REVIEW ARTICLE

Assessment effect on integrative supportive care in improving quality of life of breast cancer survivors: meta-analysis of randomized controlled trials

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ABSTRACT

There is growing international recognition of the essential role of support for cancer patients' well-being. Supportive care is an expected modality to manage side-effects of treatment, to maintain physical and psychological well-being, and to improve survivorship since the initial cancer diagnosis. The purpose of this study was to synthesize the evidence and assess the effect of integrative supportive care on quality of life (QoL) in breast cancer patients. A systematic review and meta-analysis on QoL in cancer patients was carried out under the guidance of PRISMA. Eligible studies were identified through a systematic literature search of PubMed and ScienceDirect databases using MeSH terms. Full text of randomized controlled trials comparing psychologically related supportive care vs. usual care in adult (≥18 years old) cancer patients, published from 2013 to 2023 were included. 10 RCTs reported that supportive care has been implemented in developed countries and 3 studies were conducted in developing countries. Supportive care had a higher impact on QoL in cancer patients than the standard care (SMD= 0.24; 95% CI= 0.08 to 0.40), with $p<0.001$. This study had high heterogeneity (I^2= 74%). Integrative supportive care is increasingly being adopted in developed countries and has been shown to positively impact the QoL among cancer survivors.

Keywords:
breast cancer; integrative supportive care; palliative care; quality of life

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INTRODUCTION

Integrative Supportive Care (ISC) for individuals with breast cancer involves a comprehensive strategy that merges standard medical interventions with complementary approaches. This method is designed to tackle the multifaceted physical, emotional, psychological, and social impacts of the disease. The primary goal of ISC is to improve overall quality of life by easing symptoms, reducing the adverse effects of treatments, and promoting emotional and mental resilience throughout the course of cancer care. This is especially important for breast cancer patients, who frequently face not only physical burdens but also substantial emotional and psychological distress.[1] While mental health is not the sole focus of supportive care, it represents a key component due to its high prevalence and strong influence on recovery. A thorough review of 183 studies conducted over the last two decades found that approximately 27% of individuals with cancer suffer from depression and anxiety, highlighting the substantial psychological burden associated with the illness.[2]

These mental health challenges arise from various interconnected stressors. The emotional impact of diagnosis, uncertainty about prognosis, and changes in physical appearance can lead to body image concerns, reduced self-esteem, and persistent anxiety.[3] Functional limitations due to treatment often disrupt daily routines, increasing frustration and the risk of social isolation. Financial burdens from high treatment costs and potential income loss further compound psychological strain, while shifts in family roles and responsibilities introduce additional emotional tension.[4,5] Moreover, the physiological burden of cancer may lead to extended hospital stays and decreased treatment adherence.[6,7] Together, these factors underscore the critical need for an integrative approach for breast cancer patients.

Supportive care, when implemented from the point of diagnosis through to advanced stages of cancer, has been shown to significantly improve patients' quality of life (QoL).[8–9] With the progression of medical science and a growing emphasis on patient-centered care, supportive care has broadened to encompass diverse interventions that target the physical, emotional, and psychological difficulties encountered during the cancer experience. This evolution reflects a growing commitment to holistic patient management—ensuring that, alongside curative treatments, patients receive comprehensive support to manage symptoms, make informed decisions, and maintain their well-being.[10]

With increasing awareness of cancer's complex and far-reaching impact, comprehensive supportive care is now recognized as a vital component of integrative cancer care.[11–12] Numerous studies have sought to develop psychological interventions to support mental health and improve QoL among cancer patients.[13–14] However, findings on their effectiveness remain inconsistent[12]. Therefore, this meta-analysis of randomized controlled trials was undertaken to evaluate the effects of psychologically focused supportive interventions within integrative care on the quality of life in individuals with cancer. The findings aim to support the development of more tailored, patient-centered strategies that empower patients to actively engage in their treatment and healing process.

METHODS

This recent study protocol was prospectively registered in PROSPERO under the registration number CRD42024567993. PRISMA guidelines

were implemented during data collection and reporting the results of analysis.[15]

Eligibility Criteria

The eligibility criteria for this meta-analysis were formulated using the PICOs framework as follows:

- Population: Adult patients (≥18 years) diagnosed with breast cancer, confirmed either by oncologists or through pathological assessment, regardless of cancer type or stage.
- Intervention: integrative supportive care
- Comparison: standard care or usual care or conventional care or routine oncological care provided to cancer patients
- Outcome: quality of life
- Study design: RCTs

Exclusion criteria:

- Studies in which cancer patients were not analyzed separately from other clinical or non-clinical groups.
- Interventions that involved pharmacological treatments, radiotherapy, chemotherapy, or surgical procedures.
- Studies focused on palliative care.

Operational definition of integrative supportive care

Integrative Supportive Care represents a holistic model that blends conventional medical treatments with a variety of supportive interventions (such as psychological support, nutritional counseling, pain and symptom management, physical rehabilitation, and complementary techniques like mindfulness or relaxation) to satisfy the comprehensive physical, emotional, social, and spiritual needs of cancer patients across all stages of care. This study specifically explores the breadth of integrative supportive care, with a focus on complementary psychosocial therapies, such as cognitive-behavioral therapy (CBT), mindfulness-based stress reduction (MBSR), individual or group counseling, psychotherapy, and peer support groups, which can be delivered through personalized treatment plans or a collaborative approach.

Literature Search Strategy and Study Selection

The current study conducted literature searches in PubMed (MEDLINE) and ScienceDirect.

a. Literature search strategy

The search strategy assimilated a combination of Medical Subject Headings (MeSH) and relevant keywords to ensure comprehensive literature retrieval.

