that hypnosis and relaxation therapy might be two promising approaches for reducing vasomotor/hot flashes based on limited research evidence.

3.3.6 Quality of life

Regarding the enhancement of QoL among breast cancer survivors, regular exercise or sports was recommended, with a high LoE (Level I), by one CPG (Cardoso et al., 2020), and the duration and frequency was equivalent to three to five hours of moderate walking every week. Meditation, in particular MBSR, and yoga (Lyengar, Patanjali's, Pranayama, or integrated yoga

programme) were recommended as approaches to improve QoL by two CPGs (Cardoso et al., 2020; Greenlee et al., 2017), with the SoE from RCTs, systematic reviews, and meta-analysis. In addition, one of the CPGs (Cardoso et al., 2020) recommended the application of hypnosis to improve QoL, with a high LoE (Level I), while the other CPG (Greenlee et al., 2017) recommended qigong to enhance QoL as well as stress management based on the evidence of seven trials; nevertheless, there were conflicting results reported in the trials. However, the two CPGs SoE and the sample sizes were fairly small.

3.3.7 Risk of recurrence

Two CPGs (Alliance, 2018; de la Pena et al., 2019) contemplated physical activity and exercise to reduce the risk of recurrence of breast cancer; however, both CPGs presented either a medium or low LoE. The reduction of the likelihood of recurrence when practicing the weight management approach produced controversy in different CPGs. Three guidelines (Alliance, 2018; Barnadas et al., 2018; de la Pena et al., 2019), with a medium LoE, recommended weight loss to reduce the risk of recurrence, while one guideline (Burstein et al., 2019) suggested that weight loss did not affect the risk of recurrence of breast cancer; however, that guideline reported neither LoE nor GoR.

3.3.8 Health promotion

Five self-managed non-pharmacological approaches were recommended for health promotion in breast cancer survivors, including weight management, physical activity, nutrition, alcohol limitation, and smoking cessation **(Table 5)**. Weight management, in the form of limited high-calorie beverages and foods, was recommended by one CPG (Runowicz et al., 2016). There was clear consensus regarding the benefits of physical activity for breast cancer survivors, with five CPGs recommending it (Barnadas et al., 2018; Cardoso et al., 2019; Reese et al., 2017; Runowicz et al., 2016; Sisler et al., 2016). The duration and frequency were 75 minutes of vigorous or 150 minutes of moderate aerobic exercise every week. The LoE presented by these five CPGs was high (Level I). A balanced diet, including high amounts of vegetables, fresh fruit, and legumes, as well as reduced processed foods and red meat and low amounts of saturated fats, was commonly recommended by four CPGs (Barnadas et al., 2018; Cardoso et al., 2019; Runowicz et al., 2016; Sisler et al., 2016), with a high LoE (Level I). Three CPGs (Barnadas et al., 2018; Runowicz et al., 2016; Sisler et al., 2016) suggested limited alcohol consumption of 1 unit or 20g per day; however, the LoE reported by those CPGs was low. Smoking cessation was recommended by two CPGs (Runowicz et al., 2016; Sisler et al., 2016), with a high LoE (Level I).

4. DISCUSSION

This review systematically appraised the quality of 14 published CPGs and further clarified and synthesised the evidence bases regarding self-managed non-pharmacological interventions for breast cancer survivors. It was vital to synthesise the results from the CPGs in order to offer a precise evaluation of what evidence bases were available. The summarised evidence can be utilised by healthcare professionals to guide breast cancer patients in applying self-managed strategies to manage their long-term symptoms.

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4.1 Quality Assessment of the Clinical Practice Guidelines

This review highlighted that the quality of the CPGs in the non-pharmacological breast cancer interventions had much room for improvement, which was particularly obvious in the "applicability" and "rigour of development" domains in the AGREE II tool. It was reported that the median scores of the "scope and purpose" domain for most of the CPGs were > 70%, indicating that a majority of them had clear purposes for guideline development. In contrast, the "applicability" domain had the lowest median scores, suggesting that the facilitation of and the barriers to the CPGs' implementation were not appropriately addressed. In order to facilitate the implementation of the CPGs, some barrier analysis and/or pilot studies should be conducted to identify the barriers to their implementation (Lei et al., 2017). In addition, engaging end-users and other stakeholders (e.g., patients, patient advocacy, policymakers, etc.) in the CPGs' development of non-pharmacological interventions for breast cancer survivors could help to enhance the incorporation of CPGs and to ensure that the interventions and therapies are sustainable and clinically feasible (Schofield & Chambers, 2015).

Regarding the "rigour of development" domain, this review found that the majority of the CPGs did not use a systematic approach in the formulation of the guidelines, and the dearth of systematic review methodologies for the synthesis of evidence was robust. Therefore, more attention is needed to address these deficiencies. A systematic review approach should be used to identify relevant evidence and to sufficiently describe the methodologies for developing the recommendations. In addition, the CPGs update frequency varied, with only approximately half of the guidelines indicating schedules for updating their guidelines. Scientific evidence will have advanced much quicker than the scheduled updates of the guidelines; hence, more timely updates underpinned by the latest evidence would enhance the implementation and acceptance of these CPGs (Maes-Carballo et al., 2020).

4.2 Content Analysis of the Clinical Practice Guidelines

Although many CPGs have been developed for breast cancer diagnosis and treatment, few CPGs have addressed non-pharmacological interventions for breast cancer survivors (Runowicz et al., 2016). Due to the significant heterogenous LoE presented in the included CPGs, the majority of the evidence bases was not adequate to warrant a strong recommendation for the effectiveness of the self-managed non-pharmacological interventions in various clinical outcomes. Physical activity, particularly in the form of regular physical exercise, was the only core self-managed non-pharmacological intervention for psychological and physical symptom management recommended in all 14 of the included CPGs. However, the form, duration, and frequency of the different physical activities were not adequately described nor were the optimal strategies to tailor interventions for different populations with specific needs well understood.

