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Attitude towards Breast Cancer and Breast Self-Examination in Middle Aged Females at a Teaching hospital in Lahore Pakistan

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ABSTRACT

Breast self-examination (BSE) is an accessible method that may help women recognize changes or abnormalities in their breasts, although it does not replace clinical examination or mammography. This study aimed to assess attitudes toward breast cancer and BSE among middle-aged women in Lahore, Pakistan. A descriptive cross-sectional study was conducted among 50 women aged 35–45 years attending the outpatient department of Chaudhary Muhammad Akram Teaching and Research Hospital. Participants were recruited using non-probability consecutive sampling after providing informed consent. Women with a current or previous diagnosis of breast abnormalities were excluded. Data were collected using a structured questionnaire covering attitudes toward breast cancer, attitudes toward BSE, and BSE and mammography practices, and were analyzed using SPSS version 26. Most participants were aged 35–40 years (66.0%), 80.0% were married, and 38.0% belonged to the middle socioeconomic group. Although 74.0% had heard of breast cancer, only 18.0% were aware of BSE and 18.0% reported performing BSE. In addition, 28.0% had undergone mammography, while friends were the most frequently reported source of BSE information (8.0%). Overall, awareness and practice of BSE were low. These findings highlight the need for targeted educational programs, public health campaigns, and community-based interventions to improve breast cancer awareness and encourage appropriate early-detection practices, particularly among women with lower educational and socioeconomic backgrounds.

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INTRODUCTION

Breast cancer, a worldwide public health concern, is a genetic disorder of cell growth that is triggered by acquired or less commonly inherited mutations affecting a single cell and its clonal progeny (Kumar et al., 2017). Breast carcinoma is the most common and fatal malignancy found in women, globally (Centers for Disease Control and Prevention, 2024). Each year 1.7 million women are diagnosed and one in three of those affected die of the disease. In 2020, there were 2.3 million women who were diagnosed with breast cancer and 685,000 deaths were recorded globally. By the end of 2020, there were 7.8 million women alive and diagnosed with breast cancer in the past 5 years, making it the world's most prevalent cancer (Badar & Mahmood, 2021). Early detection of breast cancer is crucial for improving prognosis and limit mortality. The disease if left undiagnosed and untreated can ultimately metastasize (spread) to the bones, lungs, brain and liver, reducing its overall prognosis. This necessity for early detection has spawned a number of screening initiatives aimed at reducing disease-related morbidity and mortality. Breast Self-Examination (BSE) is a common self-performed screening method to detect any possible changes in the breast. It is widely practiced around the world in developed and under developed countries for the earliest possible detection of the breast cancer. Thereby this cost effective and time saving method of Breast Self-Examination is encouraged after the age of 30 as there is an increase in the incidence of

the disease after the mentioned age (Kumar et al., 2017). However, studies have shown that many women do not perform BSE regularly or correctly, leading to missed diagnoses and delayed treatment (Fortunato et al., 2025). It is therefore essential to assess BSE knowledge and behaviors in middle-aged women, as they are at higher risk for breast cancer and may have established beliefs that affect their practices. Identifying gaps in their knowledge can help develop targeted interventions to improve awareness and encourage proper BSE, ultimately leading to earlier detection and better outcomes.

Globally, female breast cancer became the most commonly diagnosed cancer in 2020, with approximately 2.3 million new cases and 685,000 deaths worldwide (Sung et al., 2021). In Pakistan, breast cancer represents a substantial public health burden among women. Previous evidence has reported an age-standardized incidence rate of 34.4 per 100,000 women and an age-standardized mortality rate of 18.8 per 100,000 women, indicating a considerable burden of the disease in the country (Ajaz et al., 2021). At the local level, cancer registry data from Lahore covering the period 2010–2019 documented 58,394 incident cancer cases, of which 57.1% occurred among females. Among adult women, breast cancer had an age-standardized incidence rate of 76.1 per 100,000, making it the leading cancer in this population (Badar & Mahmood, 2021).

