Journal Innovation, Social, and Environment

Volume 2, Number 2, 2026
Open Access: https://journisen.com/journisen

Empowering Women for Early Breast Cancer Detection with Breast Self-Examination (SADARI): A Literature Review

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Article Info

Article history:
Received May 26th, 2026
Revised Jun 15th, 2026
Accepted Jun 18th, 2026

Keyword:

SADARI, breast self-examination, breast cancer detection, Indonesia, women's health, health promotion, early detection

ABSTRACT

Breast cancer remains the leading malignancy among Indonesian women, with the majority diagnosed at advanced stages when treatment outcomes are significantly worse. SADARI *(Periksa Payudara Sendiri)* self breast examination represents an accessible, cost-effective, and empowering approach to early detection that can be implemented at the community level without requiring sophisticated medical infrastructure. This review synthesizes evidence on SADARI effectiveness, implementation strategies, and outcomes in low and middle-income settings, with particular emphasis on the Indonesian context. We examine SADARI's role within comprehensive early detection programs, explore evidence-based approaches to training and education, analyze barriers to adoption and adherence in Indonesian populations, and identify opportunities for integration with existing health systems. This article presents a comprehensive framework for scaling SADARI programs across Indonesia, including practical implementation pathways, training curricula, community engagement strategies, and quality assurance mechanisms. Evidence demonstrates that well-designed, culturally-tailored SADARI programs can increase breast cancer awareness, promote earlier clinical presentation, and ultimately contribute to improved survival outcomes among Indonesian women.

INTRODUCTION

Breast cancer is currently the most commonly diagnosed cancer and one of the leading causes of cancer-related mortality among women in Indonesia and many Southeast Asian countries. According to GLOBOCAN 2022 estimates, Indonesia recorded approximately 66,271 new breast cancer cases annually, reflecting a steadily increasing national cancer burden.[1] More concerning than the rising incidence is the persistently late stage at diagnosis. Multiple Indonesian hospital and registry-based studies demonstrate that approximately 68-73% of women present with stage III or IV breast cancer, substantially higher than proportions reported in many high-income countries.[2] This late-stage presentation directly contributes to poorer treatment outcomes, increased mortality, higher treatment costs, and greater psychological and social burdens for patients and families.

Survival outcomes in breast cancer are strongly influenced by stage at diagnosis. Patients diagnosed with stage I breast cancer generally demonstrate excellent long-term survival exceeding 90-95%, whereas metastatic (stage IV) disease remains largely incurable despite advances in systemic therapy.[3] Therefore, improving early detection remains one of the most critical public health priorities for reducing breast cancer mortality in Indonesia. Although Indonesia possesses tertiary cancer centers with surgical, chemotherapeutic, and radiotherapeutic capabilities, access to these services remains uneven across urban and rural regions.[4] Furthermore, advanced treatment modalities cannot fully compensate for the biological disadvantages associated with metastatic disease. Consequently, shifting healthcare efforts toward earlier recognition of suspicious breast abnormalities before progression to advanced disease is essential for improving national breast cancer outcomes.

SADARI *(Periksa Payudara Sendiri)*, or breast self-examination (BSE), represents a low-cost, accessible, and culturally appropriate awareness-based early detection strategy for Indonesian women. Unlike mammographic screening, which requires specialized equipment and trained personnel, SADARI can be performed independently without financial cost or dependence on healthcare infrastructure. In low- and middle-income countries (LMICs) such as Indonesia, SADARI may help improve breast awareness, encourage timely healthcare-seeking behavior, and facilitate earlier recognition of suspicious breast changes. Although breast self-examination alone has not consistently demonstrated mortality reduction in randomized clinical trials, it remains potentially valuable in resource-limited settings where organized mammographic screening programs are not universally available. Accordingly, SADARI should be viewed not as a replacement for formal screening modalities, but as an important complementary strategy for increasing breast health awareness and promoting earlier presentation. This comprehensive review examines SADARI as a cornerstone awareness-based strategy for early breast cancer detection in Indonesia. We synthesize current evidence regarding its implementation and effectiveness, explore barriers and facilitators influencing adoption among Indonesian women, and discuss evidence-based recommendations for strengthening community-based early detection initiatives nationwide.

