Effectiveness of Self-Instructional Module (SIM) on Knowledge Regarding Breast Cancer among Women

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Abstract*: Women are blessed with a kind heart, a sea of love, and a bundle of affection. They are, undoubtedly, a symbol of love and a pillar of strength. They are always there, like a beacon in the night.*

A woman is not only beautiful, but, a woman is a companion to a man, family and society given by God Almighty. Yes, women are indeed God's most beautiful creation. Every woman should know this, and should live up to it. Women should respect themselves. Today, sadly, things have changed. Many women have no sense of their health and their wellness. Cancer has become one of the ten leading causes of death in India. According to Indian Council of Medical Research there are nearly 1.5-2 million cancer cases at any given point of time. Over 7 lakh new cases of cancer and 3 lakh deaths occur annually due to cancer. Nearly 15 lakh patients require facilities for diagnosis, treatment and follow up at a given time.[3]

The incidence of breast cancer is rising in every country of the world especially in developing countries such as India. This is because more and more women in India are beginning to work outside their homes which allow the various risk factors of breast cancer to come into play. These include late age at first childbirth, fewer children and shorter duration of breast-feeding.[4]

Breast cancer has increased incidence of among women residing in metropolitan cities. Statistically, breast cancer is supposed to be more common among unmarried women; those who are married, but have not had children; and those who have had children, but did not breast feed their babies. It is also related with smoking, alcohol drinking and high fat intake to the causation of breast cancer and this probably explains its etiological relationship to a modern lifestyle and environment.[5]

Materials and Methods: Descriptive survey design is selected using convenient sampling and 60 working women were selected as sample. A structured questionnaire is used to assess the knowledge of the working women regarding breast cancer. The questionnaire consisted of two parts: Part –A to collect the demographic data, Part-B consisting of questions regarding the various aspects of knowledge about breast cancer.

Results: Major findings of the study revealed that the majority of 50%women belonged to the age group of 41-50 yrs, 75% women are married 50% are graduate, majority (40%) of women had two children and 40□ never breast fed majority of women (40%) had a family monthly income of Rs. 20001-30000, and had no history of breast cancer running in the family. The mean knowledge score was 5.7 (SD ± 2.47) and 22% of the study population had poor knowledge regarding breast cancer.

Demographic variables like age, marital status educational status, duration of breast feeding and family history were associated with the level of knowledge. A self-instructional module was prepared for use as a teaching aid and found effective with 't' value 17.77 at p<0.01 level.

Conclusion: After the detailed analysis of the study findings showed that the earlier studies done on the knowledge of women regarding breast cancer. There is lack of knowledge even in the educated women regarding breast cancer. It is the responsibility of all the nursing educators, administrators and policy makers to find out the barriers in the gain of knowledge and should try to remove them and to develop strategies which can make emphasis on prevention and early detection of diseases.

Keywords: Breast cancer, women, knowledge, effectiveness, self-instructional module

I. INTRODUCTION

Cancer is second only to cardiovascular disease as a cause of death. Cancer is a disease of the cell in which the normal mechanisms of the control of growth and proliferation have been altered. It is invasive and may show metastasis.[1] Hippocrates (ca. 460 BC-ca. 370 BC) described several kinds of cancers, referring to them with the Greek word "carcinos" (crab or crayfish), among others. This name comes from the appearance of the cut surface of a solid malignant tumor, with "the veins stretched on all sides as the animal the crab has its feet, whence it derives its name". It caused about 13% of all human deaths in 2007.[2]

Breast cancer is a cancer that starts in the breast, usually in the inner lining of the milk ducts or lobules. There are different types of breast cancer, with different stages (spread), aggressiveness and genetic makeup. With best treatment 10-year disease-free survival varies from 98% to 10%. Treatment is selected from surgery, drugs (chemotherapy) and radiation.[6]

Breast cancer begins when normal cells in the breast begin to change and grow uncontrollably, forming a mass called tumor. A tumor can be malignant or benign; they may metastasize to the other parts of the body. Breast cancer mainly occurs in the epithelial lining of terminal duct lobular unit. These cancers are termed as Adenocarcinomas.[7]

