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Review

Breast cancer screening in postpartum mothers: A literature review

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ABSTRACT

Background: Breast cancer remains a leading cause of morbidity and mortality among women, with early detection playing a critical role in improving outcomes. Postpartum mothers face unique challenges related to breast cancer screening due to physiological changes in breast tissue, lactation, and competing demands of infant care.

Objective: This literature review explores breast cancer screening practices in postpartum mothers, identifies barriers and facilitators, and proposes strategies to improve screening uptake during this critical period.

Method: A narrative review was conducted by analyzing studies from peer-reviewed journals. Articles were selected based on their relevance to breast cancer screening, postpartum mothers, and early detection methods. The data were synthesized to highlight key findings, identify gaps, and provide actionable insights.

Discussion: Postpartum mothers experience significant barriers to breast cancer screening, including hormonal changes, lactation-related conditions, and limited awareness. Physiological remodeling of breast tissue can obscure early symptoms, delaying diagnosis. Despite these challenges, self-breast examination (BSE) and acupressure are effective techniques for early detection and breast health improvement. Studies show that BSE reduces mortality by up to 20%, while targeted acupressure enhances lactation and breast tissue awareness. Healthcare provider interventions, such as counseling and education during postpartum visits, improve screening adherence.

Conclusion: Breast cancer screening during the postpartum period is essential yet underutilized. Tailored education and integrated care approaches are critical to overcoming barriers and enhancing awareness among postpartum mothers. Further research should explore innovative technologies and interventions to optimize early detection in this population.

1. Introduction

Breast cancer remains a leading cause of morbidity and mortality among women worldwide. Early detection plays a crucial role in reducing the severity and improving the prognosis of breast cancer. Breast cancer screening, including clinical breast examinations,

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mammography, and self-breast examinations, is pivotal in identifying malignancies at an early stage. However, postpartum mothers represent a unique population with distinct challenges related to breast cancer screening. During the postpartum period, physiological changes in breast tissue and the demands of infant care may hinder mothers from participating in regular screening programs (Gotzsche & Jorgensen, 2024; Macdonald, 2016).

The postpartum period is marked by significant hormonal changes and breast tissue remodeling due to lactation. These physiological changes, while essential for breastfeeding, can also obscure clinical signs of breast cancer, making early detection more challenging (Abraham et al., 2023). Studies have shown that prolonged breastfeeding offers protective benefits against breast cancer due to hormonal regulation, particularly by reducing exposure to estrogen (Mustafa et al., 2024; Surdacka et al., 2024). However, the postpartum period is also a critical time for mothers to remain vigilant about their breast health, as delayed diagnosis during this stage could lead to advanced cancer stages. In addition to physiological challenges, postpartum mothers face several psychosocial barriers to breast cancer screening. The postpartum period is often characterized by exhaustion, emotional fluctuations, and an overwhelming focus on infant care (Duckitt, 2024; Saharoy et al., 2023). Many mothers may deprioritize their own health, including routine screenings, due to time constraints, lack of awareness, or misconceptions about their susceptibility to breast cancer. Furthermore, cultural norms and limited access to postpartum healthcare services in some regions may exacerbate the issue.

Breast cancer screening in postpartum mothers is further complicated by overlapping symptoms of lactation-related conditions, such as mastitis or blocked milk ducts, with symptoms of breast cancer (Sabate et al., 2007; Saura et al., 2023). These conditions can delay diagnosis, as they may be mistaken for benign lactation-related issues. Consequently, healthcare providers play a critical role in educating postpartum mothers about distinguishing common breastfeeding-related symptoms from potential warning signs of breast cancer. Evidence highlights the importance of integrating breast cancer screening into postpartum care (Nye, 2020). Healthcare providers must adopt strategies to overcome barriers and promote screening awareness among mothers during this vulnerable period. Tailored approaches, such as counseling during postpartum visits, providing accessible screening facilities, and leveraging digital health platforms to disseminate information, are essential for improving screening uptake.

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Breastfeeding, while protective against breast cancer, should not diminish the importance of regular screenings. Instead, it underscores the need for postpartum mothers to balance breastfeeding practices with proactive breast health management (Mingioni, 2020). Regular clinical evaluations and self-awareness of breast changes can facilitate early detection and timely intervention. This literature review aims to explore the current state of breast cancer screening practices among postpartum mothers, examine barriers and facilitators, and propose strategies to enhance screening uptake in this population. By addressing these issues, healthcare providers can ensure that postpartum mothers are empowered to prioritize their health, ultimately improving outcomes for both mothers and their families.

