Original Article

Breast Self-Examination Screening Behaviors and Beliefs Among the General Population of Rawalpindi: An Assessment Using Champion's Health Belief Model

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Abstract

Introduction: Breast cancer is a leading cause of female mortality globally, with Pakistani women facing a 1 in 9 lifetime risk. Early detection through Breast Self-Examination (BSE) can improve outcomes; however, awareness and practice remain low. This study assessed knowledge, beliefs, and practices regarding BSE among women in Rawalpindi using the Champion's Health Belief Model (CHBM).

Objectives: To evaluate BSE awareness, beliefs, and practices in Rawalpindi's general female population and identify associated factors**.**

Materials and Methods: A cross-sectional study was conducted from March to May 2025 among 313 women aged 18 and above, excluding medical professionals or those with diagnosed breast disease. Data were collected using a structured CHBM-based questionnaire and analyzed via SPSS version 26. Chi-square and binary logistic regression determined associations.

Results: While 69.6% of participants were aware of BSE, only 39.3% had practiced it. Education level ($p = 0.003$) and socioeconomic status ($p = 0.009$) were significantly associated with BSE practice; higher education and socioeconomic levels correlated with increased practice. Age and family history of breast cancer showed no significant association. Primary information sources were media (31.6%) and medical professionals (14.7%). Despite acknowledging BSE's role in early detection, barriers such as forgetfulness, embarrassment, and lack of privacy were commonly cited.

Conclusion: Although BSE awareness is relatively high, actual practice is limited. Targeted educational interventions should address psychological and practical barriers to improve screening behaviors and empower women through increased self-efficacy.

Keywords: Breast Self-Examination, Early detection, Health Belief

Introduction

Breast cancer is one of the most commonly detected cancers in the female population worldwide.[1] It is the most common globally; more than 2.3 million women were diagnosed in 2020, according to the WHO.[2] More than 410,000 women die every year from this disease worldwide. Alone in 2020, it was the fifth leading cause of death worldwide, accounting for 685,000 deaths.[2]

In Pakistan, the incidence is increasing; according to available data, 1 out of 9 women in Pakistan is likely to develop breast cancer in her lifetime.[3]

It has been shown that early educational intervention can partially mitigate the harmful effects of late-stage breast cancer detection. To cure it, early detection is essential and can facilitate therapy. The impact of an educational intervention in enhancing the knowledge, attitudes, and behaviors of public health midwives in Sri Lanka's Gampaha area was investigated. Therefore, early intervention is crucial to preventing breast cancer.[4]

Early detection and screening are crucial for patients with breast cancer, as their prognosis is mostly determined by the size and extent of the tumor. Research indicates that low participation in screening programs is primarily related to a lack of knowledge and awareness. Due to ignorance of these screening resources, a cross-sectional study of Arab women in the United Arab Emirates revealed a low adoption of screening modalities such as mammography and clinical breast examination.[5]

According to another survey, regardless of medical or nonmedical disciplines, university students in Angola lack awareness and information about breast cancer. Most of the students were unaware of some of the early indicators of it. The necessity of monthly BSE was valued by them. According to most participants, they need to be more aware of it. The poll found that to raise awareness and early screening, Health departments in Angola should rebuild their health education initiatives.[6]

The following are the results of a study done in Lahore: 161, which is a 84% of the total population heard about Breast cancer in their lifetime. Awareness about it was about 35%.1 or 2 major signs or symptoms are known to 65%. 85% responded that the survival rate can be improved if it's detected early. Only 36.9% had done BSE. This study shows overall low BSE practice among its population.[7]

Treating the condition is made easier with early detection and practicing cost-effective screening techniques like BSE, and seeking medical attention is improved by having sufficient knowledge. Research indicated that while BSE does not lower the death rate from breast cancer, women who are more knowledgeable about the disease are better able to identify changes in their breasts early and seek medical attention, which can improve their prognosis.[8]