Dat*abase: PubMed [May 24, 2023]*

Search strategy:

#1 (search results= 2,040 articles), keywords: "life support care"[MeSH Terms] OR "palliative care"[MeSH Terms] OR "advance care planning"[MeSH Terms]

#2 (search results= 65,605 articles), keywords: cancer[MeSH Terms] OR carcinoma[MeSH Terms]

#3 (search results= 1,031 articles), PubMed search: #1 AND #2

#4 (search results= 385 articles), keywords: #3 AND “quality of life”[MeSH Terms]

Database: Science-Direct [May 24, 2023]

Search strategy:

Keywords: ("supportive care" OR "palliative care" OR "advance care") AND "quality of life" AND cancer.

Search results= 6,292 articles

b. Search Limits

- Article/publication type: randomized controlled trial
- Publication dates: last 10 years (2013-2023)

- Language: English or Indonesian
- Age: >18 years

Articles collected from databases were extracted using the Rayyan electronic tool from http://rayyan.qcri.org to help the author during the identification and selection process.[16] A single reviewer utilized the Rayyan tool to identify and eliminate duplicate records obtained from the electronic database searches. After removing the duplicates, the titles and abstracts of the remaining studies were screened for relevance. The reviewer assessed the study results in the full-text manuscripts to evaluate the study characteristics, determine the intervention's effect size, and explore the analysis outcomes. In cases where the full text is not available for free, the author will email the corresponding author to request it. If this request is unsuccessful, the study will be excluded with the justification "full text not available". Two researchers independently assessed the quality of each manuscript. In cases where discrepancies arose between their evaluations, an external reviewer was consulted to resolve the differences.

Risk of bias assessment

The risk of bias was evaluated using the Joanna Briggs Institute (JBI) checklist specifically designed for randomized controlled trials.[17] For RCT, JBI gives 13 items and each item is judged "Yes", "No", "Unclear", or "not applicable"[15]. A score of 1 was assigned if the answer was affirmative, while a score of 0 was given for negative, unclear, or not applicable responses.[18] The adherence rate for each study was calculated by dividing the number of criteria met by the total number of criteria, with the result expressed as a percentage. The GRADE methodology was then applied to categorize the risk of bias as high, moderate, or low.[19]

Statistical analysis

Homogeneity within the pooled studies was tested using the I^2 statistic, which is expressed as a percentage (fixed effect <50% and random effect if $I^2 \geq 50\%$). Heterogeneity was classified into three categories: low (<25%), moderate (25–50%), and high (>50%). Heterogeneity was deemed to be present if $p < 0.05$.[20] All statistical analyses were performed using RevMan 5.3 to provide a pooled standardized mean difference (SMD) between supportive care and standard care on QoL in cancer patients. When feasible, further stratification will be conducted for subgroup meta-analyses. These analyses examine possible sources of heterogeneity, categorizing them according to various covariates based on study and sample characteristics. An I^2 value was recalculated for each subgroup. Publication bias was assessed quantitatively using Egger's test.[21-23]