Similarly, some evidence bases supported the application of other self-managed non-pharmacological interventions, such as meditation, relaxation, stress management, music therapy, yoga, massage, and acupressure, for breast cancer survivors. Nevertheless, a clear understanding of which specific modality of each intervention was effective and acceptable to breast cancer survivors was lacking. Rather, most of the recommendations, such as yoga,

meditation, relaxation, etc., were largely deemed possible self-management strategies for breast cancer survivors given the current limitations, such as a low LoE and inconsistency in the GoR of the evidence bases. Further, some interventions, such as qigong and stress management, for reducing clinical symptoms were demonstrated as effective in trial settings only; however, few evidence bases of these interventions were successfully translated to a wide range of populations.

Current evidence bases of the included CPGs supported the efficacy of physical activity, weight management, nutrition, limited alcohol consumption, and smoking cessation in improving breast cancer survivorship outcomes in the "health promotion" domain. Nevertheless, the quality of the evidence was inconsistent or poor for particular topics within the "health promotion" domain, such as losing weight and a reduction/cessation of alcohol and tobacco consumption. For example, although weight loss was recommended by some guidelines, there were some ambiguities in terms of the specific amount of weight that breast cancer survivors should lose. Teras et al. (2020) showed that in women aged 50 years and over, women with sustained weight loss (at least 2 kg) had a lower risk of breast cancer, and those who lost at least 9 kg had the lowest risk, compared with women with a stable weight.

4.3 Implications for Future Research and Clinical Practice

Clinicians might consider using the results of this review as a potential guide in choosing high-quality guidelines to inform the self-managed non-pharmacological interventions and therapies that they provide to patients with breast cancer. For example, when designing an intervention programme to alleviate fatigue in breast cancer survivors, physical activity/exercise with a duration and frequency equal to three to five hours of moderate walking per week should be considered and adjusted based on the breast cancer survivors' actual condition. In addition, the results of the quality appraisal using the AGREE II assessment tool can help guideline developers to determine which domain needs to be further strengthened. In particular, the domain of "applicability" should be addressed adequately. To enhance overall quality, the development of CPGs should take the AGREE II's "rigor of development" domain into account and be informed by systematic reviews of the evidence.

The review findings also provided some directions for further research. This study emphasised the inconsistency of evidence bases for some of the recommendations in the analysed CPGs presented. Hence, it is necessary to conduct more large-scale and rigorously designed RCTs with high quality to consolidate the evidence bases and further define the effectiveness of various non-pharmacological interventions and therapies whose evidence bases are not adequately strengthened or are contradictory, such as the effectiveness of qigong and stress management on the QoL of breast cancer survivors. In addition, given the current person-centred care approach, considering the views of patients with breast cancer on the flexibility and usefulness of the CPGs to ensure that the non-pharmacological interventions and therapies are designed to meet their needs is another area for future research. The review findings also encourage future research to explore strategies to support the best translation of various non-pharmacological interventions in clinical practice, for example, some strategies to support clinicians' cognitive changes in adhering to guidelines in order to provide evidence-based practices (Harold, 2019).

4.4 Study Limitations

This review has some limitations. Only guidelines published in English were included, so non-English-language guidelines might have been missed; thus, selection bias was possible. One presumed limitation of this review could be the subjective process of assessment, which might have had an impact on the rating of the items, the global guideline appraisal, and the degree of the recommendations. However, in this review, the ICC was > 98%, indicating excellent reviewer agreement.

5. Conclusion

This review highlighted that the majority of the CPGs for breast cancer survivorship insufficiently followed quality assessment tools. Focusing on rigour in the development of the CPGs and the recommendations of the self-managed non-pharmacological interventions with a high level of evidence in clinical settings would facilitate the health outcomes of breast cancer survivors. Given the consensus of physical exercise in terms of the LoE and GoR reported in the included CPGs, it is recommended that clinicians design some self-managed physical exercises for symptom management. Meditation, relaxation, stress management, music therapy, yoga, massage, and acupressure should also be considered as promising self-managed pharmacological interventions and therapies.

Authors' Contributions

JYT: conceptualisation, methodology, and manuscript revision; JXZ: conceptualisation, methodology, and manuscript drafting; TW: conceptualisation, methodology, review, and editing; HJZ: data analysis and manuscript revision; IZ: conceptualisation and manuscript revision; XLL: conceptualisation, methodology, review, and editing.

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Conflicts of Interest

None.

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Table 2. Characteristics of the included clinical practice guidelines

Name of CPG	Abbreviated Name	Developer	Year Published/ Updated	Publication in a Journal	Newly Developed	Country	Evidence Analysis	Quality Tool Referral
Advanced breast cancer: diagnosis and treatment (CG81) (Health & Excellence, 2017)	NICE (CG81)	NICE	2017	Not published	No	UK	Systematic review; consensus method among experts, including patient/carer	AGREE II
Early and locally advanced breast cancer: diagnosis and management (NG101) (Alliance, 2018)	NICE (NG101)	NICE	2018	Not published	No	UK	Systematic review; consensus method among experts, including patient/carer	AGREE II
Recommendations for the follow-up care of female breast cancer survivors (Barnadas et al., 2018)	Barnadas et al. (2018)	SEOM, SEMERGEN, SEMFYC, SEMG, SEGO, SEOR, SESPM, SEC	2018	Clinical and Translational Oncology	Yes	Spain	Consensus method, not specified	Not reported
Estimating the benefits of therapy for early-stage breast cancer: the St. Gallen International Consensus Guidelines for the primary therapy of early breast cancer 2019 (Burstein et al., 2019)	St. Gallen International Consensus	St. Gallen	2019	Annals of Oncology	No	Europe	Nominal group technique	Not reported
SEOM clinical guidelines in early-stage breast cancer (de la Pena et al., 2019)	SEOM guideline	SEOM	2018	Clinical and Translational Oncology	No	Spain	Consensus method, not specified	Not reported
Early breast cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment, and follow-up (Cardoso et al., 2019)	ESMO (EBC)	ESMO	2019	Annals of Oncology	No	Europe	Review	Not reported
ESO-ESMO 4th International Consensus Guidelines for Breast	ESO-ESMO (BCY4)	ESO, ESMO	2020	Annals of Oncology	No	Europe	Consensus method, expert panel review,	Not reported

