

Review

# Effectiveness of breast cancer campaigns in South Asia

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## Abstract

Despite the growing burden of cancer, it remains a low priority in healthcare planning and budgeting in South Asian low- and middle-income countries (LMICs). Mass public awareness about cancer signs and symptoms and encouragement to seek help is an important step towards early diagnosis. Due to scarcity of resources in South Asia, the scale of awareness campaigns is limited, and provision of drugs and curative services take precedence over preventative measures. Several misconceptions and superstitious beliefs regarding the treatment of breast cancer with homeopathic medicine and unconventional religious peers provide a challenge to awareness campaigns. Along with that, shortage of staff and transportation add to the difficulties of conducting these campaigns. Interventions such as role plays, weekly clinics providing counseling for the disease, and measures such as pamphlets and presentations have been considered useful. This review assesses the challenges faced by breast cancer awareness campaigns and the interventions that could help in bringing mortality rates lower.

**Keywords** Breast cancer · Breast cancer awareness campaign · Screening · Challenge · Intervention · Women

## Abbreviations

LMIC	Low- and middle-income countries
GLOBOCAN 2020	Global cancer observatory
ASDR	Age-standardized death rates
WHO	World Health Organization
BCAM	Breast cancer awareness month
NCDs	Noncommunicable diseases
BC	Breast cancer
BSE	Breast self-examination
IBE	Intelligent breast examination

## 1 Background

South Asia is a populous and diverse continent, with most countries still developing [1]. Most of the population living in many low- and middle-income countries (LMICs) have extremely limited health services and substantial cancer burden. Despite the growing burden of cancer, it remains a low priority in healthcare planning and budgeting in South Asian LMICs [1]. According to Global Cancer Observatory (GLOBOCAN 2020), the estimated age-standardized incidence rate (per 100,000) in Asia is highest for breast cancer (BC) at 36.8 [2]. The age-standardized death rates (ASDR) of breast

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cancer are predicted to increase by 35% from 13.4 (95% CI 9.21–16.02) per 100,000 in 1990 to 18.1 (95% CI 13.23–21.10) per 100,000 in 2030 in South Asia, with the highest predicted change in ASDR in Pakistan (a 62% increase) and Nepal (a 47% increase) [3].

The risk of malignancy increases with age, early menarche, delayed first birth and menopause, nulliparity, short duration of lactation, birth control pills, obesity, excess consumption of fats, hormone replacements, environmental pollutants, and a positive family history [4–6]. Breast cancer's clinical presentations include pain, inflammatory changes, nipple discharge, swelling, skin dimpling, nipple retraction, nipple discharge and most importantly a new palpable mass [7]. While most breast lumps are not cancer, 45% of diagnosed cancerous lesions are symptomatic, while the rest are detected during screening [8].

According to the World Health Organization (WHO), an important step towards early diagnosis is mass public awareness about cancer signs and symptoms and encouragement to seek help [1]. Since 1984, October has been recognized as National Breast Cancer Awareness Month (BCAM) as a health promotion tool. However, studies reveal that women in LMICs are not adequately aware of breast cancer, and have poor knowledge about the disease and screening methods. As expected, early treatments are rare in these countries, resulting in poor outcomes and high mortality rates [9]. WHO announced urgency in 2018 to reduce premature mortality from non-communicable diseases (NCDs), including cancer, as a part of the Global Action Plan for the Prevention and Control of NCDs 2013–2020 and the United Nations Sustainable Development Goals. They called for appropriate strategic investments in cancer control to reduce the burden of cancer globally [10].

This review's objective is to determine whether breast cancer campaigns in South Asia over time changed attitudes toward cancer screening, raised detection rates for the disease, and raised awareness of the disease's signs and symptoms.

A literature search using the terms “breast cancer,” “breast cancer AND awareness” and “breast cancer AND awareness campaigns” was performed. The inclusion criteria were limited to articles in English and studies conducted in the following South Asian countries: Pakistan, India, Bangladesh, Bhutan, Nepal, and Sri Lanka. No data was available for Afghanistan and Maldives. The screening strategies used to detect breast cancer along with the details about awareness campaigns conducted in the aforementioned countries were discussed in this review.