2. Method

This study employs a qualitative method through a narrative review approach. Narrative reviews aim to summarize and interpret existing research rather than conduct new empirical studies. They provide context and background, helping to identify patterns and inconsistencies in the literature (Chand, 2024).

The researchers carefully selected scientific papers and publications relevant to the research focus for minimize rigor. The selection criteria were based on the relevance of the studies to the concepts of breast cancer screening and postpartum mothers, ensuring the inclusion of high-quality and credible sources. The review process involved identifying key themes, summarizing findings, and synthesizing them into coherent insights that align with the research objectives. This approach not only provides a theoretical foundation for the study but also identifies gaps in the existing literature, guiding future research directions. The flexibility of the traditional review method enables researchers to explore diverse perspectives while maintaining a structured narrative aligned with the research concept.

3. Discussion

This literature review synthesizes findings using a narrative approach, grouping similar data extracted from reviewed studies to address the objectives of this research. The primary focus was on breast cancer screening practices among postpartum mothers, highlighting the study designs, methodologies, and outcomes in the selected articles. Research journals meeting the inclusion criteria were meticulously collected, and each article was summarized to include key elements: author, year of publication, title, research methods (research design, sampling, variables, instruments, and analysis), results, and database sources.

Most of the reviewed studies were published in recent years, with 72.8% of the articles

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being from 2019 and 2020. This concentration reflects growing interest and research efforts in the field of breast cancer screening and maternal health. The synthesis revealed that all the studies (100%) focused on interventions or techniques aimed at enhancing breast cancer detection or prevention, with several emphasizing postpartum care. Nearly all studies employed a quasi-experimental research design (90.9%), a common approach to evaluate interventions' effectiveness in real-world settings.

Regarding sampling methods, most studies utilized purposive sampling and simple random sampling techniques, accounting for 72.8% of the articles. These methods were chosen to ensure the inclusion of participants who fit specific criteria, such as being postpartum mothers or individuals within a particular demographic range. For data collection, 63.7% of the studies relied on observation sheets, a practical tool for capturing behavioral and clinical data in healthcare settings. Data analysis methods varied, but the Wilcoxon test was frequently used (36.4%), underscoring its utility in comparing pre-and post-intervention outcomes in quasi-experimental studies.

The characteristics of respondents varied across studies, reflecting differences in population demographics and research objectives. For instance, in the study by Sumiarsih & Rijal (2014), respondents were female midwifery students in their second year at Stikes Nani Hasanuddin Makassar. The sample consisted of 31 participants, selected using a random sampling technique. Key characteristics included age groups of 19-20 and 21-22 years, educational backgrounds of high school or vocational high school, and varying levels of knowledge and motivation regarding breast self-examination (BSE). This study highlighted differences in behavior between those practicing BSE and those who did not.

Similarly, Prabandari & Fajarsari (2016) focused on a hospital-based population at Dadi Keluarga Hospital in Purwokerto. Their study involved a sample of 30 postpartum mothers in a special group and 30 in a control group, examining factors such as age (≥40 years or <40 years), age of menarche (≥12 years or <12 years), parity (primigravida or multigravida), and breastfeeding duration (<2 years or ≥2 years). Hormonal contraception use, family history, and other demographic and clinical factors were also assessed.

Yulianti et al. (2016) explored the characteristics of patients at Ken Saras Hospital, focusing on a sample of 80 respondents divided equally into case and control groups. The study examined factors such as age (>42 years or ≤42 years), age of menarche (<12 years or ≥12 years), and lifestyle-related factors, including high and low-fat dietary patterns, history of

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obesity, smoking habits, and physical activity levels (<4 hours or ≥4 hours per week). These variables provided insights into the complex interplay of risk factors associated with breast cancer.

The reviewed studies unanimously emphasized the importance of early detection through breast cancer screening techniques, particularly in postpartum mothers. Many articles underscored the role of clinical breast examinations (CBEs), mammography, and breast self-examinations (BSEs) in identifying breast abnormalities. However, barriers such as the physiological changes associated with lactation, lack of awareness, and limited access to postpartum healthcare services were frequently noted.

