

Health Education in Preventing Breast Cancer among Rural Women of Pakistan: A Quasi-Experimental Study



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Abstract

Background: Breast Carcinoma (BC) is the most prevalent cancer among females of Pakistan. Pakistan is a low-middle-income country and breast self-examination (BSE) is an inexpensive and feasible method for early detection of any changes in breast tissue. Our study aimed to empower the rural women to be self-aware and self-detect initial stage of possible breast cancer and enable them to seeking healthcare on time.

Methods: This was a quasi-experimental study with women given health education about breast self-examination in rural settings of Islamabad, Pakistan. The pre and post intervention difference in knowledge and practices were tested through paired t-test.

Results: During the pre-test, the knowledge (16.4%) and practice (16.7%) of BSE in women was low. Following intervention during the post-test, the knowledge of women about BSE increased to 99.4%, ($t=21.585$, $p=0.000$) and 56.7%, ($t=11.613$, $p=0.000$) of them practiced BSE in the previous month.

Conclusion: In a country with high burden of breast cancer, women residing in rural areas and under low income quintile, breast self-examination can prove an effective strategy in addressing high prevalence of breast cancer among Pakistani females.

Keywords: Cancer, women, early diagnosis, BSE, low-middle income country

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Introduction

Breast cancer is a result of tumor that usually forms due to the development of abnormal cells in the breast (1). Breast cancer (BC) is most common among women, having high mortality and morbidity rate all over the world, but it can also occur in men and is more fatal compared to women. According to WHO approximately 627,000 women died due to breast cancer globally (2).

According to the Global Cancer Statistics 2018, BC is second to lung carcinoma with 24.2% prevalence among females/women having a high mortality of 15 per 1000. Worldwide, women are mostly affected by BC followed by lung carcinoma and colorectal cancer (3).

Among low- and middle income countries, BC is the leading cause of death and morbidity within female population (4). According to WHO, statistics, Pakistan had 36.8% prevalence of BC in females (5). Pakistan has the highest age standardized incidence rate (ASIR) of BC among all Asian countries (6). Age, genetics, sex, lack of parturition, less breastfeeding, increased level of hormones, individual lifestyle, and environment are some of the factors that contribute to the development of BC (7,8). However, the primary cause is still unknown (9).

In Pakistan, women residing in urban areas, despite having adequate knowledge and a positive attitude towards breast self-examination (BSE), do not practice it (10). While, women living in rural areas lack both knowledge and have a negative attitude towards BSE, which leads to delayed presentation in majority of females (11). A study by A. was conducted on BSE awareness and practices among young women in Karachi, regardless of having a positive attitude towards BSE, knowledge and practice were insufficient (12). Likewise, some other studies carried out in Pakistan on BSE awareness and practices indicate that women did not practice BSE despite having knowledge about it (13,14).

Women living in rural areas have a negative attitude towards BC because breast is considered as a sexual organ which makes it a taboo. The main reasons include lack of knowledge, education, and ignorance. Thus, knowledge and awareness will contribute to BSE that will aid in screening and early detection of BC symptoms. Previous studies have shown a positive alliance between the performance of BSE and early detection of BC (15).

We intended to conduct this quasi-experimental study to enhance awareness of BSE through training on BSE with an aim to improve the early BC diagnosis and survival rate in Pakistan.

Methodology

Study Design and Setting:

A quasi-experimental study was conducted. The sample was selected randomly from a rural area of Chirah, Islamabad, which has 42940 households and approximately 26,000 population. Our null hypothesis (Ho) was that there was no difference between pre and post-test. Total 338 women from the rural area were selected for this research. Sample size was calculated on the basis of total number of women in the Union Council (UC) Chirah, the prevalence of BC among Pakistani women, and percentage of women at their reproductive age present in Pakistan. Inclusion Criteria: Women after puberty with no breast cancer history. Exclusion Criteria: Girls who have not reached their puberty.