## 2 Challenges faced during awareness campaigns

Conversations about breast cancer have increased exponentially in print and electronic media. Multiple sessions are also organized in educational institutes, hospitals, and communities; however, the efficacy of such campaigns is still limited due to several reasons. Lack of awareness is one of the biggest barriers to breast cancer screening and early detection, and despite awareness, many factors prevent it from translating into a screening.

The scale of awareness campaigns is particularly limited due to a scarcity of resources in South Asia. This is reported as a challenge in many studies, such as Jabeen et al. [11] and Gadgil et al. [12]. The latter highlighted how the provision of equipment, drugs, and curative services takes precedence over any preventive measures, limiting the scope of any awareness campaigns in LMICs. No additional funding was provided for this campaign, as is normal for any other projects in this region, and that enhances the burden on the existing workforce to mail out the breast cancer informative brochures without any added incentives. Additionally, only eight volunteers out of 1,20,000 persons in Jeyapaul S et al. illustrates this disparity [13]. Existing health workers need to be integrated into awareness campaigns as well.

### 2.1 Personal and psychological beliefs

As it is linked to sexuality more than health, it is still considered taboo to talk about the breast due to conservative societal and religious beliefs [14, 15]. WHO reports the difficulty of using the word ‘breast’ in public, while ‘cancer of woman’ is the term for breast cancer [16]. Since it is viewed as a sexual organ [17], some even consider breast cancer to be a sexually transmitted disease, akin to AIDS, where you are to blame if you have the disease [18]. If a woman were diagnosed with it, her husband may question its origins because ‘having breast problems relates to the bad character of women’ [17].

Patients would rather not know they have breast cancer because having breast cancer is believed to be embarrassing, with symptoms such as hair fall, skin discoloration, and loss of eyebrows and eyelashes [15, 18]. In a cross-sectional study in Peshawar, Pakistan, embarrassment was the main barrier (24.8%) in visiting the doctor for breast-related problems [19]. Fear of physical deformation results in further psychological complications that hinder breast cancer awareness [15]. Since the breast is an organ that symbolizes femininity and motherhood, breast cancer is seen as a loss of femininity [15],

especially since it is also linked to the complete removal of the breast [18]. This, coupled with the symptoms discussed above, results in body image issues, and apprehensions of divorce or abandonment by the husband.

Furthermore, there is shyness and embarrassment of revealing personal body parts to doctors, especially to male health service providers [15, 18, 20–24]. Having male doctors view or touch the breast is seen as a religious and cultural infringement, subject to condemnation by the family [15]. Breast cancer awareness campaigns have male volunteers, which could also be considered as a factor that hinders their efficacy.

Nihilistic beliefs towards cancer are another challenge posed during breast cancer awareness campaigns and their impact on screening uptake [22]. Besides the high treatment expenses and time commitment, breast cancer is deemed incurable and synonymous with death. The word ‘cancer’ itself has negative connotations in South Asia, and since women consider their life ended if they get a diagnosis, they avoid health checkups, doctor visits, and such campaigns [18], therefore, making the fear of being diagnosed a primary challenge in breast cancer awareness [25, 26].

Breast cancer is further viewed as a contagious disease that leads to social isolation and societal ostracization due to the insensitive behavior of people around the patient [22].

The predominance of misconceptions and myths about spiritual healing is another important barrier to successful breast cancer awareness campaigns in South Asia. Superstitious cultural beliefs that this only comes to those with sin or a result of immorality [27–29] are prevalent. Afflicted individuals would rather leave it to God or unconventional religious peers and faith healers for spiritual advice and medical support [14, 30]. These alternative healers prescribe useless remedies such as applying mud on the breast [31] and reciting spiritual spells or specific verses of the Quran [15]. According to Khan MA et al., 40.7% of Pakistani women wasted time on alternative medicines [32]. Increased reliance on alternative medicine treatments such as homeopathic, Hakeem, and home remedies was a challenge in the success of breast cancer awareness campaigns [26, 31].