One notable finding across studies was the significance of education and awareness in promoting screening behaviors. Sumiarsih & Rijal (2014) highlighted that motivation and knowledge about BSE were critical determinants of screening adherence. Similarly, Prabandari & Fajarsari (2016) demonstrated that counseling during hospital visits significantly improved postpartum mothers' awareness of breast health.

The increasing number of deaths due to breast cancer highlights the importance of early detection efforts. Breast cancer remains a significant health concern globally, with delayed diagnoses contributing to high mortality rates (World Health Organization [WHO], 2024). One effective method for early detection is BSE, which allows women to identify lumps or abnormalities that may indicate breast cancer. The practice of BSE empowers women to take an active role in their health, offering a potentially life-saving intervention (Mazúchová et al., 2024). A major contributing factor to the high mortality rate from breast cancer is that many patients seek medical attention only when the disease has already reached an advanced stage, making treatment and recovery significantly more challenging.

Postpartum mothers face unique risks associated with breast cancer due to changes in breast tissue following pregnancy and lactation. These changes, including increased vascularity and density of breast tissue, can make detecting abnormalities more challenging through traditional screening methods such as mammography (Peterson et al., 2023; Pyle et al., 2023). Furthermore, hormonal fluctuations during the postpartum period can contribute to the development of specific types of breast cancer, such as pregnancy-associated breast cancer (PABC). PABC is defined as breast cancer diagnosed during pregnancy or within one year postpartum and is often associated with more aggressive clinical features (Mumtaz et al., 2024).

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Despite these risks, postpartum mothers may overlook breast health due to the demands of caring for a newborn. This lack of prioritization, combined with limited access to healthcare resources, further underscores the importance of targeted awareness programs. Early detection methods, including BSE, are cost-effective, non-invasive, and practical for postpartum mothers who may not have immediate access to clinical screening tools (Begum et al., 2023; Idrees et al., 2023).

BSE is a self-check procedure that enables women to detect potential signs of breast cancer, such as lumps, skin changes, or nipple discharge. The simplicity and accessibility of BSE make it an ideal method for postpartum mothers, who often have limited time and resources. According to Kutlu & Bicer (2017), women who regularly perform BSE are at a lower risk of late-stage breast cancer diagnosis compared to those who do not. Moreover, BSE can reduce breast cancer mortality rates by up to 20%, demonstrating its effectiveness as a preventive measure (WHO, 2024).

However, the adoption of BSE remains low among postpartum mothers due to factors such as inadequate knowledge, fear of discovering abnormalities, and misconceptions about breast cancer risks during the postpartum period. Addressing these barriers requires comprehensive education programs that emphasize the importance of BSE and provide clear instructions on its proper technique. Educational interventions have been shown to significantly increase BSE practice rates and enhance women's confidence in managing their breast health (Leirós-Díaz et al., 2024; Mainaz et al., 2024).

In addition to traditional screening methods, complementary approaches such as acupressure can support breast health in postpartum mothers. Acupressure is a non-invasive technique that involves applying pressure to specific points on the body to stimulate physiological responses. Research has shown that acupressure can enhance breast milk production by promoting the release of prolactin and oxytocin hormones, which are also critical for overall breast health (Nurwiliani et al., 2023; Ulya et al., 2023).

According to Renityas (2020), specific meridian points associated with improved breast milk flow, including ST 16 (above the areola), ST 17 (next to the areola), and ST 18 (below the areola). Regular stimulation of these points, combined with light back massages, has been shown to improve breast health and facilitate lactation. Additionally, Fetrisia & Yanti (2019) highlighted the benefits of acupressure in preventing common breastfeeding complications such as engorgement and mastitis, which can obscure early signs of breast cancer.

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While the primary focus of acupressure research has been on lactation, its broader implications for breast health warrant further exploration. The activation of meridian points through acupressure stimulates the central nervous system, resulting in hormonal regulation, improved immune function, and enhanced blood circulation (Teppone, 2023). These physiological effects may contribute to the early detection of breast abnormalities by increasing women's awareness of changes in their breast tissue.