Worldwide breast cancer is the most common cancer in women. Overall, an estimated 12.7 million new cancer cases and 7.6 million cancer deaths occur in 2008, with 56% of new cancer cases and 63% of the cancer deaths occurring in the less developed regions of the world. The most commonly diagnosed cancers worldwide are lung (1.61 million, 12.7% of the total), breast (1.38 million, 10.9%) and colorectal cancers (1.23 million, 9.7%). The most common causes of cancer death are lung cancer (1.38 million, 18.2% of the total), stomach cancer (738,000 deaths, 9.7%) and liver cancer (696,000 deaths, 9.2%). It is the most common type of non-skin cancer in women and fifth most common cause of cancer death. In 2004 breast cancer caused 519,000 deaths worldwide (7% of cancer deaths and almost 1% of all deaths). According to the American Cancer Society, about 1.3 million women will be diagnosed with breast cancer annually worldwide and about 465,000 will die from the disease.[8]

According to Indian Council of Medical Research it is reported that one in 22 women in India is likely to suffer from breast cancer during her lifetime. Breast cancer is catching up with cervical cancer rapidly among urban women. Changing life style are said to be the reason behind the rise in the incidence of Breast cancer.[9]

Breast cancer is one of the commonest malignancies encountered in women all over the world and is leading cause of cancer death in females. The incidence increases with age and is influenced by hereditary, the past number of menstruation cycle. In the United States, there were 216,000 cases of invasive breast cancer and 40,000 deaths in 2004.[10]

Breast cancer incidences have shown an upward trend in younger women. Statistics indicate that Breast cancer is the second most common malignancy in Indian women; it affects mainly the client ranged from 25-80 years. There is a significant difference between breast cancer cases and controls in relation to place of residence, occupation, marital status, body mass index and breast feeding. 32% of all cancers in women and 18% of deaths from cancer in women are caused due to breast cancer.[11]

II. OBJECTIVES OF STUDY

- To assess the existing level of knowledge regarding breast cancer among women.
- To develop and validate the self-instructional module regarding breast cancer.
- To find out association between levels of knowledge regarding breast cancer among women with selected demographic variables.
- To evaluate the effectiveness of self-instructional module regarding breast cancer among women.

III. MATERIALS AND METHODS

Descriptive survey design is assess the knowledge of the working women regarding breast cancer. The study conducted on 60 samples, using self structured questionnaire consisted of two parts: Part –A to collect the demographic data, Part-B consisting of questions regarding the various aspects of knowledge about breast cancer.

Part I: Socio-Demographic Performa -The first part consists of socio-demographic variables which includes age, marital status, educational status, occupational status, number of children, using of contraceptive pills, duration of breast feeding, monthly income of the family, family history, source of information about breast cancer.

Part II: Structured Knowledge Questionnaire - The second part consists of the structured knowledge questionnaire which was developed by the investigator to assess the knowledge questionnaire to ascertain ofwomen regarding breast cancer. It consisted 30 questions to assess the knowledge on breast cancer. This section is further divided into three parts:

Part A- This section includes 7 statements regarding knowledge related to breast anatomy and physiology and incidence of breast cancer.

Part B- This section consists of 17 statements regarding knowledge related to breast cancer.
- Risk factor
- Sign and symptoms
- Early detection

Part- C- It consists of 6 statements regarding knowledge related to breast cancer
- Treatment
- Prevention

3.1 Scoring and Interpretation:

There were 30 items on knowledge of women regarding breast cancer, for each item there were four options, out of which one is correct. The correct response carries the score one (1) and the wrong answer carries the score zero (0).

SCORING OF KNOWLEDGE OF WOMEN REGARDING BREAST CANCER

Grade	Actual score
Poor	2-14
Average	15-23
Good	24-29

Content validity of the tool was ensured by, 8 experts. They were requested to give their opinions on the appropriateness, relevance of the items in the tool and the contents of the SIM. The experts were from the field of Nursing, Statistics, and Oncology. Modifications were made according to the suggestions made by them. Later the tool was translated into Hindi, which is then approved by language expert to rule out any distortion in original meaning. The reliability of the knowledge questionnaire was established by using split half method. In order to establish reliability, the tool was administered to 10 samples who fulfilled the inclusion criteria. These samples were excluded from the main study. The reliability was established bycoefficient of correlation by using Karl-Pearson formula and the tool was found to be reliable with a reliability coefficient 'r' =>0.81.

