

Effectiveness of Structured Teaching Programs on Breast Cancer Awareness Among Women in Urban Communities

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Abstract

Breast cancer remains the most commonly diagnosed cancer among women worldwide and a leading cause of cancer-related death in low- and middle-income countries, where late-stage presentation is common due to limited awareness and screening uptake. Structured teaching programs (STPs) planned, objective-driven health education sessions delivered through lecture, demonstration, and audio-visual aids have been widely used to improve knowledge and practice of early detection behaviors such as breast self-examination (BSE). This paper examines the effectiveness of a structured teaching program in improving breast cancer awareness, attitude, and breast self-examination practice among adult women residing in urban communities. A quasi-experimental one-group pre-test post-test design is proposed, using a structured knowledge-attitude-practice questionnaire administered before and after a structured teaching intervention. Data analysis is planned using descriptive statistics and a paired t-test to compare pre- and post-intervention scores. Illustrative findings, modeled on patterns consistently reported in the Pakistani and South Asian literature, indicate low baseline awareness and self-examination practice, with substantial and statistically significant gains in knowledge scores following the structured teaching intervention. Structured teaching programs represent a low-cost, scalable nursing intervention that can meaningfully raise breast cancer awareness in urban communities. Community health nurses are well positioned to deliver such programs as part of routine outreach.

Keywords: Breast Cancer; Breast Self-Examination; Structured Teaching Program; Health Education; Awareness; Urban Women; Nursing Intervention

Introduction

Breast cancer is the most frequently diagnosed cancer among women globally and continues to account for a disproportionate share of cancer mortality in low- and middle-income countries. In Pakistan specifically, the disease burden is exceptionally high: it is widely cited that roughly one in every nine Pakistani women faces a lifetime risk of developing breast cancer, one of the highest reported rates in Asia. Unlike in high-income settings, where organized screening programs and high public awareness contribute to earlier detection, women in Pakistan and much of South Asia

typically present at advanced stages, when treatment options are limited and prognosis is poor. A recurring theme across studies conducted in Pakistani cities is the gap between general awareness that breast cancer exists and the practical knowledge and confidence needed to act on that awareness. Survey data from Karachi has shown that while public recognition of breast cancer as a disease is fairly high, actual knowledge of risk factors is weak, and only a minority of women know how to perform breast self-examination correctly or do so regularly. Similar patterns have been documented in Rawalpindi and Islamabad, where a large majority of women report having heard of breast cancer, yet a very small proportion practice BSE regularly, pointing to cultural hesitation, embarrassment, and lack of structured instruction as ongoing barriers. Nurses occupy a unique position to close this gap. As the health professionals most consistently present in community clinics, maternal and child health centers, school health programs, and outreach camps, nurses can deliver targeted, culturally sensitive health education at a scale that specialist oncology services cannot match. A structured teaching program (STP) a planned educational session with defined objectives, content, teaching aids, and evaluation offers a systematic way for nurses to deliver this education and to measure whether it actually changes what women know and do. This paper examines the effectiveness of a structured teaching program in improving breast cancer awareness among women in urban communities, drawing on the design principles and reported outcomes of comparable interventional studies conducted in Pakistan and the wider South Asian region.

Significance of the Study

For nursing practice, this topic matters because breast cancer education is one of the most direct, evidence-supported ways a nurse can influence early detection and, ultimately, survival outcomes, without requiring specialized equipment or referral pathways. For nursing education, it reinforces the role of the community health nurse as an educator and change agent rather than solely a bedside clinician. For public health policy, evidence on the effectiveness of low-cost teaching interventions can support integrating structured breast health education into existing maternal and community health platforms in urban Pakistan.

Statement of the Problem

Despite the availability of simple, no-cost early detection practices such as breast self-examination, awareness and correct practice remain low among urban women in Pakistan, and breast cancer continues to be diagnosed predominantly at advanced stages. There is a need to assess whether a structured, nurse-led teaching program can meaningfully improve knowledge, attitude, and self-examination practice in this population.

Literature Review

A substantial body of interventional research supports the effectiveness of structured teaching programs in raising breast cancer awareness across diverse populations.

In a quasi-experimental study among rural Indian women, a structured teaching programme on breast cancer knowledge and BSE skill produced a marked improvement from a low mean pre-test knowledge score, with the authors concluding that the structured teaching programme was an effective strategy for improving both knowledge and BSE skill, and that this improvement held regardless of participants' age, education, income, or marital status.

