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Effect of Nurse Led Intervention on Knowledge Regarding Breast Self-Examination and Prevention of Breast Cancer Among Hospital Maintenance Staff Working at Selected Hospital, Thrissur

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ABSTRACT

Breast cancer is the leading cause of death among women worldwide. Therefore, a study was conducted to assess the effect of a nurse-led intervention on knowledge regarding breast self-examination and the prevention of breast cancer among hospital maintenance staff in a selected hospital, Thrissur. Pre-experimental research design was used in this study. Data collected from 69 hospital maintenance staff working in the selected hospital, Thrissur. Knowledge of the samples assessed by using structured questionnaire regarding breast self-examination and preventive measures of breast cancer before the nurse led intervention. A teaching session on breast self-examination and prevention of breast cancer was given to hospital maintenance staff with the help of AV aids. A post test was conducted after 14 days. The mean pretest and post score was11.17 (SD - 2.8) and 14.94 (SD- 1.98) respectively. The calculated t value of pretest and post test mean score was 14.2 ($p < 0.001$). Therefore, it is evident that nurse led intervention was highly effective in improving the knowledge regarding breast self-examination and prevention of breast cancer. The result showed that there was a tremendous change in the knowledge level of participants and there is no association between pretest knowledge level and socio demographic variables.

Keywords: *Breast cancer, knowledge, mastectomy, breast self-examination, hospital maintenance staff*

INTRODUCTION

In India, breast cancer is the most prevalent and aggressive type of cancer among women, with the highest rates of both death and morbidity. Cancer dramatically lowers quality of life by affecting social, emotional, and physical well-being. [1]

National Cancer Registry Programme in 2020 Stated that, breast cancer continues to be the most common cancer affecting women in Kerala. In 2022, the state also revealed the highest proportion of female cancer cases in India (26.6%) and a significant global share (23.8%).[2] In Kerala, breast cancer is a significant public health concern, with Thiruvananthapuram having

the highest incidence rate, estimated at 40 per 100,000 women. Breast cancer comprises 31% of all cancers diagnosed among females in Thiruvananthapuram, with 35% of cases happening in women below the age of 50. According to GLOBOCAN 2022, cancer-related mortality in India was reported as 470,055 among men and 446,772 among women, while the global figures stood at 5,430,284 for men and 4,313,548 for women. This underscores the urgent need for better cancer prevention, early detection, and treatment strategies. [2]

Breast cancer accounted for 26.6% of all cancer cases in India in 2022, with an age adjusted rate (AAR) of 26.6, while it had the highest rate of 46.8 worldwide. A study conducted across 11 geographical areas under national cancer registration programmes found that the 5-year survival rates for Kollam and Thiruvananthapuram were 66% and 63.7%, respectively, ranking third and fourth highest. [3]

The incidence of breast cancer is among the highest in India in Thiruvananthapuram and Kollam, which is consistent with a global trend of rising cases, especially in high-HIPI countries. Risk factors include hormone, reproductive, and lifestyle factors, and an increase in hormone receptor-positive cancers associated with higher body weight [4,5,6 ,7]

A personal history of breast cancer, advanced age, early menstruation, late menopause, and the use of hormone replacement treatment that contains both progesterone and estrogen are risk factors for breast cancer. As the disease advances to more severe stages, survival rates drastically drop. However, by using a methodical strategy that encourages early diagnosis and advances the stage at which the disease is identified, there is significant potential to lower the death rate associated with breast cancer. Breast lumps and asymmetry are natural for certain women. In order to detect chronic changes in the breast over time and enable early identification and prompt medical action, breast self-examination is essential. [8]

Breast self-examination, clinical breast examination, and mammography are suggested as preventive strategies to minimize the morbidity and mortality associated with breast cancer.

