FACTORS INFLUENCING WOMEN'S KNOWLEDGE OF BREAST CANCER: LITERATURE REVIEW

FAKTOR-FAKTOR YANG MEMPENGARUHI PENGETAHUAN WANITA TENTANG KANKER PAYUDARA: TINJAUAN PUSTAKA

Andre Budi[1*], Lady Evelyn Aritonang[2], Hendrianto[3]

[1]Universitas Prima Indonesia, Email: andrebudi@unprimdn.ac.id
[2*]Universitas Prima Indonesia, Email: ladyevelyn349@gmail.com
[3]Universitas Prima Indonesia

*email koresponden: ladyevelyn349@gmail.com

Abstract

Breast cancer remained the most frequently diagnosed cancer among women and continued to contribute substantially to morbidity and mortality, particularly in developing countries. In Indonesia, most breast cancer cases were detected at an advanced stage, indicating inadequate knowledge and low awareness of early detection. This study aimed to identify factors influencing women's knowledge of breast cancer through a systematic literature review. A literature review was conducted using the Preferred Reporting Items for Systematic Reviews. Ten national and international research articles published between 2021 and 2025 were analyzed using a qualitative descriptive approach supported by simple descriptive statistics through vote counting. The results showed that women's knowledge of breast cancer was influenced by internal and external factors. Internal factors included education level, age, attitudes and awareness, and psychological factors. External factors comprised access to information and educational media, the role of health professionals, educational interventions, socioeconomic status, cultural norms, and family support. Education level and access to information were identified as the most dominant factors based on their frequency across the reviewed studies. It was concluded that women's knowledge of breast cancer was shaped by the interaction between individual characteristics and social environments. Comprehensive and sustainable health education strategies were therefore required to improve breast cancer awareness and support early detection practices.

Keywords : Breast Cancer, Knowledge Level, Women, Early Detection, Health Education.

Abstrak

Kanker payudara tetap menjadi jenis kanker yang paling sering didiagnosis pada perempuan dan terus memberikan kontribusi besar terhadap angka morbiditas dan mortalitas, terutama di negara berkembang. Di Indonesia, sebagian besar kasus kanker payudara terdeteksi pada stadium lanjut, yang menunjukkan masih rendahnya pengetahuan dan kesadaran perempuan terhadap deteksi dini. Penelitian ini bertujuan untuk mengidentifikasi faktor-faktor yang memengaruhi tingkat pengetahuan perempuan

tentang kanker payudara melalui tinjauan pustaka sistematis. Tinjauan pustaka dilakukan menggunakan pedoman Preferred Reporting Items for Systematic Reviews. Sebanyak sepuluh artikel penelitian nasional dan internasional yang diterbitkan antara tahun 2021 hingga 2025 dianalisis menggunakan pendekatan deskriptif kualitatif yang didukung oleh statistik deskriptif sederhana melalui metode vote counting. Hasil kajian menunjukkan bahwa tingkat pengetahuan perempuan tentang kanker payudara dipengaruhi oleh faktor internal dan eksternal. Faktor internal meliputi tingkat pendidikan, usia, sikap dan kesadaran, serta faktor psikologis. Faktor eksternal mencakup akses terhadap informasi dan media edukasi, peran tenaga kesehatan, intervensi pendidikan, status sosial ekonomi, norma budaya, serta dukungan keluarga. Tingkat pendidikan dan akses terhadap informasi merupakan faktor yang paling dominan berdasarkan frekuensinya dalam studi yang ditinjau. Dapat disimpulkan bahwa pengetahuan perempuan tentang kanker payudara dibentuk oleh interaksi antara karakteristik individu dan lingkungan sosial. Oleh karena itu, diperlukan strategi pendidikan kesehatan yang komprehensif dan berkelanjutan untuk meningkatkan kesadaran terhadap kanker payudara serta mendukung praktik deteksi dini.

Kata Kunci : kanker payudara, tingkat pengetahuan, perempuan, deteksi dini, pendidikan kesehatan.

