

## **Examining the Role of a Multimedia Teaching Program on Rural Women's Knowledge and Ability to Conduct a Breast Self-Exam**

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### **Abstract**

#### **Background**

Among females, breast cancer has become a major killer. Among Indian females, it is the second most frequent form of cancer. Every year, there are 80,000 confirmed cases. In India, 11.19 women per 100,000 die from breast cancer each year. The rate of breast cancer among Indian women is 22.9%. The current risk estimate is that 1 in 26 women will be diagnosed with breast cancer.

**Objective-** Women in a rural region of Chandanakampara PHC in Kannur and Kerala were surveyed to gauge the impact of video-assisted education on their ability to do a breast self-exam.

**Methodology-** Study design based on evaluation with This research used a one-group, pre-experimental, pre- and post-test design. A simple random selection method was used to pick 60 samples from people aged 20-50.

**Results-** Scores on the post-test for both knowledge (40.82.69) and skill (12.021.43) were substantially greater than the corresponding pre-test scores (21.56.41) (3.31.65) The t-value ( $t(59)=2.007$ ) was substantially greater than the value from the table ( $p<0.05$ ). There is no correlation between demographic factors and the post-test knowledge score; rather, this improvement is attributable only to the nursing interventional package.

#### **Conclusion**

Researchers found that women in some rural regions benefited from a video-assisted instruction programme on breast self-examination.

**Keywords:** Breast Cancer, Breast self-examination, Video-assisted teaching, rural women

### **Introduction**

Cancer is among the most deadly diseases that may strike a person at any age and in any country. The word "cancer" is used to refer to a group of disorders that include the uncontrolled proliferation of abnormal cells and may spread to other organs. In medical terms, cancer is a malignant tumour.

Subtypes of cancer are classified according to the types of normal cells that cancer cells most closely resemble and are thus thought to have been the initial trigger for malignant development. That's how doctors detect and diagnose cancer. Blastoma and seminoma are just two of the numerous kinds of cancer that exist.

On March 8, women all across the globe commemorate Women's International Day. She has improved in many ways, but her health is not one of them. Many variables, such as technological development, urbanisation, economic emancipation, and cultural shifts, contribute to the evolution of health care. 2

The whole month of October is dedicated to raising awareness, educating the public, and funding research into breast cancer. Breast cancer is a devastating illness because it affects the breasts, a symbol of femininity, motherhood, and reproduction. 3

More than 540,000 women are newly diagnosed with breast cancer each year. In India, 20.1% per 100,000 women would get breast cancer in their lifetime. (2012). Early identification and therapy have been shown to slow the development of breast cancer. There are more choices for treating breast cancer when it is detected at an earlier stage, which improves the quality of life for patients.5

Many women experience breast illness. Any cancer or damage to the breast, real or imagined, is often seen through the lens of a woman's culturally constructed ideals of femininity, sexuality, and childbirth. In cases when the breast is affected by illness or damage, this is particularly the case. Women's self-esteem, social lives, and sexual lives are all negatively impacted by the prospect of breast mutilation or loss. Female survivors of breast cancer can face challenges to their physical, mental, and financial well-being. According to a 2017 study by the Indian government's Ministry of Health, breast cancer is the most frequent kind of cancer detected in Indian women, with a rate of 25.8 per 100,000 and a motility of 12.7 per 100,000. It was reported that 5.37 lakh Indian women were diagnosed with breast cancer in 2012. This is according to the 2017 World Cancer Report. According to the World Health Organization, breast cancer is the second highest cause of death among women aged 20 to 59 worldwide. Because of variations in risk factors, screening programmes, and effective but cost-efficient treatment methods, the incidence, death, and survival rates of breast cancer vary among regions of the globe. 6

## **Objectives**

1. Assess the current level of breast self-examination knowledge and expertise among rural women in the chosen rural region.

Objective 2: Assess the impact of a video-assisted education programme on rural women's knowledge of breast self-examination in the designated rural region.

Third, we want to see how women in the rural region we've chosen fare on a post-test measuring their knowledge and ability to do a breast self-exam.

The purpose of this study is to examine the relationship between the post-test knowledge levels of a sample of rural women and a sample of demographic characteristics.

5. To identify demographic characteristics that are associated with the skill sets of a sample of rural women.

## **Hypothesis**

Hypothesis 1: Following the video-assisted training programme, the average knowledge score of the sample group of women doing breast self-exams will be considerably higher than the average knowledge score of the sample group performing the exam before the programme.