RESULTS

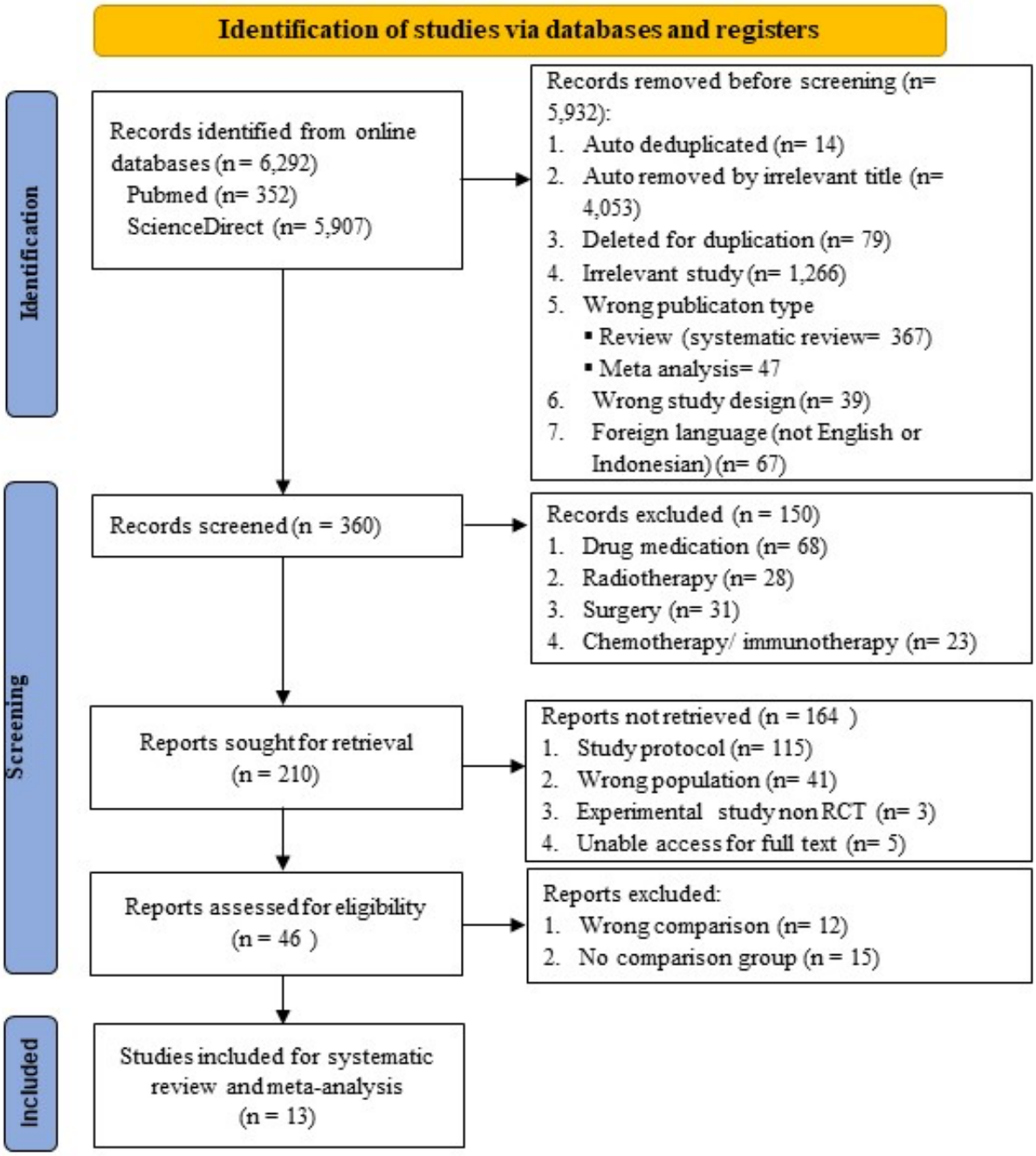

Figure 1. PRISMA flow chart outlining the systematic search and the article selection process

Study selection

The initial search of electronic databases identified 6,292 potentially relevant articles. After screening the titles and abstracts, 6,082 articles were excluded, and 210 papers were selected for full-text review. Applying the eligibility criteria, 46 studies were further excluded. In the end, 13 studies met the inclusion criteria (Figure 1).

Risk of bias in studies

Table 3 provides a summary of the risk of bias for the selected studies. The quality assessment of the 14 included articles revealed that 9 studies exhibited a low risk of bias, while 5 studies were classified as having a moderate risk of bias (Table 3). Additional details regarding the risk of bias assessment are presented in Figures 2 and 3. Figure 2 illustrates the authors' assessments for each risk of bias item across all included studies. To assess the potential for publication bias, the authors performed Egger's linear regression, with a p-value of <0.050 indicating the presence of publication bias. Overall estimated effects from the pooled mean and SD between the two groups were calculated using RevMan 5.3 and depicted on a forest plot.[24]

Table 1. Summary characteristics of included RCTs

Author(s)	Settings	Country	Study Design	Population	Intervention	Intervention description	Duration	Follow-Up	Comparison	Outcome and Measurement
1. Chen et al.[25]	Breast surgery and oncology department of a tertiary hospital	China	Single-blinded RCT, with two-group repeated measure-ment	Breast cancer patients aged between 18 and 60 years, diagnosed with non-metastatic breast cancer or stage II or lower, within the past 3 to 8 weeks	The phone-based support program (PBSP)	The intervention involved sharing experiences and knowledge about breast cancer, its symptoms, and caregiving. It included a discussion on the current physical and psychological states, life attitudes, and featured three inspiring video-recorded stories to enhance the women's vicarious experiences and encourage them.	3 weeks	7th week	Routine care	Quality of life: EORTC-QLQ-C30
2. Cinar et al.[26]	Hospital	Turkey	Single-blinded, single-centered, and randomized design	Patients aged 18–65, who are diagnosed with primary BC, non-metastatic, who are hormone receptor-posi-tive (ER + and/ or PgR +) and treated with EHT at least for 3 months	Mobile phone app-based training	The application provides information on breast cancer, treatment options, challenges, and recommendations for endocrine hormonal therapy. It also includes relaxation techniques and guided imagery videos as mind-body practices, accompanied by relaxing, slow music, specifically designed for oncology patients	12 weeks	12th weeks (post inter-vention)	Routine care	Quality of life: FACT-ES QLS

Author(s)		Settings	Country	Study Design	Population	Intervention	Intervention description	Duration	Follow-Up	Comparison	Outcome and Measurement
3.	Hummel et al.[27]	10 hospitals	Netherlands	Multicenter, randomized controlled trial	Patients aged 18 to 65 years who are histologically confirmed BC or those have complete their BC treatment	Internet-based CBT	The internet-based cognitive behavioral therapy (CBT) was guided by a personal psychologist or sexologist.	20 weekly sessions	3rd month	Waiting list group	Health related quality of life: EORTC-QLQ-BR23
4.	Johannsen et al.[28]	Department of Oncology, Aarhus University Hospital	Denmark	A rando-mized multicentre, parallel-group clinical trial	Primary BC female patients, ≥3 months after surgery	Mindfulness-based cognitive therapy (MBCT)	MBCT consisted of formal mindfulness exercises and psychoeducation, with main focus on the participants' here-and-now pain experiences.	8 weeks	3, 6 months	Waiting-list control	Quality of life: World Health Organization–5 Well-Being Index (WHO-5).
5.	Kruizinga et al.[29]	Six hospitals	Amsterdam	Multicenter two-armed randomized non-blinded controlled trial	Patients aged 18 years and older with advanced cancer, for which curative treatment was not an option, were eligible to participate if they had a life expectancy of 6 months or more	Self-directed (SD-WRITE) interventions	A guided, structured reflection on significant life events and personal goals, facilitated through an e-application on an iPad. This reflective process took place during two one-hour consultations with a spiritual counselor.	N/A	4 months	Usual care	Quality of life: EORTC QLQ C15-PAL
6.	Lengacher et al.[30]	Cancer Center and Advanced Healthcare	South Florida	RCT	Female BC survivors aged 21 and older with a diagnosis of Stage 0-III	Mindfulness-Based Stress Reduction for breast cancer	Breast cancer survivors (BCS) are trained to increase awareness of thoughts and emotions related to symptoms such as pain, anxiety, sleep disturbances, and fear of recurrence. They are then	6 weeks	12th week	Usual care	Quality of life: Medical Outcomes Studies Short-form (MOS SF-36)