Cancer in Young Women (BCY4) (Paluch-Shimon et al., 2020)							including patient advocates	
5th ESO-ESMO International Consensus Guidelines for Advanced Breast Cancer (ABC 5) (Cardoso et al., 2020)	ESO-ESMO (ABC 5)	ESO, ESMO	2020	Annals of Oncology	No	Europe	Nominal group technique, including patient advocates	Not reported
Interventions for Breast Cancer-Related Lymphedema: Clinical Practice Guideline from the Academy of Oncologic Physical Therapy of APTA (Davies et al., 2020)	APTA guideline	APTA	2020	Physical Therapy	Yes	US	Review	Not reported
Clinical Practice Guidelines on the Evidence-based Use of Integrative Therapies During and After Breast Cancer Treatment (Greenlee et al., 2017)	SIO guideline	SIO	2017	CA: A Cancer Journal for Clinicians	No	US	Systematic review	Not reported
ONS Guidelines™ for Cancer Treatment-related Hot Flashes in Women With Breast Cancer and Men With Prostate Cancer (Kaplan et al., 2020)	ONS guideline	ONS	2020	Oncology Nursing Forum	Yes	US	Systematic review, consensus method among experts, including patient representative	Not reported
Practice guidelines for psychological interventions in the rehabilitation of patients with oncological disease (breast, prostate, or colorectal cancer) (Reese et al., 2017)	Reese et al. (2017)	University of Freiburg	2016	Psycho-Oncology	Yes	Germany	Review, consensus method (expert panel), including patients (focus group)	Not reported
American Cancer Society (ACS)/American Society of Clinical Oncology (ASCO) Breast Cancer Survivorship Care Guideline (Runowicz et al., 2016)	ACS-ASCO guideline	ACS, ASCO	2016	CA: A Cancer Journal for Clinicians	Yes	USA	Systematic review, consensus method (expert workshop), including a patient	Not reported
Follow-up after treatment for breast cancer: Practical guide to	Sisler et al. (2016)	College of Family Physicians	2016	Canadian Family Physician	Yes	Canada	Review	Not reported

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survivorship care for family physicians (Sisler et al., 2016)								

Note: NICE=National Institute for Health and Care Excellence; UK=United Kingdom; AGREE II=Appraisal of Guidelines for Research and Evaluation, second edition; SEOM=Sociodad Española de Oncolgía Médica; ESMO=European Society for Medical Oncology; EBC=early breast cancer; ESO=European School of Oncology; ABC=advanced breast cancer; APTA=American Physical Therapy Association; US=United States; SIO=Society of Interventional Oncology; ONS=Oncology Nursing Society.

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Table 3. Scores of the domains and overall assessment of the guidelines according to the AGREE II instrument

Title of Guideline	Domains (%)							Overall Quality	Degree of Recom-mendation	ICC
	Scope and Purpose	Stakeholder Involvement	Rigor of Development	Clarity and Presentation	Applicability	Editorial Independence	Average			
NICE (CG81) (Health & Excellence, 2017)	100	100	92.2	88.9	91.7	89.6	93.73	High	R	0.995
NICE (NG101) (Alliance, 2018)	100	100	92.7	88.9	91.7	89.6	93.82	High	R	0.993
Barnadas et al. (2018) (Barnadas et al., 2018)	70.8	25.0	50.0	31.9	12.5	70.8	43.50	Low	NR	0.989
St. Gallen International Consensus (Burstein et al., 2019)	69.4	61.1	19.8	38.8	19.7	62.5	45.22	Moderate	RM	0.980
ESMO (EBC) 2019 (Cardoso et al., 2019)	73.6	66.7	44.8	41.7	45.8	66.7	56.55	Moderate	RM	0.970
ESO-ESMO (ABC5) 2020(Cardoso et al., 2020)	87.5	70.8	42.7	79.2	55.2	68.8	67.37	Moderate	RM	0.956
ESO-ESMO (BCY4) 2020(Paluch-Shimon et al., 2020)	83.3	72.2	63.5	69.4	53.1	68.8	68.38	Moderate	RM	0.973
APTA guideline (Davies et al., 2020)	95.8	68.1	79.2	81.9	30.2	68.8	70.67	Moderate	RM	0.993
SEOM 2018 (de la Pena et al., 2019)	69.4	36.1	18.2	47.2	12.5	33.3	36.12	Low	NR	0.986
SIO guideline (Greenlee et al., 2017)	97.2	76.4	89.6	97.2	77.1	91.7	88.20	High	R	0.983
ONS guideline (Kaplan et al., 2020)	88.9	88.9	77.1	83.3	77.1	91.7	84.50	High	R	0.991
Reese et al. (2017) (Reese et al., 2017)	83.3	83.3	53.1	44.4	49.0	66.7	63.30	Moderate	RM	0.985
ACS-ASCO guideline (Runowicz et al., 2016)	93.1	93.1	98.0	87.5	83.3	91.7	91.12	High	RM	0.992
Sisler et al. (2016)	72.2	58.3	51.6	45.8	15.6	50.0	48.92	Moderate	RM	0.994

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Average	84.61	71.43	62.32	66.15	51.04	72.19	67.96	–	–	0.980

Note: ICC=intraclass correlation coefficient**;** NICE=National Institute for Health and Care Excellence; R=recommended; NR=not recommended; RM=recommended with modifications; ESMO=European Society for Medical Oncology; EBC=early breast cancer; ESO=European School of Oncology; ABC=advanced breast cancer; APTA=American Physical Therapy Association; SEOM=Sociodad Española de Oncolgía Médica; SIO=Society of Interventional Oncology; ONS=Oncology Nursing Society; ACS=American Cancer Society; ASCO=American Society of Clinical Oncology.