## 2.2 Sociocultural and economic hindrances

In patriarchal societies such as South Asia, women’s health is often disregarded [33]. With other domestic responsibilities and caring for the family being their priority, women do not have the time for self-care. Their general ambivalence towards their health only changes if the pain becomes ‘unbearable’ [31]. Women are expected to take care of the family, but social support in the other direction is often limited in South Asia [15, 22, 34].

They are dependent upon family or spouses for financial and emotional support, as well as a company to visit the doctor which is often hard to find. Furthermore, since speaking about the breast is stigmatized, many women feel uncomfortable approaching male family members about this [7].

In many families, women hold daily-wage jobs, and skipping on that for breast cancer screening is not economically feasible [22]. This can be extended to include women who are busy with work to attend the awareness session in the first place.

Moreover, the high cost of breast and cancer screening is not viewed as a worthy investment for people in the lower socioeconomic class, especially since it is believed to end in death [32]. They would rather use that money to put food on the table. The financial constraint [18] that proceeds after a positive breast health check-up is not something they are willing to undertake [15]. In Pakistan, like many other developing countries, medical assistance from the government for patients suffering from diseases like cancer is negligible.

## 2.3 Lack of medical provisions

Breast cancer is also not seen as a condition worth exploring because of general distrust in medical facilities. Corporate hospitals are believed to prescribe unnecessary investigations, while government services are subpar. The conditions of public hospitals are unsatisfactory with long waiting times and multiple visits [15, 18]. Physicians are also mistrusted to deliberately delay diagnosis, misdiagnose the problem, or treat it inefficiently [19]. Even if patients were to get over their apprehension, some villages do not have screening facilities at the primary health centers [18]. In Pakistan, government hospitals experience a shortage of medical facilities like mammography, oncologists, and nursing specialists [35].

Shortage of staff and transportation are other practical challenges in conducting awareness campaigns in South Asian countries like India [13]. A new set of doctors need to be trained each year, ensuring that women doctors are freed up from other responsibilities by duty exchanges, and transportation should be provided to far-off villages.

### 3 Interventions

Given the prevalence of BC in South Asia, many studies conducted here have assessed the knowledge, attitudes, and perceptions of its audience around BC and self-screening. However, awareness campaigns informing the study population of safe lifestyle practices, risk factors and symptoms of BC, and breast self-examinations among other topics have been limited.

The mediums used to create awareness varied considerably, but the efficacy of the majority of the interventions was tested via questionnaires pre and post-intervention. For example, Jabeen et al. [11] and Khokhar et al. [36] both used training lectures, videos on breast self-examination (BSE), and pamphlets as their medium of choice. Jabeen et al. restricted their lectures on cancerous changes to the breast, BSE, and its importance to 5 min, which yielded a statistically significant ( $p < 0.001$ ) improvement in BSE knowledge and practice in the intervention group at the end of six months and no change in the control group ( $p > 0.05$ ). On the contrary, Khokhar et al. further used models to demonstrate BSE in their 5 training workshops (90–120 min each) for the nursing staff ( $n = 259$ ) of a missionary hospital in Delhi, India. Risk factors for BC and knowledge of BSE both had a significant ( $p < 0.05$ ) increase post-intervention.

Whereas Jabeen et al. [11] used monthly follow-ups for post-intervention analysis, a study conducted during the Pink Chain Campaign on Cancer Awareness in different women colleges in Delhi, Mumbai, and Jaipur in India supplemented lectures by oncologists and a screening program teaching BSE with literature related to cancer awareness emailed regularly to the intervention group (872 teachers) for 1 year [37]. Practice of BSE increased from 16.3% to 59.2% at 6 months and 64.7% at 1 year, while the knowledge of clinical breast examination (CBE) slowly rose from 18.2% to 29.1% at 6 months followed by 36.1% at 1 year. A refresher course three months after the first intervention was also seen in Vithana et al. [38].

The intervention was more interactive in Nisha et al. [39] and Vithana et al. [38]. Both these studies consisted of a multipronged intervention with interactive learning discussions and didactic lectures, among other things. The health education intervention in Tamil Nadu, India [39] further consisted of pamphlets in a local language, flipcharts, true story narration, and brainstorming for women ( $n = 266$ ) living in the vicinity of the investigators' medical college. As compared to 7.14% pre-intervention, statistically significant 64.7% ( $P = 0.0001$ , McNemar's Chi-square test) women started practicing BSE as reported via house-to-house visits. Besides a 71.8% increase in knowledge, four women noticed carcinogenic changes through CBE and mammography [39].

