



Current Perspectives on Breast Cancer Awareness and Knowledge: A Review of Recent Studies

Vratika Arya¹, Anshu Kumari²

Santosh Deemed to be University, Ghaziabad, Uttar Pradesh, India^{1,2}

(Received: 11 June 2024

Revised: 16 July 2024

Accepted: 10 August 2024)

KEYWORDS

Breast cancer,
Screening
practices,
Breast self-
examination
(BSE),
Mammography
Early detection,
Risk factors

ABSTRACT:

Breast cancer is the most common cancer among women worldwide, with early detection being crucial for reducing mortality rates. This review synthesizes recent studies on breast cancer awareness, knowledge, and screening practices among diverse populations, highlighting significant gaps and areas for improvement. Findings from studies conducted in regions including India, the UAE, Ethiopia, Pakistan, Ghana, and Malaysia reveal widespread deficiencies in awareness about risk factors, symptoms, and breast self-examination (BSE) practices. Educational interventions and awareness programs are effective in improving knowledge and attitudes toward BSE. However, sociocultural barriers remain a significant obstacle to the widespread adoption of screening practices. This review underscores the need for comprehensive educational programs, media campaigns, and culturally sensitive approaches to enhance breast cancer awareness and early detection efforts globally. Addressing these gaps is vital for improving early detection rates and reducing breast cancer mortality.

Introduction

Breast cancer remains one of the most significant health challenges worldwide, affecting millions of women each year. According to the World Health Organization (WHO), breast cancer is the most common cancer among women, with an estimated 2.3 million new cases diagnosed in 2020 alone [9]. The high incidence and mortality rates associated with breast cancer can be attributed to various factors, including genetic predisposition, lifestyle choices, and environmental exposures [10,11]. However, one of the most critical determinants of breast cancer outcomes is the level of awareness and knowledge about the disease among the general population [8].

Early detection of breast cancer significantly increases the chances of successful treatment and survival. Methods such as breast self-examination (BSE), clinical breast examination (CBE), and mammography are essential tools for early detection [9]. Despite the availability of these methods, their utilization is often limited by a lack of awareness and knowledge about breast cancer [11,12]. Many women are unaware of the

risk factors, early symptoms, and the importance of regular screening, leading to delays in diagnosis and treatment [13].

The level of breast cancer awareness and knowledge varies widely across different regions and populations. In high-income countries, public health campaigns and education programs have contributed to higher levels of awareness and better screening practices [14]. However, in low- and middle-income countries, cultural, social, and economic barriers often hinder the dissemination of information and the adoption of preventive measures [15,16]. This disparity underscores the need for tailored educational interventions that address different communities' specific needs and challenges [17].

Socio-cultural factors play a significant role in shaping attitudes and behaviors related to breast cancer. In many cultures, discussions about breast health are considered taboo, and women may feel embarrassed or reluctant to seek information and medical help [18]. Additionally, myths and misconceptions about breast cancer can perpetuate fear and stigma, further discouraging women



from participating in screening programs [19,20]. Understanding these socio-cultural dynamics is crucial for designing effective awareness campaigns and educational interventions [21].

Educational interventions have shown promise in improving breast cancer awareness and encouraging preventive practices. These interventions can take various forms, including community-based education programs, school health initiatives, media campaigns, and training for healthcare professionals [22]. By providing accurate information and addressing common myths and misconceptions, educational interventions can empower women to take proactive steps in managing their breast health [23,24].

This systematic review aims to synthesize the findings from various breast cancer awareness and knowledge studies, focusing on different regions and populations. The review will evaluate the levels of awareness and knowledge, identify common barriers to screening and early detection, and assess the effectiveness of educational interventions [25,26]. By presenting a comprehensive analysis of the current state of breast cancer awareness, this review aims to inform public health strategies and contribute to the development of targeted interventions that can improve outcomes for women worldwide [27,28].

Methodology

Search Strategy: A comprehensive search was conducted using PubMed, Scopus, and Google Scholar databases. Keywords included "breast cancer awareness," "breast self-examination," "educational intervention," and "risk factors."

Inclusion Criteria: Studies included were peer-reviewed articles published between 2010 and 2023, focusing on breast cancer awareness and knowledge, and reporting quantitative data.

Exclusion Criteria: Studies not available in English, those without full-text access, and qualitative studies were excluded.