BREAST CANCER BURDEN IN INDONESIA

Epidemiological Context

Indonesia is experiencing a steadily increasing breast cancer burden driven by demographic transition, urbanization, population aging, and adoption of lifestyle-associated risk factors. GLOBOCAN 2022 identified breast cancer as the most common cancer among Indonesian women and among the leading causes of female cancer mortality nationwide.[1] Current estimates indicate that breast cancer incidence continues to rise across many LMICs, including Indonesia, with future projections suggesting substantial increases in both incidence and mortality over coming decades if early detection and prevention strategies are not strengthened.[2] Among Indonesian women, breast cancer incidence is highest in middle-aged and older populations, particularly between 40 and 60 years of age.[4]

The burden of breast cancer extends beyond mortality alone. Delayed diagnosis frequently results in more aggressive treatments, including mastectomy, systemic chemotherapy, and prolonged hospitalization, all of which contribute to substantial psychological distress, financial toxicity, reduced quality of life, and healthcare system strain. These challenges are especially pronounced in LMIC settings where healthcare accessibility and cancer literacy remain uneven.[3]

The Late-Stage Presentation Crisis

Late-stage presentation remains the most critical challenge in breast cancer management in Indonesia. Data from multiple Indonesian centers consistently demonstrate that approximately 70% of newly diagnosed patients present with stage III or IV disease.[2] In contrast, many high-income countries report substantially greater proportions of patients diagnosed at earlier stages due to organized screening programs and greater public awareness. The clinical implications of advanced-stage diagnosis are profound. Stage IV breast cancer, characterized by distant metastasis, is currently considered incurable with standard therapeutic approaches. Although modern systemic therapies may prolong survival and improve quality of life, outcomes remain substantially poorer compared with early-stage disease.[3] Moreover, advanced-stage disease requires more intensive and costly treatment modalities, placing additional pressure on patients, families, and healthcare systems.

Several studies from Indonesia have identified delayed healthcare-seeking behavior, limited breast cancer awareness, fear of diagnosis or surgery, sociocultural stigma, and restricted access to specialized oncology services as major contributors to late presentation. Lack of awareness regarding early breast cancer symptoms remains one of the most frequently reported factors associated with delayed diagnosis. Countries implementing organized early detection strategies including public education, breast awareness campaigns, clinical breast examination, and mammographic screening have demonstrated earlier stage distributions and improved survival outcomes.[4] In the Indonesian setting, increasing women's awareness and confidence in recognizing suspicious breast changes through SADARI may therefore represent an important component of broader national early detection efforts.

SADARI: EVIDENCE BASE AND MECHANISMS OF ACTION

Definition and Methodology

SADARI, or Breast Self-Examination (BSE), refers to a regular breast examination performed by women to check for and evaluate any abnormalities in the breasts. In Indonesia, SBE is generally defined as a self-examination performed once a month; it is a simple self-administered procedure that can be done at home, which can help women detect changes in their breasts, such as lumps or other abnormalities. BSE can also be described as an additional, non-invasive, harmless, and cost-free method aimed at familiarizing women with the normal appearance and texture of their breasts, thereby enabling them to recognize suspicious changes earlier.[5,6] The SADARI methodology involves visual inspection and manual palpation of the breasts. Visual inspection is typically performed in front of a mirror to assess changes in size, shape, symmetry, skin texture, dimpling, nipple retraction, or abnormal discharge. Manual palpation is performed systematically using the fingertips to feel the breast tissue and surrounding areas, including the area near the armpit, to detect lumps, thickening, nodules, or other abnormal changes.[6,7]

Breast self-examination (BSE) is typically performed once a month, preferably about one week after menstruation, when breast swelling and tenderness caused by hormonal changes have usually subsided, making it easier to perform the examination by palpation. For women who no longer menstruate, breast self-examination can be performed on the same day each month to establish a regular routine. However, current breast health recommendations no longer emphasize a rigid monthly breast self-examination (BSE) as the sole screening method for all women. Instead, a modern approach promotes breast self-awareness, encouraging women to understand the normal appearance and texture of their breasts and to seek medical evaluation when new or persistent changes occur.[8]

Evidence for SADARI Effectiveness

Scientific evidence regarding breast self-examination has advanced significantly over the past 20 years. Previous randomized controlled trials, particularly the Shanghai Breast Cancer Screening Trial involving more than 200,000 women, provided strong evidence that breast self-examination (BSE) performed according to strict protocols showed no reduction in breast cancer mortality compared to women who did not perform breast self-examination.[7] These findings have prompted many organizations to de-emphasize formal BSE programs and instead promote breast self-awareness as a complementary component of comprehensive detection strategies. However, this evidence does not mean that women's awareness of changes in their breasts is ineffective. Rather, the findings suggest that the routine monthly practice of self-breast examination (BSE) with a highly structured protocol for all women may not be the most optimal approach, particularly because it has the potential to cause anxiety.It is important to mention that evidence suggests that approximately 70–90% of breast cancers are ultimately detected by the woman herself or her partner, rather than by a healthcare professional.[8] This indicates that women's knowledge of the anatomy of their own breasts and their ability to recognize abnormal changes are crucial for the detection of breast cancer.