Materials and Methods

We conducted a cross-sectional study from March 2025 to May 2025. The study population was the general public of Rawalpindi. The sample size was calculated to be 304, with a population proportion of 27.4%.[9] We used a convenience random sampling technique for data collection. We collected data from 313 participants. Our inclusion criteria include the general female population, aged 18 years and above, in Rawalpindi. We have excluded those who are in the medical profession, e.g., doctors, medical students, and nursing staff, from this study, and women who have breast cancer. This study was approved by the Community Medicine Department of Rawalpindi Medical University under the IURGC program. Participants were informed about the purpose of the study, and informed consent was taken. The general public who was not willing to give was excluded from the study. After getting approval to carry out the procedure of data collection, we visited the Allied Hospitals of Rawalpindi Medical University. The questionnaire consists of two parts. Part A is based on the socio-demographic profile of the participants, which includes age, year of study, marital status, area of residence (rural/urban), family history of breast CA, and socioeconomic status. Part B is based on the CHBM Scale. Data analysis was done using IBM SPSS Statistics version 26.0. Descriptive statistics were used to summarize population characteristics, including demographic variables such as age, educational level, and socioeconomic status, using frequencies, percentages, and distributions. A 5-point Likert scale (ranging from "Strongly Agree" to "Strongly Disagree") was employed to assess participants' perceptions related to barriers, susceptibility, and benefits of breast self-examination (BSE). For inferential analysis, the Chi-square test was used to assess associations between the practice of breast self-examination (BSE) and sociodemographic variables such as socioeconomic status, educational level, and family history of breast cancer. Binary logistic regression was applied to evaluate the association between age and the practice of BSE.

Results

Table 1 presents the sociodemographic characteristics of the participants. A total of 313 women participated (mean age 31.99 ± 11.2 years) in the study. Of them, 54% were married, 53.4% were graduates, and 50.2% belonged to the middle class. Only 20.1% were lactating mothers. Family history of breast CA was reported by 18.2%, and 9.6% had a personal history of breast disease. While 69.6% had heard of BSE, only 39.3% practiced it. Major information sources included media (31.6%) and medical professionals (14.7%).

Table 1 *Sociodemographic Characteristics*

Demographic Variables		Frequency	Percentages
Marital status	Single	144	46.0%
	Married	169	54.0%
Education	Illiterate	11	3.5%
	Primary	8	2.6%
	Matric	34	10.9%
	Intermediate	93	29.7%
	Graduate	167	53.4%
Socioeconomic status	Lower (37,000 =)	52	16.6%
	Middle (37,000-1,00,000)	157	50.2%
	Upper (>1,00,000)	104	33.2%
Are you a lactating mother?	No	250	79.9%
	Yes	63	20.1%
Family history of breast cancer?	No	256	81.8%
	Yes	57	18.2%
Do you have any current or history of breast disease?	No	283	90.4%
	Yes	30	9.6%
Have you heard about breast self-examination?	No	95	30.4%
	Yes	218	69.6%
If yes, have you ever done a breast self-examination?	No	190	60.7%
	Yes	123	39.3%
First sources of information about breast self-examination?	Medical terms	46	14.7%
	Friends	25	8.0%
	Media	99	31.6%
	Family	38	12.1%

School	22	7.0%
Pamphlets	16	5.1%
Books	7	2.2%
None	60	19.2%

Note. Data are presented as frequencies and percentages.

Table 2: *Summary of chi-square test*

Predictor variable	X^2 (df)	p-value
Education	16.081 (4)	0.003
Family history of breast cancer	0.608 (1)	0.435
Socioeconomic status	9.510 (2)	0.009

Note. df stands for "degree of freedom", and p-value stands for "value of probability".

Binary logistic regression showed that age was not a significant predictor of BSE practice.

Most women perceived themselves as low risk for breast cancer, though the seriousness of the disease was widely acknowledged. Table 3.1 summarizes these findings.

Table 3.1 *Perceived Susceptibility and Seriousness Scores among Study Participants*

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Susceptibility					
It is likely that I will get breast cancer	19(6.1%)	51(16.3%)	98(31.3%)	94(30.0%)	51(16.3%)
My chances of getting breast cancer in the next few years are great	7(2.2%)	36(11.5%)	102(32.6%)	108(34.5%)	60(19.2%)
I feel I will get breast cancer sometime during my life	9(2.9%)	44(14.1%)	124(39.6%)	87(27.8%)	49(15.7%)
Seriousness					
The thought of breast cancer scares me	85(27.2%)	148(47.3%)	40(12.8%)	32(10.2%)	8(2.6%)

When I think about breast cancer, my heart beats faster	32(10.2%)	131(41.9%)	83(26.5%)	53(16.9%)	14(4.5%)
I am afraid to think about breast cancer	53(16.9%)	141(19.5%)	61(19.5%)	47(15.0%)	11(3.5%)
Problems I would experience with breast cancer would last a long time	48(15.3%)	122(39.0%)	91(29.1%)	42(13.4%)	10(3.2%)
Breast cancer would threaten my relationship with my husband	48(15.3%)	106(33.9%)	82(26.2%)	54(17.3%)	23(7.3%)
If I had breast cancer, my whole life would change	67(21.4%)	131(41.9%)	64(20.4%)	39(12.5%)	12(3.8%)

Note. Values presented as frequencies and percentages.