Postpartum mothers face unique challenges in accessing and utilizing breast cancer screening services. The demands of caring for a newborn, combined with physical and emotional exhaustion, can lead to delays in seeking medical attention. Additionally, misconceptions about breastfeeding's protective effects against breast cancer may create a false sense of security, discouraging women from pursuing regular screenings (Moey et al., 2022).

Healthcare providers play a critical role in addressing these challenges by integrating breast cancer education into postpartum care. For example, routine postpartum visits can include discussions about breast cancer risks, BSE techniques, and the importance of clinical screenings. Providing accessible resources, such as instructional videos and pamphlets, can also empower postpartum mothers to take proactive steps in managing their breast health (Fatmawati et al., 2024; Hidayah & Fariana, 2024; Nathalia et al., 2024).

While existing studies highlight the importance of early detection methods such as BSE and acupressure, further research is needed to evaluate their effectiveness specifically in postpartum mothers. Longitudinal studies examining the impact of targeted education programs on BSE adoption rates and breast cancer outcomes in this population would provide valuable insights. Additionally, research exploring the integration of complementary therapies like acupressure into conventional breast cancer screening protocols could inform more holistic approaches to breast health.

Another area for future investigation is the development of tailored screening tools for postpartum mothers. Given the limitations of mammography in detecting abnormalities in dense breast tissue, alternative imaging techniques such as ultrasound or magnetic resonance imaging (MRI) may be more effective for this group (Stout et al., 2024). Evaluating the feasibility and cost-effectiveness of these methods in postpartum care settings could help improve early detection rates and reduce disparities in breast cancer outcomes.

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4. Conclusion

Breast cancer screening in postpartum mothers is a critical yet underexplored area of healthcare. The unique physiological and hormonal changes during the postpartum period present both challenges and opportunities for early detection. While traditional methods like BSE remain effective, complementary approaches such as acupressure offer additional benefits for breast health. Addressing barriers to screening through targeted education and integrating breast cancer awareness into postpartum care can significantly reduce mortality rates and improve outcomes for this vulnerable population. Future research should focus on developing tailored interventions and exploring innovative screening technologies to enhance early detection efforts in postpartum mothers.

5. Conflict of interest

There are no conflicts in the preparation of this literature review.

6. References

Abraham, M., Lak, M. A., Gurz, D., Nolasco, F. O. M., Kondraju, P. K., & Iqbal, J. (2023). A narrative review of breastfeeding and its correlation with breast cancer: Current understanding and outcomes. *Cureus*. https://doi.org/10.7759/cureus.44081

Begum, H., Asadullah, M., & Hossain, S. (2023). Breast self-examination: An early familiar diagnostic test of breast cancer. *Annals of International Medical and Dental Research*, *9*(3), 1–8. https://doi.org/10.53339/aimdr.2023.9.3.1

Chand, G. B. (2024). Narrative inquiry: A critical examination of its theoretical foundations and methodological applications. *Far Western Review*, *2*(1), 135–152. https://doi.org/10.3126/fwr.v2i1.70514

Duckitt, K. (2024). Postpartum care. In *Obesity and Pregnancy* (pp. 166–178). CRC Press. https://doi.org/10.1201/9781003579762-13

Fatmawati, Meldawati, Palimbo, A., & Mahdiyah, D. (2024). Effect of demonstration-method counseling on the understanding of correct breastfeeding techniques among pregnant women. *Health Sciences International Journal*, *2*(2), 60–73.

Fetrisia, W., & Yanti, Y. (2019). Pengaruh acupresure point for lactation terhadap produksi asi ibu menyusui [in Indonesia]. *Jurnal Kesehatan*, *10*(1), 41. https://doi.org/10.35730/jk.v10i1.383

Gotzsche, P. C., & Jorgensen, K. J. (2024). *Screening for breast cancer with mammography*. https://doi.org/10.1101/2024.06.06.24308542

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Vol. 3, No. 1, February 2025, pp. 104 – 114
ISSN: 3026-5037 DOI: https://doi.org/10.71357/hsij.v3i1.61

Hidayah, N., & Fariana, Y. R. N. (2024). Lactation preparation for pregnant women to prevent stunting. *Health Sciences International Journal*, *2*(2), 169–176. https://hsij.anandafound.com/journal/article/view/42

