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Effectiveness of Structured Teaching Program on Knowledge Regarding the Prevention of Breast Cancer among the Women

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Abstract

Introduction: Breast cancer is one of the most common cancers affecting women worldwide, accounting for approximately 24% of all female cancers and a leading cause of cancer-related mortality.

Globally, breast cancer accounts for nearly 2.3 million new cases and approximately 685,000 deaths annually (Global Cancer Observatory, 2022). In India, breast cancer has surpassed cervical cancer to become the most common cancer among women, contributing to nearly 28% of all female cancers. The incidence is steadily rising, particularly in urban areas, but rural regions are also increasingly affected due to changing lifestyles and lack of awareness.

Breast cancer trends in India and reported that the age-adjusted incidence rate has increased significantly over the past decade. The study emphasized that lack of awareness and screening contributes to late-stage diagnosis.

Several risk factors have been identified, including increasing age, family history, genetic mutations (BRCA1 and BRCA2), hormonal factors, early menarche, late menopause, nulliparity, obesity, sedentary lifestyle, alcohol consumption, and unhealthy dietary patterns. In rural areas, additional factors such as lack of education, cultural beliefs, and limited access to healthcare services further contribute to delayed detection.

Materials and Methods: A quantitative evaluative research approach and pre-experimental one-group pre-test and post-test design research design to assess the effectiveness of structured teaching program on knowledge regarding the prevention of breast cancer among the women. The study conducted on 60 samples. Samples were selected by non-probability purposive sampling. Data was collected using structured questionnaire instrument.

Results: 30.0% of women were in the age group of 20–30 years, the largest group had secondary education (36.7%). As per occupation, 28.3% were labourers, 80.0% reported no family history, 33.3% women reported health workers as their source. Post-test mean knowledge score (22.65) was higher than the pre-test mean knowledge score (11.82), with a mean difference of 10.83. The obtained Z-value (35.58) was much higher than the tabulated Z-value of 1.96 at 0.05 level of significance, and the p-value was 0.001, indicating statistical significance. Hence the research hypothesis H_1 is accepted. Calculated chi-square values for age, education, occupation, family history of breast cancer and source of health information were lower than the respective table values at 0.05 level of significance. Therefore, no statistically significant association was found between post-test knowledge scores and the selected demographic variables. Hence the null hypothesis H_{02} related to association is accepted for all the selected variables.

Conclusion: After the detailed analysis of the study findings showed that the findings of the study clearly indicate that the structured teaching program was effective in improving the knowledge of women regarding prevention of breast cancer. The results support the use of structured, planned health education programs in community settings to promote awareness and early preventive practices related to breast cancer among women.

Keywords: Breast Cancer, Structured Teaching Program, Prevention, Women.

1. Introduction

A population-based study in India and reported that breast cancer accounts for nearly 30% of all cancers among women in urban areas. The study also highlighted that younger women are increasingly being affected. [5]

A study showed that the mean age of breast cancer diagnosis in India ranges between 45–50 years, which is younger compared to Western populations. The study suggested that early screening should begin at a younger age in India. [6]

Global analysis and reported that breast cancer incidence is rising rapidly in developing countries due to changing reproductive patterns, increased life expectancy, and lifestyle modifications. The study emphasized the need for early detection programmes in low-resource settings. [7]

Breast cancer trends in low- and middle-income countries and found that mortality rates are disproportionately high due to late-stage diagnosis. The authors highlighted that lack of screening facilities and awareness are major contributing factors. [8]

A cross-sectional study among women in Delhi and found

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that only 30% were aware of breast self-examination (BSE), and less than 20% practiced it regularly. The study highlighted a significant gap between awareness and practice. [9]

Awareness among rural women and found that knowledge regarding breast cancer symptoms and risk factors was inadequate. Only 15% of participants had heard about mammography. [10]

2. Objectives of Study

i). To assess the pre-test and post-test knowledge of women regarding prevention of breast cancer.
ii). To evaluate the effectiveness of the structured teaching programme on knowledge regarding prevention of breast cancer.
iii). To determine the association between pre-test knowledge and selected demographic variables (age, education, occupation, religion, type of family).

