Factors Contributing to Delayed Diagnosis and Use of Complementary Therapies in Breast Cancer Patients in Asia: a Systematic Literature Review

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Abstract

Breast cancer and the widespread use of complementary therapies often lacking medical evidence are major health concerns. Delayed diagnosis, influenced by low public knowledge and stigma, is a leading cause of women's deaths globally, including in Indonesia. High morbidity and mortality result not only from incidence but also from delayed diagnosis, limited health service access, socio-cultural factors, and referral delays from primary health facilities. This study used a Systematic Literature Review (SLR) method to examine 11 research articles from 2017 to 2025. From 820,189 publications identified in PubMed and Google Scholar, strict screening selected 11 relevant studies. Findings indicate diagnosis delays are driven by internal factors like knowledge, perception, trust, and fear, as well as external factors including family support, socio-economic status, healthcare systems, and culture. Complementary therapy use is linked to beliefs in effectiveness, accessibility, lower costs, and social influences. Breast cancer diagnostic delays and complementary therapy use pose critical public health challenges requiring comprehensive interventions. This review synthesizes evidence in the Asian context, highlights gaps in quantitative delay data, and suggests integrated care models tailored for resource-limited settings.

Keywords: breast cancer, complementary

INTRODUCTION

Breast cancer is one of the global health problems that remains the leading cause of morbidity and mortality in women. According to a report by the World Health Organization (WHO, 2021), breast cancer ranks first in the incidence of cancer in women, with the number of new cases reaching more than 2.3 million every year. In Indonesia, breast cancer also occupies the highest position in cancer incidence, with a prevalence of 16.6 per 100,000 women and a mortality rate of 10.3 per 100,000 population. The high incidence rate shows that breast cancer is a serious health problem requiring special attention in prevention, early detection, and treatment (Barrios, 2022; Smolarz et al., 2022; Wilkinson & Gathani, 2021).

One of the factors contributing to the high mortality rate of breast cancer is the delay in diagnosis. Many patients present to health facilities with advanced conditions, dramatically reducing the chances of recovery. This delay arises from various factors, including low public awareness of the need for early examinations, limited access to health services, economic and social factors, and cultural and trust barriers. Some studies show that patients often delay seeking medical evaluation for early symptoms because they do not take the complaint seriously, fear the diagnosis, or prefer to seek *pengobatan alternatif* first before consulting medical personnel. This condition worsens the prognosis and increases the public health burden (Hajat & Stein, 2018; Prince et al., 2015; Sleeman et al., 2019).

In addition to the delay in diagnosis, another prominent phenomenon is the increasing use of complementary therapies in breast cancer patients (Akhtar et al., 2018; Henneghan & Harrison, 2015; Mujar et al., 2017). Complementary therapy, especially the use of herbal plants, spiritual therapy, and relaxation techniques, is considered to help reduce the side effects

of conventional treatments and improve patients' quality of life. Some plants such as soursop leaves, turmeric, ginger, *temu lawak*, and lavender are often used because they are believed to have anticancer effects or help alleviate pain, nausea, and fatigue. In Indonesia, with its strong cultural background, complementary therapy is often used as the first choice before patients eventually turn to modern medical treatment (Liem, 2019; Long, 2019; Pengpid & Peltzer, 2018; Siswanto et al., 2022).

Although complementary therapy is growing in popularity, challenges remain regarding scientific evidence, standards of use, and potential interactions with conventional therapies (Enioutina et al., 2016; Raja et al., 2024; Saggar et al., 2022). On the other hand, delayed diagnosis related to public trust in traditional medicine is an important issue needing further analysis. Therefore, a systematic study of delayed diagnosis and the use of complementary therapies in breast cancer patients is necessary to provide a more comprehensive understanding of this problem.

This systematic literature review addresses three urgent and interconnected issues requiring immediate scholarly attention in Asian developing countries such as Indonesia and Timor-Leste. Firstly, breast cancer mortality remains disproportionately high compared to developed countries, largely due to late-stage diagnosis—with 60–70% of patients presenting at advanced stages, drastically reducing five-year survival rates. Secondly, there is widespread and often undisclosed use of complementary and alternative medicine (CAM), with 40–80% of patients using these therapies, creating risks of harmful interactions and treatment delays within a poorly regulated integrative landscape. Thirdly, a critical knowledge gap exists regarding the interconnection between delayed diagnosis and CAM use, as patients frequently pursue traditional remedies before seeking formal diagnosis and continue combining therapies afterward, with no comprehensive synthesis of these behavioral patterns to inform culturally appropriate healthcare interventions.