Despite the substantial burden of breast cancer, awareness and early-detection practices among Pakistani women remain inadequate. A study conducted in rural Lahore found limited knowledge and practice of breast self-examination (BSE) among women (Batool et al., 2018). Similarly, research conducted in Peshawar identified considerable gaps in breast cancer awareness and associated preventive behaviors (Ullah et al., 2021). Limited awareness may contribute to delays in recognizing breast abnormalities and seeking appropriate medical evaluation. Therefore, improving breast cancer awareness and promoting appropriate early-detection behaviors are important public health priorities. Assessing women's attitudes toward breast cancer and BSE may help identify specific knowledge and behavioral gaps and provide evidence for developing culturally appropriate health-education interventions.

While the global statistics are alarming, the burden in Pakistan is even more pressing, with incidence and mortality rates among the highest in Asia. This is particularly true in low- and middle-income countries like Pakistan, where limited access to screening tools and a lack of health education exacerbate the issue. In Pakistan, socio-cultural factors strongly influence women's health behaviors, particularly regarding sensitive topics like breast health. Cultural taboos, religious conservatism, and modesty norms discourage open discussions about breasts, making women reluctant to seek help or even learn about BSE. In many households, female health issues are deprioritized, and decision-making regarding health often lies with male family members. These dynamics contribute to late presentations of breast cancer. Reluctance is often rooted in shame, fear of diagnosis, and misconceptions that a breast cancer diagnosis is equivalent to a death sentence or social disgrace. Moreover, embarrassment and fear of stigma, especially in rural and conservative communities, further deter women from performing BSE or accessing mammographic screening. Although we are spreading awareness and knowledge of BSE among the females but still they are not efficiently practicing it due to one reason or another. Therefore, we planned this research to study attitudes toward breast cancer and BSE, as well as current practices of BSE and mammography, to emphasize the importance of this issue in our community.

METHODS

Research Design

This descriptive cross-sectional study was conducted to assess the attitudes, awareness, and practices related to breast cancer and Breast Self-Examination (BSE) among middle-aged women at a tertiary care hospital in Lahore Pakistab.

Study Location and Duration

This study was conducted at Out-patient department (OPD) of Chaudhary Muhammad Akram Teaching and Research Hospital, Azra Naheed Medical College Superior University Lahore Pakistan from March 2023 to May 2023.

Population and Sampling

Fifty females attending OPD of CMA Hospital, aged 35 to 45 years were enrolled in the study after taking informed consent using non-probability consecutive sampling technique. The age range of 35 to 45 years was selected because breast cancer incidence in Pakistani women tends to rise significantly after the age of 35 years, with many cases diagnosed before 50 years, making early awareness and screening especially relevant in this demographic. This group is often overlooked in formal screening programs despite being in a transitional life stage where health education can lead to lasting behavioral change.

Inclusion and Exclusion Criteria

Females aged 35 to 45 years, attending the OPD of CMATRH who gave informed consent were included in the study. Females with a present or past diagnosis of breast abnormalities (cysts, mastitis, benign or malignant tumors) were excluded from the study.

Research Instrument

A structured questionnaire comprising of 3 domains was designed for this study: first domain was regarding attitude towards Breast Cancer having 4 questions graded as yes or no; second domain was about Breast Self-Examination having 4 questions graded as yes or no; and a third domain assessed practices regarding BSE and mammography. The questionnaire was designed to specifically address the objectives of this study, focusing on the attitudes, knowledge, and practices related to breast cancer and BSE among middle-aged women in Pakistan. While the tool was carefully constructed to ensure relevance and clarity, it has not undergone formal validation due to resource constraints and the exploratory nature of this research.

Data Collection Procedure

Demographic information including age, educational status, marital status and socioeconomic background were noted. The structured questionnaire comprising of 3 domains was filled by the participants under supervision of a doctor, to assess attitude towards Breast Cancer, Breast Self-Examination and practices regarding BSE and mammography. All the data was recorded.

Data Analysis

SPSS version 23 was used for the entry and analysis of the data. Descriptive statistics such as frequencies and percentages were calculated for demographic variables and questionnaire responses. Chi-square tests were used to assess associations between educational level, socioeconomic status, and key variables such as awareness and practice of BSE, with a p-value < 0.05 considered statistically significant.