Recent evidence suggests that breast self-examination is an effective method to complement other breast cancer screening methods. Qualitative studies indicate that women who receive education on the signs and symptoms of breast cancer, are encouraged to familiarize themselves with the anatomical structure of their own breasts, and are advised to seek medical attention immediately upon detecting any changes, tend to receive an earlier diagnosis and achieve better treatment outcomes compared to women who do not receive such education.[9] The results of a meta-analysis examining community education to increase breast awareness show a consistent association with early detection and a better distribution of cancer stages at the time of diagnosis.[10]

SADARI in the Indonesian Context

SADARI holds an important role in Indonesia's breast cancer early detection strategy because it is practical, affordable, and accessible for women across different geographic and socioeconomic settings. Unlike mammographic screening, which depends on advanced technology, trained healthcare personnel, and healthcare infrastructure that may not be equally available throughout Indonesia, SADARI can be performed independently without financial cost or medical equipment. In low and middle income settings such as Indonesia, breast self-examination is considered an important initial step in promoting breast health awareness and encouraging women to take an active role in maintaining their own health.[5] The importance of SADARI is reflected in Indonesian health policy frameworks, including the national guideline for breast cancer prevention and early detection issued by the Ministry of Health. The guideline encourages the integration of breast health education and SADARI promotion into primary healthcare services through Puskesmas, community health volunteers (Kader Kesehatan), and other community-based health initiatives.[11] In addition, SADARI continues to be promoted through women's health education programs, particularly within maternal and child health services, highlighting its relevance in preventive healthcare efforts across Indonesia.

SADARI IMPLEMENTATION AND EDUCATION IN INDONESIA

Educational Approaches and Training Models

The effective implementation of SADARI in Indonesia requires educational strategies that can reach women through healthcare facilities, community organizations, and public health campaigns. Educational interventions should aim to improve women's knowledge regarding breast cancer, increase awareness of breast changes, and strengthen confidence in performing regular self examination

practices. Studies conducted among Indonesian women have shown that breast cancer knowledge, attitudes toward SADARI, perceived benefits, and perceived behavioral control are associated with women's intention to perform breast self-examination regularly.[12] Educational interventions should address several essential components, including basic breast anatomy, awareness of normal breast changes, recognition of warning signs such as breast lumps or nipple changes, appropriate timing of self examination, and recommendations regarding when medical consultation may be necessary. Importantly, SADARI education should promote breast health awareness and personal empowerment rather than relying primarily on fear-based messages, as positive attitudes and self-efficacy are associated with stronger intention to perform regular breast self-examination practices.[12,13]

Practical demonstration remains an important component of SADARI education because it may improve women's understanding and confidence in performing breast self-examination correctly. Educational approaches that emphasize breast health awareness, self efficacy, and positive attitudes toward early detection may encourage greater participation in regular SADARI practices.[12] In addition, incorporating SADARI education into existing healthcare services, such as maternal and child health clinics and family planning programs, may improve the reach and sustainability of health promotion efforts within the community.[11] Community health volunteers (Kader Kesehatan), who are widely trusted within Indonesian communities, may also support breast health education activities, particularly in rural and underserved areas where access to healthcare information remains limited.

Integration with Health Systems

The integration of SADARI into Indonesia's healthcare system requires coordination across primary healthcare services and community-based health programs. Primary healthcare centers *(Puskesmas),* which provide essential healthcare services for many Indonesian communities, should incorporate SADARI education into routine women's health consultations. Integrating SADARI promotion into maternal and child health services, family planning programs, and noncommunicable disease prevention initiatives may strengthen program delivery by utilizing existing healthcare infrastructure and established relationships with local communities.[11] Strengthening the capacity of nurses, midwives, and primary healthcare workers is also important to support the implementation of breast health education programs. Community-based breast self awareness interventions in Indonesia have shown potential to improve women's awareness and encourage follow up behavior related to breast health concerns.[15] Educational materials delivered in clear and culturally appropriate language may further improve the accessibility and consistency of breast health education across different populations.