This systematic literature review offers several novel contributions to breast cancer care research by uniquely integrating evidence on delayed diagnosis and complementary therapy use within a single framework, revealing their interconnected roles in patient pathways, and providing a holistic view from symptom onset through treatment. It specifically focuses on Asian contexts—primarily Indonesia, Thailand, and Timor-Leste—thereby generating culturally relevant insights distinct from Western-focused reviews. Employing a rigorous PRISMA methodology, it synthesizes diverse study designs to build a comprehensive evidence base that captures both statistical patterns and qualitative patient experiences. Finally, the review explicitly outlines critical research gaps and future directions, such as the need for cohort studies on delay intervals, trials of culturally tailored interventions, and pharmacological research on region-specific herb-drug interactions.

This systematic literature review was designed with clear objectives, anticipated benefits, and practical implications for multiple stakeholders. The primary objective is to identify, critically analyze, and synthesize existing research evidence on factors contributing to delayed breast cancer diagnosis and patterns of complementary therapy utilization among patients in Asian contexts. Specifically, the review aims to (1) map the spectrum of internal and external factors influencing diagnostic delays; (2) categorize types and motivations for complementary therapy use; (3) examine the interconnections between delayed diagnosis and CAM utilization; and (4) identify evidence gaps requiring future research.

The benefits of this review extend across multiple domains. Academically, it provides scholars with a comprehensive, critically synthesized evidence base to inform future empirical studies, theoretical framework development, and comparative international research. For healthcare providers—including oncologists, nurses, primary care physicians, and traditional medicine practitioners—the review offers evidence-based insights into patient behavior patterns, enabling more empathetic, culturally sensitive communication and shared decision-making. For policymakers and health system administrators, the synthesis provides a foundation for designing targeted interventions, resource allocation strategies, and regulatory frameworks for safe CAM integration.

The practical implications are substantial. First, the review informs the development of multi-level intervention strategies addressing knowledge deficits through community education, reducing structural barriers through improved referral systems, and engaging traditional healers as partners in early detection campaigns. Second, findings support the creation of evidence-based clinical guidelines for oncology teams on how to assess, discuss, and safely integrate complementary therapies within conventional cancer care protocols. Third, the review highlights specific research priorities, guiding funding agencies and research institutions toward high-impact studies that can accelerate progress in reducing breast cancer mortality in Asia. Ultimately, this systematic review contributes to the broader goal of achieving health equity by addressing the disproportionate breast cancer burden experienced by women in resource-limited Asian settings.

RESEARCH METHOD

This study employed a Systematic Literature Review methodology to identify, analyze, and synthesize research on factors contributing to delayed diagnosis and the use of complementary therapies among breast cancer patients. The research was conducted at the Health Sciences Library of Universitas Indonesia between October and December 2024 and was systematically guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework.
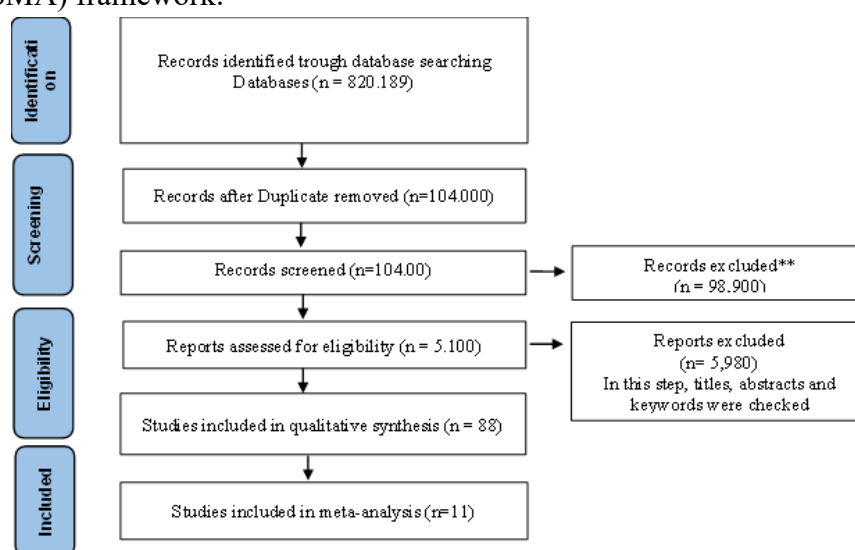

Figure 1 PRISMA Flow Diagram

A targeted search strategy was implemented across reputable databases, including PubMed and Google Scholar. Using Boolean operators, keywords related to breast cancer were

combined with terms for diagnostic delays and complementary therapies, while geographic filters focused the search on Indonesia, Timor-Leste, Thailand, and Southeast Asia. To ensure the review captured contemporary evidence, the search was limited to articles published between 2017 and 2025, and only studies with full-text availability in English or Indonesian were included.