Ethics Statement

The present study was conducted in accordance to the ethical standards laid down in the 1964 Declaration of Helsinki, revised in the year 2000. All the subjects were explained the purpose, benefits and process of the study. Assurance was given to protect the life, health, privacy, and dignity of the human study subjects, confidentiality and anonymity.

RESULTS

A total of 50 females were enrolled in the present study. Majority of the females were aged 35 to 40 years (33, 66.0%) as shown in Table 1. Based on socioeconomic background, 19 (38.0%) females belonged to middle socio-economic status. As depicted in Table 1, majority of the females (17, 34.0%) were undergraduates on educational status followed by 16 (32.0%) illiterate. Forty (80.0%) were married. In the present study, 37 (74.0%) females had heard about Breast Cancer but only 09 (18.0%) were aware about Breast Self-Examination (BSE). Responses to individual clinical questions asked to assess attitudes towards Breast Cancer and BSE are demonstrated in Table 2. Only 09 (18.0%) respondents reported performing BSE while 14 (28.0%) had a history of mammographic scan. Advice from friends (04, 8.0%) was the biggest sources of BSE information for the participants as shown in Table 3.

Table 1: Demographic Variables of the patients

Demographic Variables		Frequency
Age	35 to 40 years	33 (66.0%)
	41 to 55 years	17 (34.0%)
Marital Status	Married	40 (80.0%)
	Unmarried	10 (20.0%)
Educational Status	Illiterate	16 (32.0%)
	Undergraduate	17 (34.0%)
	Graduate	13 (34.0%)
Socio-economic Background	Low	14 (28.0%)
	Middle	19 (38.0%)
	High	17 (34.0%)

Table 2. Responses to questions about Breast Cancer and Breast Self-Examination

Clinical Questions	Response	Frequency
Breast Cancer domain:		
Have you heard of Breast Cancer?	Yes	37 (74.0%)
	No	13 (26.0%)
Do you think early detection improves survival chances?	Yes	13 (26.0%)
	No	37 (74.0%)
Do you think mammography helps to diagnose breast cancer?	Yes	05 (10.0%)
	No	45 (90.0%)
Have you had a mammographic scan yourself?	Yes	14 (28.0%)
	No	36 (72.0%)
Breast Self-Examination (BSE) Domain:		
Have you heard of BSE?	Yes	09 (18.0%)
	No	41 (82.0%)
Do you perform BSE yourself?	Yes	09 (18.0%)
	No	41 (82.0%)
Do you perform BSE in front of mirror?	Yes	05 (10.0%)
	No	45 (90.0%)
Have you noticed any lump or color change on BSE?	Yes	02 (4.0%)
	No	48 (96.0%)

Stratification according to education level and socioeconomic status revealed significant associations with awareness and practice of BSE. Participants with higher education levels (graduates) and those from higher socioeconomic backgrounds were significantly more likely to have heard of BSE and to perform it regularly (p-value 0.031 and p-value 0.037, respectively) as shown in Table 4 and Table 5. While none of the illiterate or low socioeconomic status participants reported awareness or practice of BSE, these figures improved progressively with increasing education and income levels. Furthermore, belief in the role of mammography in breast cancer diagnosis was more common among higher education and socioeconomic groups, with statistical significance observed for socioeconomic status (p-value 0.028) and a marginally non-significant trend for education level (p-value 0.069).

DISCUSSION

Breast cancer is highly prevalent in Pakistan, with approximately 1 in every 9 women expected to be diagnosed during their lifetime (Abdul Rehman et al., 2024; Tahir et al., 2022). Around 90,000 new cases are detected annually, and 40,000 women succumb to the disease due to delayed detection (Abdul Rehman et al., 2024; Tahir et al., 2022). Furthermore, the rural areas of Pakistan, where literacy rates

are low and healthcare resources are limited, experience higher breast cancer rates (Uruntie et al., 2024). Therefore it is vital to increase awareness regarding breast cancer and BSE in Pakistani population so that timely diagnosis and prompt treatment may lead to reduction in disease burden. Regarding awareness and practices related to breast cancer and BSE in our study, 74% of the women had heard of breast cancer, but only 26% believed that early detection improves survival chances. Mammography was recognized as a diagnostic tool by only 10% of participants, with 28% having undergone a mammogram. On the other hand, 82% of women had never heard of BSE, and only 18% performed BSE, with even fewer performing it in front of a mirror (10.0%).