1. INTRODUCTION

Breast cancer remained the most frequently diagnosed cancer among women and continued to represent a major public health challenge, particularly in low- and middle-income countries. Globally, breast cancer accounted for a substantial proportion of cancer-related morbidity and mortality among women, while in Indonesia it constituted more than thirty percent of all female cancer cases, with most patients diagnosed at an advanced stage (World Health Organization, 2024; Ministry of Health of Indonesia, 2022). This condition indicated persistent limitations in early detection efforts and preventive awareness.

Early detection strategies, including breast self-examination, clinical breast examination, and mammography, have been recognized as effective measures to reduce breast cancer mortality when applied appropriately (Yip & Smith, 2021; Ganatra et al., 2024). However, participation in early detection practices remained low in many developing settings. National health surveys showed that fewer than half of women had ever performed breast self-examination and less than ten percent had undergone clinical breast examination by health professionals (Riskesdas, 2023). Limited knowledge regarding breast cancer risk factors, early symptoms, and detection methods was identified as a major barrier to the utilization of these preventive services (Bener et al., 2022).

Knowledge plays a crucial role in shaping health-related behavior. Women with adequate knowledge tend to demonstrate higher awareness and are more likely to engage in early detection practices (Jobran et al., 2023; Alanazi et al., 2025). Nevertheless, previous studies examining factors influencing women's knowledge of breast cancer have reported inconsistent findings. Several studies emphasized individual characteristics such as education level and age as dominant determinants (Akhadiyah, 2024; Linsell et al., 2021), while others highlighted the importance of external factors including access to information, educational media, cultural norms, and support from health professionals and family members (Patui et al., 2023; Juartika et al., 2024; Unger-Saldaña, 2023).

Most existing studies were conducted in specific contexts and focused on limited populations, resulting in fragmented evidence and limited cross-contextual comparison. Consequently, there has been insufficient synthesis to distinguish determinants that consistently influenced women's knowledge of breast cancer from those that were context-dependent (Anderson et al., 2022; Sharma et al., 2023). This gap constrained the development of effective, evidence-based, and culturally appropriate health education strategies.

Therefore, this literature review aimed to systematically identify and analyze internal and external factors influencing women's knowledge of breast cancer using a structured review approach based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. The novelty of this study lies in its synthesis of recent empirical evidence through a systematic narrative analysis supported by vote counting, enabling the identification of dominant and context-dependent determinants. The findings of this review are expected to contribute to the development of more effective and targeted health education interventions to enhance breast cancer awareness and support early detection practices.

2. RESEARCH METHOD

This study employed a systematic literature review design conducted chronologically in accordance with the Preferred Reporting Items for Systematic Reviews and PRISMA 2020 guidelines. The review process was structured to ensure transparency, consistency, and scientific rigor from study identification to data synthesis (Cronje, 2020).

a. Research Design

A qualitative descriptive literature review approach was applied. The purpose of this review was to synthesize empirical evidence from previous studies to identify factors influencing women's knowledge of breast cancer. A simple descriptive technique using vote counting was employed to summarize the frequency of reported factors across the reviewed studies, which is appropriate for synthesizing heterogeneous research findings (Fryer & Dinsmore, 2020).

b. Research Procedure

The research procedure was carried out through sequential stages:

1) Identification of Studies

Relevant articles were identified through systematic searches of PubMed, Scopus, and Google Scholar using predefined keywords related to breast cancer, women's knowledge, and early detection.

2) Screening Process

Titles and abstracts were screened to remove duplicate records and studies that did not meet the research objectives.

3) Eligibility Assessment

Full-text articles were assessed based on inclusion criteria, including original research articles published between 2021 and 2025, involving female participants, and explicitly discussing factors influencing breast cancer knowledge.

4) Inclusion and Data Extraction

Ten eligible articles were included. Data were extracted regarding study characteristics, reported knowledge levels, and internal and external influencing factors. This chronological procedure ensured a systematic and reproducible review process (Cronje, 2020).

c. Data Acquisition and Analysis

Data acquisition involved extracting qualitative information from the selected articles. Identified factors were categorized into internal and external determinants. Vote counting was then applied to calculate the number and proportion of studies reporting each factor. This approach facilitated the identification of dominant determinants without statistical aggregation, making it suitable for descriptive synthesis of diverse studies (Fryer & Dinsmore, 2020).