The selection process applied clear inclusion and exclusion criteria. Studies were required to involve breast cancer patients, examine factors of delayed diagnosis or complementary therapy use, be set in Asian contexts, and be primary research articles. Publications such as reviews, editorials, or studies focused solely on basic science without behavioral components were excluded. This rigorous screening began with the identification of approximately 820,189 publications, which were then filtered by title and abstract to 5,980 articles.

Scientific articles are obtained from various reputable databases, including PubMed, Google Scholar. The keywords used in the search process included a combination of terms: "breast cancer", "delayed diagnosis", "complementary therapy", "herbal medicine", and "cancer care in Indonesia". The search is limited to articles published in the period 2017–2025, in English and Indonesian, and have full access to the full manuscript.

Although formal quality assessment scoring was not applied due to the inclusion of diverse study designs (quantitative, qualitative, mixed methods), all included articles underwent critical appraisal based on established criteria. For quantitative studies, assessment focused on sample size adequacy, sampling method appropriateness, measurement validity, statistical analysis rigor, and control for confounding variables. For qualitative studies, criteria included methodological transparency, data collection rigor, analytical depth, reflexivity, and credibility of interpretations. Mixed-methods studies were evaluated using integrated criteria assessing both quantitative and qualitative components as well as integration quality. Studies with major methodological limitations that could compromise validity were excluded during full-text screening.

Data extraction employed a standardized form capturing: author details, publication year, study location, research design, sample characteristics, key objectives, primary findings related to diagnostic delays and/or CAM use, and methodological strengths/limitations. Given the heterogeneity of study designs and outcome measures, meta-analysis was not feasible. Instead, narrative synthesis was employed, organizing findings thematically around: (1) internal factors influencing diagnostic delay; (2) external factors influencing diagnostic delay; (3) types and patterns of complementary therapy use; (4) motivations for CAM utilization; and (5) interconnections between delayed diagnosis and CAM use. Synthesis prioritized identifying patterns, contradictions, and gaps across the literature to generate comprehensive, evidence-based conclusions.

RESULTS AND DISCUSSION

The results of the study from the 11 articles analyzed showed two main recurring themes, namely (1) factors of delay in breast cancer diagnosis and (2) the use of complementary therapies in breast cancer patients. Several articles assert that the delay in breast cancer diagnosis is largely influenced by social, cultural, economic, and patient knowledge factors. Studies conducted in several Asian countries, including Indonesia, show that low public

knowledge about the signs and symptoms of breast cancer leads to delays in seeking medical help. Patients tend to think of lumps in the breast as a mild disease that can be cured with traditional medicine, thus delaying an examination to a health facility.

Quantitatively, the synthesis reveals concerning patterns of diagnostic delay across Asian settings. Costa et al. (2021) reported that more than 40% of breast cancer patients in Timor-Leste experienced diagnostic delays exceeding six months from initial symptom detection, with patients presenting predominantly at advanced stages (III-IV). This finding aligns with broader Asian patterns documented in the literature, where late-stage presentation remains the norm rather than the exception. The consequences are severe: patients diagnosed at advanced stages face significantly reduced treatment options, higher morbidity from aggressive therapies, substantially lower survival rates, and catastrophic financial burdens on families.

The internal factors contributing to these delays form a complex constellation of cognitive, emotional, and perceptual barriers. Knowledge deficits emerged as a primary barrier across multiple studies, with patients frequently unable to recognize breast lumps, skin changes, or nipple discharge as cancer warning signs. This knowledge gap is compounded by perceptual minimization—patients interpreting symptoms as minor, temporary, or related to benign conditions such as mastitis or fibrocystic changes. Fear represents another powerful internal barrier, with patients expressing fear of cancer diagnosis itself, fear of surgical mutilation (mastectomy), fear of chemotherapy side effects, and fear of death. This fear often manifests as denial or avoidant coping, where patients consciously or unconsciously postpone medical consultation to avoid confronting the possibility of cancer.

