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**Original Research Article**

# Evaluating the impact of breast cancer awareness on early detection rates in young women

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## ABSTRACT

**Background:** Breast cancer (BC) remains a leading contributor to morbidity and mortality among women globally, with an increasing incidence in young women in India. Early detection enhances the prognosis, but awareness gaps and socio-cultural issues normally result in the delayed diagnosis.
**Methods:** This study explores the bearing of BC awareness campaigns on early recognition practices across young women living in urban and semi-urban settings of Northern India. A total of 180 participants took part in 18 focus group discussions (FGDs), conducted in association with local colleges, NGOs and community groups.
**Results:** Thematic analysis identified three major themes: knowledge and awareness gaps, social and behaviour barriers and impact of the campaign on screening behaviour.
**Conclusions:** Findings highlighted the myths, limited symptoms recognition, stigma and fear as significant barriers. In spite of these, breast self-examination and active screening were influenced positively by awareness efforts, especially among educated women. The research emphasizes the necessity for focused, culturally targeted interventions that engage families and tackle individual and community-level obstacles to enhance early detection.

**Keywords:** Awareness campaigns, Breast cancer, Early detection, Focus group discussions, Northern India, Screening behaviour, Socio-cultural barriers, Young women

## INTRODUCTION

BC ranks among the most prevalent cancers affecting women worldwide, with approximately 2.3 million new cases diagnosed each year and about 522,000 deaths related to it, placing it as a foremost global women's health problem.[1,2] According to GLOBOCAN, it is the most frequently diagnosed cancer across women in 140 out of 184 countries.[3] Between 2008 and 2012, the incidence of BC rose by over 20%, while mortality rates rose by 14%.[2] According to National Cancer Registry Programme, India will record nearly 230,000 new BC cases annually by 2025, with a notable rise among women under 45 years.[4,5] At present, BC contributes to more than 145,000 new cases and over 70,000 deaths annually and thus it is the most incident and fatal cancer in India for both men and women.[6] A key cause of the late diagnosis and the ensuing high mortality is a lack of awareness, which is added to by the lack of population-based screening and early detection plans.[7] The chiefly acknowledged methods for BC screening and early detection include mammography, clinical breast examination (CBE), along with breast self-examination (BSE). Studies have demonstrated that BSE is not an effective screening tool and does not decrease BC related mortality.[8] High mortality rate in BC is largely attributed to the statement that approximately 70% of women are diagnosed at an advanced stage. However, leading cancer organizations, including the American Cancer Society, have recommended monthly BSE for women.[9] Detecting

BC at an earlier stage provides women with more treatment options, which increases the likelihood of long-run survival and improves quality of life. In spite of ongoing efforts to raise awareness, myths and poor knowledge regarding BC are high among women in Asia, particularly women below 40 who are frequently left out of regular screening. This study examines the effect of awareness campaigns on early detection behavior among young women aged 18-40 years in North India. Implementation of FDG in urban and semi-urban areas, it quantifies knowledge levels, perceived barriers and awareness as determinants for promoting timely health behaviours. The findings aim to guide future breast health intervention targeting the needs of young women.

## METHODS

### *Study design and setting*

The qualitative study was conducted between July 2023 and March 2024 among selected urban and semi-urban districts of North India. The principal aim was to explore the bearing of BC awareness on early recognition habits across young women aged 18-40 years. To achieve this, qualitative information was obtained by conducting FGDs that were strategically held before the Indian Cancer Society (ICS) had organized a BC awareness campaign. FGDs were selected as the primary methodology for exploration because they prove to be effective in obtaining rich, contextual information about participants' attitudes, knowledge and health-seeking behavior regarding BC. The discussions were organized in collaboration with local colleges, Resident Welfare Associations (RWAs) and non-governmental organizations (NGOs), along with community-based women's groups. Such collaborations facilitated access to varied female populations and community involvement throughout the study process. The study site was chosen deliberately to obtain a variety of socio-cultural and economic backgrounds, thereby increasing the generalizability and relevance of the results.

### *Study population and sampling*

A purposive sampling methodology was employed to recruit a total of 180 participants, who were grouped into 18 FGDs; average 10 participants at each group. The sampling methodology was intended to capture a broad range of views by enlisting different subgroups of young women across the ages of 18 and 40 years. The study population included the following groups. College and university students, working women from corporate, educational and service industries, homemakers, community health workers and personnel attached to NGOs.

### *Inclusion criteria*

Residing in the concerned city for at least one year, able to read and speak Hindi or English, pre-existence of participation in a minimum of one BC awareness session (e.g., seminar, workshop or online campaign).