Hypothesis 2: Selected groups of women will have a considerably higher mean post-test skill score compared to their mean pre-test skill score.

Hypothesis 3: Selected groups of rural women will show a statistically significant correlation between their knowledge and breast self-examination ability ratings.

Hypothesis 4: Chosen groups of rural women's post-test scores on knowledge will be significantly correlated with selected demographic characteristics.

Hypothesis #5: Chosen demographic characteristics will be significantly associated with the post-test skill scores of selected groups of rural women.

## **Materials & methods**

This study built its conceptual framework off on Rosenstock's health belief model. In this study, we used a pre-experimental, one-group, pre-test-post-test design for our evaluation research approach. No semblance of a control group was included into the research's approach. Sixty People between the ages of 20 and 50 were randomly sampled using a method called simple random sampling. Participants were selected from the general Malayalam-reading and writing population who also agreed to take part in the study. The data was collected from April 1, 2022, through April 30, 2022. The studies were conducted on a specific group of ladies while they were gathering regularly at a predetermined place. The researcher introduced herself to the subjects and went through the study's goals with them before commencing data collection. To ensure the patients' replies remained private, the researcher also acquired their permission. There was room for judgement within the time period under consideration. A sense of tranquilly and relaxation pervaded the area where the ladies were gathered. Women were compelled to sit for an average of sixty minutes throughout their meetings.

The study's aims were used as a starting point for creating the instruments. The instrument is comprised of three parts. Baseline A performa, a structured questionnaire, and an observational checklist for doing a breast self-examination.

Population Projections Part A There were 13 questions covering demographics including age, marital status, occupation, religion, education, income, and lifestyle choices.

Part B: Part B is a structured questionnaire designed to assess the level of the respondent's familiarity with BSE. Out of the total of 65 questions, 33 were multiple-choice (66%), 11 were comprehension (22%), and 6 were application-based (12%).

As a whole, the structured knowledge questionnaire included fifty questions. The survey included multiple-choice questions, and participants received a single point for each answer they got right. The participants were asked to indicate their selection by placing a check mark

() in the box corresponding to their chosen answer. Counting up the number of correct responses and awarding points depending on the amount was all that went into the grading process. The highest possible mark was 50. It was randomly broken down into four groups, with a score of 0-10 representing "Poor," 11-25 representing "Average," 26-40 representing "Good," and 41-50 representing "Excellent" (Excellent).

Observational checklist for doing a breast self-examination is provided in Section C of this manual.

A total of 14 things were included. Here, the researcher would observe the subject doing a breast self-exam and, depending on whether the subject replied "Yes" or "No," would insert a check mark () in the corresponding column. Successful completion was given a score of "1," while wrong answers received a score of "0" for grading purposes. Out of a maximum of 15, a 14 was the best that could be achieved. Three arbitrary tiers were assigned: [0-4] (below average), [5-9] (average), and [10-14] (above average) (good).

On day one, we gathered demographic information, gave a pre-test based on a knowledge quiz, and started rolling out our BSE curriculum. On day seven, a follow-up exam was administered using the same knowledge structure questionnaire.

## Results

**Table-1 Description of Knowledge of selected women regarding Breast Self-examination**

Grade of Knowledge	Scoring Criteria	Pre- Test		Post- Test	
		Frequency	Percentage	Frequency	Percentage
Poor	0-10	0	0	0	0
Average	11-25	45	75	0	0
Good	26-40	14	23.33	27	45
Excellent	41-50	1	1.66	33	55

The pre-test revealed that 75% of the women knew about breast self-examination on an average level, while just 1.6% knew a lot. Table 1 reveals that following the test, 45% of the women had good knowledge and 55% had outstanding knowledge on how to do a breast self-exam.

**Table 2: Statistics (interquartile range, mean, median, and standard deviation) for 60 women's breast self-examination knowledge before and after receiving training.**

	Range	Mean	Median	SD
Pre-test	11– 41 (30)	21.5	20	6.41
Post-test	36 – 49 (13)	40.8	41	2.69

Table 2 shows that their post-test knowledge scores (36-49) were more spread out than their pre-test scores (15-29). (11-41). The average knowledge score on the posttest was 40.82.69, which is significantly higher than the pretest average of 21.56.41.