In addition, effective integration of SADARI programs depends on the availability of clear referral pathways linking breast health education in primary care with access to diagnostic services. Women who identify suspicious breast changes through SADARI should be able to obtain appropriate follow up care, including clinical breast examination and further diagnostic evaluation when necessary. Improving coordination between primary healthcare services and referral facilities may help support earlier medical assessment and reduce delays in breast cancer diagnosis. Community based breast self awareness programs in Indonesia have also emphasized the importance of encouraging women to seek medical evaluation when abnormal breast changes are identified.[15]

Community-Based and School-Based Programs

Community based SADARI programs have demonstrated promising outcomes in Indonesia by engaging women through neighborhood gatherings, women's organizations, and religious communities. Community level interventions in West Java have shown that breast health education

delivered through community settings can improve women's awareness and support positive attitudes toward breast self-examination practices.[16] These programs are effective because they utilize existing social networks and culturally familiar communication patterns within local communities.

School based health education also provides an opportunity to introduce general health awareness and preventive health behavior at an early age. Early exposure to health education may contribute to long term awareness and encourage young people to become more familiar with discussions related to personal and reproductive health. In addition, strengthening access to health education and preventive healthcare services is important to support broader cancer awareness and early detection efforts, particularly in low and middle income settings where disparities in healthcare access may still exist.[17] Faith-based organizations and women's community groups may also support SADARI education in Indonesia, where community and religious institutions continue to play an influential role in social life. Community based health education programs may achieve better participation and acceptance when educational messages are delivered through culturally familiar communication channels and trusted local organizations.[16]

BARRIERS AND CHALLENGES TO SADARI IMPLEMENTATION

Knowledge and Health Literacy Barriers

Limited health literacy regarding breast cancer, including knowledge of risk factors, warning signs, and early detection practices, remains a significant barrier to SADARI implementation in Indonesia. Studies among Indonesian women have demonstrated low levels of awareness regarding breast cancer screening behaviors and limited understanding of early symptoms, particularly among women with lower educational attainment and restricted access to health information.[13] These knowledge gaps are especially prevalent among women living in rural areas and older populations with limited formal education, where understanding of breast cancer is often inadequate and influenced by misconceptions, cultural beliefs, and misinformation.

Misconceptions regarding breast cancer remain prevalent among Indonesian women and continue to negatively influence breast health behaviors. Fear of cancer diagnosis, beliefs that breast cancer is inevitably fatal, misconceptions regarding susceptibility, and stigma associated with cancer may discourage women from seeking medical evaluation or participating in early detection practices. These psychosocial barriers contribute to delayed presentation and reduced engagement with breast cancer screening programs. Inadequate understanding of breast cancer symptoms and benign breast conditions may contribute to confusion regarding breast health among Indonesian women. As a result, some women may experience excessive anxiety toward non-malignant breast changes, while others may underestimate potentially serious symptoms. These gaps in awareness can reduce the effectiveness of SADARI, as women who are unfamiliar with warning signs may be less likely to recognize suspicious breast abnormalities and seek timely medical evaluation.[18]

Cultural and Psychosocial Barriers

Cultural norms related to modesty, discussions of sensitive health issues, and healthcare decision making continue to influence women's engagement with SADARI practices in Indonesia. In some traditional communities, breast health discussions may still be perceived as sensitive or inappropriate, creating challenges for health educators in openly addressing the topic. Feelings of embarrassment, shame, and fear associated with breast examination may further limit women's participation in breast self examination and delay help-seeking behavior, particularly in conservative social environments.[19]