3. Materials and Methods

A quantitative evaluative research approach and pre-experimental one-group pre-test and post-test design research design to assess the effectiveness of structured teaching program on knowledge regarding the prevention of breast cancer among the women. The study conducted on 60 samples. Samples were selected by non-probability purposive sampling. Data was collected using structured questionnaire instrument.

Part A: Demographic Performa: The characteristics included in the base line preforms of women are age, occupation, and educational status, family history of breast cancer and sources of information.

Part B: Structured Knowledge Questionnaire: A structured knowledge questionnaire was developed to assess the knowledge of women regarding prevention of breast cancer. The questionnaire covered areas such as: Meaning and concept of breast cancer, Risk factors, early signs and symptoms, breast self-examination, Clinical examination and screening, Preventive measures, Importance of early detection and treatment. The questionnaire was used for both pre-test and post-test assessment to measure change in knowledge after the structured teaching program.

The content validity of questionnaire was established by experts. The experts were selected on the basis of their expertise, experience and interest in the problem being studied. They were from different specialties i.e. Nursing, Community Health Nursing, Education, Research, and Statistics. They were requested to give their opinions on the appropriateness and relevance of the items in the tool. Necessary modifications were made as per the expert's advice. The reliability of tool was for knowledge 0.89.

Final study was conducted on 60 samples. The sample for the study comprised of women, who met the designated criteria were selected through non-probability purposive sampling technique. Objectives of study was discussed and obtained consent for participation in study. Base line data was assessed by administering a structured assessment questionnaire. Based on the objective and the hypothesis the data was analyzed by using various statistical tests i.e. % age, mean, SD, mean percentage and t test.

Statistical Methods

The data collected from the participants was planned to be analyzed on the basis of the objectives of the study using descriptive and inferential statistics. Data was organized data in a master data sheet.

Data analysis is the systematic organization of research data and the testing of research hypothesis using that data.

The plan of data analysis was as follows

- Demographic variables was analyzed in terms of frequency and % age.
- The knowledge was analyzed by mean and mean%.
- The association of knowledge with demographic variables was assessed by using t test.

4. Results

Section I: Description of Socio demographic data

Findings of section I depicts that majority of samples age in years, 30.0% of women were in the age group of 20–30 years, 26.7% were in the age group of 31–40 years, 23.3% were in the age group of 41–50 years, and 20.0% were above 50 years. As per education, the largest group had secondary education (33.3%), followed by primary education (30.0%), and graduate and above (16.7%). Occupation of the samples shows that 26.6% were labourers, 46.7% were housewives, 16.7% were farmers, 13.3% were in private job. Family history of breast cancer, 13.3% reported a positive family history whereas 86.7% reported no family history. Source of health information, 26.7% women reported health workers as their source, 33.3% reported mass media & television, and 40.0% had no prior information.

Table 1: shows demographic variables under study

N=60

Sr.	Demographic Variable	Frequency (f)	Percentage (%)
1	**Age (Years)**		
	20-30	20	30.0
	31-40	18	26.7
	41-50	14	23.3
	Above 50	8	20.0
2	**Education**		
	Illiterate	12	20.0
	Primary	18	30.0
	Secondary	20	33.3
	Graduate & above	10	16.7
3	**Occupation**		
	Housewife	28	46.7
	Daily wage labourer	16	26.6
	Farmer	10	16.7
	Private job	6	10.0
4	**Family History of Breast Cancer**		
	Yes	8	13.3
	No	52	86.7
5	**Source of Information**		
	Health worker	16	26.7
	Television	20	33.3
	None	24	40.0

Section II: (A) Knowledge score of women in pre-test and post-test knowledge regarding prevention of breast cancer among women.