Final study was conducted on 60 samples. The sample for the study comprised ofwomen, who met the designated criteria were selected through probability random sampling technique. Objectives of study was discussed and obtained consent for participation in study. Base line data was assessed by structured knowledge questionnaire. Samples were given SIM on breast cancer and post test was conducted after 7 days. Based on the objective and the hypothesis the data was analysed by using various statistical tests i.e. percentage, mean, paired t test and chi square test.

3.2 Statistical Methods

The data collected from the participants was planned to be analysed 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:
- The data obtained will be analysed using both descriptive and inferential statistics on the basis of objective and hypothesis of the study.
- The demographic data in the terms of frequency and percentages.
- Knowledge in the terms of frequency and percentages.

- Mean and standard deviation would be used to calculate t-value for pre and post scores and presenting in the form of tables and diagrams.
- Determining the association between knowledge and demographic variables by using Chi-square test.

IV. RESULTS

Section I: FREQUENCY AND PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLES

n = 60

S.No.	Demographic variables		(f)	(%)
1	Age (in yrs.)	21-30	10	17
		31-40	12	20
		41-50	30	50
		51-60	08	13
2.	Marital Status	Married	42	70
		Unmarried	12	20
		Divorced/ Separated	02	03
		Widow	04	07
3.	Educational status	Secondary	06	07
		Senior Secondary	06	10
		Graduate	03	50
		Post Graduate	20	33
4.	Occupational status	Officer	18	30
		Clerk	36	60
		Class IV	04	07
		Others	02	03
5	Number of children	0	18	30
		1	12	20
		2	24	40
		3	04	07
		4 or more	02	03
6.	Use of contraceptive pills	No	48	80
		Yes	12	20
7.	Duration of Breast Feeding	Up to 6 months	14	23
		Up to 1 year	12	20
		More than 2 yrs	10	17
		Never	24	40
8.	Monthly income of the family (in Rs.)	<10000	07	11
		10001−20000	10	17
		20001−30000	24	40
		> 30000	19	32
9.	Presence of family history of breast, ovarian and uterus cancer	No	54	90
		Yes	06	10
10	Source of Information related to Breast Cancer	Television and radio	36	60
		Friends and relatives	09	15
		Newspaper, magazine	12	20
		Medical persons	03	05

Content of Table shows distribution of respondents that 50% (30) women are between the age of 41-50 yrs. And 20% (12) are between the 31-40 yrs. 70% (42) women are married and 20% (12) are unmarried 7% (4) belongs to

divorced/separated group and 3% (2) women are widow. Most (50%) of the women were graduate and only 33% and 10% of women were postgraduate and senior secondary passed respectively. Most (60%) of the women were clerks and only 30% women were officers and 7% of women were from class IV group and 3% women were in other group. 24(40%) of the women have 2 children, 18(30%) of women have no child and only 20% women have 1 child. (48 out of 60) 80% were not using contraceptive pills whereas only 20% were using contraceptive pills. Most of women 40% had never breast feed their child., whereas only 23.33% women had breast fed their children up to 6months and 12 women out of 60 (20%) have duration of breast feeding up to 1 year. According to the table the majority 24(40%) of the women belong to the monthly income group of 20001-30000 Rs. Followed by 32% belonging to group > 30,000. 54 out of 60(90%) women don't have any family history of breast, ovarian and uterus cancer. 60% women had information regarding breast cancer by Television and radio and 20% women had information by Newspaper, magazine whereas 15% women had knowledge by friends and relatives but 5% women had information regarding Breast cancer by medical persons.