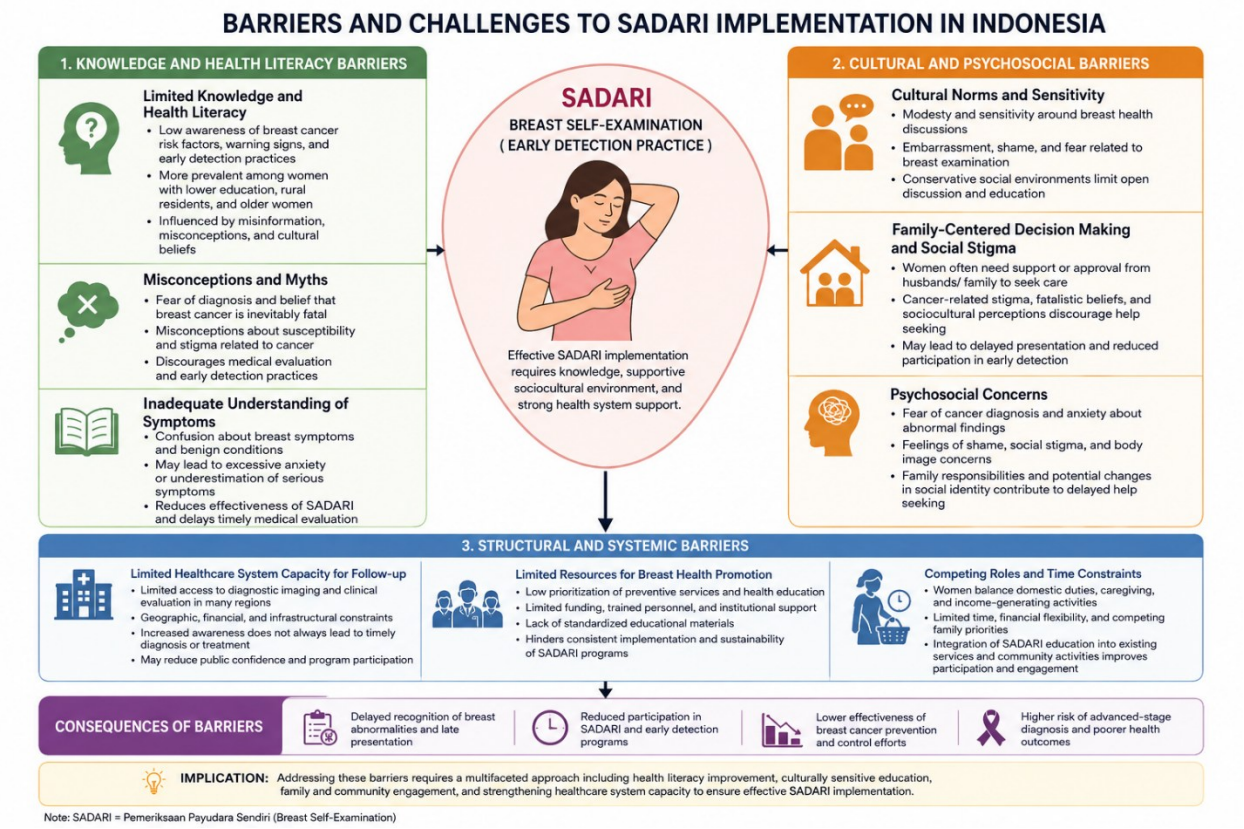

Figure 1. Barriers And Challenges To Sadari Implementation

Family-centered patterns of decision making, which remain common in many Indonesian households, may also influence women's participation in breast cancer early detection practices. Women often rely on support, approval, or encouragement from husbands and other family members before seeking medical care or engaging in preventive health behaviors such as SADARI. In some communities, cancer-related stigma, fatalistic beliefs, and sociocultural perceptions regarding breast health may discourage women from discussing breast symptoms or seeking timely medical evaluation. Persistent stigma and fear surrounding cancer may negatively affect help seeking behavior and contribute to delayed presentation among Indonesian women.[20]

Psychosocial concerns remain important barriers to women's participation in SADARI practices. Fear of cancer diagnosis, anxiety related to discovering breast abnormalities, feelings of shame, and persistent social stigma may discourage women from performing breast self-examination or seeking timely medical attention. In addition, concerns regarding body image, family responsibilities, and potential changes in social identity following a breast cancer diagnosis may further contribute to delayed help-seeking behavior among Indonesian women.[18] These psychosocial barriers underscore the importance of culturally sensitive, supportive, and reassuring educational approaches that promote breast self-awareness while minimizing unnecessary fear and anxiety associated with cancer.

Structural and Systemic Barriers

Limited healthcare system capacity to provide appropriate follow-up for suspicious SADARI findings remains an important structural barrier in Indonesia. In many regions, women who identify concerning breast changes may still face limited access to diagnostic imaging and further clinical evaluation because of geographic, financial, and infrastructural constraints. Consequently, increased awareness through SADARI does not always translate into timely diagnosis or treatment, which may

reduce public confidence in early detection programs and discourage continued participation in breast health initiatives.[15] Another important structural challenge is the limited allocation of healthcare resources for breast health promotion and preventive education programs, including SADARI initiatives. In many healthcare settings, preventive and health promotion services often receive lower funding priority, fewer trained personnel, and less institutional support compared with curative and treatment focused services. Limited availability of trained healthcare providers, standardized educational materials, and sustainable program funding may hinder the consistent implementation and long term sustainability of SADARI programs across different regions of Indonesia. These structural limitations may ultimately reduce the effectiveness and reach of community based breast cancer early detection efforts.[11]