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Table 4. Non-pharmacological interventions and therapies recommended by the included clinical practice guidelines

Clinical Outcomes	Recommended Non-pharmacological Interventions/Therapies	Guidelines	Grading System Used
Anxiety/depression/ distress	**Meditation** **Form:** MBSR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Hypnosis **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Yoga **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Meditation **Form:** "MBSR Program/Mindful Movement Program/brain wave vibration meditation/Tibetan sound meditation/cognitively based compassion training/Transcendental Meditation"* (Greenlee et al., 2017, p. 205) **Duration/Frequency:** NR **LoE/GoR:** A/recommended **SoE:** 10 RCTs and several systematic reviews and meta-analyses	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Music therapy **Form:** Passive or active music therapy **Duration/Frequency:** NR **LoE/GoR:** B/recommended **SoE:** 5 RCTs and 2 systematic reviews and meta-analysis	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Stress management–for anxiety **Form:** Self-administered/cognitive-behavioural stress-management **Duration/Frequency:** NR **LoE/GoR:** B/recommended **SoE:** 4 RCTs and 2 systematic reviews	SIO 2017	Modified version of the US Preventive Services Task Force Grading System

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	Yoga **Form:** Lyengar/Patanjali's/Pranayama **Duration/Frequency:** NR **LoE/GoR:** B/recommended **SoE:** 15 RCTs and several systematic reviews and meta-analyses	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Relaxation-for depression **Form:** PMR/guided imagery/visualisation techniques/autogenic training **Duration/Frequency:** NR **LoE/GoR:** A/recommended **SoE:** 6 RCTs and several systematic reviews and meta-analyses	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Massage **Form:** "classic massage (rhythmic stroking, kneading, and acupressure at select areas on the body)"** (Greenlee et al., 2017, p. 212) **Duration/Frequency:** 30-minute massages biweekly, for total of 5 weeks or one time, 40 minutes **LoE/GoR:** B/recommended **SoE:** 6 RCTs and several systematic reviews and meta-analyses	SIO 2017	Modified version of the US Preventive Services Task Force grading system
Chemotherapy-induced nausea and vomiting	**Acupressure** **Form:** Self-acupressure **Duration/Frequency:** NR **LoE/GoR:** B/recommended **SoE:** 3 RCTs	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Relaxation **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** C/considered **SoE:** 2 trials	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
Fatigue	**Exercise programme** **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** NR/recommended **SoE:** High-quality systematic review and meta-analysis	NICE 2017	SIGN criteria
	Exercise **Form:** NR **Duration/Frequency: "**equivalent to 3-5 hours of moderate walking per week" *** (Cardoso et al., 2020, p. 1643) **LoE/GoR:** I/A (strongly recommended) SoE: NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System

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	Meditation **Form:** MBSR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Hypnosis **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Yoga **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Physical activity **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/recommended **SoE:** Several RCTs	ACS-ASCO 2016	Not classified
	Physical activity **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/recommended **SoE:** NR	Sisler et al. (2016)	Not classified
	Hypnosis **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** C/considered **SoE:** 2 trials	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Yoga **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** C/considered **SoE:** 3 trials	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Yoga **Form:** NR	Sisler et al. (2016)	Not specified

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	Duration/Frequency: NR **LoE/GoR: I**/suggested **SoE:** NR		
Lymphedema	**Physiotherapy** **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/A (strongly recommended) **SoE:** Meta-analyses of RCTs	ESMO (EBC)	Infectious Diseases Society of America–United States Public Health Service Grading System
	Physiotherapy **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** 0/recommended **SoE:** NR	ACS-ASCO 2016	Not classified
	Physiotherapy **Form:** Progressive resistance training & aerobic exercise programme **Duration/Frequency:** Aerobic exercise program: **"**pole walking for 30-60 minutes, 3-5 times weekly for 8 weeks; proximal to distal exercise for 45 minutes while integrating self-massage and diaphragmatic breathing and weekly in a 1.2-m pool at 32◦C-33◦C."**** (Davies et al., 2020, p. 1174) **LoE/GoR:** I-II/A (strongly recommended) **SoE:** RCTs	Davies et al. (2020)	Oxford Centre for Evidence-Based Medicine–levels of evidence
	Weight management–risk of lymphedema **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** 0/recommended **SoE:** NR	ACS-ASCO 2016	Not classified
	Weight management–risk of lymphedema **Form:** NR **Duration/Frequency:** NR **LoE/GoR: III**/NR **SoE:** NR	Sisler et al. (2016)	Not classified
Pain	**Healing touch–after chemotherapy** **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** C/considered **SoE:** A single, large trial	SIO 2017	Modified version of the US Preventive Services Task Force Grading System

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	Music therapy–after surgery **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** C/considered **SoE:** 2 trials	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Hypnosis–after surgery **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** C/considered **SoE:** 2 trials	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Physical activity **Form:** NR **Duration/Frequency:** NR **LoE/GoR: I/**recommended **SoE:** NR	Sisler et al. (2016)	Not classified
	Physical activity **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/recommended **SoE:** NR	Sisler et al. (2016)	Not classified
	Physical activity **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/recommended **SoE:** Many RCTs, meta-analyses of RCTs	ACS-ASCO 2016	Not classified
Neuropathy	**Physical activity** **Form:** NR **Duration/Frequency:** NR **LoE/GoR: IA/**recommended **SoE:** NR	ACS-ASCO 2016	Not classified
Quality of life	**Regular exercise/sport** **Form:** NR **Duration/Frequency: "**equivalent to 3-5 hours of moderate walking per week"**** * (Cardoso et al., 2020, p. 1643) **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System