Idrees, S., Mayilvaganan, S., Jagannath, S., Mishra, P., Chand, G., Mishra, A., Agarwal, G., & Agarwal, A. (2023). Validation of cost-effective model for breast self-examination. *Annals of Medicine & Surgery*, *85*(2), 166–171. https://doi.org/10.1097/MS9.0000000000000211

Kutlu, R., & Bicer, U. (2017). Evaluation of breast cancer risk levels and its relation with breast self-examination practices in women. *Journal of Breast Health*, *13*(1), 34–39. https://doi.org/10.5152/tjbh.2016.2832

Leirós-Díaz, C., Martin-Payo, R., Cachero-Rodriguez, J., Zhang, X., Ureña-Lorenzo, A., & Fernandez-Alvarez, M. del M. (2024). *Effectiveness of an educational intervention for improving knowledge about the risk factors and signs and symptoms of breast cancer.* https://doi.org/10.21203/rs.3.rs-5311915/v1

Macdonald, H. R. (2016). Breast cancer screening. In *Handbook of gynecology* (pp. 1–8). Springer International Publishing. https://doi.org/10.1007/978-3-319-17002-2_74-1

Mainaz, M., Guthigar, M., & Naik, P. (2024). Effectiveness of a health educational program in enhancing breast cancer knowledge among women in Rural Karnataka, South India. *Cureus*. https://doi.org/10.7759/cureus.56157

Mazúchová, L., Kelčíková, S., & Maskálová, E. (2024). Breast self-examination as an important part of prevention of breast cancer in women. *Onkologie*, *18*(3), 223–226. https://doi.org/10.36290/xon.2024.043

Mingioni, N. (2020). Breast cancer screening. *Clinical Education Teaching Tools*.

Moey, S.-F., Sowtali, S. N., Mohamad Ismail, M. F., Hashi, A., Mohd. Azharuddin, N. S., & Che Mohamed, N. (2022). Cultural, religious and socio-ethical misconceptions among muslim women towards breast cancer screening: A systematic review. *Asian Pacific Journal of Cancer Prevention*, *23*(12), 3971–3982. https://doi.org/10.31557/APJCP.2022.23.12.3971

Mumtaz, A., Otey, N., Afridi, B., & Khout, H. (2024). Breast cancer in pregnancy: A comprehensive review of diagnosis, management, and outcomes. *Translational Breast Cancer Research : A Journal Focusing on Translational Research in Breast Cancer*, *5*, 21. https://doi.org/10.21037/tbcr-24-26

Health Sciences International Journal (HSIJ)
Vol. 3, No. 1, February 2025, pp. 104 – 114
ISSN: 3026-5037 DOI: https://doi.org/10.71357/hsij.v3i1.61

Mustafa, M., Sarfraz, S., Saleem, G., Khan, T. A., Shahid, D., Taj, S., & Amir, N. (2024). Beyond milk and nurture: Breastfeeding's powerful impact on breast cancer. *Geburtshilfe Und Frauenheilkunde*, *84*(06), 541–554. https://doi.org/10.1055/a-2313-0637

Nathalia, A., Rahmawati, D., Nastiti, K., & Salmarini, D. D. (2024). Factors influencing the occurrence of exclusive breastfeeding failure in six-month-old infants. *Health Sciences International Journal*, *2*(2), 96–103.

Nurwiliani, L., Khoirunnisa, M., & Herawati, H. (2023). The difference between breast care and oxytocin massage on the adequacy of breast milk in postpartum mothers [in Indonesia]. *Jurnal Medikes (Media Informasi Kesehatan)*, *10*(1), 147–158. https://doi.org/10.36743/medikes.v10i1.380

Nye, L. (2020). Integrating Breast cancer risk management into primary care. *American Family Physician*, *101*(6), 330–331.

Peterson, M. S., Gegios, A. R., Elezaby, M. A., Salkowski, L. R., Woods, R. W., Narayan, A. K., Strigel, R. M., Roy, M., & Fowler, A. M. (2023). Breast imaging and intervention during pregnancy and lactation. *RadioGraphics*, *43*(10). https://doi.org/10.1148/rg.230014

Prabandari, F., & Fajarsari, D. (2016). Factors that influence the incidence of breast cancer at Dadi Keluarga Hospital, Purwokerto [in Indonesia]. *Bidan Prada*, *7*(1).