Trust-related factors also significantly influence diagnostic timing. Many patients, particularly in rural and traditional communities, express greater trust in traditional healers, herbal remedies, and spiritual interventions than in biomedical practitioners. This preferential trust leads to sequential care-seeking patterns where patients first exhaust traditional options before eventually—often reluctantly—seeking modern medical consultation, by which time disease has progressed considerably.

Cultural factors also play a big role, where shame, stigma against cancer, and belief in alternative medicine make some patients reluctant to do early check-ups. Cultural stigma surrounding breast cancer creates powerful disincentives for help-seeking. In many Asian communities, cancer remains associated with death, moral failing, or karmic retribution, generating profound shame that prevents patients from disclosing symptoms even to family members. Gender-related modesty norms further complicate early detection, with women feeling uncomfortable allowing male physicians to examine their breasts, or feeling that breast symptoms are too private or embarrassing to discuss. These cultural factors intersect with family dynamics in complex ways—some families provide crucial support facilitating early consultation, while others impose delay through denial, preference for traditional medicine, or patriarchal decision-making structures where husbands or male relatives must approve medical care-seeking.

In addition, economic factors such as limited costs, access to health facilities, and distance to referral hospitals are the main obstacles for patients to obtain timely diagnoses. External structural barriers compound patient-level factors. Healthcare access limitations include geographic barriers (distance to diagnostic facilities, particularly for rural populations), financial barriers (costs of consultation, diagnostic imaging, biopsy procedures, and

transportation), and system inefficiencies (long waiting times for appointments, delayed referral pathways from primary to tertiary care, shortage of trained breast surgeons and oncologists). Studies from Indonesia and Timor-Leste particularly emphasize how fragmented referral systems contribute to diagnostic delay, with patients shuttling between facilities without clear care coordination, often requiring multiple consultations before definitive diagnosis.

Several other studies emphasize gender roles and family support. In some cases, the decision to seek treatment is still heavily influenced by family members, especially the husband, who can delay the patient's decision to have an examination. These factors exacerbate the delay in diagnosis, so patients often come to the hospital at an advanced stage.

The second theme that stands out is the high use of complementary and alternative medicine (CAM) among breast cancer patients. The results of several articles show that the use of complementary therapies, especially herbal based, is quite high in Indonesia and other developing countries. Ryamizard et al. (2018) found that 55.67% of cancer patients undergoing radiotherapy used at least one form of traditional, complementary, or alternative medicine (TCAM), while Achyar et al. (2018) reported even higher utilization rates of 80% among breast cancer patients, with most using herbal decoctions of leaves and rhizomes. São Paulo et al. (2014) found that 43% of patients used complementary therapy, with duration of illness significantly affecting CAM adoption (OR = 5.784), suggesting that prolonged illness increases the likelihood of seeking alternative treatments.

The most commonly used types of therapy include traditional herbal medicine, herbal herbs such as soursop leaves, turmeric, ginger, temulawak, and non-herbal therapies such as prayer, meditation, acupuncture, and reflexology. The typology of complementary therapies documented across studies reflects both traditional Asian healing practices and globalized wellness trends. Herbal therapies dominate, with specific plants frequently mentioned: soursop (Annona muricata) leaves, believed to possess anticancer properties; turmeric (Curcuma longa), valued for anti-inflammatory effects; ginger (Zingiber officinale), used to manage chemotherapy-induced nausea; temu lawak (Curcuma xanthorrhiza), traditionally used for liver support; and various traditional herbal formulations (jamu in Indonesia) passed down generationally. Widiyastuti et al. (2019) provided laboratory evidence that certain herbal combinations showed cytotoxic effects on MCF-7 breast cancer cells, lending some scientific credibility to traditional practices, though clinical efficacy remains unproven.

Non-botanical CAM modalities also featured prominently. Aromatherapy, particularly lavender, received empirical support from Sagala et al. (2022), who demonstrated through randomized controlled trial that lavender aromatherapy via humidifier significantly improved sleep quality in breast cancer patients—representing one of the few evidence-based complementary interventions identified. Mind-body practices including prayer, meditation, mindfulness, and spiritual healing were widely utilized, reflecting the integration of religious and spiritual dimensions in Asian illness experiences. Physical therapies such as acupuncture, reflexology, massage, and yoga were also reported, often used to manage pain, fatigue, and emotional distress.