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	Meditation **Form:** MBSR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Hypnosis **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Yoga **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** I/B (generally recommended) **SoE:** NR	ESO-ESMO (ABC5) 2020	Infectious Diseases Society of America–United States Public Health Service Grading System
	Meditation **Form:** "MBSR program/Mindful Movement Program/brain wave vibration meditation/Tibetan sound meditation/cognitively based compassion training/Transcendental Meditation" ****** (Greenlee et al., 2017, p. 215) **Duration/Frequency:** NR **LoE/GoR:** A/recommended **SoE:** 7 RCTs and several systematic reviews and meta-analyses	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Yoga **Form:** Lyengar/Patanjali's/Pranayama/integrated yoga **Duration/Frequency:** NR **LoE/GoR:** B/recommended **SoE:** 12 RCTs and several systematic reviews and meta-analyses	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Qigong **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** NR/C (considered) **SoE:** NR	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Stress management **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** NR/C (considered) **SoE:** NR	SIO 2017	Modified version of the US Preventive Services Task Force Grading System

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Sleep disturbance	**Yoga** **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** C/considered **SoE:** 5 trials	SIO 2017	Modified version of the US Preventive Services Task Force Grading System
	Relaxation training **Form**: NR **Duration/Frequency:** NR **LoE/GoR:** NR **SoE:** NR	Reese et al. (2017)	No grading system
Vasomotor/hot flashes	**Physical activity** **Form:** Exercise/yoga **Duration/Frequency:** 8 to 12 weeks, and follow-up 3 to 6 months varied **LoE/GoR: L**ow/conditional **SoE:** 3 trials	ONS 2020	GRADE
Risk of recurrence	**Physical activity** **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** NR **SoE:** Low-quality evidence from 2 cohort studies	NICE 2018	SIGN criteria
	Weight management **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** NR **SoE:** Moderate-quality evidence from 1 RCT	NICE 2018	SIGN criteria
	Lifestyle change **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** NR **SoE:** NR	St. Gallen 2019	Not classified
	Physical exercise **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** II/A (strongly recommended) **SoE:** NR	SEOM 2018	Infectious Diseases Society of America–United States Public Health Service Grading System
	Weight management **Form:** NR	SEOM 2018	Infectious Diseases Society of America–United States

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	Duration/Frequency: NR **LoE/GoR: II/A** (strongly recommended) **SoE:** NR		Public Health Service Grading System

Note: MBSR=mindfulness-based stress reduction; NR=not reported; LoE=level of evidence; GoR=grade of recommendation; SoE=strength of evidence; ESO=European School of Oncology; ESMO=European Society for Medical Oncology; ABC=advanced breast cancer; SIO=Society of Interventional Oncology; US=United States; RCT=randomised controlled trial; NICE=National Institute for Health and Care Excellence; SIGN=Scottish Intercollegiate Guidelines Network; ACS=American Cancer Society; ASCO=American Society of Clinical Oncology; ONS=Oncology Nursing Society; GRADE=Grading of Recommendations Assessment, Development, and Evaluation; SEOM=Sociodad Española de Oncolgía Médica.

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Table 5. Health promotion for breast cancer survivors per the included clinical practice guidelines

	Recommendations	Guidelines	Grading System Used
Weight management	**Form: L**imited high-calorie foods and beverages intake **Duration/Frequency:** NR **LoE/GoR:** IA, III/recommended **SoE:** NR	ACS-ASCO 2016	Not classified
Physical activity	**Form:** Aerobic exercise **Duration/Frequency:** "150 min of moderate or 75 min of vigorous aerobic exercise per wk" (Runowicz et al., 2016, p. 64) **LoE/GoR:** I, IA/recommended **SoE:** NR **Form:** Strength training exercises **Duration/Frequency:** at least 2d per wk **LoE/GoR:** IA/recommended **SoE:** NR	ACS-ASCO 2016	Not classified
	Form: Vigorous physical activity **Duration/Frequency:** 150 min per week **LoE/GoR:** NR **SoE:** systematic review	Barnadas et al. (2018)	No grading system
	Form: Strength training exercises and vigorous physical activity **Duration/Frequency:** "physical activity: 150 minutes of moderate or 75 minutes of vigorous physical activity per week; strength training exercises: 2 d/wk" (Sisler et al., 2016, p. 809) **LoE/GoR:** I/recommended **SoE:** systematic review	Sisler et al. (2016)	Not classified
	Regular exercise **Form:** NR **Duration/Frequency:** NR **LoE/GoR:** II/B (general recommended) **SoE:** NR	ESMO (EBC)	Infectious Diseases Society of America–United States Public Health Service Grading System
	Physical exercise	Reese et al. (2017)	No grading system

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Nutrition	**A balanced diet**	Reese et al. (2017)	No grading system
	Form: nutritional counselling **Duration/Frequency:** NR **LoE/GoR:** III/B (generally recommended) **SoE:** NR	ESMO (EBC)	Infectious Diseases Society of America–United States Public Health Service Grading System
	Form: "high in vegetables, fruits, whole grains, and legumes; low in saturated fats" (Runowicz et al., 2016, p. 65) **Duration/Frequency:** NR **LoE/GoR:** IA, III/recommended **SoE:** NR	ACS-ASCO 2016	Not classified
	Form: "low-fat diet; high in fresh fruits, vegetables, and legumes (at least two pieces of fruit per day); lower their intake of red meat (to 1-2 times per week) and processed meats; increase consumption of blue fish, olive oil use and consume dairy products" (Barnadas et al., 2018, p. 691)	Barnadas et al. (2018)	No grading system
	Form: "high in vegetables, fruits, whole grains, and legumes; low in saturated fats and limited in processed and red meats" (Sisler et al., 2016, p. 809) **Duration/Frequency:** NR **LoE/GoR:** I/recommended **SoE:** NR	Sisler et al. (2016)	Not classified
Alcohol limitation	**Form:** "abstain from drinking more than 20g of alcohol per day" (Barnadas et al., 2018, p. 691) **LoE/GoR:** NR **SoE:** NR	Barnadas et al. (2018)	No grading system
	Limited alcohol consumption **LoE/GoR:** 0/NR **SoE:** NR	ACS-ASCO 2016	Not classified
	Limit alcohol to 1 unit/day **LoE/GoR:** III/recommended **SoE:** NR	Sisler et al. (2016)	Not classified
	Avoid smoking **LoE/GoR:** I/NR	ACS-ASCO 2016	Not classified

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Smoking cessation	**SoE:** NR		
	Smoking cessation **LoE/GoR:** I/recommended **SoE:** NR	Sisler et al. (2016)	Not classified

Note: NR=not reported; LoE=level of evidence; GoR=grade of recommendation; SoE=stremgth of evidence; ACS=American Cancer Society; ASCO=American Society of Clinical Oncology; ESMO=European Society for Medical Oncology EBC=early breast cancer.