Pyle, C., Hill, M., Sharafi, S., Forton, C., & Sohaey, R. (2023). Pregnancy-associated Breast Cancer: Why Breast Imaging During Pregnancy and Lactation Matters. *Journal of Breast Imaging*, *5*(6), 732–743. https://doi.org/10.1093/jbi/wbad074

Ulya, R., Panduragan, S. L., Fitriana, S., & Hassan, H. C. (2023). The effect of lactation massage combination and postpartum breast care aged one to three days on the experience of adequate breastfeeding. *Malaysian Journal of Medicine and Health Sciences*, *19*(s9), 251–255. https://doi.org/10.47836/mjmhs.19.s9.34

Renityas, N. N. (2020). The effect of acupressure on breast milk sufficiency in postpartum mothers on day 7 [in indonesia]. *Jurnal Ners Dan Kebidanan (Journal of Ners and Midwifery)*, *7*(2), 293–300. https://doi.org/10.26699/jnk.v7i2.ART.p293-300

Sabate, J. M., Clotet, M., Torrubia, S., Gomez, A., Guerrero, R., de Las Heras, P., & Lerma, E. (2007). Radiologic evaluation of breast disorders related to pregnancy and lactation. *RadioGraphics*, *27*(suppl_1), S101–S124. https://doi.org/10.1148/rg.27si075505

Health Sciences International Journal (HSIJ)
Vol. 3, No. 1, February 2025, pp. 104 – 114
ISSN: 3026-5037 DOI: https://doi.org/10.71357/hsij.v3i1.61

Saharoy, R., Potdukhe, A., Wanjari, M., & Taksande, A. B. (2023). Postpartum depression and maternal care: Exploring the complex effects on mothers and infants. *Cureus*. https://doi.org/10.7759/cureus.41381

Saura, C., Ortiz, C., Matito, J., Arenas, E. J., Suñol, A., Martín, Á., Córdoba, O., Martínez-Sabadell, A., García-Ruiz, I., Miranda, I., Morales-Comas, C., Carrasco, E., Viaplana, C., Peg, V., Nuciforo, P., Bayó-Puxan, N., Gonzalez-Medina, A., Miquel, J. M., Gómez-Rey, M., … Sansó, M. (2023). Early-stage breast cancer detection in breast milk. *Cancer Discovery*, *13*(10), 2180–2191. https://doi.org/10.1158/2159-8290.CD-22-1340

Stout, N. K., Miglioretti, D. L., Su, Y.-R., Lee, C. I., Abraham, L., Alagoz, O., de Koning, H. J., Hampton, J. M., Henderson, L., Lowry, K. P., Mandelblatt, J. S., Onega, T., Schechter, C. B., Sprague, B. L., Stein, S., Trentham-Dietz, A., van Ravesteyn, N. T., Wernli, K. J., Kerlikowske, K., & Tosteson, A. N. A. (2024). Breast cancer screening using mammography, digital breast tomosynthesis, and magnetic resonance imaging by breast density. *JAMA Internal Medicine*, *184*(10), 1222. https://doi.org/10.1001/jamainternmed.2024.4224

Sumiarsih, L., & Rijal, S. (2014). The relationship between knowledge and motivation about breast self-examination in preventing CA mammary disease in midwifery students of Nani Hasanuddin Health College, Makassar [in Indonesia]. *Jurnal Ilmiah Kesehatan Diagnosis*, *5*(3), 1–6.

Surdacka, L. M., Jakubas, A., Jagiełło, J., Daniłowska, K., Picheta, N., & Gil-Kulik, P. (2024). Epigenetic and immune mechanisms linking breastfeeding to lower breast cancer rates. *Medical Science Monitor*, *30*. https://doi.org/10.12659/MSM.945451

Teppone, M. (2023). *Acupoints, Channels and Organs*. https://doi.org/10.20944/preprints202310.1820.v1

WHO. (2024). *Breast cancer*. WHO-Newsroom. https://www.who.int/news-room/fact-sheets/detail/breast-cancer

Yulianti, I., Santoso, H. S., & Sutiningsih, D. (2016). Risk factors for breast cancer (Case study at Ken Saras Hospital Semarang) [in indonesia]. *Jurnal Kesehatan Masyarakat Universitas Dipunegoro*, *4*(4).