### *Exclusion criteria*

Women with a prior diagnosis of breast cancer. Those unable or unwilling to participate in a group discussion. Individuals with cognitive or communication impairments that hinder meaningful participation. Participants who had not attended any breast cancer awareness initiative prior to the study

### *Data collection*

The semi-structured FGD addressed four themes: awareness of BC, risk perception and symptom identification, beliefs about screening and delay-producing barriers to care-seeking. It was translated from English to Hindi for coherence and cultural relevance. FGDs were held in quiet, familiar environments such as schools and community centers and each lasted 45–60 minutes. A trained female moderator led each session. Discussions were audio-recorded with permission, thereafter transcribed and translated to English for analysis.

### *Ethical considerations*

Before taking part in the study, all individuals provided written informed consent. They were informed that their responses would remain confidential and anonymous and were clearly told they could withdraw from the study at any time without facing any consequences.

### *Data analysis*

The data from FDGs were analyzed thematically. Key themes and sub-themes were identified using a structured coding process. Relevant participant quotes were used to support each theme and are labelled anonymously (e.g., P5-R1=Participant 5, Group 1). Three primary themes emerged from the analysis. BC awareness and knowledge gaps. Social and behavioral barriers to early detection. Influence of awareness campaigns on screening behavior.

## RESULTS

### *Sociodemographic profile of participants*

A total of 180 women aged 18-40 years participated in 18 FGDs across four cities in North India. The participants were a representative cross-section of the population with regard to age, marital status, education, occupation and income. A summary of socio-demographic profile is given inside Table 1. A thematic analysis of the qualitative data uncovered varied perceptions among women regarding BC. The replies were organized into three overarching themes. Initial theme was focused on participants' existing awareness and understanding of BC. The second theme captured the various barriers that

hinder early detection. Third theme unveiled general healthcare-seeking behavior of women. According to description provided by the participants, every one of the themes was further sub-divided into sub-themes and corresponding categories (Table 2).

***Theme I: Breast cancer awareness and knowledge gaps***

Most women in our study had heard of breast cancer (BC), but detailed knowledge was limited. A few, including some from slum areas and even educated women, were unaware of the term. Those aware often linked BC only with lumps, based on vague or unreliable sources like TV and peer talk. Misconceptions were wide spread tight bras, synthetic clothing and injuries were wrongly believed to cause BC. While some knew that breastfeeding lowers risk, very few linked poor lifestyles to BC. Pain was commonly mistaken as a key symptom and knowledge of BSE, mammography or clinical exams was negligible. Many viewed BC as fatal and contagious, especially in low-income areas. Stigma, shame and fear of social rejection prevented open discussions and timely help-seeking. Participants emphasized the need for localized, family-focused awareness campaigns, particularly targeting underprivileged groups like domestic workers and daily wage earners.

***Theme II: Social and behavioral barriers to early detection***

Our study indicated that some internal and external challenges greatly discouraged the early presentation of BC across women in the 18-40 years age group. Most participants reported embarrassment and reluctance, particularly when presenting breast-related matters to male physicians. Even highly educated women confessed delaying check-ups unless the symptoms were very serious. Misconceptions aggravated the situation. Pain was frequently mentioned as the sole symptom and myths like synthetic bras, tight clothing or hurt causing BC were common. Most people believed that BC would always result in breast loss, loss of femininity or even death and they did not take timely action. Social stigma was significant. Women were afraid of being judged or blamed, especially among conservative families, for moral fault linking BC. This created secrecy and poor communication, especially between mothers and daughters. There were knowledge gaps. Although BC was well known by the majority, few knew the early warning signs or the significance of regular screening. There was limited awareness about BSE, mammography or clinical examinations, reflecting the non-availability and unreliability of accessible health education. Fear and denial were the central obstacles. Most women feared a potential diagnosis for emotional upset, social rejection or cost. Some thought it was better not to know and thereby avoided or delayed medical consultation even when symptoms were present.

***Theme III: Influence of awareness campaigns on screening behavior***

As per our study majority of women postponed medical consultation, hoping that symptoms would disappear by themselves. The "wait-and-watch" strategy was universal among all ages and backgrounds. Educated women and working professionals too confessed to neglecting initial signs and going to the doctor only when the condition aggravated. Fear of diagnosis and low self-priority were major reasons for delay. Women from slum settlements indicated using local, unskilled practitioners, which at times resulted in misdiagnosis and additional delays for proper care. A participant explained how a severe illness was initially mishandled until hospital intervention allowed for the proper diagnosis and care. Generally, health-seeking behavior was reactive rather than preventive, with the influencing factors being fear, lack of time and limited awareness.