A majority believed BSE is beneficial for early detection and self-care, aligning with high perceived benefit scores. Key barriers included embarrassment (30.4%) and forgetfulness (36.7%), while fewer participants cited time constraints or reliance on clinical examinations as reasons for non-compliance, as shown in Table 3.2

Table 3.2 *Perceived Benefits of Breast Self-Examination (BSE) among participants*

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Benefits					
When I do BSE, I am doing something to take care of myself	75(24.0%)	150(47.9%)	70(22.4%)	13(4.2%)	5(1.6%)
Completing BSE each month may help me find breast lumps early	58(18.5%)	141(45.0%)	89(28.4%)	22(7.0%)	3(1.0%)
Completing BSE each month may decrease my chances of dying from breast cancer	58(18.5%)	144(46.0%)	82(26.2%)	24(7.7%)	5(1.6%)

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Benefits					
If I find a lump early through BSE, my treatment for breast cancer may not be as bad	64(20.4%)	142(45.4%)	79(25.2%)	26(8.3%)	2(0.6%)
Barrier					
BSE is embarrassing to me	19(6.1%)	76(24.3%)	91(29.1%)	95(30.4%)	32(10.2%)
BSE takes too much time	17(5.4%)	51(16.3%)	141(45.0%)	82(26.2%)	22(7.0%)
It is hard to remember to do a breast examination	15(4.8%)	100(31.9%)	107(34.2%)	76(24.3%)	15(4.8%)
I don't have enough privacy to do a breast examination	13(4.2%)	51(16.3%)	95(30.4%)	106(33.9%)	48(15.3%)
BSE is not necessary if you have a breast exam by a healthcare provider]	21(6.7%)	96(30.7%)	99(31.6%)	81(25.9%)	16(5.1%)
BSE is not necessary if you have a routine mammogram	17(5.4%)	100(31.9%)	121(38.7%)	60(19.2%)	15(4.8%)

Note. Values presented as frequencies and percentages.

Confidence in performing BSE was moderate, with many unsure or lacking knowledge on detecting lumps. Table 3.3 shows it in detail.

Table 3.3 *Self-Efficacy Scores Related to Breast Self-Examination*

Self-Efficacy	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I know how to perform BSE	34(10.9%)	109(34.8%)	61(29.5%)	81(25.9%)	28(8.9%)
I can perform BSE correctly	21(6.7%)	85(27.2%)	87(27.8%)	85(27.2%)	35(11.2%)
I could find a breast lump by performing BSE	20(6.4%)	105(33.5%)	77(24.6%)	73(23.3%))	38(12.1%)
I am able to find a breast lump that is the size of a walnut	22(7.0%)	84(26.8%)	87(27.8%)	73(23.3%)	47(15.0%)
I am able to find a breast lump that is the size of a hazelnut	19(6.1%)	78(24.9%)	96(30.7%)	72(23.0%)	48(15.3%)
I am able to find a breast lump that is the size of a pea	22(7.0%)	56(17.9%)	102(32.6%)	87(27.8%)	46(14.7%)
I am sure of the steps to follow for doing BSE	22(7.0%)	85(27.2%)	86(27.5%)	84(26.8%)	36(11.5%)
I am able to tell that something is wrong with my breast when doing breast self-examination	30(9.6%)	102(32.6%)	72(23.0%)	66(21.1%)	43(13.7%))
I am able to tell that something is wrong with my breast when I look in the mirror	26(8.3%)	108(34.5%)	78(24.9%)	73(23.3%)	28(8.9%)
I can use the correct part of my fingers when examining my breasts	21(6.7%)	96(30.7%)	87(27.8%)	72(23.0%)	37(11.8%)

Note. Values presented as frequencies and percentages.