The findings of our study align with several previous studies, which highlight a significant gap in both knowledge and practice of BSE among women. A previous study from Lahore showed that only 19.3% of the participants knew about the BSE (Batool et al., 2018). From Karachi, Ali et al. (2020) reported 67.3% females had adequate knowledge about BSE, 31.9% females practiced BSE and 48.6% females had positive attitude, showing that overall knowledge level regarding BSE was inadequate. An Indian study from Tamil Nadu reported 26% women to be aware of BSE while only 5% practiced BSE regularly (Kumarasamy et al., 2017). Al-Qazaz et al. (2020) demonstrated that 42.7% women had BSE knowledge in Iraq but only 30.3% of the females who knew BSE performed it themselves. From Jordan, Alkhasawneh et al. (2009) reported BSE knowledge in 85% female nurses while 17.7% performed BSE on a monthly basis. The study by Abo Al-Shiekh et al. (2021) showed 80.2% female university students had information about breast cancer, 96.5% participants having BSE comprehension whereas only 31.4% did BSE regularly. Furthermore, factors such as education, socio-economic status and family history influence BSE engagement, with higher levels of education and wealth being associated with more frequent BSE practices. These comparisons underscore the need for targeted interventions and education to improve awareness and promote regular BSE practices, especially in resource-limited regions like Pakistan where breast cancer detection and survival rates are compromised by late-stage diagnoses. The results of these studies emphasize the need for targeted interventions, including educational campaigns, screening programs, and healthcare professional counseling, to improve breast cancer and BSE knowledge and compliance among middle-aged women, ultimately promoting earlier detection and better breast health outcomes.

In this study, educational level significantly influenced awareness and practice of Breast Self-Examination (BSE), with higher education correlating with increased knowledge and regular practice of BSE. These findings are consistent with previous studies, such as Batool et al. (2018) and Ali et al. (2020), which also found that educated women were more likely to perform BSE. Conversely, illiterate women in our study had minimal awareness and did not practice BSE, aligning with global research indicating that lower educational levels are associated with lower BSE practices (Kumarasamy et al., 2017).

Table 3. Responses to questions about Breast Self-Examination (BSE) awareness and practices

Clinical Questions	Response	Frequency
Source of BSE Awareness	Family	02 (4.0%)
	Friends	04 (8.0%)
	T.V./Social Media	02 (8.0%)
	Awareness Campaigns	01 (2.0%)
	Not Aware	41 (82.0%)
Frequency of performing BSE	Once a month	01 (2.0%)
	Twice in 6 months	02 (4.0%)
	Once in 6 months	4 (8.0%)
	Rarely	2 (4.0%)
	Never	41 (82.0%)
Frequency of mammographic scan	Once every 6 months	02 (4.0%)
	Once a year	05 (10.0%)
	Rarely	07 (14.0%)
	Never	36 (72.0%)
On identifying any breast abnormality, what should be done?	Consult a doctor	05 (10.0%)
	Tell a family member	09 (18.0%)
	Discuss with a friend	03 (6.0%)
	Ignore it	33 (66.0%)

Table 4. Stratification according to Education level

Responses to questions about Breast Self-Examination (BSE)		Education Level			p-value
		Illiterate	Undergraduate	Graduate	
Have you heard of BSE?	Yes	0	3	6	0.031
	No	16	14	11	
Do you perform BSE yourself?	Yes	0	3	6	0.031
	No	16	14	11	
Do you think mammography helps to diagnose breast cancer?	Yes	0	1	4	0.069
	No	16	16	13	

Table 5. Stratification according to Socioeconomic Status

Responses to questions about Breast Self-Examination (BSE)		Socioeconomic Status			p-value
		Low	Middle	High	
Have you heard of BSE?	Yes	0	3	6	0.037
	No	14	16	11	
Do you perform BSE yourself?	Yes	0	3	6	0.037
	No	14	16	11	
Do you think mammography helps to diagnose breast cancer?	Yes	0	1	4	0.028
	No	14	18	13	

This highlights the need for targeted educational interventions to improve BSE awareness, especially among less-educated women. To improve BSE awareness and practices in Pakistan, educational interventions should focus on community-based workshops that include practical demonstrations and involve both men and women to reduce stigma. Media campaigns on TV, radio, and social media, with culturally appropriate messaging and visual aids, can address literacy barriers. Additionally, engaging community leaders, particularly in rural areas, can help normalize BSE and encourage women to seek information and support, fostering a culture of openness about breast health.