The main reasons patients use complementary therapy are the hope to speed up healing, reduce the side effects of chemotherapy, increase stamina, and have a strong cultural belief in the efficacy of traditional medicine. Wanchai et al. (2016) provided detailed qualitative insights

into motivations for CAM use among Thai breast cancer patients, identifying a complex interplay of factors: kinship influences (family recommendations based on personal or observed experiences), social network effects (friends, support groups, social media testimonials), economic considerations (CAM often perceived as more affordable than pharmaceutical interventions), and deeply held cultural beliefs linking healing to natural remedies, spiritual balance, and traditional wisdom. Importantly, information sources about CAM were predominantly informal—family, friends, community members—rather than healthcare professionals, highlighting disconnects between formal medical systems and patient decision-making processes.

Patients also feel more comfortable because this therapy is easy to obtain, relatively inexpensive, and is considered more natural. However, some studies have shown potential risks from the use of uncontrolled complementary therapies, such as negative interactions with chemotherapy drugs or patient delays in following standard medical treatments. However, some patients still combine complementary therapy with conventional medical therapy.

The critical issue of CAM-chemotherapy interactions emerged as a significant safety concern. While most studies documented concurrent CAM use alongside conventional treatment, few patients disclosed their CAM use to oncologists—Ryamizard et al. (2018) found that most patients did not report TCAM use to doctors. This non-disclosure creates risks of herb-drug interactions that could reduce chemotherapy efficacy, increase toxicity, or complicate clinical interpretation of treatment responses. The lack of evidence-based guidance for oncologists on managing CAM use further compounds these risks, as healthcare providers often lack knowledge about traditional Asian herbal medicines, their pharmacological properties, and potential interaction mechanisms.

From the overall article, it can be seen that the pattern of delay in diagnosis and the use of complementary therapies is related. Delays in diagnosis are often caused by an early belief in traditional medicine, so the patient delays a medical examination. Meanwhile, after being diagnosed with breast cancer, many patients still continue to use complementary therapies as part of their disease management. This reveals a sequential patient journey: pre-diagnosis delay driven by preferential reliance on traditional medicine, followed by post-diagnosis CAM continuation as adjunct or alternative to conventional treatment. This pattern suggests that interventions must address both pre-diagnosis health beliefs and post-diagnosis treatment decision-making to comprehensively improve patient outcomes.

Quantitatively, several articles mention that more than 50% of breast cancer patients in Indonesia and similar countries have used complementary therapy. On the other hand, more than 40% of patients experience a delay of diagnosis of more than 6 months from the first symptoms appearing. This shows the need for public health interventions that emphasize early education, early breast cancer detection campaigns, and counseling on the safe use of complementary therapies.

Of the 11 articles, the majority of the studies used a quantitative design with a survey of breast cancer patients, while a small minority used a qualitative approach to explore the patient's experience. Recent studies have focused more on mapping the types of complementary therapies used, their effects on quality of life, and interactions with medical treatment.

Methodologically, the reviewed literature revealed important patterns and limitations. Quantitative studies (7 of 11) predominantly employed cross-sectional designs with convenience or purposive sampling, limiting generalizability and precluding causal inference. Sample sizes ranged from small (n<50) to moderate (n=100-400), with only one study exceeding 500 participants. Qualitative studies (3 of 11) utilized ethnographic, phenomenological, or case study approaches, providing rich contextual insights but limited in scope. One study employed mixed methods. Notably absent were prospective cohort studies tracking patients from symptom onset through diagnosis, which would enable precise quantification of delay intervals and identification of critical decision points. Also lacking were intervention studies testing educational programs, community mobilization strategies, or integrated care models combining conventional and complementary approaches.

Overall, the results of this SLR show that two key factors that greatly influence the course of breast cancer disease are delayed diagnosis and the use of complementary therapies. These two factors can be the basis for developing a more comprehensive breast cancer prevention and management strategy, considering the socio-cultural context of the patient.

Discussion

The results of this systematic literature review show that the factor of delay in breast cancer diagnosis is greatly influenced by aspects of knowledge, culture, access to health services, and social support. Some studies emphasize that patients' delays in getting checked out are due to a low level of knowledge about the signs and symptoms of breast cancer, as well as the assumption that lumps or pain in the breast are not serious problems. Cultural factors also play a significant role, where some people still associate the disease with traditional beliefs and prefer alternative medicine before seeking formal medical services.