Author(s)	Settings	Country	Study Design	Population	Intervention	Intervention description	Duration	Follow-Up	Comparison	Outcome and Measurement
						guided to distinguish the emotional experience from the physical sensations.				
7. Park et al.[31]	Keio University Hospital, Central Tokyo	Japan	RCT	Patients with stage 0-III BC, were aged between 20 and 74 years.	Mindfulness-based cognitive therapy (MBCT)	Cognitive Behavioral Therapy (CBT), combined with Mindfulness-Based Cognitive Therapy (MBCT)	8 weeks	8th week (post-intervention) 12th week (4 weeks after the completion of the intervention)	Usual care + waiting list group	Quality of life: FACT-G
8. Reich et al.[32]	Cancer Center and Advanced Healthcare, and specialist cancer clinics	Florida	A two-armed randomized controlled design	Breast cancer survior aged ≥ 21 years, with a diagnosis of Stage 0–III BC and within two weeks to two years off treatment	The MBSR (BC) program	Mindfulness-Based Stress Reduction	6 weeks	6th week (post-intervention) 12th week (6 weeks after the completion of the intervention)	Usual care	Health-related quality of life: Short-Form General Health Survey (SF-36)
9. Sarenmalm et al.[33]	Sweden	Sweden	5-year longitudinal, three-arms randomized, controlled trial	Patients diagnosed with breast cancer	The MBSR (BC) program	Participants were provided with information material, including a 20-page introduction to mindfulness training	8-weeks	8th week	Standard care	Quality of life: 36-item Short Form Health Survey (SF-36)
10. van Amstel et al.[34]	Radboud University	Netherlands	RCT	Patients aged 18 years or older with histologically con-	Nurse-led distress thermometer	Emotional support, education on cancer and its treatment, and practical guidance on emotional,	N/A	3rd month	Usual care	Health-related quality of life: EORTC QLQ C-30

Author(s)	Settings	Country	Study Design	Population	Intervention	Intervention description	Duration	Follow-Up	Comparison	Outcome and Measurement
	Medical Center, Nijmegen			firmed invasive breast cancer	intervention (NDTI)	social, practical, and/or physical concerns.				
11. van den Berg et al.[35]	One university hospital and five regional hospitals	Netherlands	Multicenter, randomized, controlled, parallel-group trial	Female BSCs histologically diagnosed with malignancy of the breast and had completed curative-intent primary treatment 2 to 4 months before the baseline.	BREATH intervention	A Web-based self-administered intervention in facilitating psychological adjustment among BCSs.	16 weeks	4, 6, and 10 months from baseline	Care as usual (CAU)	Quality of life: EORTC QLQ-C30
12. White et al.[36]	Australia	Australia	Prospective RCT	Participants aged between 18 and 50 years when diagnosed with stage I or II breast cancer, within 5 months of their diagnosis	The "informe" (Information for Me)	A self-directed information resource for young women with BC on a website that covering emotional responses, support services, family responses and life after cancer.	N/A	3 and 6 months after baseline	Usual care	Quality of life: FACT-B
13. Zhu et al.[37]	2 university-affiliated hospitals	China	A multi-center, single-blinded, RCT	Women who were diagnosed with any stage of BC within the prior 3 to 8 weeks	Mobile Breast Cancer e-Support Program	A psychoeducational program to optimize patients' health outcomes using mobile app.	12 weeks	3 months and 6 months	Care as usual	Quality of life: FACT-B

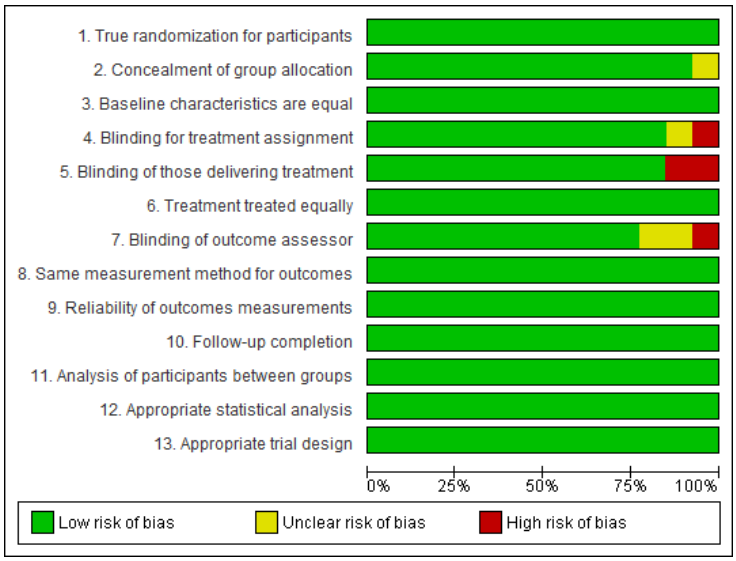

Figure 2. Risk of Bias Traffic Plot: The authors' assessments of each risk of bias criterion based on the JBI critical appraisal guidelines. Each item is displayed as percentages across all included studies.