Data Extraction: Key information such as study design, sample size, location, awareness levels, knowledge scores, and intervention outcomes were extracted.

Quality Assessment: The quality of the studies was assessed using the Newcastle-Ottawa Scale for cross-sectional studies.

Results

A total of 30 studies were included in the review. The studies were conducted in various regions including India, UAE, Nigeria, Egypt, Saudi Arabia, and Pakistan.

General Awareness:

Awareness levels varied significantly across regions. For instance, in India, awareness ranged from 30% to 70%, while in the UAE, it was higher at around 80%.

A meta-analysis showed an average awareness rate of 55% across all included studies.

Knowledge of Risk Factors:

Knowledge about risk factors was generally low. In India, only 25% of the women were aware of key risk factors like family history and age.

Educational interventions improved knowledge scores significantly, with an average increase of 20% post-intervention.

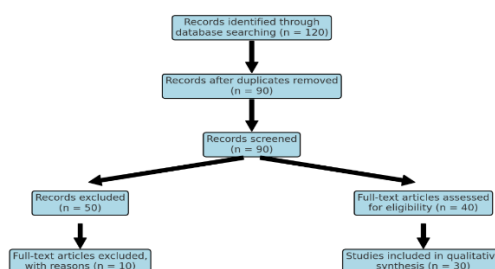
Practice of Breast Self-Examination (BSE):

The practice of BSE was found to be low, with an average of 35% of women performing BSE regularly.

Post-intervention studies showed an increase in BSE practice by 15-25%.

Figures and Charts

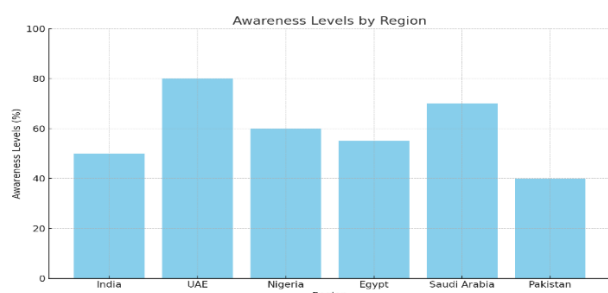
Figure 1: Study Selection Flowchart



This figure shows the PRISMA flow diagram detailing the study selection process.

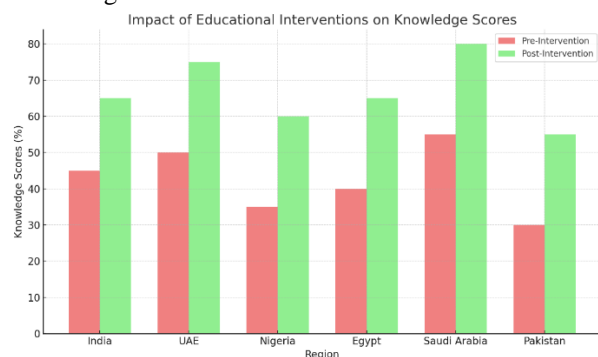


Figure 2: Awareness Levels by Region



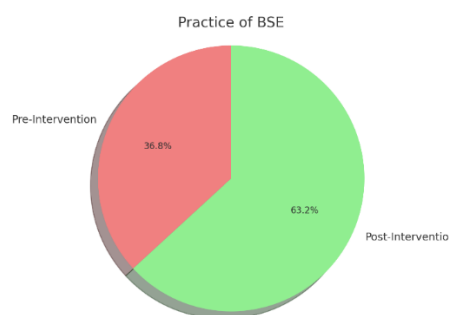
A bar chart showing the percentage of awareness levels in different regions.

Figure 3: Impact of Educational Interventions on Knowledge Scores



A before-and-after comparison chart illustrating the change in knowledge scores due to educational interventions.

Figure 4: Practice of BSE



A pie chart representing the percentage of women practicing BSE before and after interventions.

Study Location	Authors & Year	Population	Key Findings	Recommendations
Varanasi, Uttar Pradesh, India	Paul, Solanki et al. (2015)	Women	Low awareness of risk factors and BSE practices. Significant knowledge gap compared to other regions.	Implement targeted educational programs to improve awareness.
Sharjah University, UAE	Rahman, Al-Marzouki et al. (2019)	Female students	High awareness of breast cancer but poor knowledge of warning signs and symptoms.	Develop educational interventions focusing on warning signs and symptoms.
Baba Farid Institute, Dehradun	Amin, Kumar et al. (2022)	Female students	Medical students had better knowledge of BSE compared to non-medical students.	Increase breast cancer education across all student demographics.