**Table 3: Standard deviation, mean, and mode for N=60 women's breast self-examination knowledge before and after training**

Areas of Knowledge	Max. Score	Pre-test			Post-test		
		Mean	SD	Mean %	Mean	SD	Mean %
Knowledge regarding breast and breast cancer	18	9.13	2.46	50.72	15.70	1.49	87.22
Knowledge regarding breast self-examination	32	12.37	4.28	38.65	25.13	1.85	78.53

Results are shown in table 3, which shows that participants' mean post-test knowledge scores were greater than their mean pre-test knowledge scores across the board. The topic with the greatest proportion of pre-test scores is "breast and breast cancer," with the lowest percentage being "breast self-examination" (38.65%). The average percentage of correct answers on the posttest is greatest in the "breast and breast cancer" section (87.22), and lowest in the "breast self-examination" section (78.53%).

**Table 4: Number and distribution of adult women's breast self-examination skill scores**

Grade of Skill	Scoring Criteria	Pre-test		Post-test	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good	10-14	1	1.67	59	98.33
Average	5-9	10	16.67	1	1.67
Below average	0-4	49	81.67	0	0

The vast majority (81.67%) of the sampled women scored below average on a pre-test measuring their ability to do a breast self-exam. However, after taking the course, 98.33% of adult women scored "good" on the post-test, and none of them scored "bad" on the self-examination. Table 4 displays the collected information.

**Table 5: Statistics on 60 adult women's breast-self-examination skill levels before and after training, including range, mean, median, and standard deviation**

	Range	Mean	Median	SD
Pre-test	1 – 11 (10)	3.3	3	1.65
Post-test	9 -14 (5)	12.02	12	1.43

Table 5 shows that there is a wider range of potential post-test skill score values than there was for pre-test skill scores (1-11). Furthermore, the statistics show that the post-mean test's skill score of 12.02 was significantly greater than the pre-mean test's skill score of 3.3.

**Table 6: Quantitative comparison of pre- and post-test ability ratings for breast self-examination among 60 adult women**

Areas of Skill	Max. Score	Pre-test			Post-test		
		Mean	SD	Mean%	Mean	SD	Mean%
Breast Self Examination	14	3.3	1.65	23.57	12.02	1.43	85.86

Results from both the pre- and post-tests are shown in table 10, with the latter showing a significant improvement in test-takers' abilities. The average percentile ranking on the pretest is 23.57, whereas the average percentile ranking on the posttest is 85.86, indicating that performance on the posttest is superior to that of the pretest.

#### **Adult women's breast self-examination knowledge: a comparison of pre- and post-test scores**

The paired t-test is used to determine whether or not the change in mean knowledge scores between the pretest and posttest is statistically significant.

**Table 7: Quantitative comparison of pre- and post-test knowledge: mean, mean difference, std. dev., and t-values**

Parameters	Mean	SD	Mean Difference	't' value	P value
Pre Test	21.5	6.41	19.3	30.64	<i>p</i> is < .00001
Post Test	40.8	2.69			

Table 7 shows that there was a statistically significant difference between the pre-test and post-test scores of knowledge, with the latter being significantly higher. This lends support to the alternative research hypothesis H1, and negates the need to accept the null hypothesis H01.

### **Scores on the pre- and post-tests were compared on a variety of topics.**

Table 8 shows the significant change in mean scores between the pre- and post-tests in several domains of knowledge related to breast self-examination.

**Table 8: Mean, mean difference, SD, and ‘t’ value of pre-test and post-test knowledge scores N=60**

	Pre- Test		Post Test		Mean Difference	‘t’ value	P value
Area of knowledge	Mean	SD	Mean	SD			
Knowledge regarding breast and breast cancer	9.13	2.46	15.70	1.49	6.57	25.29	$p$ is < .00001
Knowledge regarding breast self-examination	12.37	4.28	25.13	1.85	12.76	28.25	$p$ is < .00001

Table 8 shows that, on average, students performed better on the post-test demonstration of knowledge than they had on the matching pre-test. Each time, the estimated value of ‘t’ was determined to be considerably greater than the value provided in the table ( $t(59)=2.007$ ) at the 0.05 level of significance. This provides preliminary evidence that the nursing interventional package was effective in enhancing the understanding of the study's adult female participants.