Discussion

This study aimed to evaluate breast self-examination (BSE) screening behaviors and related health beliefs among women in Rawalpindi using Champion's Health Belief Model (CHBM). A total of knowledge has increased over the past two decades; however, its practice remains scarce. Our findings reflect this

trend, as most of the participants, 218 (69.6%), had heard of BSE, but only 123 (39.3%) reported practicing it. This reveals a substantial gap between knowledge and practice behavior, which has also been observed in similar studies conducted in Islamabad,[10] and in other countries such as Oman,[11] where awareness does not necessarily lead to regular practice. Conversely, a study in Somalia[12] found that 74.8% of women had no knowledge of BSE at all, which may be attributed to the cultural atmosphere of the country and its influence on women's engagement in various health behaviors.

In our study, educational attainment showed a statistically significant association with BSE practice. Women with intermediate and graduate-level education were more likely to perform BSE compared to those with lower education levels. This finding supports existing literature, which indicates that as the level of education increases, the rates of performing BSE and having clinical breast examination (CBE) also increase significantly..[13] Our findings indicate that socioeconomic status also had a considerable influence on BSE practice. Women from higher socioeconomic backgrounds were more likely to engage in BSE. This association is consistent with findings from a prior study conducted in Bangladesh, which reported that participants from families with higher monthly incomes were more likely to practice BSE..[14] This may be because women with greater financial means have increased exposure to health education campaigns and better access to health resources.

Contrary to expectations, no statistically significant relationship was found between a family history of breast cancer and BSE practice. This contrasts with studies that have identified the family history of breast cancer as a facilitator of regular BSE practice..[1] An explanation for our finding may lie in cultural or psychological barriers, such as a lack of acceptance or communication about family health history. Notably, like our findings, some studies[11, 14] have also reported no significant association between family history of breast cancer and BSE practice.

In our study, the media was the most common source of BSE information (31.6%), followed by healthcare sources (14.7%). This finding suggests that mass media campaigns have reached the population, but that the role of healthcare professionals remains limited. Similarly, existing literature[11] has also reported that most participants hear about BSE through the mass media and medical teams. According to our findings, age did not significantly predict BSE practice, which is consistent with some prior studies.[15] that also found age to be an insignificant predictor of BSE practice. However, some other studies have reported that older women are more likely to perform BSE, possibly because younger women tend to feel less vulnerable to breast cancer..[16] This proves age to be a statistically significant factor.

From the Champion's Health Belief Model's perspective, a notable portion of participants exhibited low perceived susceptibility to breast cancer, with over 60% disagreeing or strongly disagreeing with the likelihood of developing the

disease. However, there was widespread awareness of the seriousness of breast cancer, with 72.2% expressing fear of its impact. Research conducted in Somalia supports this pattern, indicating that women who perceive themselves as susceptible and view breast cancer as a serious disease are more likely to practice regular BSE.[12].

Regarding perceived benefits and barriers, most participants acknowledged the benefits of performing BSE, with 71.9% agreeing that it is a form of self-care and helps in early detection. However, barriers such as embarrassment (30.4%) and forgetfulness (36.7%) were noted. These findings are in line with research from Jordan.,[15,] which also identified similar barriers to BSE practice. In contrast, the study in Oman[11] found that most participants disagreed with statements related to barriers but strongly agreed with the benefits of performing BSE.

In terms of self-efficacy, only a minority of participants expressed confidence in their ability to perform BSE correctly, with only 45.7% agreeing they knew how to perform it. This lack of confidence is a major hindrance to regular practice. Studies in Oman have similarly highlighted the importance of self-efficacy in promoting BSE, but conversely, most of the participants agreed that they know how to perform BSE; they were confident that they could perform BSE correctly..[11]

This study was limited to a sample from Rawalpindi, and hence it may not be generalized to rural or other urban areas of Pakistan. Additionally, some variables, like the intensity of media exposure or the quality of education, were not explored in depth. Longitudinal or interventional studies could help to assess whether targeted health education programs lead to increased BSE practice. Expanding the sample to rural populations and incorporating qualitative methods could provide a deeper understanding of socio-cultural barriers.