On the other hand, Vithana et al. in Gampaha, Sri Lanka incorporated role plays and practical sessions for its intervention group ( $n = 38$ ) consisting of public health midwives (PHMs), following a training guide developed before the two-day workshop [38]. As compared to the control group ( $n = 47$ ), the knowledge in the intervention group rose from 57.8% (IQR: 53.3–69.4%) to 95.6% (IQR: 93.3–96.1%) and 93.3% (IQR: 90.6–93.3%) respectively at one ( $p < 0.001$ ) and six ( $p < 0.001$ ) months post-intervention. Similarly, practices too displayed a statistically significant ( $p < 0.001$ ) improvement in the intervention group despite the same practice scores (61.5%) before the intervention [38].

The opposite end of the interactive spectrum was a self-instructional module administered to primary school teachers in Karad, India [40]. This module taught the intervention group ( $n = 60$ ) screening of BC with an FDA-approved noninvasive handheld, mHealth point-of-care solution called Intelligent Breast Examination (IBE). A significant increase in scores (paired  $t$  value 23.902 at 0.05 level of significance) was reported.

Similarly, the employees ( $n = 22,500$ ) of Bhabha Atomic Research Center in Mumbai, India relied on awareness from annual pamphlets (88,000 over four years) on breast anatomy, physiological changes in the breast, and signs or symptoms of BC [41]. This was accompanied by the establishment of five weekly breast clinics in the primary health centers of the company's health scheme that offered education and counseling on breast awareness as BSE by female nurses. The efficacy of this scheme was measured by the diagnosis of 27.09 women that attended these clinics, as the proportion of pathological node-negative and early (I-II) stage tumors diagnosed in the intervention period was higher in the intervention period (53.2%) than pre-intervention (46.2%). The proportion of advanced-stage tumors reduced from 21.9% to 18.4% [41].

Weekly clinics were also offered in conjunction with awareness in Jeyapaul et al. [13] where 8 volunteers and 17 female health workers were trained to conduct small group health education sessions in selected villages of Vellore, Tamil Nadu using PowerPoint presentations or flipcharts. 1891 women successfully attended the screening clinic in the first three and a half years of the program [13].

## 4 Conclusion

With South Asia mostly comprising developing countries, breast cancer awareness campaigns conducted in the region face multiple challenges ranging from personal and psychological beliefs to socioeconomic hindrances and lack of medical provision. Effective strategies such as role-plays, training videos, and interactive discussions should be employed in awareness campaigns to tackle these challenges and reduce the rates of breast cancer mortality by catching the disease early in its course.