Comparable findings have been reported among female college students, where the great majority of participants had never previously watched or received instruction on BSE; a teaching program built around basic breast anatomy, risk factors, and BSE steps produced a statistically significant

rise in correct responses across half of the knowledge items tested, leading the authors to recommend intensifying such awareness programs across both younger and older age groups.

Within Pakistan specifically, evidence points in the same direction. A quasi-experimental health education study among rural women found that knowledge of breast health and BSE rose sharply after a multipronged education intervention, with the proportion of women practicing BSE also increasing substantially from a very low pre-test baseline, and the change reaching high statistical significance. A separate cross-sectional study in Rawalpindi and Islamabad similarly found that while general awareness of breast cancer was already high among respondents, actual regular practice of BSE remained far lower, which the authors interpreted as evidence of a persistent gap between awareness and behavior that educational interventions specifically targeting practice, not just knowledge, need to address.

A pre-post educational intervention among pharmacy university students in Karachi reported that general perceptions of breast cancer improved substantially after a single structured session, and that misconceptions such as the belief that self-examination is unnecessary in the absence of symptoms declined considerably, illustrating that structured education can shift not only factual knowledge but also underlying attitudes and health beliefs.

Research conducted with female teachers in Turkey, using a semi-experimental pre-test, post-test, and six-month follow-up design, found that a structured training program raised knowledge scores that had started at a medium-low level, and additionally examined whether trained teachers went on to transfer this knowledge to their own students, suggesting that structured teaching programs can have a multiplier effect beyond the immediately trained group.

A systematic review of educational interventions on breast cancer screening uptake, knowledge, and beliefs among women synthesized evidence across multiple experimental studies and found a consistently positive effect of education-based interventions on the likelihood of women adopting BSE practice, lending broader support to the intervention model used in this paper.

Taken together, the literature suggests three consistent patterns relevant to this paper: first, baseline knowledge and BSE practice among women in South Asian, including Pakistani, communities tend to start low even where general disease awareness is high; second, structured teaching interventions, whether delivered through lecture, demonstration, PowerPoint presentation, or group discussion, produce statistically significant gains in knowledge and, in most studies, in reported practice; and third, these gains appear fairly consistent across demographic subgroups, though higher education level has been associated with somewhat larger gains in some studies.

Conceptual Framework

This paper is guided by a simplified input-process-output model commonly used in nursing education research. The input consists of participants' baseline characteristics and pre-existing knowledge, attitude, and practice regarding breast cancer and BSE. The process is the structured teaching program itself: a planned lesson with defined objectives, content delivered through lecture and demonstration with audio-visual aids and a BSE model, and interactive question-and-answer sessions. The output is the post-intervention change in knowledge, attitude, and practice, measured against the same instrument used at baseline. This framework is consistent with the Health Belief Model, in which increasing perceived susceptibility, perceived benefits, and self-efficacy through education is expected to translate into higher uptake of preventive health behavior.

Objectives of The Study

1. To assess the pre-existing level of knowledge regarding breast cancer and breast self-examination among women in the selected urban community.

2. To develop and administer a structured teaching program on breast cancer awareness and BSE technique to the study participants.
3. To evaluate the effectiveness of the structured teaching program by comparing pre-test and post-test knowledge scores.
4. To determine the association between selected demographic variables (age, education, marital status, monthly household income) and post-test knowledge scores.

Research Hypotheses

H1: There is a statistically significant difference between pre-test and post-test knowledge scores of women regarding breast cancer and BSE following the structured teaching program.

H2: There is a significant association between selected demographic variables and post-test knowledge scores.

Research Design

A quasi-experimental, one-group pre-test post-test design is proposed, consistent with the design used in comparable Pakistani and South Asian studies on this topic. This design is appropriate for a single nursing research project because it allows measurement of change following an educational intervention without requiring a separate control group, while still allowing statistical comparison of scores before and after teaching.

Setting and Population

The study is set in an urban community — for example, a union council or group of residential neighborhoods served by a Basic Health Unit or urban health center in a city such as Multan. The target population consists of adult women aged 20–60 years residing in the selected community, excluding women with a prior personal diagnosis of breast cancer, current pregnancy, or a documented cognitive or hearing impairment that would prevent participation in the teaching session.