Limitations of the present study include a small sample size, which may limit the generalizability of our findings to a broader population. Additionally, the study was conducted at a single institution, potentially failing to capture the experiences and practices of women from different regions or healthcare settings. Selection bias is another concern, as participants were not randomly selected, possibly leading to an overrepresentation of certain demographics or behaviors. Future studies should aim for a larger, more diverse sample from multiple institutions to enhance the generalizability of the findings. Longitudinal studies could provide more comprehensive insights into the long-term impact of BSE education and practices. Additionally, incorporating qualitative data would help better understand the barriers and motivations surrounding BSE, especially in communities with lower awareness. Lastly, the reliance on self-reported data presents another limitation, as it may introduce recall or social desirability bias, with participants potentially underreporting or overreporting their behaviors. Addressing these factors in future research will improve the accuracy of results and support the development of more effective interventions.

CONCLUSIONS

Attitude regarding breast cancer and BSE was poor in our study. Our study highlights the need to promote knowledge and awareness regarding breast cancer and BSE by educational programs, public health messages, seminars and through social media. Family physicians play a crucial role in providing the necessary tools and guidance to help women learn and practice BSE, while also working to destigmatize BSE and mammography, motivating women to regularly examine their breasts and undergo mammography, as early detection of any changes or abnormalities can significantly aid in identifying breast pathology. To enhance BSE practices in Pakistan, it is essential to implement structured educational programs that focus on both awareness and practical demonstration of BSE techniques. These programs should be conducted in community health centers and schools, targeting women of all ages, with an emphasis on areas with low literacy levels. Additionally, using mass media campaigns through television, radio, and social media can reach a wide audience and promote regular BSE practices. Collaborative efforts with local healthcare professionals and community leaders are vital for creating culturally sensitive and supportive environments that encourage women to adopt BSE. Finally, integrating BSE education into routine healthcare visits and ensuring that family physicians provide guidance on breast health could significantly improve regular practice and early detection of breast cancer.

Authors' declaration

The authors confirm that this manuscript has not been previously published and is not currently under consideration for publication elsewhere. All authors meet the applicable authorship criteria, have approved the final version of the manuscript, and consent to its submission for publication. Any third-party materials included in the manuscript have been appropriately acknowledged, and permission has been obtained where required. Any prior dissemination of the work in preprint or pre-peer-review repositories has been disclosed. The authors have also disclosed any financial or non-financial interests that could potentially influence the conduct or reporting of this study.

Ethics Approval and Consent to Participate

This descriptive questionnaire-based study was conducted in accordance with the ethical principles of the Declaration of Helsinki. All participants were informed about the purpose, procedures, and potential benefits of the study before participation. Written informed consent was obtained from all participants prior to data collection. Participants' anonymity, privacy, and confidentiality were maintained throughout the study.

Consent for Publication

Not applicable, as the manuscript does not contain identifiable personal information or individual participant data requiring specific consent for publication.

Competing Interests

The authors declare that they have no competing interests.

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Availability of Data and Materials

The data generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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Disclosure

The authors have no additional disclosures to declare.

Statement on data availability

Data generated or analysed during this study are available from the corresponding author upon reasonable request.

Authors' Contribution

This study was conceived and designed by MWR, SA, BW and NIB. MWR, MSA, MSAG and SA did the initial literature research. MWR, MSA, BW and SA did the data collection, assembly and patient assessment. Data analysis and interpretation were done by NIB, BW and MSA. MWR, MSAG and SA were involved in manuscript writing. NIB, BW and MSA did the final critical review and corrections.

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ADDITIONAL INFORMATION

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