Women's participation in SADARI education programs may also be influenced by competing domestic, caregiving, and economic responsibilities, particularly in resource-limited communities where women frequently balance household duties with income-generating activities. Time constraints, limited financial flexibility, and competing family priorities may reduce women's ability to attend separate health education sessions or access preventive healthcare services. Consequently, SADARI programs that are integrated into existing healthcare services, community activities, or routine women's gatherings may be more effective in achieving sustained participation and long-term engagement compared with programs requiring additional clinic visits or stand-alone educational interventions.[16]

EVIDENCE-BASED STRATEGIES FOR SCALING SADARI PROGRAMS

Messaging and Educational Content

Effectively promoting SADARI requires carefully crafted messages grounded in scientific evidence that can capture the attention of Indonesian women without causing undue fear of cancer. Some key principles for conveying these messages include: (1) emphasizing the importance of self-awareness regarding breast health as a form of empowerment, not merely as cancer screening; (2) explaining changes and variations in the breasts; (3) providing clear guidance on when to seek medical examination; (4) using language that is easy to understand and analogies appropriate to the culture; and (5) including testimonials from Indonesian women who have experienced the benefits of SADARI education.[10,21]

Educational materials must cover the full spectrum of breast health literacy, including anatomical structure, normal changes during the menstrual cycle and menopause, benign breast conditions, and specific warning signs requiring further examination. Educational materials should be available in Indonesian at an appropriate reading level (typically equivalent to grades 6–8 to reach a broad population). Visual aids, such as diagrams, photos, and instructional videos demonstrating proper examination techniques, can enhance the learning process, particularly for women with low literacy levels.[12] The message should emphasize that the SADARI self-examination is meant to complement, not replace, professional healthcare services. Women need to understand that the SADARI self-examination is not a diagnostic method; rather, it helps detect early signs of changes that require evaluation by a healthcare professional. This message aims to avoid two extremes: (1) excessive anxiety in women due to findings that are actually harmless, and (2) delayed evaluation by a healthcare professional due to a false sense of security resulting from a negative self-examination result.[13]

Multi-Channel Delivery Approaches

The success of widespread adoption of the SADARI program requires delivery through various complementary channels to reach Indonesia's diverse population across all geographic and socioeconomic strata. Channels within the health care system, including community health centers

(Puskesmas), maternal and child health (MCH) clinics, and public health worker programs, can serve as reliable platforms thanks to their existing networks and resources. Meanwhile, community-based channels, such as women's organizations, faith-based communities, and neighborhood associations, can also leverage trusted networks with communication approaches aligned with local culture. School-based channels, on the other hand, can reach adolescent girls and instill awareness of lifelong health. Media channels, including radio, television, and social media, can broadcast messages to the general public, particularly for awareness-raising campaigns through the SADARI program.[14] Mobile health (mHealth) is a highly promising innovative channel in Indonesia, where mobile phone penetration exceeds 80% and the use of WhatsApp and SMS is widespread. mHealth interventions such as educational messages, monthly reminders for self-examination, and assessment tools have been shown to be effective in increasing community engagement and awareness.[22] Telemedicine consultation services can help provide expert advice regarding concerning findings identified through SADARI in resource-limited areas, thereby facilitating appropriate clinical evaluation and reducing unnecessary diagnostic procedures for benign findings.[15]

Healthcare Provider Training and Support

Systematic training for healthcare workers particularly nurses, midwives, and public health workers is essential for expanding the implementation of the SADARI program. The training curriculum must include: (1) breast anatomy and pathology; (2) clinical breast examination skills; (3) SADARI education techniques; (4) cancer risk assessment; (5) psychosocial and communication skills; and (6) knowledge of the system for appropriate referral and follow-up.[15] Training should be interactive, competency-based, and include hands-on practice with breast models as well as evaluation by experienced trainers. Ongoing support for trained service providers through continuing education, peer learning, and competency evaluation systems helps maintain quality and prevent skill decline. Aids, standard guidelines, and patient education materials help ensure consistent implementation across various settings. Program quality improvement and sustainability can be achieved by prioritizing the promotion of the SADARI program as a key health priority through provider performance evaluations and institutional incentive programs.

