

An Interventional Study To Assess Effectiveness Of Health Education Regarding Breast Self Examination

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ABSTRACT

Background and objectives: Breast cancer is the most common malignancy among females. Breast self-examination is the easiest tool to find the breast cancer early. Health education regarding breast self-examination helps female in detecting the breast lumps and early signs of breast cancer. The objective of this study is to compare the effectiveness of health education in improving knowledge, attitude and practice of Breast Self-Examination. **Materials & Methods:** A community based interventional study was done from November 2022 to May 2024. **Results:** The results showed a statistically significant increase in knowledge levels after the intervention at all-time points. The participants mean knowledge score before the intervention was -1.675, with a standard deviation of 0.769. A considerable increase was noticed in post-intervention scores compared to pre-intervention knowledge levels ($p < 0.001$). The participants had a mean BSE practice score of -2.1667 and a standard deviation of 1.3801 before the intervention. A significant rise was noted when comparing BSE practices before and after the intervention ($p < 0.001$). **Conclusion:** Health education plays a vital role in detecting breast cancer early thereby interfering the progression of disease.

Keywords: Health Education, Breast Cancer, Breast-self examination

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INTRODUCTION

The most common type of cancer is breast carcinoma. Among women worldwide. Global data indicate that annual incidence of breast carcinoma is in increasing trends, and that this increase is happening faster in nations with low incidence rates of breast cancer.¹ In 2022, 670,000 individuals lost their lives to breast cancer, accounting for 2.3 million diagnoses among women globally. Globally, breast cancer can occur to women at any age of life after childhood, while its prevalence increases with age.² Breast being a visible organ, death because of breast carcinoma can be prevented by the early detection which is done by breast self-examination and treatment of breast cancer.³ Every year 18.1 million new carcinoma cases are being recorded and 9.6 million people die due to cancer out of which breast cancer ranks as the second most frequent disease affecting women worldwide with a considerable mortality rate of 11.6% of all cancer cases.⁴

Breast carcinoma has exceeded cervical cancer and become the most frequent malignancy among women in India. Death due to breast carcinoma is declining in developing countries but it is increasing in India which is shown by cancer – registries which shows increase in new cases of breast cancer and death rates due to breast cancer. ⁵In wealthy nations, early detection of breast cancer is more common than in poorer nations, where screening programmes are essential for this purpose.⁶ Globally, the adoption of preventive actions has been acknowledged as the cornerstone of the fight against breast cancer. Radiological imaging, such as mammography, clinical breast examination (CBE) and breast self-examination (BSE) are the screening modalities that are widely recommended for the early detection of breast carcinoma. The present gold standard for detecting breast cancer is mammography screening, which is currently unattainable in many nations. In order for this screening tool to live up to its promise, either a national public health strategy ensuring its regularity or a high enough per capita income in the country to cover its costs should be in place. Mammograms are rarely common in developing nations or those requiring a public health programme because of the significant financial risk, follow-up challenges, and inadequate medical adherence, which leads to diagnosis of disease in advanced stage.⁷

Self-examination is a crucial technique in the diagnosis of breast cancer because it is the most frequent cancer in women and can be identified early, increasing the likelihood of survival. Indian women in their reproductive years are afflicted by breast cancer, as evidenced by the fact that the incidence of the disease is

between 40 and 50 years old in Asian countries and 60 to 70 years old in Western countries.⁸ Although early detection and effective treatment are made possible by breast cancer, survival rates appear to be low in poorer nations due to a lack of screening and awareness as well as limited access to timely and standard care.^{9,10}

The objectives of the study is to compare the effectiveness of health education in improving knowledge, attitude and practice of Breast Self-Examination

MATERIALS AND METHODOLOGY

The present study design was a community based interventional study done to find out the effectiveness of breast self-examination among the rural women in Chengalpattu district. The study duration was 18 months from November 2022 to May 2024. The inclusion criteria is women who are above 18 years of age and exclusion Criteria is Women who are not willing for study, history of Benign and malignant Breast disorders and women who have undergone Mastectomy. Chengalpattu district has 8 blocks. Multistage random sampling was used for selection of study subjects in study settings. Using simple random sampling methods Thiruporur block was selected, from that thiruporur block two villages selected using lottery Method and Participants for both group was selected based on random sampling methods like lottery and computer based auto generated method. In case of more females in one village, sample will be selected proportionate to the population. Women from two villages- Sembakkam and Acharavakam was selected and educated with direct breast self examination using demonstration of breast self examination in mannequin.