The synthesis of evidence reveals that delayed diagnosis and complementary therapy use are not isolated phenomena but interconnected elements of a complex socio-cultural-medical system shaping breast cancer outcomes in Asia. This integrated understanding challenges simplistic interventions targeting single factors and demands multi-level, culturally tailored strategies addressing the full spectrum of influences on patient behavior.

At the individual level, health literacy interventions must go beyond generic cancer awareness to provide specific, actionable information: what breast changes warrant immediate medical consultation, how to perform breast self-examination correctly, where to access free or low-cost screening services, and what to expect during diagnostic workup. These interventions must address not only knowledge gaps but also emotional barriers—fear, denial, stigma—through culturally sensitive messaging that normalizes help-seeking and destigmatizes cancer diagnosis. Testimonials from breast cancer survivors, particularly those diagnosed early with good outcomes, can powerfully counter fatalistic narratives and demonstrate that early detection saves lives.

Barriers to access to health services are also the main cause of delayed diagnosis. The study showed that patients in rural or remote areas experienced limited diagnostic facilities, delay in referrals, and high costs. This condition has implications for the diagnosis of cancer that is more commonly found in advanced stages, which is associated with low treatment success rates and high mortality rates.

At the healthcare system level, structural reforms are essential. Strengthening primary healthcare capacity for early breast cancer detection requires training primary care providers in clinical breast examination, establishing referral protocols with clear pathways and timelines, subsidizing or eliminating fees for breast imaging and biopsy procedures for low-income populations, and deploying mobile screening units to reach geographically isolated communities. The fragmented referral systems documented in this review—where patients navigate multiple facilities without coordination—demand systematic reform toward integrated cancer care networks with case management support. Timor-Leste and Indonesia's experiences highlight how decentralization of cancer care, while improving geographic access, has created coordination challenges that inadvertently contribute to diagnostic delays.

Regarding the use of complementary therapy, the majority of articles show that the use of herbal medicines, traditional herbs, and non-conventional therapies such as acupuncture and aromatherapy is quite high in breast cancer patients. The main motivation of patients in choosing complementary therapy is the belief that natural remedies are safer, have fewer side effects, and can improve the quality of life. Some patients also use complementary therapy as a support to conventional medical therapy, especially to reduce the side effects of chemotherapy and radiotherapy.

The high prevalence of CAM use necessitates a paradigm shift from ignoring or dismissing these practices toward evidence-based integration. The current situation—where majority of patients use CAM without clinical oversight—is neither safe nor optimal. An integrative oncology approach recognizes patients' desires for holistic care while ensuring safety and evidence-based practice. This requires several key elements: routine CAM assessment as part of standard oncology consultations, non-judgmental inquiry creating safe space for disclosure, provider education on common Asian herbal medicines and potential interactions, development of evidence-based guidelines distinguishing potentially beneficial CAM (like lavender aromatherapy for sleep) from dangerous practices (like replacing chemotherapy with unproven herbs), and collaborative care models where oncologists consult with knowledgeable traditional medicine practitioners or integrative medicine specialists.

The use of complementary therapy often causes delays in undergoing standard medical treatment. Some patients delay medical examinations or treatment because they first try alternative medicine. This shows the importance of the role of health workers in providing clear and evidence-based education, so that patients can make the right decisions regarding treatment strategies.

Community-level interventions engaging traditional healers represent an underutilized strategy. Rather than positioning traditional and modern medicine as adversarial, public health programs could train traditional healers as breast cancer detection advocates who refer patients with suspicious symptoms to medical facilities while continuing to provide cultural and spiritual support. Indonesia's jamkesmas (health insurance for the poor) program and community health worker (kader) networks provide existing infrastructure for implementing such integrated approaches, yet these systems remain underutilized for breast cancer control.

The literature reviewed also shows a potential interaction between certain complementary therapies and chemotherapy drugs, which can affect the effectiveness and toxicity of treatment. Therefore, health workers need to conduct a comprehensive assessment

of the use of complementary therapies in patients, as well as encourage open communication between patients and doctors so that adverse side effects do not occur.

Policy-level recommendations emerge clearly from this synthesis. National cancer control programs must explicitly address both early detection and CAM use as interconnected priorities. Regulatory frameworks for traditional medicine require strengthening to ensure quality control, safety monitoring, and evidence generation. Public health campaigns must move beyond one-way information transmission toward dialogue-based, community-engaged approaches that respect cultural values while promoting life-saving behaviors. Health insurance schemes must eliminate financial barriers to diagnostic procedures. Medical and nursing education must incorporate cultural competency training addressing traditional health beliefs and communication skills for discussing CAM use non-judgmentally.