3. RESULT AND DISCUSSION

a. Women's Knowledge of Breast Cancer

The reviewed studies consistently demonstrated that women's knowledge of breast cancer varied substantially across populations, settings, and sociocultural contexts. Eight out of ten studies classified women's knowledge levels as moderate to high, whereas two studies reported predominantly low knowledge levels (Jobran et al., 2023; Alanazi et al., 2025). Studies reporting low knowledge were primarily conducted among women with limited educational attainment, restricted access to health information, and residence in rural or socioeconomically disadvantaged areas (Alfarafisa et al., 2023; Patui et al., 2023). These findings indicated that disparities in educational and informational resources continued to shape inequities in breast cancer knowledge.

Despite the relatively favorable classification of knowledge levels in most studies, a deeper examination revealed that such knowledge was often superficial and fragmented. Several studies reported that women were able to identify breast cancer as a serious and potentially fatal disease but lacked detailed understanding of early warning signs, appropriate breast self-examination techniques, and recommended screening intervals (Bener et al., 2022; Linsell et al., 2021). This pattern suggested that knowledge assessments in many studies emphasized general awareness rather than comprehensive and actionable understanding. Consequently, moderate knowledge levels did not consistently translate into effective early detection behavior, highlighting a persistent gap between awareness and practice.

Internal Factors Influencing Women's Knowledge

Education level emerged as the most dominant internal factor influencing women's knowledge of breast cancer. Vote counting analysis revealed that education was reported as a determinant in six of the ten reviewed studies (Akhadiyah, 2024; Jobran et al., 2023). Women with secondary or higher education consistently demonstrated superior comprehension of breast cancer risk factors, early symptoms, and detection methods. Higher educational attainment enhanced health literacy, analytical capacity, and the ability to critically appraise health-related information, enabling women to differentiate between accurate information and

misconceptions commonly found in informal information sources (Bener et al., 2022; Linsell et al., 2021).

However, several studies emphasized that formal education alone did not guarantee adequate or sustained knowledge when it was not supported by continuous exposure to reliable health information. Women with higher education but limited access to health promotion programs or trusted information channels were still vulnerable to incomplete or outdated knowledge. This finding suggested that education functioned as a foundational determinant, the effectiveness of which depended on reinforcement through ongoing information exposure and contextual learning opportunities. Consequently, educational attainment should be viewed as a necessary but insufficient condition for comprehensive breast cancer knowledge.

Age was identified as another influential internal factor and was reported in five studies (Jobran et al., 2023; Alanazi et al., 2025). Older women generally exhibited higher knowledge levels, which were attributed to cumulative life experience, increased interaction with health services, and repeated exposure to public health campaigns over time. In addition, personal or familial experiences with cancer were more frequently reported among older age groups, contributing to heightened awareness and knowledge retention.

Conversely, younger women, despite greater exposure to digital media and online health information, often demonstrated fragmented or inaccurate knowledge (Sharma et al., 2023). This discrepancy highlighted that frequent exposure to information did not necessarily ensure accuracy or depth of understanding, particularly when information sources were inconsistent, unregulated, or not evidence-based. The finding also suggested that younger women may be more susceptible to misinformation, underscoring the need for digital health literacy interventions tailored to this population.

Attitudes, awareness, and psychological factors further shaped women's knowledge acquisition and interpretation of breast cancer information. Women with higher perceived susceptibility and positive attitudes toward preventive health were more proactive in seeking information, attending educational activities, and engaging with health messages (Hardianto & Kuswandari, 2025). Awareness of personal risk played a critical role in motivating information-seeking behavior and transforming passive exposure into active learning.

Psychological factors, particularly fear, exerted a complex and bidirectional influence on knowledge acquisition. Moderate levels of fear were found to motivate vigilance, curiosity, and proactive information-seeking behavior. In contrast, excessive fear triggered avoidance, denial, and resistance to health messages, ultimately limiting knowledge acquisition and reinforcing misinformation (Alanazi et al., 2025). This dual effect highlighted the importance of carefully designed health communication strategies that balance risk communication with reassurance, ensuring that messages increase awareness without inducing counterproductive anxiety.