Sample size calculation based on the previous study¹¹ the proportion of knowledge of breast self-examination in mannequin group is 27 % with 80% power and 5% level of significance, final sample size obtained was 120. After obtaining approval from institutional ethical committee, data collection was initiated. Oral consent and written consent from participants were obtained. Face to face interview was conducted using a pre-tested semi structured questionnaire by principal investigator. Pretest was conducted before giving health education. Post test was conducted after intervention. Participants were followed up for one month and six month.

Study variables was sociodemographic profile of study participants, knowledge, attitude, practice of breast cancer and breast self-examination. The study participants were fully informed regarding the purpose of the study. Written consent/assent was obtained,

privacy and confidentiality of the study were maintained throughout the study. Data was entered in MS-Excel. Statistical analysis was done by using SPSS-17 version. Descriptive statistics was performed by frequency, percentage, mean and standard deviation. Inferential statistics was used for paired T-test with 5 % level of significance and 95% confidence interval.

RESULTS

Age distribution of study participants is given in table 1 and figure 1. Around 120 subjects were analysed. Most individuals were above 60 years old, making up 35.0% of the sample. Individuals aged 50-59 made up to 25.8% of the participants, and those in the 40-49 age bracket accounted for 18.3%. Individuals between the ages of 30 and 39 made up 16.7% of the sample, while the 18-29 age group had the lowest number at 4.2%.

Table 1: Age group of study participants

Age Group	Frequency	Percentage
18-29	5	4.2
30-39	20	16.7
40-49	22	18.3
50-59	31	25.8
Above 60	42	35.0
Total	120	100.0

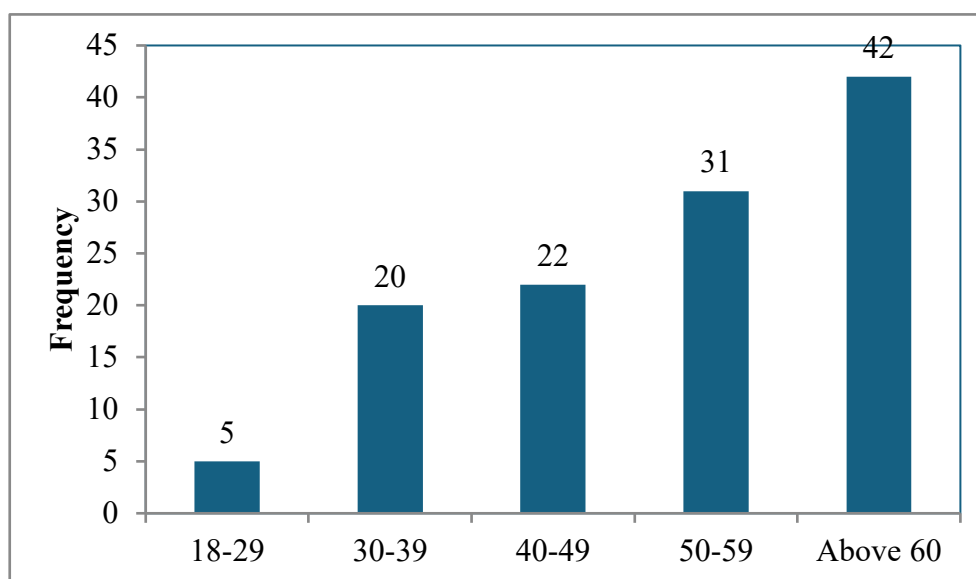


Figure 1: Age group of study participants

Distribution of occupations among participants is given in table 2 and figure 2. Around 120 subjects were analysed, 77.5% of the participants were classed as housewives. 19.2% of the participants were farmers,

while 1.7% were teachers. Housekeeping and labour categories each accounted for a minimal 0.8% of the sample.

