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COMBINED CONVENTIONAL AND COMPLEMENTARY THERAPY ON BREAST CANCER PATIENTS' QUALITY OF LIFE: A CROSS-SECTIONAL STUDY IN BALI

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ABSTRACT

Background: Complementary and Alternative Medicine (CAM) is widely adopted by female breast cancer patients seeking to improve their health-related quality of life. However, research related to the quality of life of breast cancer patients who use CAM is still ambiguous and has never been done in Indonesia. **Objective:** This study aims to compare the quality of life between breast cancer patients who use conventional therapy (chemotherapy) with a combination of conventional therapy and CAM. **Methods:** This cross-sectional study was conducted on 80 women who underwent chemotherapy at least one cycle at RSUD Sanjiwani, Gianyar. Participants were divided into two groups: those treated with conventional therapy only, and those who also incorporated CAM therapies such as massage, herbal medicine, and spiritual healing practices. Assessment of quality of life in patients was conducted using the standardized EORTC QLQ-C30 questionnaire developed by the European Organisation for Research and Treatment of Cancer. Quality-of-life scores between groups were compared using an independent t-test. **Results:** The results showed that there were significant differences in breast cancer patients who used conventional therapy (chemotherapy) with a combination of conventional therapy and CAM in the domain of global health status (61, 67 vs 71.67, p=0.000), cognitive functioning (54.33 vs 27.67, p=0.000), role functioning (53.33 vs 29.33, p=0.009), fatigue (35.22 vs 24.44, p=0.000), nausea and vomiting (74 vs 45.67, p=0.000) and pain (85.67 vs 52.33, p=0.000). **Conclusion:** The combination of conventional therapy and CAM significantly improved global health status and symptom management in breast cancer patients, suggesting its potential to enhance quality of life alongside standard treatment.

Keywords: Breast Cancer; Complementary and Alternative Medication (CAM); Conventional; EORTC QLQ-C30; Quality of Life.

INTRODUCTION

Globally, breast cancer remains one of the leading cancer diagnoses among all cancer types. GLOBOCAN 2020 reported that around 2.3 million individuals were newly diagnosed with breast cancer across the globe[1]. The period 1997–2013 saw a total of 1,020 breast cancer cases recorded in Bali across all age groups[2]. Despite

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undergoing chemotherapy, the five-year survival rate for breast cancer patients remains below 30% and the mortality rate is estimated at 6.9%[3]. These data highlight the critical importance of implementing effective strategies for breast cancer management.

Accurate diagnosis and appropriate treatment significantly affect women's functional, emotional, and psychological well-being, thereby influencing their overall quality of life[4]. Management of breast cancer involves various modalities, including surgical procedures, radiation, chemotherapy, hormone-based therapies, and immunotherapeutic strategies[5]. However, more than 50% of breast cancer patients receiving chemotherapy in Jakarta hospitals reported common treatment-related complications, including fatigue, gastrointestinal disturbances such as nausea and vomiting, and anorexia [6]. Furthermore, approximately 35%–50% of patients on hormonal therapy were reported to be non-adherent[7], largely due to concerns over side effects and long-term safety[8]. Integrating traditional complementary healthcare is considered a viable strategy to help mitigate this issue[9].

The increasing burden of treatment-related side effects has prompted the integration of complementary and alternative medicine (CAM) into cancer care pathways. In Indonesia, approximately 75% of breast cancer patients report using CAM modalities such as traditional Chinese medicine, herbalism, acupuncture, prayer, special diets, and dietary supplements to enhance immune function and improve overall quality of life[10]. Despite its widespread use, the role of CAM remains controversial. While certain modalities may alleviate symptoms such as pain and fatigue, current evidence does not support their use as a replacement for standard systemic therapies. Studies have shown that patients who forgo chemotherapy or hormone therapy in favor of CAM may experience higher rates of recurrence and mortality. Moreover, the use of herbal products and high-dose supplements carries the potential for adverse interactions with conventional treatments. These concerns highlight the necessity of cautious and medically supervised CAM use in oncology care[11].

Quality of life is conceptualized as a comprehensive state of well-being that includes physical, psychological, social, and spiritual dimensions[12]. However, the evidence on whether CAM truly improves quality of life is still inconsistent. Clinical evaluation in a Malaysian study showed that the use of CAM did not result in significant improvement in patients' quality of life, as measured by the QLQ-C30 instrument [13]. In contrast, a study in Saudi Arabia reported significant improvement among CAM users in global health status (73.2% vs 64.8%, $p = 0.049$)[4].