Criteria for ranking the risk of bias:

- ≤49% = high risk of bias
- 50% and 69% = moderate risk of bias
- ≥70% = low risk of bias

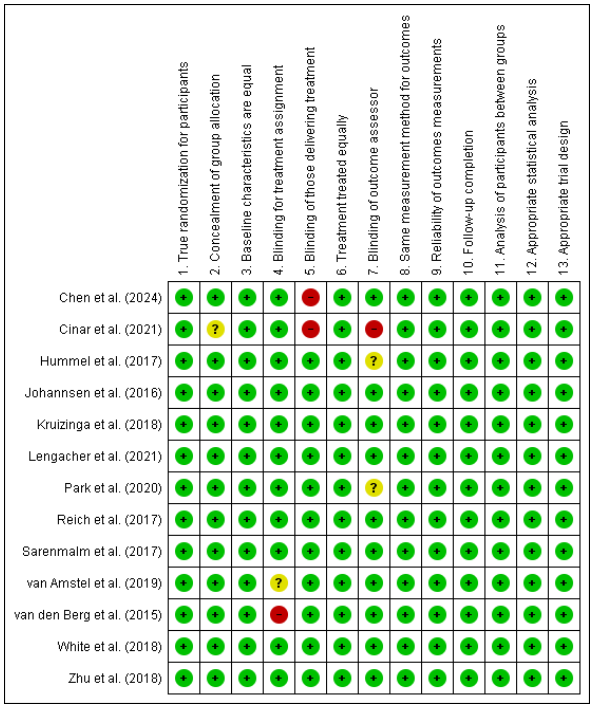

Figure 3. Risk of Bias Summary Plot: The authors' assessments of each risk of bias item for each included study

Most RCTs showed some concerns regarding bias, although the overall risk of bias was low (>70%) (Figs. 2 and 3). Methodological biases were primarily related to treatment assessment blinding, with some studies failing to report details about the individuals delivering the intervention.[25,26] Blinding in RCTs for cancer interventions faces significant challenges due to the visible effects and ethical considerations of treatments. Some studies used single-blinded RCT.[25-27]. Maintaining blinding is crucial to minimize bias in outcome assessment, but practical constraints, such as the nature of treatments can make complete blinding difficult to achieve. To ensure high-quality trials, many studies use strategies such as waiting-list control groups or delayed intervention for the control group.[27,28,31] These approaches help mitigate bias and ensure all participants receive equal treatment.

Synthesis of results

a. Study characteristics

A summary of the descriptive characteristics of the studies is provided in Table 1. Of the studies, 10 were conducted in developed countries, while 3 were conducted in developing countries (Figure 6). Integrative supportive care included in this meta-analysis was delivered through conventional (face-to-face intervention)[28,30-34] or electronic-based modalities, such as:

- Internet-Based Cognitive Behavioral Therapy (iCBT). Intervention was delivered through online platforms, including structured programs, interactive modules, and educational materials.[27,29]
- Mobile Health (mHealth) Apps. An application designed to provide therapeutic support, track mental health symptoms, and offer coping strategies.[25,26,37]
- Web-Based Self-Help Programs. An online program that guides users through therapeutic techniques and strategies independently.[35,36]

Follow-up since the initiation of the intervention was carried out ranging from 3 weeks to 6 months. Among these included studies, the outcome assessment tools differed (Table 4).

b. Results of quantitative synthesis (meta-analysis)

This review included 13 randomized controlled trials (RCTs) that evaluated the effect of integrative supportive care on QoL in cancer patients. These studies had a total sample size of 1,904 breast cancer patients. The results of the systematic review are outlined in Table 1. The results of the meta-analysis evaluating the effectiveness of integrative supportive care in enhancing quality of life (QoL) are presented in Figures 4 and 5. Figure 4 illustrates the comparison between integrative supportive care and standard care in terms of QoL for breast cancer patients.