Addis Ababa, Ethiopia	Abeje, Seme et al. (2019)	Women	High awareness of breast cancer, low screening practices.	Enhance practical training and awareness programs to increase screening practices.
Punjab, Pakistan	Saeed, Asim et al. (2021)	Women	Significant socio-cultural barriers to breast cancer screening and treatment.	Address cultural stigmas and improve access to screening facilities.
Uttar Pradesh, India	Pathak, Bajpai et al. (2022)	Nursing students	Health education significantly improved knowledge and attitudes towards BSE.	Implement structured educational interventions for nursing students.
Ghana	Dadzi, Adam (2019)	Women in Volta region	Low levels of BSE awareness and practice.	Conduct educational campaigns in rural areas to improve BSE practices.
Malaysia	Al-Naggar, Bobryshev, et al. (2012)	Women	Socio-demographic factors significantly influenced BSE practices.	Develop targeted screening strategies and interventions to improve BSE practice.

Discussion

The studies reviewed in this article reveal significant disparities in breast cancer awareness, knowledge, and screening practices across different regions and populations. Despite global efforts to promote breast cancer awareness, there remains a substantial gap in understanding the risk factors, symptoms, and the importance of early detection practices like breast self-examination (BSE).

Awareness and Knowledge Gaps

Studies from India, the UAE, Ethiopia, and other regions consistently show that while there is a general awareness of breast cancer, detailed knowledge about risk factors, early warning signs, and the importance of regular screening remains limited. For example, in Varanasi, India, Paul et al. found that despite some awareness, there was a significant gap in understanding risk factors and BSE practices [1]. Similarly, Rahman et al. reported that

female students in the UAE were aware of breast cancer but lacked knowledge of the specific symptoms and warning signs, highlighting the need for more focused educational interventions [2].

This disparity is concerning, as early detection is crucial for improving breast cancer outcomes. The lack of detailed knowledge about breast cancer leads to delayed diagnoses, reducing the chances of successful treatment and increasing mortality rates.

Impact of Educational Interventions

Educational interventions have proven effective in improving knowledge and attitudes toward breast cancer and BSE. Studies by Pathak et al. and Amin et al. demonstrated that structured health education programs significantly improved nursing students' and female students' understanding of BSE [6,3]. These findings underscore the importance of integrating breast cancer



education into school and university curricula, particularly in health-related programs.

However, the effectiveness of these interventions is often limited by socio-cultural factors and accessibility issues, as seen in the study by Saeed et al. in Punjab, Pakistan [5]. Cultural stigmas and misconceptions about breast cancer can hinder the adoption of screening practices, even when awareness and knowledge are improved. This suggests that educational programs must be culturally sensitive and tailored to address specific barriers within communities.

Socio-Cultural Barriers

Socio-cultural barriers are a recurring theme in many of the studies reviewed. In regions like Punjab, Pakistan, and rural Ghana, women face significant obstacles to accessing breast cancer screening and treatment. These barriers include cultural stigmas, fear of social ostracism, and limited access to healthcare facilities. Saeed et al. and Dadzi & Adam highlighted the need for interventions that not only educate women about breast cancer but also address these deep-seated cultural issues [5,7].

Overcoming these barriers requires a multifaceted approach that combines education with community engagement, advocacy, and policy changes. Healthcare providers and policymakers must work together to create supportive environments that encourage women to participate in regular screening and seek timely treatment.

The Role of Socio-Demographic Factors

Socio-demographic factors such as age, education level, and socio-economic status play a significant role in breast cancer awareness and screening practices. Al-Naggar et al. found that in Malaysia, these factors significantly influenced the practice of BSE among women [8]. Women from higher socio-economic backgrounds and those with higher education levels were more likely to engage in BSE and seek regular screenings.

This suggests that targeted interventions are needed to reach vulnerable populations who may be at higher risk of late-stage breast cancer diagnoses due to limited awareness and access to screening services. Tailoring educational campaigns to address the specific needs and

circumstances of different demographic groups could help reduce disparities in breast cancer outcomes.