Table 2: Occupation of the participants

Occupation	Number of participants	Percentage
Farmer	23	19.2

House Keeping	1	0.8
House Wife	93	77.5
Labor	1	0.8
Teacher	2	1.7
Total	120	100

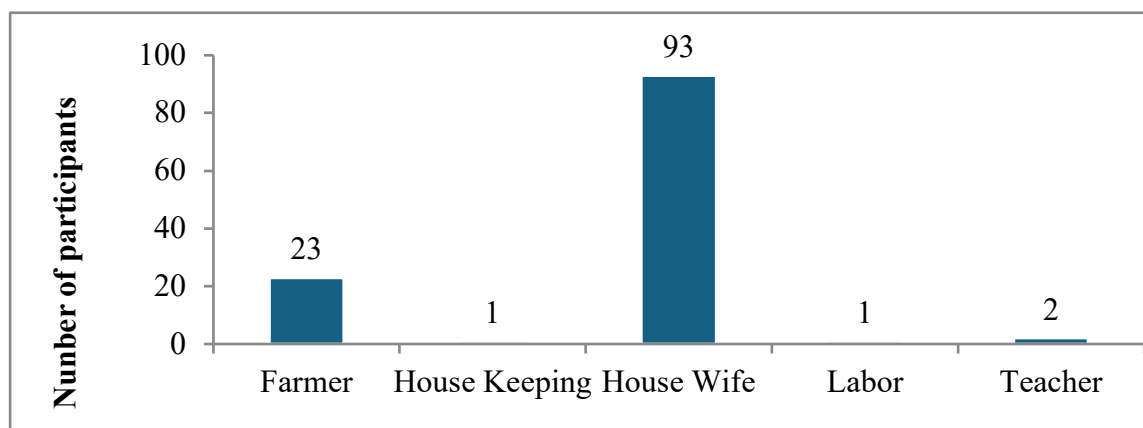


Figure 2: Occupation of the participants in mannequin group

Distribution of socioeconomic class among participants in the Mannequin group is given in table 3 and figure 3. Around 120 subjects were analysed. Most participants were from Class 4, accounting for 40.0% of the sample.

Class 5 represented 34.2% of the participants, and Class 3 made up 19.2%. 6.7% of the sample fell into Class 2, which was a lesser proportion of participants. No participants were categorised as Class 1.

Table 3: Socioeconomic status of the study participants

Socioeconomic Status class	Frequency	Percentage
Class 1	0	0
Class 2	8	6.7
Class 3	23	19.2
Class 4	48	40.0
Class 5	41	34.2
Total	120	100.0

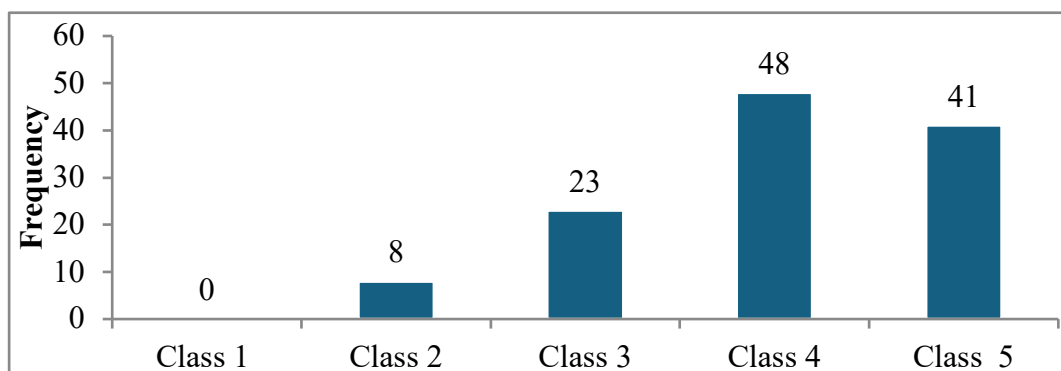


Figure 3: Socioeconomic status of the study participants

An analysis which was conducted to examine the impact of health education treatment on participants' knowledge of breast self-examination using a pre-and-post intervention approach is given in table 4. The results showed a statistically significant increase in knowledge levels after the intervention at all time points. The participants' mean knowledge score before the intervention was -1.675, with a standard deviation of 0.769. A considerable increase was noticed in post-intervention scores compared to pre-intervention knowledge levels ($p < 0.001$). The average knowledge score after the intervention was -1.675, showing a significant improvement in knowledge of breast self-examination techniques. The 95% confidence interval for this comparison was between -1.814 and -1.536, demonstrating the accuracy of the observed enhancement.

Significant improvements were noted when comparing knowledge levels before the intervention with those one month and six months after the intervention. The average knowledge scores at these time intervals were -1.683 and -1.683, with standard deviations of 0.745 and 0.799, respectively. Both comparisons resulted in p -values < 0.001 , indicating the continued efficacy of the health education programmes over time. The results highlight the effectiveness of the health education initiatives in improving participants' understanding of breast self-examination. Targeted educational interventions, customised to participants' needs and delivered through the mannequin group, can significantly enhance knowledge levels of breast self-examination. This can help in early detection and prevention of breast cancer in the studied population.