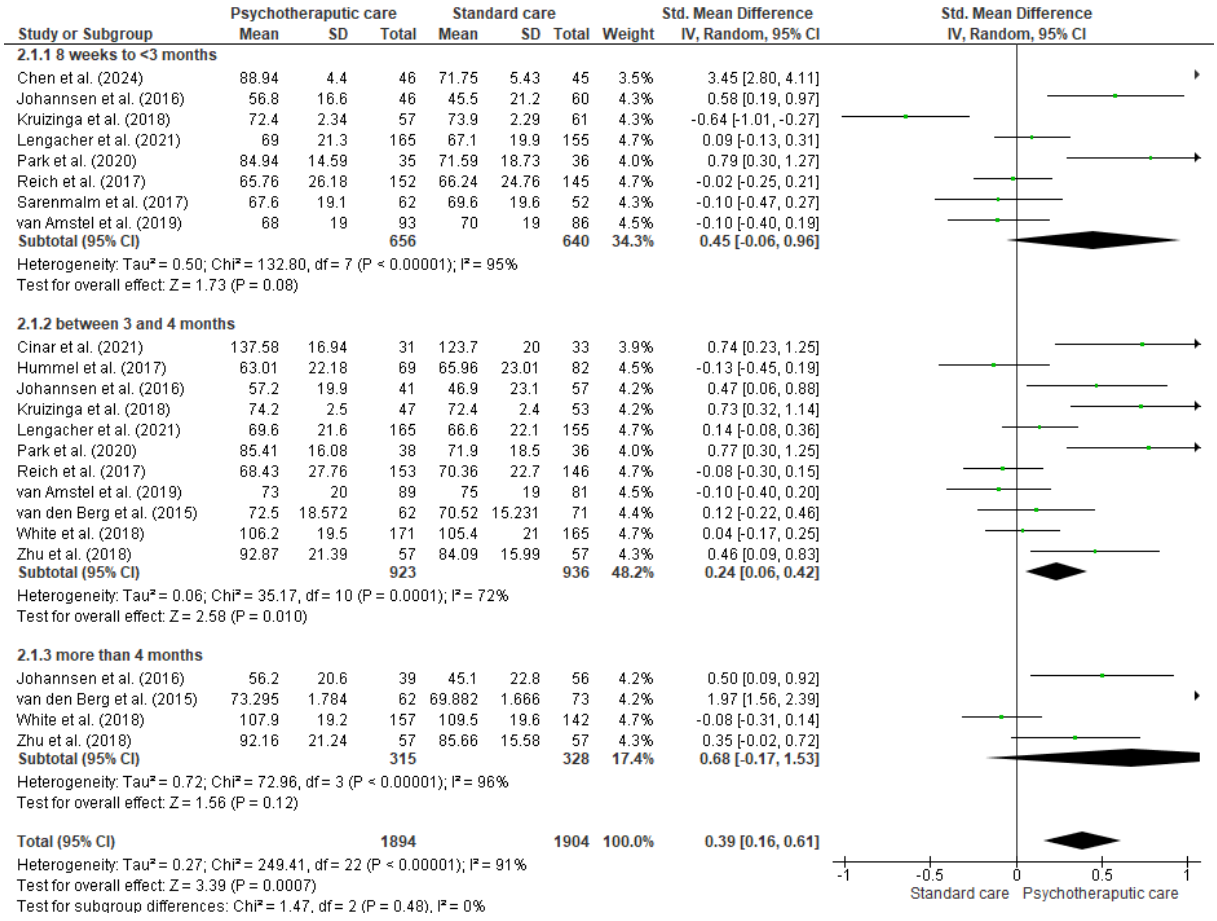

Figure 4. Forest Plot of Subgroup Analysis Comparing Integrative Supportive Care and Standard Care on Quality of Life in Breast Cancer Patients, by Follow-up Duration

Figure 4 demonstrates a statistically significant positive effect of integrative supportive care on improving quality of life (QoL) compared to standard care (SMD = 0.39; 95% CI = 0.16 to 0.61, $p < 0.001$). The subgroup analysis revealed that the impact of integrative supportive care on QoL in breast cancer patients varied depending on the length of the follow-up period. Subgroup analyses were performed based on follow-up duration.

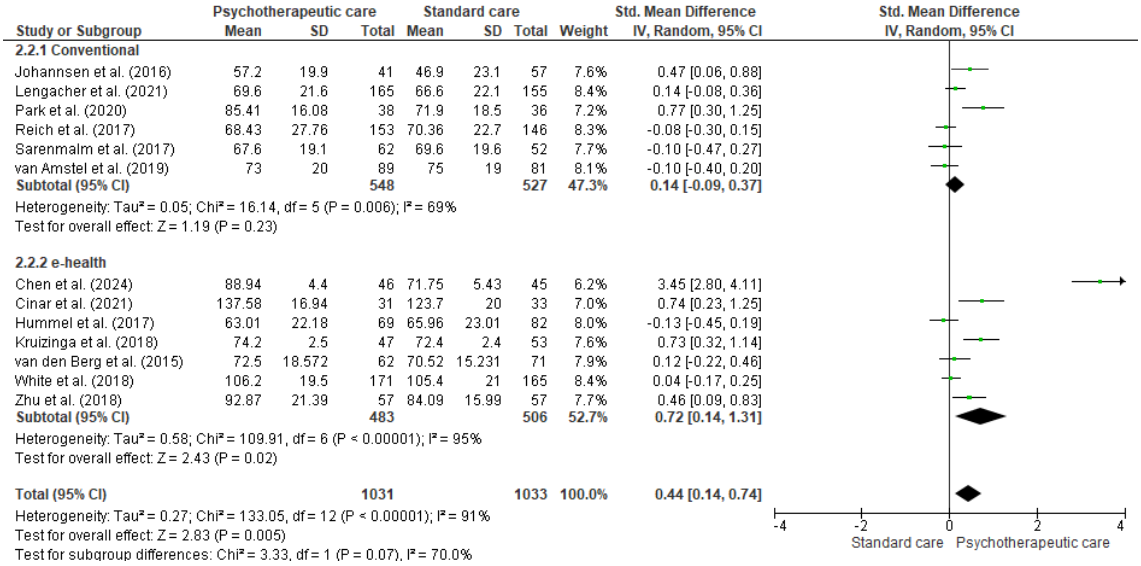

Figure 5. Forest Plot of Subgroup Analysis Comparing Integrative Supportive Care and Standard Care on Quality of Life in Breast Cancer Patients, by Intervention Delivery Modality

Subgroup analyses were conducted based on the type of intervention delivery modality. The electronic-based health modality for delivering integrative supportive care significantly improved quality of life (SMD = 0.72; 95% CI = 0.14 to 1.31; p = 0.020). In contrast, the conventional delivery method showed no significant effect on QoL (SMD = 0.14; 95% CI = -0.09 to 0.37; p = 0.230) (Figure 5).