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## References

- Schliemann D, Su TT, Paramasivam D, Treanor C, Dahlui M, Loh SY, et al. Effectiveness of mass and small media campaigns to improve cancer awareness and screening rates in asia: a systematic review. *J Glob Oncol*. 2019. <https://doi.org/10.1200/JGO.19.00011>.
- Cancer today. Global cancer observatory. <http://gco.iarc.fr/today/home>. Accessed 8 Aug 2022.
- Mubarik S, Sharma R, Hussain SR, Iqbal M, Nawsherwan Liu X, et al. Breast cancer mortality trends and predictions to 2030 and its attributable risk factors in east and South Asian countries. *Front Nutr*. 2022;9:847920.
- Vishwakarma G, Ndetan H, Das DN, Gupta G, Suryavanshi M, Mehta A, et al. Reproductive factors and breast cancer risk: a meta-analysis of case-control studies in Indian women. *South Asian J Cancer*. 2019;8(2):80–4.
- Mohite VR, Pratinidhi AK, Mohite RV. Reproductive risk factors and breast cancer: a case control study from rural India. *Bangladesh J Med Sci*. 2015;14(3):258–64.
- Mathew A, Gajalakshmi V, Rajan B, Kanimozhi V, Brennan P, Mathew BS, et al. Anthropometric factors and breast cancer risk among urban and rural women in South India: a multicentric case-control study. *Br J Cancer*. 2008;99(1):207–13.
- Kumar V, Abbas AK, Aster JC, Perkins JA. Tumors and tumorlike lesions of infancy and childhood. *Robbins Basic pathol*. 2018;286:289.
- Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2018;68(6):394–424.
- Ifediora CO. Re-thinking breast and cervical cancer preventive campaigns in developing countries: the case for interventions at high schools. *BMC Public Health*. 2019;19(1):503.
- World Health Organization. Regional Office for the Eastern Mediterranean. *Eastern Mediterranean Health Journal*. East Mediterr Health J. 2018. <https://apps.who.int/iris/handle/10665/326785>. Accessed 8 Aug 2022.
- Jabeen Z, Shah N, Ahmer Z, Khan S, Khan AH, Khan M. Effect of health education on awareness and practices of breast self examination among females attending a charitable hospital at North Karachi. *JPMA J Pak Med Assoc*. 2021;71(9):2156–62.
- Gadgil A, Sauvaget C, Roy N, Muwonge R, Lucas E, Sankaranarayanan R. Setting up a breast cancer awareness project in Mumbai: methodology. *Exp Chall J Cancer Educ*. 2020;35(3):579–88.
- Jeyapaul S, Oommen AM, Cherian AG, Marcus TA, Malini T, Prasad JH, et al. Feasibility, uptake and real-life challenges of a rural cervical and breast cancer screening program in Vellore, Tamil Nadu. *South India Indian J Cancer*. 2021;58(3):417–24.