Research gaps identified in this review point toward critical future directions. Prospective cohort studies are urgently needed to precisely quantify delay intervals from symptom onset to diagnosis, identifying specific decision points where interventions could prevent delay. Intervention studies testing culturally tailored educational programs, community mobilization strategies, traditional healer engagement models, and integrated care approaches are essential for building evidence-based practice. Pharmacological studies examining herb-drug interactions specific to Asian herbal formulations commonly used by breast cancer patients would inform safer CAM integration. Qualitative research exploring male family members' decision-making roles and effective strategies for engaging them as early detection advocates could address the gender dynamics documented in several studies. Health economics research quantifying the costs of late-stage diagnosis versus early detection would strengthen the policy case for prevention investments.

The findings in this SLR confirm that delayed diagnosis and high utilization of complementary therapies are important issues in breast cancer management. Intervention efforts needed include public education, increased access to health services, and the integration of safe complementary therapies in the oncology service system. Thus, the patient's quality of life can be improved without sacrificing the effectiveness of scientifically proven medical treatments.

Ultimately, improving breast cancer outcomes in Asia requires acknowledging and addressing the complex realities of patient decision-making, care-seeking, and treatment adherence in contexts where traditional and modern medical systems coexist. Neither dismissing patients' cultural beliefs nor uncritically accepting all traditional practices will suffice. Instead, evidence-based integration—guided by patient safety, cultural respect, and scientific rigor—offers the most promising path forward. This systematic review provides a synthesized evidence foundation to inform such integrated approaches, with the ultimate goal of reducing the unconscionable mortality gap between Asian and Western breast cancer patients.

Table 1: Selected Research Articles

Article Title	Author and Year	Research Objectives	Research Methodology	Result
Knowledge and Practice of Herbal and Spice	Athory & Andreas (2018)	Describing the knowledge and practice of herbal and spice	Qualitative, ethnographic approach, purposive sampling	Knowledge is acquired through oral generations, personal experience, and the

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Article Title	Author and Year	Research Objectives	Research Methodology	Result
Consumption in the Community		consumption in the community around the Semarang Chinatown area		internet. Herbs and spices are used for the treatment and prevention of diseases. Commonly consumed types include turmeric, bay leaves, soursop leaves, kencur, and herbal medicine.
Cytotoxic Effects of Soursop Leaf Herbal Formula, Takokak Fruit, and Bidara Upas Tuber on Breast Cancer Cells	Widiyastuti *et al.*, (2019)	To determine the cytotoxic activity of herbal formula consisting of soursop leaves, takokak fruit, and bidara upas tubers against MCF-7 breast cancer cells	In vitro experiments with MTT assay and immunocytochemical methods	Single extracts and mixed formulas of all three plants exert cytotoxic effects on MCF-7 cells with the most effective 1:1:1 formula (IC50 48.89 μg/mL). The formula also decreases the expression of the antiapoptosis protein Bcl-2, increasing cell apoptosis
Factors Influencing Thai Women with Breast Cancer to Use Complementary Therapy	Wanchai *et al.*, (2016)	Identify cultural and social structural factors that affect Thai women with breast cancer using complementary therapies to improve health and well-being	Qualitative, Leininger's ethnonursing method; in-depth interviews and field notes; thematic analysis using NVivo	The main factors in choosing complementary therapy include kinship, social factors (support groups and media), economic status, and beliefs and lifestyle. The main source of information is from family and friends. The problem of cost is an obstacle. Religious beliefs and lifestyle influence the choice of therapy
Cultural Factors Inhibit Cancer Patients from Seeking Treatment in Modern Medical Facilities	Meiyenti *et al*, (2019)	Identify the sociocultural factors that influence cancer patients' reluctance to seek treatment in modern treatment facilities	Qualitative, ethnographic, in-depth interviews and observations; Questionnaire for respondent selection	Key factors include cultural knowledge about disease, belief in traditional medicine, family and social environment influences, shame, fear of medical procedures, to social effects such as stigma; Traditional Treatment Is Less Effective So Cancer Treatment Is Slow
Consumption of Herbal Medicines in Breast Cancer Patients	Achyar *et al.*, (2018)	Knowing the description of the use of herbal medicines in breast cancer patients	Deskriptif cross-sectional	80% of patients use traditional herbal remedies in the form of decoction of leaves and rhizomes; Sources of information on the use of herbs come from