Indonesia's Ministry of Health Regulation No. 15/2018 defines traditional complementary health services as therapeutic practices that apply biomedical and biocultural knowledge supported by evidence of efficacy and safety[14]. The regulation is in line with the 2018–2023 vision of the Governor of Bali, which promotes the integration of CAM into regional development by utilizing indigenous knowledge and the rich diversity of medicinal plants recorded in traditional *lontar* manuscripts[15]. Unsurprisingly, many breast cancer patients in Bali have adopted therapies such as acupuncture, herbal medicine, and ozone therapy[16]. Although the use of CAM continues to rise, limited research in Indonesia has directly examined differences in quality of life between breast cancer patients who utilize CAM and those who abstain from its use. This study contributes to the understanding of CAM integration in clinical practice by evaluating

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quality of life differences among patients treated at Sanjiwani General Hospital, Bali.

METHODS

1. Ethical Approval

The study was approved by the Universitas Bali Internasional Ethics Committee (Approval No. 02.0204/UNBI/EC/II/2024), and written informed consent was secured from each participant prior to the data gathering process.

2. Research Instrument

The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) was utilized to evaluate the quality of life among patients with breast cancer. The questionnaire consists of 30 items covering three main domains. The first domain assesses global health status (2 items), the second comprises five functional scales including physical function (5 items), emotional function (4 items), and role, cognitive, and social functioning (2 items each). The third domain includes nine symptom scales: fatigue (3 items), nausea/vomiting and pain (2 items each), and single-item measures for dyspnea, insomnia, appetite loss, constipation, diarrhea, and financial difficulties. The questionnaire used in this study has been validated and proven reliable, with a validity coefficient of 0.70 and a reliability coefficient of 0.80 [17]

In the global health status domain, seven response options are provided: “very poor,” “poor,” “rather poor,” “moderate,” “slightly good,” “good,” and “very good,” which are assigned scores ranging from 1 to 7, respectively. In contrast, the functional and symptom scales offer four response categories: “not at all,” “a little,” “quite a bit,” and “very much,” which are scored as 1, 2, 3, and 4. Each respondent’s answers are first calculated to obtain a raw score. Raw scores were transformed linearly to a standardized range of 0 to 100. In the context of functional and global health dimensions, a higher score reflects enhanced functioning or well-being, while in the symptom domains, it indicates more pronounced symptomatology or distress.

3. Design Research

This study was a cross-sectional analytic study. During the study period, 100 breast cancer patients undergoing chemotherapy at Sanjiwani General Hospital, Gianyar, met the eligibility criteria. Based on the Slovin formula with a 5% margin of error, the minimum required sample size was calculated to be 80. Consequently, total sampling was applied, and all 80 eligible and consenting patients were included in the study. The validated EORTC QLQ-C30 questionnaire was administered to these participants. Inclusion criteria included women diagnosed with stage II, III, or IV breast cancer who had received at least one cycle of chemotherapy. Respondents were divided into two groups.
Group 1: patients who underwent conventional therapy (chemotherapy) only.
Group 2: patients who received a combination of chemotherapy and CAM, including massage, herbal treatments, and spiritual practices. These modalities were selected as CAM interventions due to their widespread use and roots in *Usada Bali*, a holistic traditional healing system in Balinese culture. The classification of CAM in this study was based on the framework provided by the National Center for Complementary and Integrative Health

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(NCCIH), which categorizes CAM into biologically based therapies, mind-body practices, and other complementary approaches. Patients with comorbid conditions such as hypertension, diabetes mellitus, or asthma, and those unwilling to participate were excluded from the study. In addition, individuals with diagnosed psychiatric disorders or incomplete questionnaire responses were also excluded to ensure the reliability and validity of self-reported quality-of-life data.

4. Data Analysis

Descriptive statistics were used to summarize demographic and clinical characteristics. The Shapiro–Wilk test was applied to assess the normality of continuous data. Independent t-tests were used to compare mean quality-of-life scores between groups when the assumption of normality was met; otherwise, the Mann–Whitney test was employed. Given the limited sample size (n = 80), multivariate analysis was not conducted. However, potential confounders were explored through bivariate comparisons to provide preliminary insight into group differences.

RESULTS

Table 1 outlines the demographic characteristics of the 80 respondents included in the study. Based on Chi-square analysis, no significant differences were observed in demographic parameters between the conventional-only and combined therapy groups ($p > 0.05$), confirming a balanced distribution across baseline characteristics.

A comparison of quality-of-life scores between the two groups is presented in Table 2. Patients who received combination therapy demonstrated significantly higher global health status scores (71.67 vs. 61.67; $p = 0.000$) and reported lower symptom scores for fatigue, nausea/vomiting, and pain, reflecting improved symptom management.

