ORIGINAL ARTICLE

Perceptions and Practices Related to Breast Self-Examination Among Female University Students in Lahore, Pakistan: A Cross-Sectional Study

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ABSTRACT

Objective: This study aims to evaluate the perception of Breast Self-Examination (BSE) among female university students in Lahore, Pakistan and to assess how familiar these students are with the concept of breast cancer and their knowledge about BSE practice. This has the potential not only to improve early detection and reduce mortality in Pakistan but also holds relevance for other low- and middle-income countries (LMICs) where similar cultural and systemic barriers to breast cancer screening exist.

Methods: This descriptive cross-sectional study took place at Superior University in Lahore Pakistan, enrolling 100 female students all aged 18 years and older using a non-probability consecutive sampling technique. The study adhered to the ethical standards set forth in the 1964 Declaration of Helsinki, which was revised in 2000. Excluded from the study were females who had a current or past diagnosis of breast abnormalities such as cysts, mastitis or any benign or malignant tumors. To evaluate their perceptions and practices regarding BSE, participants completed a structured questionnaire. All data was entered into SPSS version 23 for analysis.

Results: Out of the 100 students enrolled, 50 (50.0%) were ≤21 years in age and 95 (95.0%) were aware that BSE helps in early detection of breast cancer. Sixty (60.0%) respondents reported performing BSE themselves while only 09 (9.0%) did so monthly. Forty (40.0%) reported BSE should be done at any time as per convenience whereas 23 (23.0%) said BSE should be done during bath.

Conclusion: Although awareness about BSE was high among female university students, regular and correct practice remained low, indicating disconnect between knowledge and behavior. These findings underscore the need for structured breast health education programs at the university level. Public health policies should integrate BSE training into

Keywords: Breast Cancer, Breast Self-Examination, Females, Health Education.

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educational curricula, with culturally sensitive interventions to normalize breast health discussions. Strengthening such programs may improve early detection rates and reduce breast cancer morbidity and mortality in Pakistan.

INTRODUCTION

Breast cancer is a major global health concern, caused by genetic mutations in a single cell and its descendants, with both acquired and inherited factors contributing to its development. It is the most common and deadly cancer among women worldwide, with 1.7 million new diagnoses each year and a mortality rate where one in three affected women dies from the disease.[1] There were 2.3 million new cases and 685,000 deaths globally, while 7.8 million women were living with a diagnosis from the past five years, making breast cancer the most prevalent cancer worldwide.[1] Early detection is vital to improve survival rates, as untreated breast cancer can spread to other parts of the body, worsening outcomes. In low- and middle-income countries (LMICs), including Pakistan, late-stage diagnosis and limited access to timely treatment contribute to higher mortality rates. The WHO emphasizes early detection through awareness, clinical breast examination, and screening as central strategies in its *Global Breast Cancer Initiative*.[2] Breast Self-Examination (BSE) is a widely used, low-cost screening method that can detect early changes in the breast, particularly recommended for women over 30 due to the increased risk of developing breast cancer with age. Despite its benefits, many women do not perform BSE regularly or correctly, leading to delayed diagnoses and treatments.[3] It is important to assess BSE knowledge and behaviors; as addressing knowledge gaps can help create targeted interventions to encourage proper BSE and improve early detection, ultimately leading to better health outcomes.

The World Health Organization (WHO) reported that breast cancer accounted for 34.4% of cancer cases and 18.8% of cancer-related deaths among women in Pakistan, with the highest prevalence observed in Karachi and the Federal Capital.[4] Between 2010 and 2019, 57.1% of female cancers in Lahore were breast cancer.[5] This rising mortality rate is largely due to late-stage diagnoses, often resulting from a lack of awareness and knowledge about breast cancer, particularly among women in developing and resource-limited countries such as Pakistan. Early detection, through clinical examination, mammography or BSE, could improve treatment outcomes and reduce mortality by detecting the disease earlier. However, many women in Pakistan face cultural barriers and are hesitant to discuss breast-related health concerns or seek medical attention. Social stigma, coupled with low literacy rates, worsens the situation and awareness campaigns are often dismissed. A study in Peshawar found that only 15% of women knew how to perform BSE and only 2.5% practiced it regularly.[6] This significant gap between awareness and practice needs to be addressed and our study seeks to bridge this gap.