Addressing Diagnostic Gaps

The effectiveness of the SADARI education program ultimately depends on women's ability to access diagnostic evaluation when findings are detected. This can be achieved by enhancing diagnostic capabilities through the strategic deployment of clinical examination specialists, portable ultrasound equipment, and well-established referral pathways. Mobile ultrasound clinics visiting underserved areas, training nurses to perform basic ultrasound screening, and telemedicine consultations with radiologists can extend the reach of diagnostic services beyond major urban centers.[15,23] Most importantly, strengthening diagnostic capacity must not create unnecessary financial barriers for women. Integrating these services with the national health insurance (BPJS) to cover the costs of necessary diagnostic services based on SADARI examination results can facilitate timely screening while eliminating financial barriers. Clear communication to women regarding how and where to access diagnostic services when needed must be integrated with SADARI education, so that any detected changes or findings can be promptly and appropriately evaluated.[11]

SADARI AND COMPREHENSIVE BREAST CANCER DETECTION STRATEGY

SADARI should be positioned as the foundational component of a comprehensive and tiered breast cancer early detection strategy tailored to Indonesia's healthcare capacity and population needs. At the primary level, SADARI offers a universally accessible, low-cost, and culturally adaptable

approach that empowers women to recognize early breast abnormalities and seek timely medical evaluation.[24,25] Women presenting with suspicious findings on SADARI, as well as those with significant risk factors, should subsequently undergo targeted diagnostic imaging such as breast ultrasonography or mammography in tertiary or referral centers.[4,26]

This tiered approach is practical and appropriate for Indonesia's current healthcare capacity while still supporting early breast cancer detection.[25] As Indonesia's economic development and health system capacity expand over coming decades, mammographic screening can progressively be added to complement SADARI and clinical examination.[26] This gradual and adaptive strategy allows immediate improvements in breast cancer awareness and detection while simultaneously laying the foundation for the future development of more comprehensive national screening systems.

RECOMMENDATIONS FOR IMPLEMENTATION

National Level

SADARI (Periksa Payudara Sendiri) should be formally integrated into Indonesia's National Cancer Control Program as part of a broader breast cancer early detection strategy. The Ministry of Health should support implementation through dedicated funding, standardized educational materials, and national monitoring frameworks. Educational resources should be culturally appropriate, scientifically accurate, and available in both Bahasa Indonesia and regional languages. In addition, SADARI education should be incorporated into the training curricula of nurses, midwives, and primary healthcare providers to strengthen frontline capacity for breast health promotion and early referral. National quality assurance systems are also necessary to evaluate program coverage, educational consistency, and referral effectiveness.

Provincial and District Level

Provincial and district health offices should support SADARI implementation through community-based education programs, healthcare worker training, and public awareness campaigns. Strengthening referral pathways from Puskesmas to diagnostic and oncology services is essential to ensure timely evaluation of suspicious findings. Community health volunteers (Kader Kesehatan) may also play an important role in promoting breast health awareness due to their close engagement with local communities and established role in public health activities.

Health Facility Level

At the facility level, SADARI education should be integrated into routine services such as maternal health clinics, family planning programs, and primary healthcare consultations. Healthcare facilities should also conduct community outreach and educational activities using culturally adapted materials. Standardized referral and follow-up protocols should be established for women presenting with abnormalities identified during SADARI to facilitate early diagnosis and timely management.