Study Instrument & Data Collection Process:

A self-administrated questionnaire was adapted after a meticulous literature review. Knowledge about BSE was imparted by keeping in view WHO's guidelines on tactile and visual examination, using a mannequin and self-developed brochure. We conducted a pilot study on a sample of 30 women with the same socio-demographic status to check the reliability of the questionnaire. The participants who were included in pilot study were not included in the actual study. Cronbach's alpha for all questions of the questionnaire is 0.5. Data were collected through a questionnaire in a form of small groups with the help of community workers, who communicated with women before the session began. Each session consisted of 10 to 15 women and was followed by training on BSE, using a mannequin and a self-developed brochure. The duration of the intervention was two months and there was a gap of four weeks between pre-test and post-test using the same questionnaire.

Data Management and Statistical Analysis:

Data were cleaned and entered into Statistical Package for the Social Sciences (SPSS) 25. Descriptive analysis, frequency, and percentages were calculated to describe the characteristics of categorical variables. In inferential analysis, paired t-test was applied to all the variables to check the difference in the knowledge and practice of BSE between the pre and post-test results at 95% CI with the p value of 0.05. Ethical Consideration: Permission was acquired from Health Services Academy ethical committee. Verbal informed consent was obtained from the women and the confidentiality of all subjects was maintained.

Results

Characteristics of Study Participants

The socio-demographic data included age, marital status, occupation and education given in table 1.

Table 1. Socio-demographic Characteristics of the Study Participants

Variables	Frequency	Percentage (%)	
Age (Years)	14-24	28	8.7
	25-35	156	48.3
	36-46	79	24.5
	47-57	38	11.8
	58-68	16	5.0
	68 +	6	1.9
Marital Status	Unmarried	193	59.8
	Married	118	36.5
	Separated	1	0.3
	Divorced	11	3.4
Occupation	Housewife/ Stitching	88	27.2
	*LHW/Community Worker	29	9.0
	Teacher	66	20.4
	Student	140	43.3
Education	Uneducated	37	11.5
	Primary Education (1-5)	29	9.0
	Secondary Education (6-10)	167	51.7
	Higher Secondary Education	25	7.7
	Higher Education	65	20.1

*Lady Health Worker (LHW)

Knowledge of Breast Cancer

We observed significant improvement in knowledge after intervention.

Variables (N*323)	Options	Frequency (Percentage %)		t Value	p Value	Mean difference between Pre- Post-test (95% CI)
		Per-Test	Post-Test			
Breast Cancer Knowledge	Yes	221(68.4)	322(99.7)	11.93	0.000*	0.31 (0.26-0.36)
	No	102(31.6)	1(0.3)			
Source of Information	Books	13(4.0)	6(1.9)	-8.909	0.000*	0.99 (1.21-0.77)
	Media (TV/Radio/Internet)	90(27.9)	74(22.9)			
	Hospital/Doctor/LHW	28(8.7)	20(6.2)			
	Family/Friends	90(27.9)	69(21.4)			
	No Source of Information	102(31.6)	0(0)			
	Training	0(0)	154(47.7)			
Family History	Yes	27(8.4)	24(7.4)	-0.447	0.655	0.009 (0.05-0.31)
	No	295(91.3)	299(92.6)			
Relationship	Mother/Daughter	2(7.4)	2(7.4)	0.000	1.000	0.000 (0.43-4.30)
	Father	1(3.7)	1(3.7)			
	Paternal Relatives	11(40.7)	11(40.7)			
	Maternal Relatives	8(29.6)	8(29.6)			
	Cousins	5(18.5)	5(18.5)			