References

Ahmad, A. (2019). Breast cancer statistics: recent trends. *Breast Cancer Metastasis and Drug Resistance*, 1-7.

Alliance, N. G. (2018). *Early and locally advanced breast cancer: diagnosis and management*. National Institute for Health and Care Excellence.

Ammitzbøll, G., Johansen, C., Lanng, C., Andersen, E. W., Kroman, N., Zerahn, B., Hyldegaard, O., Wittenkamp, M. C., & Dalton, S. O. (2019). Progressive resistance training to prevent arm lymphedema in the first year after breast cancer surgery: results of a randomized controlled trial. *Cancer, 125*(10), 1683-1692.

Barnadas, A., Algara, M., Cordoba, O., Casas, A., Gonzalez, M., Marzo, M., Montero, A., Muñoz, M., Ruiz, A., Santolaya, F., & Fernandez, T. (2018, Jun). Recommendations for the follow-up care of female breast cancer survivors: a guideline of the Spanish Society of Medical Oncology (SEOM), Spanish Society of General Medicine (SEMERGEN), Spanish Society for Family and Community Medicine (SEMFYC), Spanish Society for General and Family Physicians (SEMG), Spanish Society of Obstetrics and Gynecology (SEGO), Spanish Society of Radiation Oncology (SEOR), Spanish Society of Senology and Breast Pathology (SESPM), and Spanish Society of Cardiology (SEC). *Clin Transl Oncol, 20*(6), 687-694. https://doi.org/10.1007/s12094-017-1801-4

Boland, L., Bennett, K., & Connolly, D. (2018). Self-management interventions for cancer survivors: a systematic review. *Supportive Care in Cancer, 26*(5), 1585-1595.

Brouwers, M. C., Kerkvliet, K., Spithoff, K., & Consortium, A. N. S. (2016). The AGREE Reporting Checklist: a tool to improve reporting of clinical practice guidelines. *bmj, 352*.

Burstein, H. J., Curigliano, G., Loibl, S., Dubsky, P., Gnant, M., Poortmans, P., Colleoni, M., Denkert, C., Piccart-Gebhart, M., & Regan, M. (2019). Estimating the benefits of therapy for early-stage breast cancer: the St. Gallen International Consensus Guidelines for the primary therapy of early breast cancer 2019. *Annals of Oncology, 30*(10), 1541-1557.

Cancer Council. (2021). https://www.cancer.org.au/cancer-information/types-of-cancer/breast-cancer

Cardoso, F., Kyriakides, S., Ohno, S., Penault-Llorca, F., Poortmans, P., Rubio, I. T., Zackrisson, S., Senkus, E., & Comm, E. G. (2019, Aug). Early breast cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up [Article]. *Annals of Oncology, 30*(8), 1194-1220. https://doi.org/10.1093/annonc/mdz173

Cardoso, F., Paluch-Shimon, S., Senkus, E., Curigliano, G., Aapro, M. S., André, F., Barrios, C. H., Bergh, J., Bhattacharyya, G. S., Biganzoli, L., Boyle, F., Cardoso, M. J., Carey, L. A., Cortés, J., El Saghir, N. S., Elzayat, M., Eniu, A., Fallowfield, L., Francis, P. A., Gelmon, K., Gligorov, J., Haidinger, R., Harbeck, N., Hu, X., Kaufman, B., Kaur, R., Kiely, B. E., Kim, S. B., Lin, N. U., Mertz, S. A., Neciosup, S., Offersen, B. V., Ohno, S., Pagani, O., Prat, A., Penault-Llorca, F., Rugo, H. S., Sledge, G. W., Thomssen, C., Vorobiof, D. A., Wiseman, T., Xu, B., Norton, L., Costa, A., & Winer, E. P. (2020, Dec). 5th ESO-ESMO international consensus guidelines for advanced breast cancer (ABC 5). *Ann Oncol, 31*(12), 1623-1649. https://doi.org/10.1016/j.annonc.2020.09.010

Chandler, S. K., Robins, J. L., & Kinser, P. A. (2019). Nonpharmacologic Interventions for the Self-Management of Anxiety in Parkinson's Disease: A Comprehensive Review. *Behav Neurol, 2019*, 8459579-8459579. https://doi.org/10.1155/2019/8459579

Cheng, K., Wong, W., & Koh, C. (2016). Unmet needs mediate the relationship between symptoms and quality of life in breast cancer survivors. *Supportive Care in Cancer, 24*(5), 2025-2033.

Consortium, A. N. S. (2017). The AGREE II Instrument.[Hamilton, ON:]: AGREE Enterprise; 2017: https://www. agreetrust. org/wpcontent/uploads/2017/12/AGREE-II-Users-Manual-and-23-item-Instrument-2009. *Update*.

Cuthbert, C. A., Farragher, J. F., Hemmelgarn, B. R., Ding, Q., McKinnon, G. P., & Cheung, W. Y. (2019). Self-management interventions for cancer survivors: a systematic review and evaluation of intervention content and theories. *Psycho-Oncology, 28*(11), 2119-2140.