Table 1. Demographic Characteristics

Demographic Characteristics	Conventional Therapy (n= 40)	Conventional Therapy and CAM (n= 40)
Age		
46-55	16 (40.0%)	14 (35.0%)
56-65	18 (45.0%)	19 (47.5%)
>65	6 (15.0%)	7 (17.5%)
Education		
Elementary school	18 (45%)	19 (47.5%)
Senior high school	6 (15%)	9 (22.5%)
Junior high school	8 (20%)	4(10.0%)
Diploma	1 (2.5%)	1 (2.5%)
Bachelor degree	2 (5.0%)	4 (10.0%)
No Formal Education	5 (12.5)	3 (7.5%)
Marital Status		
Married	29 (72.5%)	38 (95.0%)
Unmarried	11 (22.5%)	2 (5.0%)
Employment Status		
Employed	11 (27.5%)	13 (32.5%)
Unemployed	29 (72.5%)	27 (67.5)
Duration of Cancer		
Less than 1 year	18 (45%)	14 (35.0%)
1–5 years	21 (52.5%)	25 (62.5%)
More than 5 years	1 (2.5%)	1 (2.5%)
Cancer Stage		
Stage II	23 (57.5%)	20 (50.0%)
Stage III	16 (40.0%)	17 (42.5%)
Stage IV	1 (2.5%)	3 (7.5%)
Chemotherapy Cycle		
>4	27 (67.5%)	23 (57.5%)
<4	13 (32.5%)	17 (42.5%)

DISCUSSION

Half of the respondents reported using a combination of conventional and CAM. The relatively high prevalence of combined use of conventional and CAM among the Balinese population can be attributed to the presence of *Usada Bali*, a traditional system of healing developed through a combination of established principles and centuries of medicinal practice in Bali[18]. Several studies have also reported the prevalence of CAM use among breast cancer patients, including

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36% in Europe, 52% in Australia, 45% in Japan, 98% in China [19], and 57.4% in Turkey [20].

Table 2. Comparison of Patients' Quality of Life (QoL)

Variable	Conventional Therapy (Mean ± SD)	Conventional Therapy and CAM (Mean ± SD)	p-value
Global Health Status	61.67±32.80	71.67±33.00	0.000
Functional Scales			
Cognitive Functioning	54.33±18.60	27.67±22.20	0.000
Physical Functioning	85.67±27.45	83.20±27.45	0.279
Emotional Functioning	93.58±26.40	90.83±26.40	0.602
Role Functioning	53.33±20.10	29.33±39.00	0.009
Social Functioning	31.67±26.10	18.33±30.30	0.071
Symptom Scales			
Fatigue	35.22±28.50	24.44±26.40	0.000
Nausea and Vomiting	74.00±43.50	45.67±21.00	0.003
Appetite Loss	18.33±22.20	18.33±22.20	1.000
Pain	85.67±29.40	52.33±20.10	0.000
Dyspnoea	10.00±16.80	3.33±9.00	0.070
Insomnia	33.33±11.00	32.33±24.00	0.814
Diarrhoea	10.00±19.20	10.00±19.20	1.000
Constipation	20.67±24.90	20.67±24.90	1.000
Financial Difficulties	48.33±17.70	48.33±17.70	1.000

Such variability in prevalence across countries is influenced by differences in sociocultural backgrounds, perceptions regarding the value of CAM, disparities in access to conventional treatment, and inconsistent definitions and criteria used to classify CAM across studies [21].

The demographic characteristics in both groups predominantly included patients aged 56–65, married, with elementary education, and unemployed, aligning with previous findings from similar populations[4]. Notably, patients who had received more than four chemotherapy cycles were more likely to adopt CAM, which is likely to mitigate chemotherapy-related side effects. CAM was perceived to offer comfort and carry low risks[22].

Breast cancer patients receiving combination therapy demonstrated better quality of life, as reflected by higher Global Health Status scores (71.67) compared to those receiving conventional therapy alone (61.67). These findings are consistent with a study conducted in Saudi Arabia, which reported significantly higher global health scores among breast cancer patients using combination therapy (73.16 vs. 64.82; $p = 0.049$) compared to those receiving only conventional treatment [4]. Breast cancer can impact multiple aspects of a patient's life, including physical, emotional, familial, social, and occupational domains, which may subsequently affect overall quality of life [23]. As a result, patients may be more inclined to seek CAM to improve their well-being, particularly when conventional treatments prove insufficient [20]. The present study confirms that the integration of CAM with conventional treatment significantly enhances quality of life, especially in the domain of global health status.

On the functional scale, breast cancer patients reported the highest scores in emotional functioning, with averages of 93.58 ± 26.40 for the conventional group and 90.83 ± 26.40 for the combination therapy group. In contrast, the lowest scores were found in social functioning, 31.67 ± 26.10 and 18.33 ± 30.30, respectively. This may reflect the influence of Balinese cultural traditions such as *ngayah*, a form of voluntary community service especially prominent during religious events. Many patients reported feeling unable to participate in these

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communal activities, which may explain their lower social functioning scores[24].