Table 2: Knowledge of Breast Cancer

Table 3: Knowledge of Breast Self-Examination

Variable (N*323)	Options	Frequency (Percentage %)		t Value	p Value	Mean difference between Pre- Post-test (95% CI)
		Pre-Test	Post-Test			
BSE a useful tool for early detection of *BC	Yes	129 (39.9)	320 (99.1)	21.585	0.000*	0.59 (0.54 - 0.64)
	No	194 (60.1)	3 (0.9)			
**BSE Time	During Menstrual Cycle	48 (14.9)	14 (4.3)	12.724	0.000*	1.49 (1.26 - 1.71)
	After Menstrual Cycle	42 (13.0)	249 (77.1)			
	During Pregnancy	8 (2.5)	9 (2.8)			
	During Breastfeeding	46 (14.2)	21 (6.5)			
	Before Menstrual Cycle	40 (12.4)	22 (6.8)			
BSE Frequency	Daily	37 (11.5)	14 (4.3)	5.585	0.000*	0.51 (0.32 - 0.68)
	Weekly	83 (25.7)	79 (24.5)			
	Monthly	82 (25.4)	218 (67.5)			
	Yearly	11 (3.4)	5 (1.5)			
	No Idea	110 (34.1)	7 (2.2)			
Methods of doing BSE	Inspecting Breast in Mirror	22 (6.8)	9 (2.8)	-16.00	0.000*	1.78 (1.55 - 1.98)
	Feeling Breast with Hands	85 (26.3)	37 (11.5)			
	Feeling Armpits with Hands	4 (1.2)	2 (0.6)			
	Ultrasound/Mammography	120 (37.2)	7 (2.2)			
	No Idea	90 (27.9)	8 (2.5)			
	All first three options	2 (0.6)	260 (80.5)			

*Breast Self-Examination (BSE), **Breast Cancer (BC). P-value >0.05 (reject the null)

Knowledge of Breast Self-Examination

Figures.1 represents the knowledge of BSE of the participants, and depicts the pre and post difference in knowledge, which improved significantly.

A significant improvement the post-test was observed for those who said that BSE was a useful tool (0.54 - 0.64, mean 0.59). For BSE frequency, knowledge about monthly examination improved among half of the participants (0.32-0.68, mean 0.51), for the timing being just after the menstrual cycle (1.26-1.71, mean 1.49), and for all the three essential steps of BSE (1.55-1.98, mean 1.78).

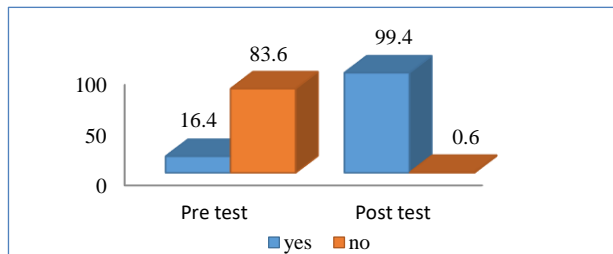


Figure 1: Knowledge of Breast Self-Examination

Practice of Breast Self-Examination

Figure.2 presents the BSE practice of participants. With the mean difference of 0.57 (0.42 - 0.72), just above half (57%) of the participants were familiar with the benefits of performing BSE. 39% of the participants were found practicing BSE post training (0.33 - 0.46, mean 0.39), while 52% females were aware of how often they should practice BSE (0.03 - 1.00).