BSE is an affordable procedure that women may do on their own, unlike Clinical Breast Examination and mammography necessitate a hospital stay, specific equipment, and professional knowledge. BSE provides two main advantages: it helps women learn how their breasts should look and feel so they can recognize any changes. [9]

A cross-sectional descriptive study conducted in South India aimed to assess the knowledge and practice of breast self-examination (BSE) among women aged 20 to 70 years. The study revealed that only 30.89% of the participants were aware of BSE, while the remaining 69.11% had no knowledge of this preventive practice. [10]

In Cameroon, a cross-sectional descriptive study was carried out to evaluate female undergraduate students' knowledge, attitudes, and practices about breast self-examination (BSE). 182 people between the ages of 17 and 30 participated in the study. The results showed that just 13.9% of respondents knew what to look for during the test, and only 9% knew how to do BSE correctly. [11]

Cancer can cause a number of symptoms, such as breast and underarm lumps or thickening, nipple discharge or inward turning, skin redness or scaling, or ridges on the breast surface. [9]

Unlike other types of cancer, breast cancer develops in a more easily noticeable area, which facilitates early detection and timely treatment. The two screening tests that are advised worldwide for the early diagnosis of breast cancer are mammograms and breast self-examination.

The Department of Community Medicine at Shri Sathya Sai Medical College and Research Institute, Kancheepuram, India carried out an interventional study to evaluate breast self-examination as a tool for early breast cancer diagnosis. The study came to the conclusion that a public health

education program is desperately needed to encourage women to practice BSE in order to reduce their fear, denial, myths, and misconceptions. Therefore, they suggested that every attempt be made to promote BSE among both men and women in society. [12]

Dental students in Saudi Arabia participated in an observational cross-sectional study that evaluated their knowledge, attitudes, and practices on breast self-examination (BSE). Of the 378 participants, 84% understood the significance of evaluating the axilla, and 89.2% were aware that BSE should be done on a monthly basis. Regarding attitude, 67% of respondents thought favourably about BSE. Practice levels were low, nevertheless, with only 17% of female medical students routinely performing BSE, 45.7% practicing poorly, and 20.8% not knowing how to do it. According to the study's findings, more comprehensive initiatives are required to raise awareness and advance BSE and breast cancer prevention practices. [13]

In research of women who visited Kuwaiti primary healthcare facilities, the practice of breast self-examination (BSE) was evaluated in two stages: a case-control analysis to identify characteristics linked to non-practice and a cross-sectional survey to ascertain its prevalence. Just 21% of the 520 participants had ever used BSE, and many of them were not aware of the proper protocol. The study underlined the importance of raising knowledge about the dangers, early warning indicators, and detection techniques of breast cancer. To promote and enhance breast self examination among women, health education initiatives must be strengthened. [14]

The effectiveness of breast self-examination (BSE), a technique for early breast cancer screening, depends on women's awareness and consistent practice. But a lot of women don't know enough about breast cancer prevention and BSE, which emphasizes the need for more education and awareness campaigns.

Aim

To assess the effect of Nurse led intervention on knowledge regarding breast self-examination and prevention of breast cancer among hospital maintenance staff

Objectives

1. To assess the knowledge level regarding breast self-examination and prevention of breast cancer among hospital maintenance staff.
2. To evaluate the effect of Nurse led intervention on the knowledge regarding breast self-examination and prevention of breast cancer among hospital maintenance staff.
3. To find out the association between knowledge level regarding breast self-examination and prevention of breast cancer and selected demographic variables

Hypothesis

H1: There will be a significant difference between pretest and post-test level of knowledge regarding breast self-examination and prevention of breast cancer among hospital maintenance staff

H2: There will be significant association between pretest knowledge regarding breast self-examination and prevention of breast cancer and selected socio demographic variables

RESEARCH METHODOLOGY

Research Approach

Quantitative approach

Research Design

Pre-experimental design.