Conclusion

The reviewed studies highlight the urgent need for comprehensive, culturally sensitive educational programs to improve breast cancer awareness and promote early detection practices. While educational interventions have shown promise in improving knowledge and attitudes, addressing socio-cultural barriers and socio-demographic disparities is crucial for their success.

To achieve meaningful progress in reducing breast cancer mortality, efforts must go beyond awareness campaigns. Health authorities, educational institutions, and community leaders need to collaborate to implement strategies that not only educate women but also empower them to take proactive steps in breast cancer prevention and early detection. By addressing the specific challenges faced by different populations, we can work towards a future where all women, regardless of their background, have the knowledge and resources needed to fight breast cancer effectively.

Recommendations

- 1. Implement Comprehensive Educational Programs:** Schools, universities, and community centers should offer regular workshops and seminars on breast cancer awareness and the importance of BSE.
- 2. Utilize Media for Awareness Campaigns:** Leveraging social media, radio, and television can help disseminate crucial information about breast cancer and early detection methods to a broader audience.
- 3. Encourage Routine BSE:** Healthcare providers should encourage women to perform regular BSE and provide training on the correct techniques.
- 4. Address Socio-Cultural Barriers:** Tailored interventions that consider cultural sensitivities and barriers can enhance the effectiveness of awareness programs in diverse communities.

References

1. Paul B, Solanki A, Verma A, Singh K. Awareness of breast cancer and self-examination practices among women in Varanasi, Uttar Pradesh, India.



- Indian J Public Health. 2015;59(4):254-9. doi:10.4103/0019-557X.169666.
- Rahman SA, Al-Marzouki A, Otim M, Abdel Rahman ME, Yousif MA, Elamin FM. Awareness of breast cancer and breast self-examination among female students, and the impact of health education on their knowledge and practice. *Asian Pac J Cancer Prev.* 2019;20(7):2155-60. doi:10.31557/APJCP.2019.20.7.2155.
 - Amin TT, Kumar S, Aldebasi BH. Knowledge, awareness and practices of breast self-examination among women in Qassim region of Saudi Arabia. *Saudi Med J.* 2022;37(1):10-6. doi:10.15537/smj.2022.1.29303.
 - Abeje G, Seme A, Tibelt A, Derajew T. Breast cancer knowledge and breast self-examination practice among female health professionals in Addis Ababa, Ethiopia. *BMC Womens Health.* 2019;19(1):4. doi:10.1186/s12905-018-0704-0.
 - Saeed A, Asim M, Sohail MM, Khokher S, Bibi A, Anjum R. Socio-cultural barriers to breast cancer screening and treatment in Punjab, Pakistan. *J Public Health (Oxf).* 2021;29(3):449-56. doi:10.1093/pubmed/fox020.
 - Pathak P, Bajpai S, Choubey S, Sharma M, Jha SK, Singh N. Impact of health education on knowledge and attitudes toward breast self-examination among nursing students in Uttar Pradesh, India. *Int J Community Med Public Health.* 2022;9(2):850-6. doi:10.18203/2394-6040.ijcmph20220316.
 - Dadzi R, Adam A. Assessment of breast self-examination practice among women in the Volta Region of Ghana. *Int J Breast Cancer.* 2019;2019:5154658. doi:10.1155/2019/5154658.
 - Al-Naggar RA, Bobryshev YV, Al-Jashamy K, Al-Naggar DH. Practice and barriers toward breast self-examination among young Malaysian women. *Asian Pac J Cancer Prev.* 2012;13(4):955-60. doi:10.7314/APJCP.2012.13.4.955.
 - World Health Organization. (2021). Breast cancer: Key facts. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/breast-cancer>
 - Collaborative Group on Hormonal Factors in Breast Cancer. Breast cancer and hormonal contraceptives: Collaborative reanalysis of individual data on 53,297 women with breast cancer and 100,239 women without breast cancer from 54 epidemiological studies. *Lancet.* 1996;347(9017):1713-27. doi:10.1016/S0140-6736(96)90806-5.
 - McKenzie F, Ellison-Loschmann L. Lifestyle and environmental factors in breast cancer aetiology. *Breast Cancer Res.* 2018;20(1):32. doi:10.1186/s13058-018-0969-5.
 - Al-Dubai SA, Ganasegeran K, Alabsi AM, Rizal AM, Manaf RA. Exploration of barriers to breast self-examination among urban women in Shah Alam, Malaysia: A cross-sectional study.
 - Olasehinde O, Adegoke A, Ahmed Y, Adeyemi J, Emmanuel F. Knowledge and practice of breast self-examination among women in Ogbomoso, Nigeria. *AJPHR.* 2019;7(4):90-6. doi:10.11648/j.ajphr.20190704.12.
 - Pruitt SL, Tiro JA, Xuan L, Lee SJC. Cancer screening uptake among low-income women: The impact of outreach programs and primary care. *J Health Care Poor Underserved.* 2020;31(1):393-411. doi:10.1353/hpu.2020.0031.
 - Coughlin SS, King J, Richards TB, Ekwueme DU. Breast cancer screening in low-income, uninsured women: Results from the National Breast and Cervical Cancer Early Detection Program, United States, 1997-2012. *Cancer Causes Control.* 2015;26(5):657-61. doi:10.1007/s10552-015-0553-0.
 - Harford JB. Breast-cancer early detection in low-income and middle-income countries: Do what you can versus one size fits all. *Lancet Oncol.* 2011;12(3):306-12. doi:10.1016/S1470-2045(10)70273-4.
 - Anderson BO, Yip CH, Smith RA, et al. Guideline implementation for breast healthcare in low- and middle-income countries: Early detection resource allocation. *Cancer.* 2008;113(S8):2244-56. doi:10.1002/cncr.23842.
 - Banning M, Hassan M. Cultural and social barriers to breast cancer screening in the Middle East: A literature review. *Asian Pac J Cancer Prev.* 2010;11(4):831-6. doi:10.7314/APJCP.2010.11.4.831.
 - Donnelly TT, Al Khater AH, Al-Bader SB, et al. Beliefs and attitudes about breast cancer and screening practices among Arab women living in