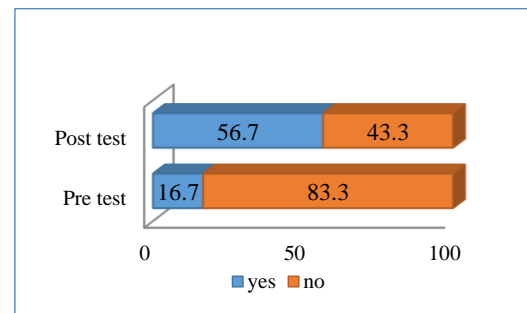


Figure 2: Practice of Breast Self-Examination

Table 4: Practice of Breast Self-Examination

Variable (N*323)	Options	Frequency (Percentage %)		t Value	p Value	Mean difference between Pre- Post-test (95% CI)
		Pre-Test	Post-Test			
Benefits of BSE	Familiar with Breast Texture	8 (2.5)	4 (1.2)	7.505	0.000	0.57 (0.42 - 0.72)
	Early Detection of BC	71 (22.0)	89 (27.6)			
	Detection of any abnormal changes in breast	117 (36.2)	189 (58.5)			
	A good exercise to examine breast	36 (11.1)	38 (11.8)			
	No Idea	91 (28.2)	3 (0.9)			
BSE Practice	Yes	54 (16.7)	182 (56.5)	11.613	0.000	0.39 (0.33 - 0.46)
	No	269 (83.3)	140 (43.5)			
How often BSE should be done?	Weekly	19 (34.5)	7 (3.8)	2.157	0.039*	0.52 (0.03 - 1.00)
	Monthly	4 (7.3)	173 (93.5)			
	Occasionally	9 (16.4)	4 (2.2)			
	Rarely	22 (40.0)	1 (0.5)			
	No Idea	1 (1.8)	0			

Reason of not doing BSE	Lack of Knowledge	64 (23.9)	0	0.439	0.662	0.11 (0.39 - 0.62)
	No Need	2 (0.7)	28 (20.3)			
	Shy/Private body part	0	10 (7.2)			
	Lack of Knowledge, Shy/Private body part	136 (50.7)	1 (0.7)			
	No Need, Lack of Knowledge	66 (24.6)	0			
	Forgot to Perform	0	43 (31.2)			
	No Periods/Menses	0	56 (40.6)			
BSE is a good practice	Yes	253 (78.3)	315 (97.5)	7.732	0.000*	0.29 (0.14 - 0.24)
	No	70 (21.7)	8 (2.5)			
	No	70 (21.7)	8 (2.5)			

Discussion

BC is difficult to treat at later stages, it is important to emphasize on finding ways for early identification of signs and symptoms (16). BSE is considered an effective, efficient, and cost-effective method for early diagnosis and detection of BC in low-middle-income countries (17)(18). Majority of the women had no knowledge of BC, regardless of their good education level. Women who had a family history of BC were somewhat aware of BC and BSE in pretest. Also, women who were aware of BC mostly had negative attitude towards BSE. The result of the present study agreed with the findings of some other studies with a population of similar characteristics (19, 20).

In developing countries like Pakistan the rate of BC is increasing due to the lack of knowledge about breast screening. Despite having the knowledge about BC and family history most of the women don't know about BSE. Likewise, a study conducted in Iraq shows that the practice of BSE is less despite having knowledge of BC and its severity similar to this study (21).

In the present study the knowledge and practice of BSE was very low in the pre-test, while in the post-test significant improvement was observed. A study shows that the practice of BSE increases among midwifery students in Ethiopia after imparting knowledge about BSE (22,23) Similar interventional study was conducted on Malaysian women that showed significant improvement in knowledge and practice of BSE on monthly basis in post-test (24). Likewise, another study was conducted in India on the assessment of BC and BSE among young women in which the participants gave positive responses towards practicing BSE (25). A significant difference was observed between pre and post-test results like other studies (26,27)

It was an interventional study to reduce the prevalence of BC. There was less loss to follow-up during the post-test and a large sample size was helpful in determining the effectiveness of this intervention. We could not rule out any bias originating from other sources of information apart from our intervention. The rural women in Pakistani society are shy and difficult to approach for such interventions. Results of the present study are consistent with other studies too (28,29).

Conclusion

Before the intervention, women had low knowledge and were ignorant towards BSE, putting them at higher risk of breast cancer. BSE is low-cost and effective method of detecting breast cancer at an early and treatable stage. This

intervention proved effective in improving the BSE knowledge and practice in the study population. Therefore, integrated work on intervention that focuses on improving knowledge of BSE among women and skills to perform BSE are needed.

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