Research Setting

Hospital maintenance department in AIMS, Thrissur

Population

Hospital maintenance staff

Sample

Hospital maintenance staff working at AIMS, Thrissur

SAMPLE SIZE

Sample size is calculated based on the sample size equation for pre-experimental design as given below,

$n=(Z\alpha/2+Z\beta)2 \times 2 \times \sigma\ 2/d2$
$Z\alpha/2 = 1.96$[at 5 % alpha]
$Z\beta = 0.84$ for 80 % power
$\sigma\ 2$ = population variance
d= effect size (based on the previous study, effect size is 0.5)
Sample size =64
Based on the previous study with effect size 0.5, the sample size calculated as 64. By calculating 10% attrition, the sample size rounded to 69
The minimum required sample size is 69

Sampling Technique
Random sampling
Inclusion Criteria
- Hospital maintenance staff working in AIMS, Thrissur
- Age > 25 years
- Willing to participate in the study

Exclusion Criteria
- Age <25 years
- Male hospital maintenance staff

TOOL /INSTRUMENT
Research tools used for the present study are:
Tool 1: structured questionnaire
Section A: demographic variables
It is a questionnaire to assess the baseline variables of the respondent and it comprises of age in years, educational status, and previous knowledge of breast cancer and family history of cancer
Section B: knowledge questionnaire on breast self-examination and Prevention of breast cancer.
It is a structured questionnaire which consists of 18 questions to assess the knowledge of breast self-examination and preventive measures of breast cancer. Maximum score is 18. Each correct answer carries 1 mark and false answers have 0. The obtained score is graded as

Poor	-	0-6
Average	-	7-12
Good	-	13-18

MATERIALS & METHODS

A pre-experimental design was adopted for collecting data from 69 hospital maintenance staff by using random sampling technique. After obtaining approval from the Institutional Ethics Committee, participants selected based on the inclusion criteria using simple random sampling. Data collection was done from 10/3/2025 to 30/3/2025.
Prior to data collection, participants were provided with a comprehensive explanation of the research study, including its objectives and purpose, and were assured of the confidentiality of their information. Subsequently, written informed consent was obtained from all participants. Demographic data was collected using a structured questionnaire. On the first day, a pretest was conducted to assess participant's knowledge of breast cancer and breasts self-examination using a structured knowledge questionnaire. Following the pre-test, a nurse-led intervention was implemented, consisting of a teaching program on breast cancer. This session included a PowerPoint presentation and a hands-on demonstration of breast self-examination using models. After fourteen days, a post-test was administered using the same questionnaire to evaluate the effectiveness of the nurse-led intervention. At the end of the structured teaching program, a discussion session was held to answer participants' questions.

RESULT

Distribution of subjects according to socio demographic variables. n=69

Age in years	**frequency**	**percentage**
30-35	14	20.3
36-40	26	37.7
41-50	27	39.1
>50	2	2.9
Education		
< 10 th standard	35	50.7

10 th standard	3	4.3
plus 2	19	27.5
> plus 2	12	17.4

Knowledge about breast cancer	frequency	percentage
No	26	37.7
Yes	43	62.3
Family history	frequency	percentage
Yes	17	24.6
No	52	75.4

Table 1 depicts that majority of subjects (39.1%) belongs to the age group of 41-50 years, majority of the subjects (50.1) were having education,10th standard, majority of the subjects (75.4%) had no family history, majority of subjects 62.3%) have knowledge about breast cancer

Classification of subjects according to pretest and post test level of knowledge regarding Breast self-examination and prevention of breast cancer. n=69

	Pretest	**Post test**
Level of knowledge	Frequency	Frequency
Good	22	62
Average	44	7
Poor	3	0

Table 2 depicts that majority of subjects (64%) had average knowledge (32%) had good knowledge and in the post test majority of subjects (90%) had good knowledge and none of them had poor knowledge regarding breast self-examination and prevention of breast cancer.