14. Banning M, Hafeez H, Faisal S, Hassan M, Zafar A. The impact of culture and sociological and psychological issues on Muslim patients with breast cancer in Pakistan. *Cancer Nurs*. 2009;32(4):317–24.
15. Saeed S, Asim M, Sohail MM. Fears and barriers: problems in breast cancer diagnosis and treatment in Pakistan. *BMC Womens Health*. 2021;21(1):151.
16. In conservative Pakistan, women challenging taboos that are hiding the rise of breast cancer | National Post. <https://nationalpost.com/news/in-conservative-pakistan-women-challenging-taboos-that-are-hiding-the-rise-of-breast-cancer>. Accessed 7 Nov 2022.
17. Khazae-e-pool M, Majlessi F, Foroushani AR, Montazeri A, Nedjat S, Shojaeizadeh D, et al. Perception of breast cancer screening among Iranian women without experience of mammography: a qualitative study. *Asian Pac J Cancer Prev*. 2014;15(9):3965–71.
18. Dey S, Sharma S, Mishra A, Krishnan S, Govil J, Dhillon PK. Breast cancer awareness and prevention behavior among women of Delhi, India: identifying barriers to early detection. *Breast Cancer Basic Clin Res*. 2016;10:BCBCR.S40358.
19. Ullah Z, Khan MN, Din ZU, Afaq S. Breast cancer awareness and associated factors amongst women in Peshawar, Pakistan: a cross-sectional study. *Breast Cancer Basic Clin Res*. 2021;15:117822342110253.
20. Soomro R, Faridi S, Khurshaidi N, Zahid N, Mamshad I. Age and stage of breast cancer in Pakistan: an experience at a tertiary care center. *J Pak Med Assoc*. 2018;68(11):168.
21. Gulzar F, Akhtar MS, Sadiq R, Bashir S, Jamil S, Baig SM. Identifying the reasons for delayed presentation of Pakistani breast cancer patients at a tertiary care hospital. *Cancer Manag Res*. 2019;11:1087–96.
22. Mahalakshmi S, Suresh S. Barriers to cancer screening uptake in women: a qualitative study from Tamil Nadu. *India Asian Pac J Cancer Prev*. 2020;21(4):1081–7.
23. Ahmed F, Mahmud S, Hatcher J, Khan SM. Breast cancer risk factor knowledge among nurses in teaching hospitals of Karachi, Pakistan: a cross-sectional study. *BMC Nurs*. 2006;5(1):6.
24. Rashid M, Mamoon CMRN. Late presentation of carcinoma breast in Pakistani women. *Pak Armed Forces Med J*. 1996;46(2):11.
25. Allahverdipour H, Asghari-Jafarabadi M, Emami A. Breast cancer risk perception, benefits of and barriers to mammography adherence among a group of Iranian women. *Women Health*. 2011;51(3):204–19.
26. Steiness HS, Villegas-Gold M, Parveen H, Ferdousy T, Ginsburg O. Barriers to care for women with breast cancer symptoms in rural Bangladesh. *Health Care Women Int*. 2018;39(5):536–54.
27. Anderson de Cuevas RM, Saini P, Roberts D, Beaver K, Chandrashekar M, Jain A, et al. A systematic review of barriers and enablers to South Asian women's attendance for asymptomatic screening of breast and cervical cancers in emigrant countries. *BMJ Open*. 2018;8(7):020892.
28. Gupta A, Shridhar K, Dhillon PK. A review of breast cancer awareness among women in India: cancer literate or awareness deficit? *Eur J Cancer*. 2015;51(14):2058–66.
29. Meana M, Bunston T, George U, Wells L, Rosser W. Older immigrant Tamil women and their doctors: attitudes toward breast cancer screening. *J Immigrant Health*. 2001;3:5–13.
30. Memon ZA, Shaikh AN, Rizwan S, Sardar MB. Reasons for patient's delay in diagnosis of breast carcinoma in Pakistan. *Asian Pac J Cancer Prev*. 2013;14(12):7409–14.
31. Farooqi S, Kausar S, Bibi K, Aziz Z, Rehmat T. Exploring the determinants of delayed diagnosis of breast cancer in the female population of Punjab (Pakistan). *J Pak Med Assoc*. 2021. <https://doi.org/10.47391/JPMA.03-1199>.
32. Khan MA, Hanif S, Iqbal S, Shahzad MF, Khan MT. Presentation delay in breast cancer patients and its association with sociodemographic factors in North Pakistan. *Chin J Cancer Res*. 2015;27(3):288.
33. Ramakant P, Singh KR, Jaiswal S, Singh S, Ranjan P, Rana C, et al. A survey on breast cancer awareness among medical, paramedical, and general population in north India using self-designed questionnaire: a prospective study. *Indian J Surg Oncol*. 2018;9(3):323–7.
34. Khan NH, Duan SF, Wu DD, Ji XY. Better reporting and awareness campaigns needed for breast cancer in Pakistani women. *Cancer Manag Res*. 2021;2(13):2125–9.
35. Banning M, Tanzeem T. Managing the illness experience of women with advanced breast cancer: hopes and fears of cancer-related insecurity: living with advanced breast cancer. *Eur J Cancer Care (Engl)*. 2013;22(2):253–60.
36. Khokhar A. Effect of a training programme on knowledge of nurses from a missionary hospital in India regarding breast cancer and its screening. *Asian Pac J Cancer Prev APJCP*. 2012;13(12):5985–7.
37. Shankar A, Roy S, Rath GK, Chakraborty A, Kamal VK, Biswas AS. Impact of cancer awareness drive on generating understanding and improving screening practices for breast cancer: a study on college teachers in India. *Asian Pac J Cancer Prev APJCP*. 2017;18(7):1985–90.
38. Vithana PVSC, Ariyaratne M, Jayawardana PL. Effectiveness of an educational intervention among public health midwives on breast cancer early detection in the district of Gampaha, Sri Lanka. *Asian Pac J Cancer Prev APJCP*. 2015;16(1):227–32.
39. Nisha B, Murali R. Impact of health education intervention on breast cancer awareness among rural women of Tamil Nadu. *Indian J Commun Med Off Publ Indian Assoc Prev Soc Med*. 2020;45(2):149–53.
40. Buribekova R, Shukurbekova I, Ilnarova S, Jamshevov N, Sadonshoeva G, Sayani S, et al. Promoting clinical breast evaluations in a lower middle-income country setting: an approach toward achieving a sustainable breast health program. *J Glob Oncol*. 2018;4:1–8.
41. Gadgil A, Sauvaget C, Roy N, Muwonge R, Kantharia S, Chakraborty A, et al. Cancer early detection program based on awareness and clinical breast examination: interim results from an urban community in Mumbai. *India Breast Edinb Scotl*. 2017;31:85–9.

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