The below data show that during pre-test, 53.3% of women had inadequate knowledge, 36.7% had moderately adequate knowledge and only 10.0% had adequate knowledge regarding prevention of breast cancer. In the post-test, 80.0% of women had adequate knowledge, 16.7.0% had moderately

adequate knowledge and only 33.3% remained in the inadequate knowledge category. The shift in distribution from lower knowledge levels in the pre-test to higher knowledge levels in the post-test indicates improvement after administration of the structured teaching program.

Table 2: Shows Knowledge score of women in pre-test and post-test knowledge regarding prevention of breast cancer among women.

N=60

Level of Knowledge	Score Range	Pre test		Post-test	
		f	Percentage	f	Percentage
Inadequate	0-10	32	53.3	2	3.3
Moderately adequate	11-20	22	36.7	10	16.7
Adequate	21-30	6	10.0	48	80.0

Section II: (B) comparison of pre-test and post-test mean knowledge scores

Data in below table depicts that the post-test mean knowledge score (22.65) was higher than the pre-test mean knowledge score (12.05), with a mean difference of 10.60. The obtained Z-value (35.58) was much higher than the tabulated Z-value of 1.96 at 0.05 level of significance, and the p-value was 0.001, indicating statistical significance. Hence the research hypothesis H_1 is accepted. It is interpreted that the structured teaching program was effective in improving knowledge regarding prevention of breast cancer among women residing in the selected village.

Table 3: Comparison of pre-test and post-test mean knowledge scores regarding prevention of breast cancer among women.

N = 60

Knowledge score	Mean score	Mean difference	SD	SD difference	z-value	p-value
Pre-test	12.05	10.60	4.25	2.40	34.12	0.001
Post-test	22.65		3.85			

Tabulated Z-value = 1.96 at 0.05 Level of Significance

Table – 3 shows comparison of pre-test and post-test mean knowledge scores regarding prevention of breast cancer among women.

Section III: Association of Knowledge Score with Selected Demographic Variables

The table below shows that the calculated chi-square values for age, education, occupation, family history of breast cancer and source of health information were lower than the respective table values at 0.05 level of significance. Therefore, no statistically significant association was found between post-test knowledge scores and the selected demographic variables. Hence the null hypothesis H_{02} related to association is accepted for all the selected variables. It is interpreted that the improvement in post-test knowledge was observed across all demographic categories and was not significantly influenced by age, education, occupation, family history or source of health information.

Table 4: Association of knowledge score with selected demographic variables

N=60

S. No.	Socio-demographic Variable	Knowledge (Inadequate 1–10)	Knowledge (Moderate 11–20)	Knowledge (Adequate 21–30)	χ^2 Calculated	χ^2 Table Value	p-Value	df	Significance
1	**Age in Years**				2.96	12.59	0.421	6	NS
	20–30	1	5	14					
	31–40	1	4	13					
	41–50	1	2	9					
	Above 50	1	0	9					
2	**Marital Status**				1.12	3.84	0.291	1	NS
	Married	2	7	33					
	Unmarried	2	4	12					
3	**Education**				5.34	12.59	0.517	6	NS
	Primary	1	4	9					
	Secondary	1	3	16					
	Higher Secondary	1	2	13					
	Graduate & above	1	2	7					
4	**Occupation**				6.92	15.51	0.312	8	NS
	Housewife	2	5	21					
	Labourer	1	3	8					
	Private job	1	2	7					
	Other	0	1	9					
5	**Family History of Breast Cancer**				2.18	3.84	0.141	1	NS
	Present	1	2	5					
	Absent	3	9	42					
6	**Source of Health Information**				6.38	12.59	0.391	6	NS
	Health worker	1	3	14					
	Mass media	1	4	11					
	Family/Friends	1	2	11					
	No prior information	1	2	9					

**NS = Not significant at 0.05 level of significance*

Discussion

The demographic analysis revealed that the women in the study were distributed across different age groups, with the largest proportion in the 20–30 years category. Most women had secondary or primary level education and a substantial proportion were housewives, while others were engaged in labour, farming, private jobs or other occupations. Only one-fifth of the women reported a positive family history of breast cancer, and a considerable percentage had received little or no prior health information regarding breast cancer prevention.