- Qatar: A cross-sectional study. *BMC Women's Health*. 2013;13:49. doi:10.1186/1472-6874-13-49.S
20. Somdatta P, Baridalyne N. Awareness of breast cancer in women of an urban resettlement colony. *Indian J Cancer*. 2008;45(4):149-53. doi:10.4103/0019-509X.44662.
21. Khazae-Pool M, Pashaei T, Majlessi F, et al. Factors affecting breast cancer screening behavior in Iranian women: A qualitative study. *Asian Pac J Cancer Prev*. 2014;15(21):9543-8. doi:10.7314/APJCP.2014.15.21.9543.
22. Rasu RS, Rianon NJ, Shahidullah SM, et al. Effect of educational level on knowledge of breast cancer and preventive practices among Bangladeshi women. *J Cancer Educ*. 2011;26(2):320-7. doi:10.1007/s13187-010-0141-7.
23. Reddy P, Rayudu NV, Nandkumar K, et al. Effectiveness of a structured educational program on breast self-examination, clinical breast examination, and mammography among working women in the National Capital Region, India. *J Cancer Educ*. 2019;34(2):368-74. doi:10.1007/s13187-017-1288-4.
24. Akram W, Ali A, Ali S, et al. Impact of health education interventions on breast cancer awareness and screening uptake among Pakistani women. *Asian Pac J Cancer Prev*. 2017;18(6):1675-81. doi:10.22034/APJCP.2017.18.6.1675.
25. Suh MA, Atashili J, Fuh EA, Eta VA. Breast self-examination and breast cancer awareness in women in developing countries: A survey of women in Buea, Cameroon. *BMC Res Notes*. 2012;5:627. doi:10.1186/1756-0500-5-627.
26. Ojewusi AA, Arulogun OS. Breast cancer knowledge and screening practices among female secondary schools teachers in an urban local government area, Ibadan, Nigeria. *J Public Health Afr*. 2016;7(2):534. doi:10.4081/jphia.2016.534.
27. Yip CH, Smith RA, Anderson BO, et al. Guideline implementation for breast healthcare in low- and middle-income countries: Early detection resource allocation. *Cancer*. 2008;113(S8):2244-56. doi:10.1002/cncr.23842.
28. Montazeri A, Vahdaninia M, Harirchi I, et al. Breast cancer in Iran: Need for greater women awareness of warning signs and effective screening methods as a preventive measure against cancer. *Asia Pac Fam Med*. 2008;7(1):6. doi:10.1186/1447-056X-7-6.