**Table 1: Participant's socio-demographic profile (n=180).**

| Variable | N (%) |
|---|---|
| **Age (in years)** | |
| 18-24 | 82 (45.6) |
| 25-32 | 64 (35.6) |
| 33-40 | 34 (18.8) |
| **Residence** | |
| Urban | 122 (67.8) |
| Semi-urban | 58 (32.2) |
| **Education** | |
| Higher secondary or less | 54 (30.0) |
| Graduate | 90 (50.0) |
| Postgraduate | 36 (20.0) |
| **Occupation** | |
| Students | 66 (36.7) |
| Working professionals | 60 (33.3) |
| Homemakers | 38 (21.1) |
| NGO/CHW staff | 16 (8.9) |

**Table 2: Themes, sub-themes and representative categories identified from 18 FGDs across women in North India.**

| Theme | Sub-themes | Representative categories |
|---|---|---|
| **Knowledge and perception** | Prevalence and risk | Belief that BC occurs only in older or post-menopausal women |
| | Symptoms and signs | Pain associated with cancer; poor awareness of painless lump as key symptom |
| | Sources of information | TV, social media, peer groups more common than clinical interactions |
| **Barriers to early detection** | Behavioral barriers | Gender discomfort, reluctance and health-neglect among busy professionals |
| | Myths and misconceptions | Beliefs linking BC to bras, food or karma |
| | Social stigma | Shame, family honour and silence prevalent in married and unmarried women |
| | Knowledge gap | Few could explain correct BSE method or frequency |
| | Fear and delay | Anxiety over diagnosis, job insecurity and cost of treatment |
| **Health seeking behaviour** | Campaign influence | Many attempted BSE after awareness events; professionals more responsive |

## DISCUSSION

This research explored the challenges related to awareness of BC and the determinants of early medical presentation among North Indian women. Qualitative analysis yielded that levels of awareness were scantily low, despite some of the participants having apparent symptoms. Many participants misinterpreted or overlooked warning signs, indicating a critical gap in recognizing the importance of early detection. Varieties of behavioral, informational and social barriers were yielded as determinants of delayed action.

These included fear of diagnosis, social stigma, lack of trust in healthcare systems and hesitation to discuss breast health openly factors that collectively contributed to reluctance in seeking timely care. These results support past qualitative studies from other parts of the globe that also showed limited knowledge and delayed help-seeking among women with breast cancer.[7,10,11] Consistent with previous research, our respondents often mentioned television, the press and peer conversation as their primary sources of information.[12,13] While these sources may help disseminate general awareness, they are often not regulated for accuracy. These informal sources, however, tended to cause misinformation or support myths.

As a result, misconceptions about breast cancer's causes, symptoms and treatment options were common, reinforcing inaction or incorrect practices. While monthly breast self-examination has been largely advocated as a preventive measure, hardly any of our study participants knew about it or implemented it.[13] This indicates a disconnect between public health messaging and actual community-level awareness. This finding is consistent with results from Oman in which awareness of BSE was similarly low.[14] The lack of familiarity with BSE highlights a missed opportunity for promoting a simple, low-cost early detection tool that could empower women to take charge of their breast health. Doctor advice was listed by participants as an influencing factor for the decision to be screened, as Radhakrishnan found, but this advice was not sought by participants in this research.[15] This contradiction suggests that while professional guidance is valued, barriers such as access, affordability or personal hesitation may prevent women from engaging with formal healthcare systems proactively. There appears to be a critical need to bridge this gap through culturally sensitive education, community outreach and integrating breast health discussions into routine healthcare visits.

This study was limited to urban and semi-urban settings in Northern India, which may not reflect the experiences of rural populations. The use of purposive sampling could introduce selection bias. Additionally, self-reported data from focus group discussions may be influenced by social desirability bias.

## CONCLUSION

BC awareness and early recognition practices across young women in North India remain limited due to misinformation, social stigma and emotional barriers. Although general awareness of the disease exists, accurate knowledge of symptoms, risk factors and screening methods is insufficient. Cultural taboos, fear of diagnosis and hesitation in discussing breast health are key factors contributing to the delayed medical attention. A more positive impact has been observed from awareness campaigns, especially in promoting BSE among educated women. In order to overcome these gaps, there is a need to come up with culturally sensitive, community-based interventions featuring the involvement of families and focused communication in local

languages. Emphasis should be given towards reaching marginalized groups like homemakers and daily wage earners. Sustaining and mainstreaming breast health education into grassroots health programs and enhancing access to credible information can bring about early detection and avert preventable mortality. A sustained, inclusive strategy is crucial for altering perceptions and reassuring proactive health-seeking across young women.

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