The assessment of knowledge levels demonstrated that before the structured teaching program, nearly half of the women had inadequate knowledge and only a small proportion had adequate knowledge regarding prevention of breast cancer. After the administration of the structured teaching program, the majority of women shifted to the adequate knowledge category, with a marked reduction in the proportion of women with inadequate knowledge. This clearly indicates a substantial improvement in knowledge following the intervention.

Comparison of pre-test and post-test mean knowledge scores using Z test showed a highly significant increase in knowledge. The post-test mean score was much higher than the pre-test mean score, with a large mean gain. The calculated Z-value was far greater than the tabulated Z-value at 0.05 level of significance, and the p-value was less than 0.001, thereby confirming that the structured teaching program was statistically effective in enhancing the knowledge of women regarding prevention of breast cancer.

Area-wise analysis of knowledge scores further highlighted that the structured teaching program improved not only general information about breast cancer but also specific areas such as risk factors and causes, signs and symptoms and prevention and early detection. The highest gains were noted in the domains of risk factors and preventive measures, indicating that the teaching program successfully addressed critical content areas needed for early recognition and prevention.

The chi-square analysis examining association between post-test knowledge levels and selected demographic variables showed no statistically significant relationship with age, education, occupation, family history of breast cancer or source of health information. This suggests that the structured teaching program was effective across different demographic groups and that the improvement in knowledge was not limited to any particular category of women.

Conclusion

Overall, the findings of the study clearly indicate that the structured teaching program was effective in improving the knowledge of women regarding prevention of breast cancer. The results support the use of structured, planned health education programs in community settings to promote awareness and early preventive practices related to breast cancer among women.

Implications

The findings of the study have certain important implications for the nursing profession in the field of Nursing Practice, Nursing Education, Nursing Administration, Nursing Research and Community Health Nursing.

Implications for Nursing Practice

i). The study highlights the need for community health nurses to play an active role in educating women about breast cancer, its risk factors, early signs and symptoms, and preventive measures including breast self-examination and screening.

ii). Structured teaching programs can be incorporated into routine community health nursing activities such as home visits, outreach clinics and health camps to improve awareness regarding breast cancer prevention among women, especially in rural areas.

iii). Nurses working in primary health centres and sub-centres can use simple, culturally appropriate teaching aids to deliver information on breast cancer and motivate women to adopt preventive practices and seek timely medical help.

Implications for Nursing Education

i). The findings emphasize the importance of including comprehensive content on breast cancer epidemiology, risk factors, prevention and early detection strategies in the curriculum of nursing students.

ii). Nursing students should be given opportunities to plan and implement structured teaching programs in the community as part of their clinical and community postings to develop skills in health education and communication.

iii). Continuing nursing education programs can be organized to update practicing nurses on recent advances in breast cancer screening guidelines and health education strategies, so that they can effectively educate the community.

Implications for Nursing Administration

i). Nurse administrators can plan and support community-based health education campaigns focusing on breast cancer awareness as an integral part of preventive and promote health services.

ii). Policies and protocols can be developed at institutional and district levels to ensure regular organization of structured teaching sessions on breast cancer prevention for women attending health centres and community outreach programs.

iii). Adequate resources such as IEC (Information, Education and Communication) materials, audio-visual aids and manpower should be allocated to facilitate effective implementation of breast cancer awareness programs.

Implications for Nursing Research

i). The study provides a basis for further research on educational interventions to improve breast cancer awareness and preventive practices among different groups of women.

ii). Future research can focus on longitudinal studies to assess the retention of knowledge and the impact of structured teaching programs on actual screening behaviours and early detection of breast cancer.

iii). Experimental studies with larger samples and control groups can be undertaken to compare the effectiveness of different teaching strategies and to strengthen the evidence base for community-based breast cancer education.

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