A significant difference was found in the role functioning domain (p = 0.009) between patients receiving conventional therapy and those undergoing combination therapy. This aligns with a study conducted in Saudi Arabia, which also reported a significant difference favoring conventional therapy (p =0.002) in this domain [4]. Patients receiving conventional therapy demonstrated higher role functioning scores (53.33 ± 20.10), indicating a greater ability to perform daily tasks, engage in work, and pursue hobbies. In contrast, patients on combination therapy may experience diminished role functioning, potentially due to more frequent hospital visits and inpatient care that disrupt routine activities[25].

Cognitive dysfunction is a common complaint among breast cancer survivors, often involving memory lapses, attention deficits, and impaired concentration, which can adversely affect self-perception, social functioning, and work performance[26]. In this study, cognitive functioning scores were significantly higher in the conventional therapy group (54.33 ± 18.60) compared to the combination therapy group (p = 0.000), indicating more favorable cognitive outcomes. These results differ from previous studies in Malaysia[13] and Ethiopia[21], which reported no significant differences between groups. A possible explanation may lie in the types of CAM utilized. While cognitive behavioral therapy (CBT) has demonstrated efficacy in enhancing cognitive functioning[27], participants in this study predominantly used massage, herbal medicine, and spiritual interventions, which may exert less influence on cognitive performance.

In terms of symptom management, significant improvements were observed among patients receiving combination therapy, particularly in the domains of fatigue (p =0.000), nausea/vomiting (p = 0.003), and pain (p =0.000). Patients in the combination group reported lower symptom scores, indicating better symptom control and higher quality of life. These findings diverge from previous studies where significant differences were noted in constipation (p =0.005)[4] and financial difficulties (p =0.01)[13]. This variation may be attributed to differences in the type of CAM employed. In this study, patients used herbal remedies such as lavender aromatherapy, ginger, and white turmeric. Lavender, rich in linalool, provides calming and soothing effects that may alleviate fatigue[28]. Ginger contains active compounds like zingiberene, zingiberol, and zingerone, which can reduce nausea by blocking serotonin receptors in the central nervous system [29]. Meanwhile, the analgesic effects of white turmeric, attributed to its steroid and curcuminol content, helped relieve pain symptoms[30].

This study found that patients receiving a combination of conventional therapy and CAM reported higher global health status scores compared to those receiving conventional therapy alone. However, certain functional domains, such as cognitive and social functioning, were higher in the conventional group. Although patients in the conventional therapy group showed better scores in specific functional aspects, the CAM group demonstrated improvements in symptom-related domains, including pain and insomnia. This indicates that CAM may enhance quality of life through holistic benefits, particularly by alleviating physical discomfort and improving emotional or spiritual well-being dimensions not fully captured by functional subscales. These findings align with previous literature suggesting that CAM, while not curative, may serve as supportive care in symptom management and psychosocial adaptation among cancer

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patients[31]. Although CAM may relieve symptoms and offer holistic benefits, it carries potential risks, including interactions with chemotherapy, especially from biologically based products like herbal supplements. High-dose antioxidants may reduce treatment efficacy, and some herbs pose anticoagulant or hormonal risks. The lack of regulation and clinical evidence further complicates safety, highlighting the need for careful monitoring and open communication with healthcare providers[32].

This study has several limitations. First, its cross-sectional design does not allow for causal inferences between CAM use and quality of life outcomes. Second, the relatively small sample size limited the feasibility of conducting multivariate analyses to control for confounding variables. Third, the use of self-reported instruments such as the EORTC QLQ-C30 may introduce reporting bias or social desirability bias. Recall bias may also have affected the accuracy of patients' reports on CAM usage. Additionally, selection bias is possible, as patients with psychiatric disorders, incomplete questionnaire data, or unwillingness to participate were excluded, which may affect the representativeness of the findings. Lastly, the generalisability of the results is limited, as the study was conducted in a single public hospital in Bali. Cultural factors, healthcare access, and CAM practices in other regions may differ, potentially limiting the applicability of these findings to broader or more diverse populations.

CONCLUSION

Breast cancer patients receiving a combination of conventional and CAM showed significantly higher scores in global health status ($p = 0.000$) and significantly lower scores in fatigue ($p = 0.000$), nausea/vomiting ($p = 0.003$), and pain ($p = 0.000$). However, patients undergoing conventional therapy alone reported better outcomes in functional domains. The results emphasize the importance of healthcare professionals engaging in open communication with patients about CAM usage to reduce the potential for toxicity-related complications. This study is the first to compare the quality of life between breast cancer patients receiving conventional therapy alone and those receiving a combination with CAM. Nevertheless, it has several limitations, including potential recall bias and a small sample size, as the present study was executed in a type B referral hospital. Therefore, the findings may not be generalizable to other settings or cancer types.

CONFLICT OF INTEREST

The authors state that there are no competing interests associated with the preparation or submission of this article.

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