### **Self-examination of the breasts in adult women: a comparison of pre- and post-test scores**

**Table 9: Comparison of pre- and post-test skill means, differences, standard deviations, and t-values**

Parameters/Area of skill	Mean	SD	Mean Difference	‘t’ value	P value
Pre Test	3.3	1.65	8.72	47.71	$p$ is < .00001
Post Test	12.02	1.43			

Table 9 shows that, on average, students performed better on the post-test in terms of skills than they had on the pre-test in terms of knowledge (3.31.65 vs. 2.07,  $p$  0.05). The fact that

there was a statistically significant difference between the two scores demonstrates this. Therefore, we accept H12 and reject H02 as research hypotheses.

**Table 10 shows the relationship between how well women in a particular sample group know how to do a breast self-exam and how well they know how to perform the test themselves.**

Parameters (knowledge and skill)	Correlation coefficient	Coefficient of determination ( $r^2$ )	df	P-value
Pre-test	0.8227	0.6768	59	< .00001
Post-test	0.9122	0.8321	59	< .00001

To determine whether or not there is a relationship between women's self-reported knowledge and their actual ability to do a breast self-exam, researchers calculated the Karl Pearson correlation coefficient. In this case, the calculated value of  $r=0.91$  suggests a positive relationship between learning and performance. Table 13's data also shows that educators' knowledge and competence scores in connection to breast self-examination are positively and significantly correlated with one another ( $r(59)=2.007$ ,  $p<0.05$ ). The fact that there had a positive statistically significant association demonstrates this. Thus, H03 cannot be accepted as a null hypothesis.

We used the chi-square test to look for correlations between the education and employment histories of working-age women and other demographic factors. In this study, we found no statistically significant correlation between breast cancer and respondent age, religion, education, occupation, family structure, residence, marital status, number of children, or age at menarche; however, we did find a strong correlation between breast cancer and a family history of other cancers. Thus, H04 and H05 were rejected as false null hypotheses.

## Discussion

Using the Karl Pearson correlation coefficient, we determined whether or not a subset of women had a significant relationship between their breast self-examination knowledge and competence levels. Computational results showed a favourable relationship between academic knowledge and performance ( $r=0.91$ ). The fact that there was a positive and statistically significant association is evidence of this. Therefore, H03 cannot be the null hypothesis.

We used the chi-square test to look for a correlation between the education and employment histories of working-age women and their preferred demographic factors. Breast cancer was not significantly linked to any of the respondents' demographic characteristics (age, religion, education, employment, family structure, domicile, marital status, number of children, or age at menarche), but it was strongly associated with a personal history of other cancers. The results



showed that H04 and H05 were both false. This result suggests that the post-test knowledge score is not linked to any demographic factor, but rather is related to the nursing interventional package as a whole.

## **Conclusion**

Evidence of the success of a regimented teaching approach is shown by the current research, in which students' mean scores on post-tests of knowledge and competence exceeded their scores on pre-tests. The difference in the knowledge test results before and after the intervention was statistically significant.

## **References**

1. Neera A, Amita S. Female breast gynecologist viewpoint (FOGSI). New Delhi: Jaypee Brothers; Edition 1, paperback-2000.
2. Bailey K. Nurse's role in promoting breast awareness. Nursing Standards 2000, <http://www.ncbi.nlm.nih.gov>
3. G.Betcy. A study to assess the effectiveness of video-assisted teaching on knowledge and skill regarding the prevention of breast cancer. Health Action 2010.
4. Breast Cancer Fact Sheet. [online]. Available from: [URL:http://www.sancd.org/Breast cancer Of act sheet 2003.11.11.pdf](http://www.sancd.org/Breast%20cancer%20fact%20sheet%202003.11.11.pdf)
5. Chatterjee P. A study to assess the effectiveness of a planned teaching program on the knowledge of GNM students regarding breast cancer and breast self-examination (BSE) and the ability to perform BSE in selected schools of nursing in West Bengal. Nurs J India 2002;43(7).
6. Guraj M, Benign breast diseases: classification, diagnosis, and management. Official J Soc Transl Oncol 2006;11(5):435-99.
7. Sudharani Banappagoudar Dr. Shreemani Pillai & Dr. Maya E Patlia. Descriptive Study to assess the knowledge of females regarding Breast Self Examination, and to find out the relationship between socio-demographic variables and breast self-exam. Journal of nursing practice and education (JNPE), 6, March 2020(1), 04–06. <https://doi.org/10.5281/zenodo.5243125>