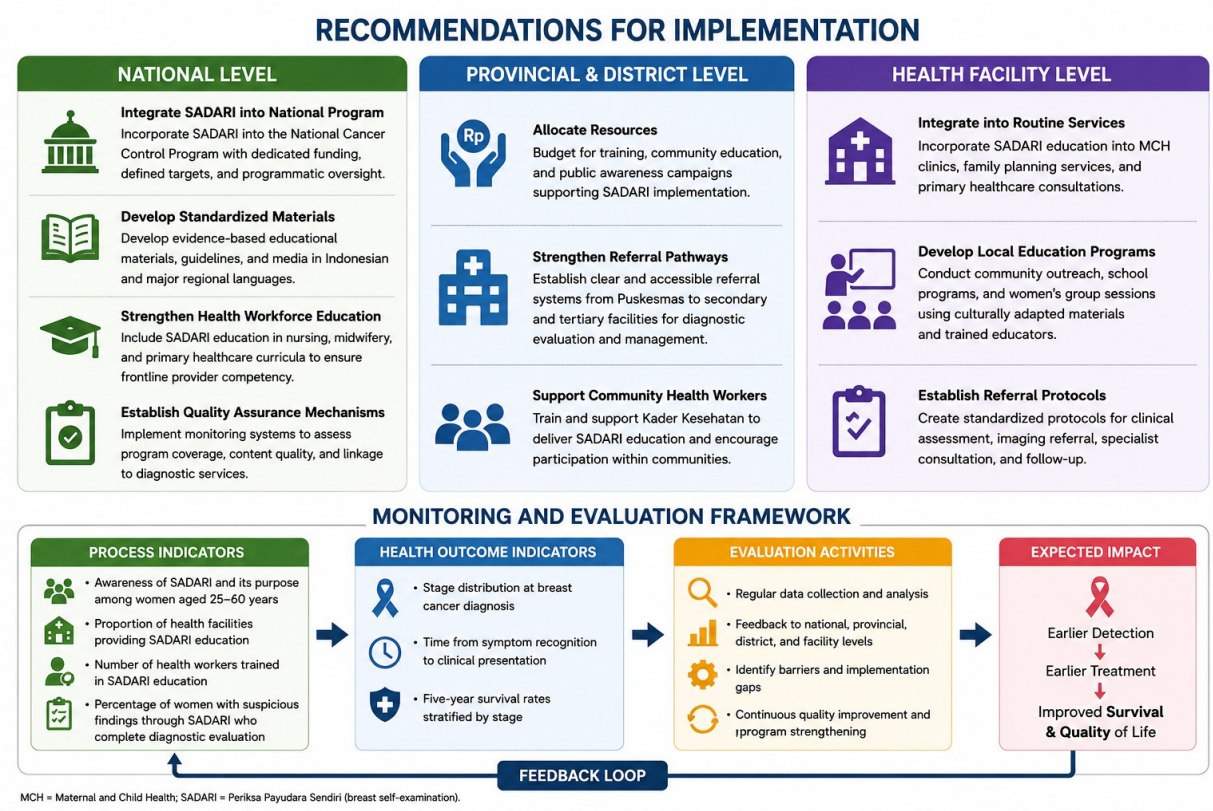

Figure 2. Recommendations For Implementation

Monitoring and Evaluation

Monitoring and evaluation are important to assess the effectiveness and sustainability of SADARI programs. Evaluation should include both process indicators, such as public awareness, healthcare worker training, and program coverage, as well as health outcome indicators including stage at diagnosis, time to clinical presentation, and survival outcomes. Regular evaluation and feedback at national and local levels can support continuous quality improvement, identify implementation barriers, and guide future policy development and resource allocation.[27]

CONCLUSION

SADARI (Periksa Payudara Sendiri) represents an accessible, cost-effective, and culturally appropriate foundation for early breast cancer detection in Indonesia. Unlike resource-intensive imaging-based screening approaches that will remain inaccessible to most Indonesian women for years, SADARI is immediately implementable across all populations and geographic regions. When thoughtfully designed, culturally tailored, and integrated within existing health systems, SADARI programs demonstrate the potential to increase women's breast health awareness, promote earlier clinical presentation, and ultimately contribute to meaningful reductions in breast cancer mortality.

The evidence base, while indicating that rigid breast self-examination protocols do not reduce mortality, clearly demonstrates that women's awareness of breast changes and knowledge of when to seek medical evaluation are critical mechanisms for early detection. As Indonesia faces an escalating breast cancer epidemic with predominantly late-stage presentation, leveraging SADARI as the cornerstone of a tiered detection strategy represents the most pragmatic public health approach.

Successful SADARI scaling requires commitment at national, provincial, and facility levels; dedicated resources; systematically trained healthcare providers; culturally sensitive education; and strengthened diagnostic referral capacity. The evidence that these investments can be effective, combined with the urgency of Indonesia's breast cancer crisis, compels action. Implementation of comprehensive SADARI programs across Indonesia has the potential to detect thousands of additional cancers at earlier, more treatable stages, saving lives and reducing the devastating burden of advanced-stage breast cancer among Indonesian women.

CONFLICT OF INTEREST

The authors declared there is no conflict of interest.

FIGURE DECLARATION

The figures included in this manuscript were generated with the assistance of ChatGPT (OpenAI) for scientific visualization purposes only. The generated figures did not alter, influence, or modify the scientific content, interpretation, results, or conclusions of the study.

AUTHORS' CONTRIBUTION

Conceptualization of the framework: ASR. Data analysis, synthesis of the findings, and drafting of the manuscript: AHSS. All authors (ASR, AHSS, RDAI, ASSH, AYNF) contributed and approved the final version of the manuscript.

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