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Conclusion

This study demonstrates that while awareness of breast self-examination (BSE) is high among women in Rawalpindi, its actual practice remains low. Education and socioeconomic status were found to be significant predictors of BSE behavior. Applying Champion's Health Belief Model (CHBM), most participants acknowledged the seriousness of breast cancer and recognized the benefits of BSE; however, perceived susceptibility and self-efficacy were notably low. In addition, some psychological and practical barriers were also identified. Therefore, educational programs should prioritize strategies to enhance the self-efficacy of women and adopt

culturally appropriate measures to overcome these barriers. This will significantly improve screening behaviors and contribute to early detection and better breast cancer outcomes in the region.

References

1. Abo Al-Shiekh SS, Ibrahim MA, Alajerami YS. Breast Cancer Knowledge and Practice of Breast Self-Examination among Female University Students, Gaza. Scientific World Journal. 2021;2021.
2. WHO [Internet]. 2024 [cited 2025 May 28]. World Health Organization Breast Cancer. Available from: https://www.who.int/news-room/fact-sheets/detail/breast-cancer
3. Ahmed A, Zahid I, Ladiwala ZF, Sheikh R, Memon A. Breast self-examination awareness and practices in young women in developing countries: A survey of female students in Karachi, Pakistan. J Educ Health Promot. 2018;7(1):90.
4. Chiranthika Vithana PVS, Ariyaratne MAY, Jayawardana PL. Effectiveness of an educational intervention among public health midwives on breast cancer early detection in the district of Gampaha, Sri Lanka. Asian Pacific Journal of Cancer Prevention. 2015;16(1):227–32.
5. Elobaid YE, Aw TC, Grivna M, Nagelkerke N. Breast cancer screening awareness, knowledge, and practice among arab women in the United Arab Emirates: A cross-sectional survey. PLoS One. 2014 Sep 29;9(9).
6. Sambanje MN, Mafuvadze B. Breast cancer knowledge and awareness among university students in Angola. Pan Afr Med J. 2012;11:70.
7. Maqsood B, Zeeshan MM, Rehman F, Aslam F, Zafar A, Syed B, et al. Breast Cancer Screening Practices and Awareness in Women Admitted to a Tertiary Care Hospital of Lahore, Pakistan. J Pak Med Assoc. 2009;59(6):418.
8. PARVANI Z. BREAST SELF-EXAMINATION: BREAST AWARENESS AND PRACTICES OF SYSTEMATIC REVIEW. The Professional Medical Journal. 2011 Jun 10;18(02):336–9.
9. Mohsin A. KNOWLEDGE, PRACTICE AND HEALTH BELIEFS OF YOUNG PAKISTANI WOMEN RELATED TO BREAST SELF-EXAMINATION. [Islamabad]: National University of Sciences and Technology; 2021.
10. Khan SY, Ansari SK, Farhin S, Khilji S, Sarfaraz A, Kharal R. AWARENESS OF BREAST SELF-EXAMINATION IN WOMEN OF ISLAMABAD CAPITAL, PAKISTAN. Gomal Journal of Medical Sciences. 2023;21(2):93–7.
11. Mohanmmed Wali Shakhman L, Arulappan J. Prediction of Breast Self-Examination Behavior Among Omani Undergraduate Students Using Champion's Health Belief Model. SAGE Open Nurs. 2023 Jan 1;9.
12. Altunkurek ŞZ, Hassan Mohamed S. Determine knowledge and belief of Somalian young women about breast cancer and breast self-examination with the Champion Health Belief Model: a cross-sectional study. BMC Med Inform Decis Mak. 2022 Dec 1;22(1).
13. TAŞCI KÜÇÜKŞEN D, YENGİL TACİ D, ARSLAN İ, ÇELİK M, FİDANCI İ. Evaluation of the use of breast cancer screening methods among female patients through the Champion Health Belief Model Scale. Journal of Contemporary Medicine. 2022 Mar 15;12(2):206–10.
14. Ishtiak ASM, Ahmed N, Gaffar F, Khan MAS, Yasmeen F. Knowledge, practice, and associated factors of breast self-examination among female university students of Bangladesh. Heliyon. 2022 Nov 1;8(11).
15. Ahmad S, Alloubani A, Abu-Sa'da R, Qutaiba Y. Breast Self-Examination: Knowledge, Practice, and Beliefs Among Females in Jordan. SAGE Open Nurs. 2022;8.
16. Juárez-García DM, de Jesús García-Solís M, Téllez A. Adaptation and Validation of the Health Belief Model Scale for Breast Self-Examination in Mexican Women. Value Health Reg Issues. 2020 Dec 1;23:30–6.