Table 4: Knowledge of participants among mannequin group before and after health education

Knowledge of Participants	Mean	Standard Deviation	P Value	95% Confidence Interval
Pre-intervention vs. post-intervention	-1.675	0.769	<0.001	-1.814 to -1.536
Pre-intervention vs. One month after intervention	-1.683	0.745	<0.001	-1.818 to -1.549
Pre-intervention vs. Six months after intervention	-1.683	0.799	<0.001	-1.828 to -1.539

Health education programmes' effect on participants' practice of breast self-examination was evaluated using a pre-and-post intervention analysis, detailed in Table 5. The results show substantial enhancements in BSE procedures after the intervention was introduced at all assessed time intervals.

The participants had a mean BSE practice score of -2.1667 and a standard deviation of 1.3801 before the intervention. A significant rise was noted when

comparing BSE practices before and after the intervention ($p < 0.001$). The average BSE practice score after the intervention was -2.1667, showing a significant improvement in participants' compliance with BSE practices. The 95% confidence interval for this comparison was between -2.4161 and -1.9172, highlighting the accuracy of the observed enhancement. Significant changes were observed in pre-intervention BSE practices when compared to practices one month and six months following the intervention. The average

BSE practice scores at these time points were -2.1750 and -2.1833, with standard deviations of 1.3699 and 1.3657, respectively. Both comparisons resulted in p-values less than 0.001, indicating consistent enhancements in BSE procedures over time as shown in Table-5.

The results emphasise the success of health education programmes in encouraging and maintaining the habit

of breast self-examination among participants. The interventions promote regular BSE practices to aid in early detection of breast cancer in the study population, highlighting the significance of ongoing education and assistance in raising awareness and promoting breast health habits.

Table 5: Attitude and Practice of BSE before and after Health Education

Practice of breast self-examination by participants	Mean	Standard Deviation	P Value	95% Confidence Interval
Pre-intervention vs. Post-intervention	-2.1667	1.3801	<0.001	-2.4161 to -1.9172
Pre-intervention vs. One month after intervention	-2.1750	1.3699	<0.001	-2.4226 to -1.9274
Pre-intervention vs. Six months after intervention	-2.1833	1.3657	<0.001	-2.4302 to -1.9365

DISCUSSION

Analysing the effectiveness of the interventions on knowledge improvement, the mean difference in knowledge scores from pre-intervention to post-intervention was 20.9% p-values of <0.0001 for both groups, indicating highly significant improvements. This improvement was sustained one month after the intervention, with mean differences of 21.0% (p<0.0001). The knowledge gains remained stable even six months after the intervention, with mean differences of 21.0% (p<0.0001). This was also reported by Gupta SK et al. among 1000 participants. The study revealed a noteworthy 43% increase in awareness about breast self-examination (BSE) among participants after the intervention. However, it was noted that 55 respondents, constituting 9.3% of those who gained knowledge post-intervention, had not initiated practicing BSE. The primary reason reported for this was forget fullness, accounting for 32.72% of non-practiser's, followed by a lack of time, reported by 25.45% of respondents. An interesting finding was the positive correlation between knowledge about BSE and the education level of women. Among the participants who had a high school education, 18 individuals (20%) were aware of BSE before the intervention, whereas after the intervention, this number increased significantly to 88 individuals

(99.7%), indicating a substantial impact of the educational intervention on improving awareness levels among this group.¹²

Yavari et al. also reported a significant association between education level and practices of self-breast examination.¹³

Gupta SK recently reported that educated women with at least high school level of education were able to self-examine completely with correct methodology.¹²This finding was aligned with our study where the practice scores, the pre-test practice score in the Mannequin Group was 0.36%, which significantly increased to a post-test score of 31.33% (mean difference 30.97%, p<0.0001). This improvement was sustained, with one-month and six-month post-intervention practice scores of 31.45% and 31.57%, respectively, both with p-values of <0.0001.

CONCLUSION

Health education is an important strategy in prevention of breast cancer. Health education reduces the breast cancer risk among women. Due to lack of awareness regarding breast cancer, its prevalence is in rising trends. Above studies suggest that health education plays a major role in increasing knowledge about breast self-examination and creates Motivation among women in

performing breast self-examination. Health education by health care workers can create a positive impact on breast cancer by reducing its prevalence with proper health education.

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