Davies, C., Levenhagen, K., Ryans, K., Perdomo, M., & Gilchrist, L. (2020, Jul 19). Interventions for Breast Cancer-Related Lymphedema: Clinical Practice Guideline From the Academy of Oncologic Physical Therapy of APTA. *Phys Ther, 100*(7), 1163-1179. https://doi.org/10.1093/ptj/pzaa087

de la Pena, F. A., Andres, R., Garcia-Saenz, J. A., Manso, L., Margeli, M., Dalmau, E., Pernas, S., Prat, A., Servitja, S., & Ciruelos, E. (2019, Jan). SEOM clinical guidelines in early stage breast cancer (2018) [Article]. *Clinical & Translational Oncology, 21*(1), 18-30. https://doi.org/10.1007/s12094-018-1973-6

Del-Rosal-Jurado, A., Romero-Galisteo, R., Trinidad-Fernández, M., González-Sánchez, M., Cuesta-Vargas, A., & Ruiz-Muñoz, M. (2020, Apr 24). Therapeutic Physical Exercise Post-Treatment in Breast Cancer: A Systematic Review of Clinical Practice Guidelines. *J Clin Med, 9*(4). https://doi.org/10.3390/jcm9041239

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107-115.

Foster, C., Calman, L., Richardson, A., Pimperton, H., & Nash, R. (2018). Improving the lives of people living with and beyond cancer: generating the evidence needed to inform policy and practice. *Journal of cancer policy, 15*, 92-95.

Greenlee, H., DuPont-Reyes, M. J., Balneaves, L. G., Carlson, L. E., Cohen, M. R., Deng, G., Johnson, J. A., Mumber, M., Seely, D., Zick, S. M., Boyce, L. M., & Tripathy, D. (2017, May-Jun). Clinical Practice Guidelines on the Evidence-Based Use of Integrative Therapies During and After Breast Cancer Treatment. *Ca-a Cancer Journal for Clinicians, 67*(3), 195-232. https://doi.org/10.3322/caac.21397

Halpern, M. T., Viswanathan, M., Evans, T. S., Birken, S. A., Basch, E., & Mayer, D. K. (2015). Models of cancer survivorship care: overview and summary of current evidence. *Journal of oncology practice, 11*(1), e19-e27.

Hammer, M. J., Ercolano, E. A., Wright, F., Dickson, V. V., Chyun, D., & Melkus, G. D. E. (2015). Self-management for adult patients with cancer: an integrative review. *Cancer Nursing, 38*(2), E10-E26.

Harold, M. (2019). The Research Translation Problem: A Modest Proposal: Enough with the EBP blame game. Effectively putting research into practice requires empathy from all those involved.

Health, N. I. f., & Excellence, C. (2017). *Advanced breast cancer: diagnosis and treatment*. National Institute for Health and Care Excellence (NICE).

Horton, S., Camacho Rodriguez, R., Anderson, B. O., Aung, S., Awuah, B., Delgado Pebe, L., Duggan, C., Dvaladze, A., Kumar, S., & Murillo, R. (2020). Health system strengthening: Integration of breast cancer care for improved outcomes. *Cancer, 126*, 2353-2364.

Kaplan, M., Ginex, P. K., Michaud, L. B., Fernández-Ortega, P., Leibelt, J., Mahon, S., Rapoport, B. L., Robinson, V., Maloney, C., Moriarty, K. A., Vrabel, M., & Morgan, R. L. (2020). ONS Guidelines™ for Cancer Treatment-Related Hot Flashes in Women With Breast Cancer and Men With Prostate Cancer. *Oncology nursing forum, 47*(4), 374-399. https://doi.org/10.1188/20.ONF.374-399

Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of chiropractic medicine, 15*(2), 155-163.

Lee, J., Dodd, M., Dibble, S., & Abrams, D. (2008). Review of acupressure studies for chemotherapy-induced nausea and vomiting control. *Journal of pain and symptom management, 36*(5), 529-544.

Lei, X., Liu, F., Luo, S., Sun, Y., Zhu, L., Su, F., Chen, K., & Li, S. (2017, Nov 14). Evaluation of guidelines regarding surgical treatment of breast cancer using the AGREE Instrument: a systematic review. *BMJ Open, 7*(11), e014883. https://doi.org/10.1136/bmjopen-2016-014883

Liu, J., & Wang, J. (2020). Disability-Adjusted Life-Years (DALYs) for Breast Cancer and Risk Factors in 195 countries: Findings from Global Burden of Disease Study 2017. *medRxiv*.

Lyman, G. H., Greenlee, H., Bohlke, K., Bao, T., DeMichele, A. M., Deng, G. E., Fouladbakhsh, J. M., Gil, B., Hershman, D. L., & Mansfield, S. (2018). Integrative therapies during and after breast cancer treatment: ASCO endorsement of the SIO clinical practice guideline. *Journal of Clinical Oncology, 36*(25), 2647-2655.

Maes-Carballo, M., Mignini, L., Martín-Díaz, M., Bueno-Cavanillas, A., & Khan, K. S. (2020, Oct). Quality and reporting of clinical guidelines for breast cancer treatment: A systematic review. *Breast, 53*, 201-211. https://doi.org/10.1016/j.breast.2020.07.011

Noroozinia, H., Mahoori, A., Hasani, E., Gerami-Fahim, M., & Sepehrvand, N. (2013). The effect of acupressure on nausea and vomiting after cesarean section under spinal anesthesia. *Acta Medica Iranica*, 163-167.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., & Brennan, S. E. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *bmj, 372*.

Palesh, O., Scheiber, C., Kesler, S., Mustian, K., Koopman, C., & Schapira, L. (2018). Management of side effects during and post‐treatment in breast cancer survivors. *The breast journal, 24*(2), 167-175.