Sample and Sampling Technique

A sample size of approximately 100–150 women is recommended, consistent with sample sizes used in comparable community-based interventional studies in this literature. Non-probability convenience sampling, drawing participants from household visits or community health center attendees, is a practical and commonly used approach for this type of nursing research project, though systematic random sampling from a community list is preferable where feasible.

Data Collection Tool

A structured questionnaire in two parts is recommended: Part A collecting demographic data (age, education level, marital status, occupation, monthly household income), and Part B a knowledge-attitude-practice instrument covering breast cancer risk factors and warning signs, knowledge of screening methods (BSE, clinical breast examination, mammography), attitude toward early detection, and current BSE practice. Where possible, an existing validated tool such as the Breast Cancer Awareness Measure (Breast CAM) should be adapted, or the questionnaire should be reviewed by a panel of subject experts and pilot-tested on a small group outside the main sample to establish content validity and reliability (e.g., via Cronbach's alpha).

The Structured Teaching Program (Intervention)

The intervention consists of a single structured teaching session of approximately 45–60 minutes, delivered in the local language, covering: breast anatomy and physiology in simple terms; risk

factors and early warning signs of breast cancer; the importance of early detection; step-by-step demonstration of breast self-examination using a breast model; and an open question-and-answer segment to address misconceptions and cultural concerns. Teaching aids should include a PowerPoint or flip-chart presentation, a BSE demonstration model, and printed take-home pamphlets, consistent with methods used in the reviewed literature.

Data Collection Procedure

After obtaining informed written consent, the pre-test questionnaire is administered to establish baseline knowledge, attitude, and practice. The structured teaching program is then delivered to the same group. Immediately following the session, or after an interval such as two weeks to also assess retention, the identical questionnaire is re-administered as the post-test.

Ethical Considerations

Approval should be obtained from the institution's ethical review committee prior to data collection. Participation must be voluntary, based on informed consent, with participants free to withdraw at any stage without consequence. Confidentiality of participant data should be maintained throughout, and no identifying information should be published in the final report.

Plan for Data Analysis

Descriptive statistics (frequencies, percentages, mean, standard deviation) should be used to summarize demographic characteristics and pre-test/post-test scores. A paired t-test should be used to compare mean pre-test and post-test knowledge scores to test the primary hypothesis. Chi-square tests or ANOVA can be used to examine associations between demographic variables and post-test scores. A p-value of less than 0.05 should be considered statistically significant, consistent with convention in the reviewed studies.

Results

Demographic Characteristics of Participants (Illustrative Sample, n = 120)

Characteristic	Category	n (%)
Age (years)	20–30	34 (28.3%)
	31–40	41 (34.2%)
	41–50	29 (24.2%)
	51–60	16 (13.3%)
Education	Illiterate / Primary	27 (22.5%)
	Secondary	46 (38.3%)
	Graduate & above	47 (39.2%)
Marital status	Married	94 (78.3%)
	Unmarried / Other	26 (21.7%)
Monthly household income	< Rs. 50,000	58 (48.3%)
	≥ Rs. 50,000	62 (51.7%)

The illustrative sample is weighted toward women of reproductive and early middle age (20–40 years, 62.5%), with education levels fairly evenly split between secondary and graduate level, broadly reflective of the mixed socioeconomic composition typical of urban Pakistani neighborhoods.

Pre-test and Post-test Knowledge Scores

Knowledge Domain (max score)	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	t-value (p-value)
Risk factors & warning signs (16)	5.8 $\pm$ 2.4	13.1 $\pm$ 1.9	t = 24.6 (p < 0.001)
Screening methods (10)	3.1 $\pm$ 1.6	8.4 $\pm$ 1.2	t = 21.3 (p < 0.001)
BSE technique/steps (12)	2.6 $\pm$ 1.8	10.2 $\pm$ 1.5	t = 27.8 (p < 0.001)
Overall knowledge (38)	11.5 $\pm$ 4.3	31.7 $\pm$ 3.6	t = 29.1 (p < 0.001)

As shown in Table 2, mean knowledge scores rose substantially across all three domains following the structured teaching program, with the largest relative gain observed in BSE technique knowledge, the domain with the lowest baseline score. The overall knowledge score improved from a mean of 11.5 (30.3% of maximum) at pre-test to 31.7 (83.4% of maximum) at post-test. The paired t-test result (t = 29.1, p < 0.001) indicates that this improvement is statistically significant and very unlikely to be due to chance, supporting the rejection of the null hypothesis and acceptance of H1.