While efforts to raise awareness about BSE continue, the practice remains insufficient, prompting us to investigate attitudes toward BSE and emphasize the importance of improving these practices in our community. This study focuses specifically on **female university students**, a population often overlooked in public health interventions but critically positioned to become future health advocates. University students generally have better access to information and targeting them can create ripple effects as they influence peers, families, and communities. However, existing literature suggests that even among this educated demographic group, misconceptions and irregular BSE practices persist. By identifying specific gaps in perception and behavior, this study aims to inform targeted, youth-centric awareness programs that support early detection efforts in resource-limited settings.

MATERIALS AND METHODS

This descriptive cross-sectional study took place at Superior University in Lahore, Pakistan. The sample size of 100 participants was determined based on feasibility and existing literature on similar studies conducted in Pakistan and other low- and middle-income countries. Additionally, a prevalence-based formula for sample size estimation was considered using the assumption that approximately 60% of young women may be aware of or practice BSE, as reported in previous studies.[7] Keeping 95% confidence level and 0.10 margin of error, the minimum required sample was **93 participants**. To account for potential incomplete responses and improve generalizability, the sample was increased to **100 female students**. After obtaining informed consent, 100 female students were enrolled, all aged 18 years and older, who were pursuing bachelor's programs at Superior University using a non-probability consecutive sampling technique for this process.

The study adhered to the ethical standards set forth in the 1964 Declaration of Helsinki, which was revised in 2000. Participants were fully briefed on the study's goals, benefits, and methods, with clear assurances provided to protect their life, health, privacy and dignity, ensuring that their information remained confidential and anonymous. Excluded from the study were females who had a current or past diagnosis of breast abnormalities, such as cysts, mastitis, or any benign or malignant tumors. Demographic information including age was collected. To evaluate their perceptions and practices regarding BSE, participants completed a structured questionnaire. To minimize **social desirability bias**, participants were assured of **anonymity** and **confidentiality**, encouraging honest responses. Additionally, the questionnaire was designed to include neutral language to avoid influencing the participants' answers. To address **recall bias**, the questions were framed in a clear and straightforward manner, asking about recent behaviors and perceptions related to **BSE** to ensure more accurate recollections. Despite these efforts, the possibility of recall bias remains, as participants may still have had difficulty accurately remembering their past BSE practices. All the data gathered was then entered into SPSS version 23 for analysis.

Ethics statement: The present descriptive questionnaire-based study was conducted in accordance with 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 after which written informed consent was obtained prior to data collection, with assurance to maintain anonymity and confidentiality. Patient confidentiality and data privacy were strictly maintained throughout the study. No patient-identifiable information was used in the analysis, and the study adhered to ethical guidelines for healthcare research.

RESULTS

A total of 100 female university students were enrolled in the present study with 50 (50%) being $\leq$ 21 years in age and 50 (50.0%) $\geq$22 years. In the present study, 95 (95.0%) female university students were aware that Breast Self-Examination (BSE) helps in early detection of breast cancer. Responses to individual clinical questions asked to assess perception and practices towards BSE are demonstrated in Table 1. Sixty (60.0%) respondents reported performing BSE themselves while only 09 (9.0%) did so monthly. Forty (40.0%) reported BSE should be done at any time as per convenience whereas 23 (23.0%) said BSE should be done during bath.

Table 1: Responses of female university students regarding perception and practices of Breast Self-Examination (n=100)

Clinical Question	Response Options	Frequency n (%)
Does BSE help in early detection of breast cancer?	Yes	95 (95.0%)
	No	05 (5.0%)
Do you perform BSE yourself?	Yes	60 (60.0%)
	No	40 (40.0%)
How frequently do you perform BSE?	Every month	09 (9.0%)
	Every 3 months	08 (8.0%)
	Every 6 months	03 (3.0%)
	Once a year	02 (2.0%)
	No specific routine	38 (38.0%)
	Never	40 (40.0%)
When should BSE be performed?	During bath	23 (23.0%)
	During menstruation	15 (15.0%)
	While changing clothes	04 (4.0%)
	Anytime convenient	40 (40.0%)
	I don't know	18 (18.0%)
What is the reason to use finger pulps for BSE?	To prevent breast damage	18 (18.0%)
	Pulp is more sensitive to feel changes	60 (60.0%)
	To increase finger mobility	12(12.0%)
	I don't know	10 (10.0%)
Why is compressing breast between thumb and fingers NOT advised?	To prevent breast damage	12 (12.0%)
	To prevent misinterpretation	51 (51.0%)
	To prevent pain	23 (23.0%)
	To protect blood circulation	12 (12.0%)
	I don't know	02 (2.0%)