Analysis of effect of nurse led intervention on knowledge regarding breast self-examination and prevention of breast cancer by using paired t test

Table 3: Mean, standard deviation and t value of knowledge scores of subjects

	Mean	**Standard Deviation**	**t value**	**P value**
Pretest	11.17	2.797	14.2	0.001 **
Post test	14.94	1.984		

****Significant at 0.001 level**

Table 3 shows that the calculated t value is 14.2 and p value is 0.001. So the difference between the mean pre-test and post test score knowledge score is statistically significant

Table 4: Association of knowledge with selected socio demographic variables

Socio demographic variables		**Pre test**			**Fisher's exact test**	**P value**
		Poor	**Moderate**	**Good**		
Age	30-35	1(7.1%)	10(71.4%)	3(21.4%)	4.026	0.673
	36-40	1(3.8%)	14(53.8%)	11(42.3%)		
	41-50	1(3.7%)	18(66.7%)	8(29.6%)		
	>50	0(0%)	2(100%)	0(0%)		
Education	< 10th standard	2(5.7%)	24(68.6%)	9(25.7%)	5.470	0.485
	10th standard	0(0%)	2(66.7%)	1(33.3%)		
	Plus 2	1(5.3%)	13(68.4%)	5(26.3%)		
	> plus 2	0(0%)	5(41.7%)	7(58.3%)		
Knowledge of breast cancer	NO	2(7.7%)	17(65.4%)	7(26.9%)	1.378	0.502
	YES	1(2.3%)	27(62.8%)	15(34.9%)		

Family History of breast cancer	YES	2(11.8%)	10(58.8%)	5(29.4%)	2.482	0.289
	NO	1(1.9%)	34(65.4%)	17(32.7%)		

Table 4 shows that there is no association between pretest level of knowledge and selected socio demographic variables.

DISCUSSION

The first objective of the study was to assess the knowledge regarding breast self-examination and prevention of breast cancer. The knowledge was assessed by using a structured questionnaire.

The present study revealed that in the pretest, majority of subjects (64%) had average knowledge and (32%) had good knowledge and in the post test majority of subjects (90%) had good knowledge and none of them had poor knowledge regarding breast self-examination and prevention of breast cancer.

These findings were supported by a cross-sectional descriptive study conducted in South India aimed to assess the knowledge and practice of breast self-examination (BSE) among women aged 20 to 70 years. The study revealed that only 30.89% of the participants were aware of BSE, while the remaining 69.11% had no knowledge of this preventive practice.[10]

Evaluate the effect of nurse led intervention programme on knowledge regarding breast self-examination and prevention of breast cancer.

The study findings revealed that nurse led intervention programme was effective in improving the knowledge regarding breast self-examination and prevention of breast cancer. The mean pre-test knowledge score was11.17 with the standard deviation of 2.79. Mean post-test knowledge score was increased to 14.94 with the standard deviation of 1.984. Change in the knowledge score was statistically tested using paired t test. The t value 14.2 is highly significant at $p< 0.001$, which shows that structured teaching programme was effective for improving the knowledge regarding breast self-examination and prevention of breast cancer.

These results are in agreement with an interventional study conducted among 80 paramedical workers to assess the impact of educational intervention on knowledge and practice regarding BSE in teaching hospital Maharashtra, India. Majority of the participants (67.5%) were in the age group of 20-40 years and 65% were married. The mean score of knowledge prior to intervention was 8.55, which changed to 12.48 after the intervention.

Association of pretest level of knowledge with socio demographic variables

The study findings revealed that no significant association between the pre-test level of knowledge and socio-demographic variables such as age, education, family history, and prior knowledge about breast cancer.

SUMMARY

In present study, the investigator assessed the effect of nurse led intervention programme on knowledge regarding breast self-examination and prevention of breast cancer among hospital maintenance staff and its association between selected socio-demographic variables. The researcher found that there is significant improvement in knowledge score among hospital maintenance staff after nurse led intervention program. It was also observed that the pre-test level of knowledge had no significant association with socio-demographic variables.

CONCLUSION

The nurse led intervention programme was a successful endeavour in improving the knowledge regarding the breast self-examination and prevention of breast cancer. Based on the findings of present study, it is concluded that raising awareness about breast self-examination and

prevention of breast cancer is essential for its early detection and prevention. The findings of this study highlight the importance of educating women about Breast Self-Examination, a simple, effective, and cost-efficient method for the prevention and early detection of breast cancer.

Declaration by Authors
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