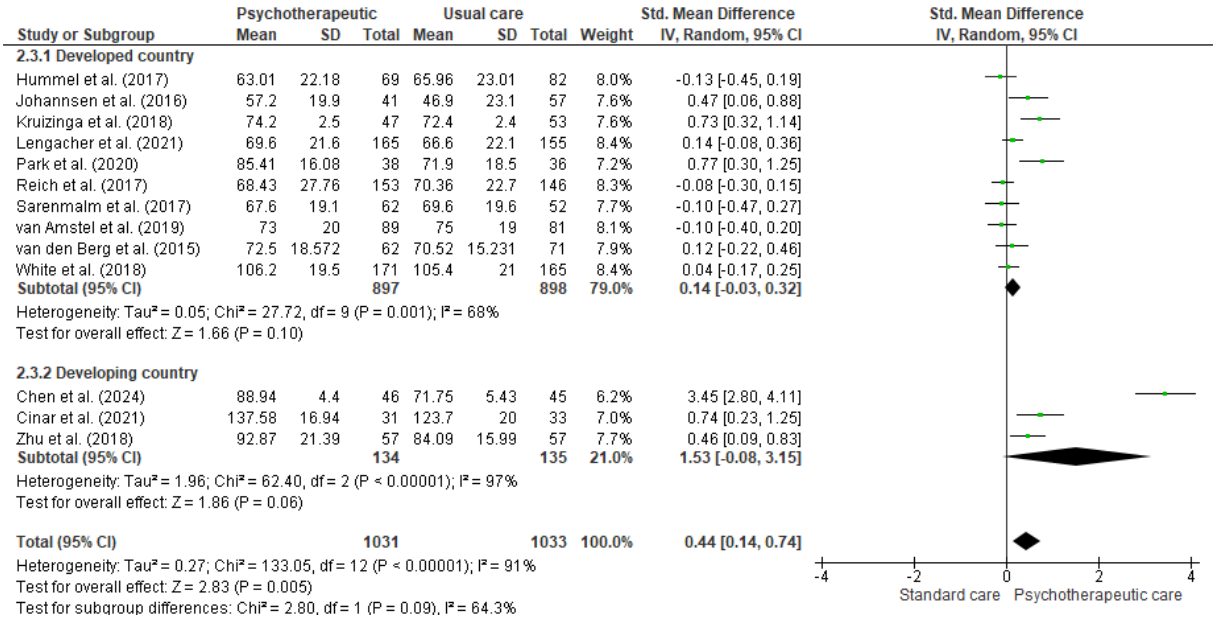

Figure 6. Forest Plot of Subgroup Analysis Comparing Integrative Supportive Care and Standard Care on Quality of Life in Breast Cancer Patients, by World Bank Country Classification

Our meta-analysis study found disparity in integrative supportive care for BC patients between developed and developing countries. Most studies on integrative supportive care for BC patients have been conducted in developed countries (SMD= 1.53; 95% CI= -0.08 to 3.15; p= 0.060). However, the effect of such care in developed countries has been found to be non-significant (SMD= 0.14; 95% CI= -0.03 to 0.32; p= 0.100) (Figure 6).

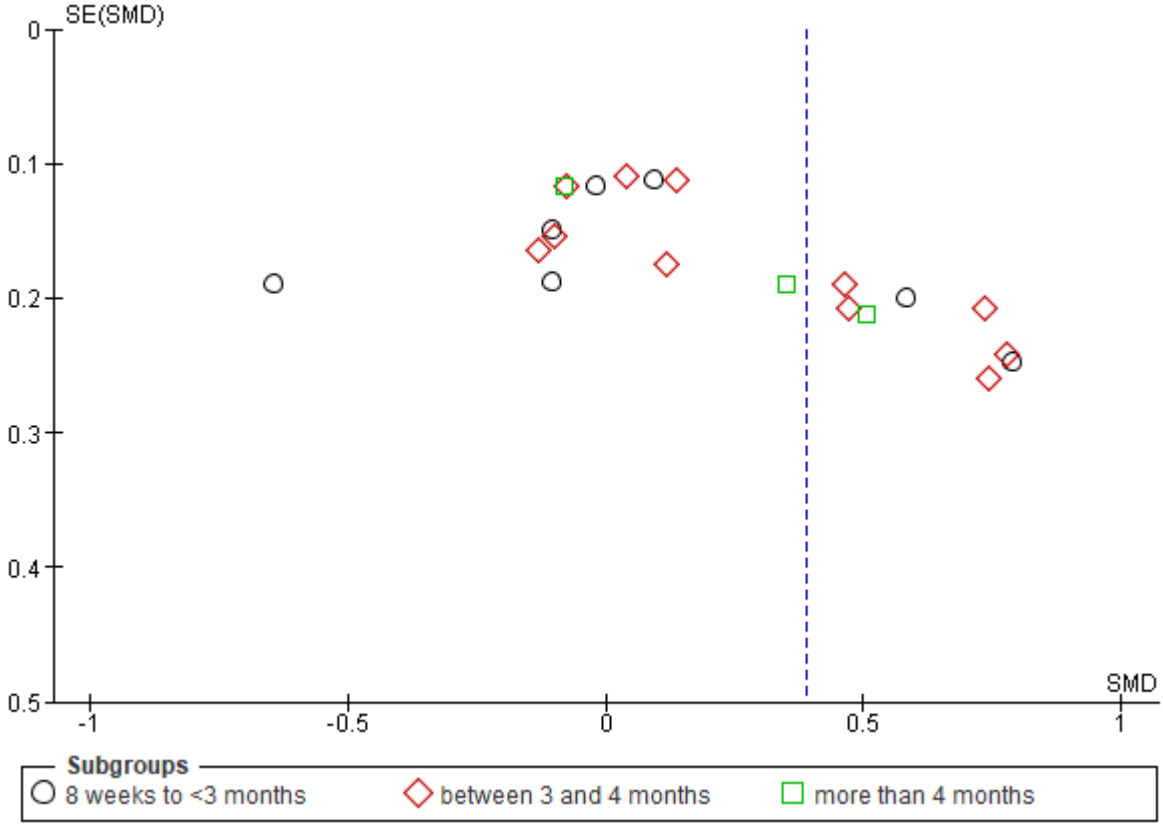

Figure 7. Funnel plot of sub-grouped analysis comparing integrative supportive care and standard care on quality of life in breast cancer patients

Heterogeneity

Visual inspection of the funnel plot (Figure 7) indicates no evidence of publication bias or heterogeneity, based on the distribution of standard errors across individual studies in this meta-analysis. The asymmetry observed in the funnel plot may be due to the selective publication of smaller studies with larger treatment effects and greater standard errors. However, the Egger test was not statistically significant (p= 0.328), suggesting the absence of publication bias in this meta-analysis.

DISCUSSION

The effect of integrative supportive care on the quality of life in breast cancer survivors

This meta-analysis found that integrative supportive care substantially improves the quality of life in breast cancer patients when compared to standard care alone. While short- to moderate-term follow-ups indicate meaningful improvements, the effects are not sustained

over longer periods. These findings highlight the necessity for periodic reinforcement of the intervention to maintain its benefits. The results of this study reported that integrative supportive care significantly increased the quality of life among cancer patients by 0.18 units compared to standard care.