Overall, the influence of internal factors on women's knowledge of breast cancer was dynamic and interrelated. Education, age, attitudes, and psychological readiness interacted to shape not only the quantity but also the quality of knowledge acquired. These findings indicated

that interventions aimed at improving breast cancer knowledge should not focus solely on educational attainment but also address psychological readiness and age-specific information needs to achieve meaningful and sustainable knowledge improvement.

b. External Factors Influencing Women's Knowledge

Access to information and educational media emerged as the most dominant external factor influencing women's knowledge of breast cancer and was reported in six of the ten reviewed studies (Juartika et al., 2024; Pujiati et al., 2024). Women who were regularly exposed to health information through digital platforms, audiovisual materials, and structured community-based education programs consistently demonstrated higher knowledge levels. These findings indicated that accessibility and frequency of information exposure played a crucial role in shaping women's understanding of breast cancer, particularly in settings where formal health education was limited.

Digital media was found to play a particularly important role in expanding the reach of breast cancer information among younger women and populations residing in areas with limited access to formal health services (Sharma et al., 2023). Online platforms enabled rapid dissemination of information and offered flexibility in accessing educational content. However, several studies cautioned that digital media exposure did not always guarantee accuracy or depth of understanding, as information quality varied widely. This highlighted the importance of ensuring that digital health information was evidence-based, culturally appropriate, and supported by credible sources.

The role of health professionals and educational interventions was reported in four studies (Suyanto et al., 2024; Yip & Smith, 2021). Health professionals were consistently perceived as credible and authoritative sources of information, which enhanced trust and facilitated correction of misconceptions related to breast cancer. Educational interventions delivered by health workers were effective in improving knowledge levels, particularly when they involved direct interaction and practical demonstrations. Nevertheless, several studies noted that such interventions were frequently delivered as one-time activities, resulting in short-term knowledge gains without sustained retention (Oeffinger et al., 2022). This finding pointed to a critical gap in the continuity, reinforcement, and long-term evaluation of health education programs.

Socioeconomic status and occupation were reported as influencing factors in three studies (Alfarafisa et al., 2023; Arieselia et al., 2025). Women with higher socioeconomic status generally had greater access to health information, preventive services, and educational resources. Stable employment and higher income facilitated exposure to workplace health programs and private healthcare services. In contrast, financial constraints limited opportunities for health education and reduced access to screening services, thereby restricting knowledge acquisition and early detection behavior.

Cultural norms and social beliefs also emerged as significant external barriers to knowledge acquisition and were reported in three studies (Patui et al., 2023; Unger-Saldaña, 2023). In sociocultural contexts where discussions related to breast health were considered

sensitive or taboo, women were less likely to seek information, ask questions, or openly discuss symptoms, regardless of their educational background. Such norms contributed to silence and misinformation, reinforcing low awareness and delayed help-seeking behavior.

Family support, although reported less frequently, played a facilitative and reinforcing role in women's knowledge development (Arieselia et al., 2025). Supportive family environments encouraged information sharing, discussion of health concerns, and participation in preventive practices. The relatively low frequency of this factor in the reviewed studies suggested that family influence may be underexplored in existing research, representing an important area for further investigation.

Overall, external factors influenced not only the availability of breast cancer information but also the context in which information was interpreted and acted upon. Access to reliable information, support from health professionals, socioeconomic conditions, cultural norms, and family dynamics interacted to shape women's opportunities for knowledge acquisition. These findings indicated that improving women's knowledge of breast cancer requires interventions that extend beyond individual education and address broader structural, social, and cultural determinants.

c. Integrated Discussion

The synthesis of findings across the reviewed studies demonstrated that women's knowledge of breast cancer was shaped by a complex and dynamic interaction between internal and external determinants rather than by a single isolated factor. Education level and access to information emerged as the most consistently reported determinants; however, their influence was strongly moderated by psychological readiness, socioeconomic conditions, cultural norms, and the availability of credible information sources (Anderson et al., 2022; Linsell et al., 2021). This interaction explained why improvements in educational attainment alone did not always result in adequate or sustained knowledge levels.