Change in Breast Self-Examination Practice

Practice Indicator	Pre-test	Post-test (2-week follow-up)
Ever heard of BSE	38.3%	100%
Knows correct BSE steps	14.2%	81.7%
Practices BSE at least monthly	9.2%	52.5%

Reported BSE practice at least once monthly rose from 9.2% at baseline to 52.5% at the two-week follow-up, a pattern of change consistent in direction and approximate magnitude with the practice gains reported in the Pakistani quasi-experimental literature reviewed above, though a full study would need to verify actual practice through longer follow-up rather than self-report alone.

Association with Demographic Variables

In this illustrative dataset, post-test knowledge scores were modestly higher among participants with graduate-level education compared with those with primary or no formal education, consistent with the education-related pattern noted in prior studies, although the improvement from pre-test to post-test was statistically significant across all education subgroups. No meaningful association was observed between post-test scores and marital status or household income in this sample, again mirroring findings from the rural Indian structured teaching programme study discussed in the literature review.

Discussion

The pattern illustrated in this paper — low baseline knowledge and BSE practice followed by a large, statistically significant gain after a single structured teaching session — closely mirrors what has been repeatedly documented in real Pakistani and South Asian interventional studies. The scale of the pre-to-post-test improvement modeled here is comparable to the magnitude reported in the rural Pakistani health education study, where post-intervention knowledge rose to over 70% improvement, and to the pharmacy-student intervention in Karachi, where general perception scores nearly doubled after a single session.

Several explanations for this consistent effect emerge from the literature. First, baseline awareness in these populations is often not simply absent but fragmented: women may recognize breast

cancer as a serious disease without possessing the specific, actionable knowledge needed to detect it early, which means even a short, well-structured session can close a meaningful part of that gap quickly. Second, breast self-examination is a physical skill as much as a piece of knowledge, so demonstration-based teaching using a model, rather than lecture alone, appears to be particularly effective at converting knowledge into a practice women feel confident performing. Third, cultural embarrassment and taboo around discussing breast health openly, documented as a barrier in the Rawalpindi-Islamabad study and the broader Pakistani screening-barriers literature, may be reduced simply by giving women a structured, professionally facilitated setting in which the topic is normalized.

The gap between the sharp rise in knowledge and the comparatively smaller rise in actual monthly practice, seen both in this illustrative dataset and in real studies such as the Karachi KAP survey, deserves attention. Knowledge gains are consistently easier to achieve through a single teaching session than sustained behavior change, which typically requires reinforcement, follow-up, family or peer support, and removal of structural barriers such as embarrassment or lack of privacy at home. This reinforces a common recommendation in the literature: structured teaching programs are necessary but not always sufficient on their own, and are most effective when paired with repeated reinforcement, take-home materials, and community-level follow-up rather than a single isolated session.

The lack of association between income or marital status and knowledge gain, both in this illustrative data and in comparable published studies, is a reassuring finding for program planning: it suggests that a well-designed structured teaching program can be broadly effective across socioeconomic groups within an urban community, rather than benefiting only more advantaged subgroups, though education level does appear to moderate the size of the effect somewhat.

Limitations

A one-group pre-test post-test design, as used here, cannot rule out the possibility that some improvement reflects the effect of test familiarity (repeated exposure to the same questionnaire) rather than the teaching intervention alone; a two-group design with a control arm would strengthen causal inference. Reliance on self-reported BSE practice, rather than observed or verified practice, is also a common limitation across this literature, including the present illustrative example. Findings from a single urban community, as proposed here, may not generalize to rural populations or to urban communities with different literacy or cultural profiles.

Conclusion

The evidence reviewed in this paper, together with the illustrative results modeled on comparable published Pakistani studies, supports the conclusion that structured teaching programs are an effective, low-cost nursing intervention for improving breast cancer knowledge and, to a meaningful though lesser degree, breast self-examination practice among women in urban communities. Given the high burden of breast cancer in Pakistan and the persistent gap between general awareness and actionable, practice-level knowledge, integrating structured teaching programs into routine community and primary health nursing services represents a practical, scalable strategy for promoting earlier detection.

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