This finding conforms to those in de la Torre-Luque et al.,[38] which reported that QoL significantly improves through psychological interventions, particularly when patients are coping with medical treatments or adjusting to life after the disease has been treated. A person's ability to manage chronic illness is influenced by various factors, including the nature of the illness, physical health, social support, environmental factors, and personal traits. Effectively coping with the condition is essential, starting with an understanding of the illness and its significant impact on life, followed by making necessary adjustments to accommodate these realities.[39] Literature shows that psychological interventions aim to dispel myths and misconceptions related to the disease. Providing factual information has been effective in helping cancer patients understand their condition better and disseminate accurate information about it.[3] The impact of integrative supportive care, considering the intervention type and its application in both developed and developing nations, is discussed in more detail below.

Comparison of the effect of electronic-based and conventional supportive care on QoL of cancer patients

Recent meta-analysis found that conventional supportive care improves quality of life by 0.14 units, whereas electronic-based integrative supportive care yields a higher improvement of 0.72 units. Electronic-based integrative supportive care offers several advantages over conventional methods for cancer patients. They can be accessed anytime and anywhere,[40,41] reducing the need for travel, which is particularly beneficial for those with limited mobility or living in remote areas.[41] These interventions ensure consistent therapy delivery and continuous support through reminders, follow-ups, and resources, aiding treatment adherence and effectiveness.[42] Patients may feel more comfortable discussing sensitive issues in an anonymous, digital environment, leading to more honest communication and effective therapy. Additionally, electronic interventions can be integrated with other digital health technologies, such as wearable devices and mobile health apps, for a comprehensive health management approach.[43] These factors contribute to why electronic-based psychotherapy interventions can be more effective in improving the quality of life for cancer patients compared to conventional methods.

Implementation of integrative supportive care for breast cancer patients in high-income countries

A meta-analysis of 13 randomized controlled trials reported that integrative supportive care significantly improved the quality of life among breast cancer survivors in high-income countries. Our findings on the implementation of supportive care are consistent with a recent study by Cabanes et al.,[44] which observed that supportive care is commonly used to assist cancer patients in high-income countries (HICs). However, in low-and middle-income countries (LMICs), where more than 70% of all cancer-related deaths occur, the provision of supportive care has not been assessed. Providing supportive care in developed countries is well-implemented caused by a great supply and high cost spending, resulting in better care or better survival rates among cancer patients.[25,45]

Implementation of integrative supportive care for breast cancer patients in low-middle-income countries

The study highlighted that integrative supportive care notably enhanced the quality of life for breast cancer survivors in low- and middle-income countries. Compared to high-income countries, supportive care in developing countries is characterized by significant challenges. Early supportive care in developing countries remains scarce due to a confluence of systemic, economic, educational, and logistical challenges. Healthcare systems, particularly in low- and middle-income countries, often face significant resource limitations, lacking the necessary funding, medical supplies, and adequately trained professionals to provide comprehensive early care. Workforce constraints, including a shortage of trained healthcare workers and high turnover rates, exacerbate this issue. Financial barriers further limit access, as many patients cannot afford early supportive care, especially in regions without universal healthcare coverage. Additionally, there is often a lack of awareness and education among both healthcare providers and patients about the importance of early supportive care, compounded by cultural and social factors that may stigmatize seeking help early or favor traditional practices. Health system priorities often focus on acute care and emergency responses due to immediate pressures, leading to underinvestment in preventive and supportive care services. Finally, the absence of supportive policies and regulations can hinder the implementation and accessibility of early supportive care. Addressing these multifaceted issues requires increased funding, improved training and retention of healthcare workers, policy reforms, public education initiatives, and the development of infrastructure to support early intervention and care.[46]

An important finding of our study is that the provision of supportive care as early as the first diagnosis in cancer patients has important benefits to improve their QoL. Psychosocial support should be an essential component of multidisciplinary cancer care, provided whenever necessary for patients.[50] While supportive care in low-grade cancers may not always be the focus of major research publications compared to curative treatments, studies have shown that integrating supportive care early in the cancer treatment process leads to better patient outcomes, including improved QoL, reduced symptom burden, and sometimes even prolonged survival.

LIMITATION

Blinding in interventional trials is crucial as many procedures aim to alleviate pain, enhance function, and improve quality of life—outcomes that are often considered more reflective of patients' needs and their perspective on the disease. Achieving complete blinding can be particularly challenging and requires careful consideration of study design and ethical principles. However, its limitations can be mitigated by minimizing interaction between participants and unblinded researchers through the use of advanced technologies, such as electronic modalities.

CONCLUSION

This meta-analysis revealed that integrative supportive care is effective in improving the quality of life among breast cancer patients. It is gaining traction in developed countries and has demonstrated a positive impact on cancer patients' quality of life. There is a pressing need for action to expand and enhance the quality of RCTs addressing this topic.

RECOMMENDATION

Our study highlights the disparity in supportive care for breast cancer between developed and developing countries. To address this gap, there is a critical need for increased investment in healthcare infrastructure, training, and resources in developing countries. International collaboration and the adaptation of successful models from developed nations could help improve access to comprehensive supportive care for breast cancer patients in resource-limited settings.

CONFLICT OF INTEREST

We declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

AUTHOR CONTRIBUTION

Wahyu Tri Sudaryanto: Conceptualization and writing - original draft. Ika Yuli Ayuningrum: Methodology, formal analysis, and data curation. The final approval of the manuscript was given by all authors, who are also accountable for all aspects of the work.

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