Internal factors such as education, age, attitudes, and psychological characteristics influenced women's capacity to receive, process, and retain breast cancer information. Higher education enhanced health literacy and analytical skills, yet its impact diminished when women lacked continuous exposure to reliable health information (Bener et al., 2022). Similarly, older age was associated with higher knowledge due to cumulative experience, but younger women's frequent exposure to digital information did not consistently translate into accurate understanding, highlighting the role of information quality rather than quantity (Sharma et al., 2023).

External factors played a critical role in shaping the environment in which knowledge acquisition occurred. Access to educational media and digital platforms expanded information reach, while health professionals functioned as trusted intermediaries who validated information and corrected misconceptions (Yip & Smith, 2021; Suyanto et al., 2024). Nevertheless, the predominance of short-term, one-time educational interventions limited the sustainability of knowledge gains, as repeated reinforcement and follow-up were rarely

implemented (Oeffinger et al., 2022). These findings indicated that knowledge acquisition was not a linear process but required continuous engagement and supportive structures.

The interaction between internal and external factors also provided insight into the persistent gap between knowledge and early detection behavior. Several studies reported moderate knowledge levels without corresponding improvements in screening practices, suggesting that knowledge depth, emotional readiness, cultural acceptance, and structural accessibility jointly determined behavioral outcomes (Jobran et al., 2023; Unger-Saldaña, 2023). Psychological factors such as fear further mediated this relationship, as moderate fear motivated vigilance while excessive fear inhibited information-seeking and engagement with health services (Alanazi et al., 2025).

A critical research gap identified in this review was that most existing studies examined determinants of breast cancer knowledge in isolation, focusing either on individual characteristics or external conditions. Few studies adopted an integrative framework to explore how these factors interacted to influence knowledge quality and behavioral translation. In addition, many studies relied on quantitative knowledge scores that emphasized awareness rather than practical and procedural understanding, limiting insight into why moderate knowledge did not consistently lead to early detection practices (Linsell et al., 2021).

Furthermore, educational interventions were frequently evaluated only in the short term, with limited assessment of knowledge retention and behavioral sustainability. This lack of longitudinal evaluation constrained understanding of intervention effectiveness and hindered the development of evidence-based, long-term health education strategies (Oeffinger et al., 2022). The relatively limited exploration of family support and sociocultural dynamics also represented an underdeveloped area within the literature.

By synthesizing recent empirical evidence using a systematic narrative approach supported by vote counting, this review addressed these gaps by identifying both dominant and context-dependent determinants of women's breast cancer knowledge. The findings underscored the need for comprehensive, continuous, and culturally sensitive health education strategies that simultaneously strengthen individual knowledge capacity, enhance access to reliable information, and address psychological and sociocultural barriers. Such integrated approaches are essential to transform knowledge into sustained early detection behavior and ultimately reduce delays in breast cancer diagnosis.

4. CONCLUSION

This literature review demonstrated that women's knowledge of breast cancer was influenced by a complex interaction between internal and external factors, as anticipated in the introduction and confirmed through the results and discussion. Internal factors included education level, age, attitudes and awareness, and psychological factors, while external factors comprised access to information and educational media, the role of health professionals, educational interventions, socioeconomic status, cultural norms, and family support. Among

these determinants, education level and access to information emerged as the most dominant factors based on vote counting analysis.

The findings indicated that higher education and greater exposure to reliable information improved women's understanding of breast cancer; however, these factors alone were insufficient to ensure comprehensive and sustained knowledge. Psychological readiness, cultural acceptance, socioeconomic conditions, and continuity of educational interventions played a critical role in determining the depth of knowledge and its translation into early detection behavior. This interaction explained the persistent gap observed between moderate knowledge levels and suboptimal engagement in early detection practices.

Based on these findings, future efforts to improve women's knowledge of breast cancer should adopt comprehensive, continuous, and culturally sensitive health education strategies. Such strategies should integrate individual capacity building with structural support, including improved access to credible information sources, sustained involvement of health professionals, and consideration of sociocultural and family contexts. Future research is recommended to employ longitudinal designs and integrative frameworks to examine how internal and external factors jointly influence knowledge retention and behavioral outcomes, as well as to evaluate the long-term effectiveness of educational interventions in diverse populations.

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