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Article Title	Author and Year	Research Objectives	Research Methodology	Result
				hereditary habits of ancestors (90%)
The Relationship of the Use of Modern and Complementary Therapies to the Quality of Life of Breast Cancer Patients	Irawan *et al.*, (2017)	Identify the relationship between modern and complementary therapies (herbal, massage, herbal-massage) and the quality of life of breast cancer patients undergoing chemotherapy	Cross-sectional correlation, Spearman analysis	Modern and complementary therapies are significantly associated with quality of life, modern therapies are significantly related and modern therapies with herbs are significantly related. There was no significant association between modern therapy and massage, nor the combination of complete therapy and quality of life. Family support and the stage of cancer also affect quality of life
Lavender Aromatherapy Through Humidifier On Sleep Quality Of Breast Cancer Patients	Ready *et al.*, (2022)	Identifying the effect of lavender aromatherapy interventions on the sleep quality of breast cancer patients	Randomized Controlled Trial with pretest-posttest control design	Lavender aromatherapy significantly improved sleep quality compared to controls; Aromatherapy is recommended as an alternative therapy for the quality of sleep of breast cancer patients
Overview of the Use of Traditional, Complementary and Alternative Medicine in Cancer Patients Undergoing Radiotherapy	Ryamizard *et al.*, (2018)	To know the proportions and descriptions of the use of TCAM in cancer patients undergoing radiotherapy	Descriptive with cross-sectional design; Consecutive Sampling	55.67% of patients used at least one of the TCAMs; the most widely used types of TCAM vitamins, minerals, oils, herbs; most do not report TCAM use to doctors; The most sources of info from friends
Persistent Fight Breast Cancer with Traditional Medicine	Stuttgart *et al.*, (2024)	Describe a woman's persistence in fighting breast cancer by practicing traditional medicine	Qualitative case studies with thematic analysis and semi-structured interviews	The subject hides his illness from the family, undergoes physical, emotional, and behavioral changes. Have strong motivation and perseverance (perseverance of effort) to heal, remain consistent even when experiencing boredom or stress, in order to achieve long-term goals such as marriage and work
Analysis of Factors	Costa *et al.*, (2021)	Analysis of Factors	Cross-sectional quantitative descriptive	Predisposing factors: low education and lack

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Article Title	Author and Year	Research Objectives	Research Methodology	Result
Influencing Delayed Treatment in Women With Breast Cancer at Guido Valadares National Hospital Dili Timor-Leste		Influencing Delayed Treatment in Women With Breast Cancer at Guido Valadares National Hospital Dili Timor-Leste	using accidental sampling	of experience about breast cancer; behavior of delaying treatment including indirect to the doctor, preferring a shaman; possible factors: distance, cost, and treatment facilities; Booster factors do not have a big effect.
The length of time you have been suffering from the disease affects the use of alternative complementary medicine in breast cancer	São Paulo *et al.*, (2014)	Knowing the effect of the length of time they have been suffering from the disease on the use of alternative complementary therapies in breast cancer patients	Kuantitatif, cross-sectional	43% of patients used complementary therapy, age and length of illness had a significant effect on the use of complementary therapy with an OR of 5,784 for length of illness

CONCLUSION

This systematic literature review reveals that delayed breast cancer diagnosis and widespread use of complementary and alternative therapies in Asia are interconnected challenges shaped by individual factors like low health literacy, fear, and preference for traditional medicine, alongside external influences such as economic hardship, geographic barriers, fragmented healthcare, and cultural norms. These delays often lead to late-stage diagnosis and poorer outcomes, while common reliance on complementary therapies—driven by cultural beliefs, affordability, and social pressure—raises concerns about herb-drug interactions and treatment adherence without proper medical guidance. The findings emphasize the need for integrated, culturally sensitive public health strategies that promote early detection and safe, evidence-based incorporation of complementary therapies into conventional cancer care. Future research should focus on prospective cohort studies to accurately measure diagnostic delays and pinpoint intervention opportunities, alongside mixed-method and intervention studies to create and evaluate culturally tailored education, community engagement, and integrative care models involving traditional healers. Investigating pharmacological interactions specific to the region is critical for safe complementary therapy use. Further studies on family dynamics, gender roles, and economic barriers in care-seeking behavior will deepen understanding and support development of targeted, multi-level interventions to reduce breast cancer mortality in resource-limited Asian contexts.

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