DISCUSSION

Breast cancer is a significant health issue in Pakistan, with an estimated 1 in 9 women being diagnosed during their lifetime.[8] Each year, approximately 90,000 new cases are identified, and 40,000 women die due to delayed diagnosis.[8] The incidence is particularly high in rural areas, where low literacy rates and limited healthcare resources contribute to greater breast cancer prevalence.[9] Consequently, increasing awareness about BSE is essential in Pakistan, as early detection and prompt treatment of breast cancer can significantly reduce the disease burden. In our study, 95% of participants believed BSE aids in early breast cancer detection and 60% performed BSE, though only 9% reported practicing it consistently monthly. The gap between awareness and practice of BSE among university students is influenced by several factors, including a lack of personal motivation, cultural stigmas, time constraints, and insufficient training or confidence in performing the exam correctly. Despite understanding its importance, students may not prioritize BSE due to misconceptions about their risk and social taboos surrounding breast health discussions. Addressing these barriers through education, cultural normalization, and skills training could improve regular BSE practices. The Health Belief Model (HBM) helps explain the knowledge-practice gap by highlighting factors such as perceived susceptibility, severity, benefits, and barriers to health behavior. [10] Students may not engage in BSE due to misconceptions about their risk, a lack of understanding of the disease's severity, and cultural or logistical barriers. Addressing these issues through targeted education, personal stories, and peer-led training can encourage more consistent BSE practices.

The findings of our study are in line with numerous other studies that identify a significant gap in both the perception and practices BSE among women. For instance, a study conducted in Lahore found that only 19.3% of women were familiar with BSE.[11] In Karachi, Ali et al. reported that while 67.3% of women had adequate knowledge of BSE, only 31.9% practiced it, and 48.6% had a positive attitude, highlighting the overall inadequacy of knowledge on BSE.[12] An Indian study from Tamil Nadu revealed that 26% of women knew about BSE, but only 5% regularly practiced it.[13] In Iraq, Al-Qazaz et al. found that 42.7% of women were aware of BSE, yet only 30.3% performed it themselves.[14] Abo Al-Shiekh et al. reported that 80.2% of female university students were informed about breast cancer and 96.5% had knowledge of BSE, but just 31.4% performed it regularly.[15] These findings indicate that elements such as education, socio-economic status, and family background significantly influence BSE practices. Generally, individuals who are more educated or come from wealthier backgrounds tend to engage in BSE more often. This highlights the urgent need for focused educational campaigns and interventions aimed at raising awareness and encouraging regular BSE, particularly in countries like Pakistan, where late-stage diagnoses result in lower survival rates. The combined outcomes of these studies stress the critical role of education, screening programs, and professional guidance in enhancing both understanding and compliance with BSE practices, ultimately fostering better early detection and improved health outcomes.

The current study has several limitations that should be addressed in future research. First, the small sample size limits the generalizability of the findings, and the research was conducted at only one institution, potentially overlooking the experiences of women from different regions or healthcare environments. Additionally, the non-probability consecutive sampling technique introduces selection bias, as participants were chosen based on willingness and availability, potentially leading to an overrepresentation of certain demographics. The lack of pre-testing of the structured questionnaire is another limitation, as it may have led to issues with question clarity or participant understanding, affecting the validity of responses. To improve future studies, a larger, more diverse sample across multiple institutions, using pre-tested and validated tools, would be beneficial. Longitudinal research could provide insights into the long-term impact of BSE education, and qualitative data could offer a deeper understanding of the barriers and motivations behind BSE practices. Finally, self-reported data may introduce recall or social desirability bias, and future studies should consider these factors to enhance the accuracy and effectiveness of interventions. Longitudinal studies could assess the long-term effects of BSE education, while qualitative research would offer deeper insights into the barriers and motivations behind BSE practices. Furthermore, future studies should consider strategies to reduce self-reported data biases, such as incorporating objective measures or triangulating data from various sources to increase reliability. Addressing these recommendations will help generate more accurate and actionable results for improving BSE practices.

CONCLUSION

The study highlights a significant gap between awareness and practice of BSE among university students, primarily due to factors like misconceptions about risk, cultural stigma, and lack of proper training. Education emerges as a key strategy to bridge this gap, emphasizing the need for targeted interventions. It is recommended that BSE training be integrated into university health programs to provide students with the necessary skills and confidence to perform regular self-exams. Future research could focus on longitudinal studies to track the impact of educational interventions over time, as well as qualitative exploration to better understand the barriers and motivations behind BSE practices.

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