Paluch-Shimon, S., Cardoso, F., Partridge, A. H., Abulkhair, O., Azim, H. A., Bianchi-Micheli, G., Cardoso, M. J., Curigliano, G., Gelmon, K. A., Harbeck, N., Merschdorf, J., Poortmans, P., Pruneri, G., Senkus, E., Spanic, T., Stearns, V., Wengstrom, Y., Peccatori, F., & Pagani, O. (2020, Jun). ESO-ESMO 4th International Consensus Guidelines for Breast Cancer in Young Women (BCY4) [Article]. *Annals of Oncology, 31*(6), 674-696. https://doi.org/10.1016/j.annonc.2020.03.284

Reese, C., Weis, J., Schmucker, D., & Mittag, O. (2017). Development of practice guidelines for psychological interventions in the rehabilitation of patients with oncological disease (breast, prostate, or colorectal cancer): Methods and results. *Psycho-Oncology, 26*(10), 1513-1518. https://doi.org/10.1002/pon.4322

Richardson, J., Loyola-Sanchez, A., Sinclair, S., Harris, J., Letts, L., MacIntyre, N. J., Wilkins, S., Burgos-Martinez, G., Wishart, L., & McBay, C. (2014). Self-management interventions for chronic disease: a systematic scoping review. *Clinical rehabilitation, 28*(11), 1067-1077.

Runowicz, C. D., Leach, C. R., Henry, N. L., Henry, K. S., Mackey, H. T., Cowens-Alvarado, R. L., Cannady, R. S., Pratt-Chapman, M. L., Edge, S. B., Jacobs, L. A., Hurria, A., Marks, L. B., LaMonte, S. J., Warner, E., Lyman, G. H., & Ganz, P. A. (2016, Jan-Feb). American Cancer Society/American Society of Clinical Oncology Breast Cancer Survivorship Care Guideline. *CA Cancer J Clin, 66*(1), 43-73. https://doi.org/10.3322/caac.21319

Schofield, P., & Chambers, S. (2015). Effective, clinically feasible and sustainable: key design features of psycho-educational and supportive care interventions to promote individualised self-management in cancer care. *Acta Oncologica, 54*(5), 805-812.

Shimoi, T., Nagai, S. E., Yoshinami, T., Takahashi, M., Arioka, H., Ishihara, M., Kikawa, Y., Koizumi, K., Kondo, N., Sagara, Y., Takada, M., Takano, T., Tsurutani, J., Naito, Y., Nakamura, R., Hattori, M., Hara, F., Hayashi, N., Mizuno, T., Miyashita, M., Yamashita, N., Yamanaka, T., Saji, S., Iwata, H., & Toyama, T. (2020, May). The Japanese Breast Cancer Society Clinical Practice Guidelines for systemic treatment of breast cancer, 2018 edition. *Breast Cancer, 27*(3), 322-331. https://doi.org/10.1007/s12282-020-01085-0

Shneerson, C., Taskila, T., Holder, R., Greenfield, S., Tolosa, I., Damery, S., & Gale, N. (2015). Patterns of self-management practices undertaken by cancer survivors: variations in demographic factors. *European journal of cancer care, 24*(5), 683-694.

Simpson, L. K., Chin, S. N., East, J., Wilson, C. B., Copeland, J. E., Cornwall, D., Mitchell, D. I. G., Baker, A., Arscott, G., Bloomfield, D., Hall, D. E., Roberts, H. A., McBean, A., Medley, N., Stennett, M., Taylor-Houston, J., Thompson, R., Titus, I., Wilks, C., Williams, N. P., & Ying, B. (2019). Guidelines on Management of the Patient with Breast Cancer [Article]. *West Indian Medical Journal, 68*, 55-72. https://doi.org/10.7727/wimj.2018.198

Sisler, J., Chaput, G., Sussman, J., & Ozokwelu, E. (2016, Oct). Follow-up after treatment for breast cancer: Practical guide to survivorship care for family physicians. *Can Fam Physician, 62*(10), 805-811.

Smith, V., Devane, D., Begley, C. M., & Clarke, M. (2011). Methodology in conducting a systematic review of systematic reviews of healthcare interventions. *BMC medical research methodology, 11*(1), 1-6.

Teras, L. R., Patel, A. V., Wang, M., Yaun, S.-S., Anderson, K., Brathwaite, R., Caan, B. J., Chen, Y., Connor, A. E., Eliassen, A. H., Gapstur, S. M., Gaudet, M. M., Genkinger, J. M., Giles, G. G., Lee, I. M., Milne, R. L., Robien, K., Sawada, N., Sesso, H. D., Stampfer, M. J., Tamimi, R. M., Thomson, C. A., Tsugane, S., Visvanathan, K., Willett, W. C., Zeleniuch-Jacquotte, A., & Smith-Warner, S. A. (2020). Sustained Weight Loss and Risk of Breast Cancer in Women 50 Years and Older: A Pooled Analysis of Prospective Data. *Journal of the National Cancer Institute, 112*(9), 929-937. https://doi.org/10.1093/jnci/djz226

Tidhar, D., & Katz-Leurer, M. (2010). Aqua lymphatic therapy in women who suffer from breast cancer treatment-related lymphedema: a randomized controlled study. *Supportive Care in Cancer, 18*(3), 383-392.

Tyagi, N. K., & Dhesy-Thind, S. (2018, Jun). Clinical practice guidelines in breast cancer. *Curr Oncol, 25*(Suppl 1), S151-s160. https://doi.org/10.3747/co.25.3729

Woolf, S. H., Grol, R., Hutchinson, A., Eccles, M., & Grimshaw, J. (1999). Potential benefits, limitations, and harms of clinical guidelines. *bmj, 318*(7182), 527-530.

World Health Organization. (2021). *Breast cancer: early diagnosis and screen*. https://www.who.int/news-room/fact-sheets/detail/breast-cancer#:~:text=In%202020%2C%20there%20were%202.3,the%20world's%20most%20prevalent%20cancer.

Wyatt, G., Sikorskii, A., Tesnjak, I., Frambes, D., Holmstrom, A., Luo, Z., Victorson, D., & Tamkus, D. (2017). A randomized clinical trial of caregiver-delivered reflexology for symptom management during breast cancer treatment. *Journal of pain and symptom management, 54*(5), 670-679.