DISTRIBUTION OF SUBJECT'S OVERALL PRE TEST KNOWLEDGE IN BREAST CANCER

n = 60

Overall knowledge	Frequency	Percentage
Good (>75%)	00	00%
Average (50-75%)	47	78%
Poor (<50%)	13	22%

According to Table majority 47 (78%) women' knowledge level is Average, 13 (22%) women's are poor and no woman is the Good in their knowledge pertaining to breast cancer. The women who scored less than 50% were grouped under Poor category, those who scored 50−75% were grouped under Average category and those with more than 75% were grouped under Good category.

DISTRIBUTION OF SUBJECT'S OVERALL POST TEST KNOWLEDGE REGARDING BREAST CANCER

n = 60

Overall knowledge	Frequency	Percentage
Good	41	68%
Average	19	32%
Poor	00	00%

According to Table majority 41 (68%) women's knowledge level is good, 19 (32%) women's have Average knowledge and no woman is the Poor in their knowledge pertaining to breast cancer.

COMPARISON OF KNOWLEDGE SCORES BETWEEN PRE TEST AND POST TEST

n = 60

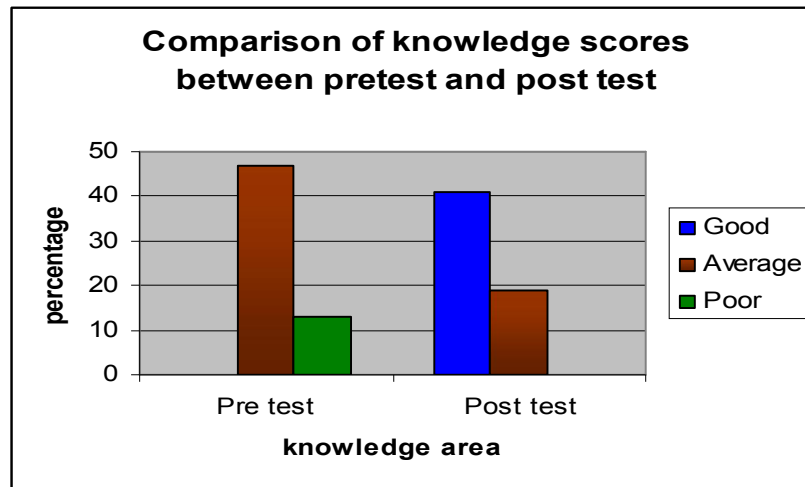| Knowledge Area	Level of knowledge			Total	Percentage
	Good	Average	Poor		
Pre test	00	47	13	60	100.00%
Post test	41	19	00	60	100.00%

Figure : Comparison of knowledge scores between pre-test and post test

AREA-WISE ANALYSIS OF PRE TEST KNOWLEDGE OF WOMEN REGARDING BREAST CANCER

n = 60

Area	Level of knowledge						Total number	(%)
	Good		Average		Poor			
	No.	%	No.	%	No.	%		
Breast anatomy and physiology and incidence of breast cancer	3	5%	16	26.66%	41	68.33%	60	100%
Risk factor, sign and symptoms and early detection of breast cancer	0	0%	33	55%	27	45%	60	100%
Treatment and Prevention of breast cancer	21	35%	34	56.66%	5	8.33%	60	100%

The above Table shows that 41 women (68.33%) have a poor knowledge regarding the breast. Breast anatomy and physiology and incidence of breast cancer 27 women (45%) had poor knowledge regarding Risk factor, Sign and symptoms and Early Detection and 21 women (35%) women have good knowledge regarding treatment and prevention of breast cancer and there was no good knowledge regarding Risk factor, Sign and symptoms and early detection of breast cancer.

AREA-WISE ANALYSIS OF POST TEST KNOWLEDGE OF WOMEN REGARDING BREAST CANCER

n = 60

Area	Level of knowledge						Total no.	(%)
	Good		Average		Poor			
	No.	%	No.	%	No.	%		
Breast anatomy and physiology and incidence of breast cancer	22	36.66%	26	43.33%	12	20.00%	60	100%
Risk factor, sign and symptoms and early detection of breast cancer	39	65%	20	33.33%	1	1.66%	60	100%
Treatment and Prevention of breast cancer	54	90%	6	10.00%	0	0%	60	100.00 %

The above Table shows that only 12 women (20%) have a poor knowledge, 43.33% had average knowledge and 22 women (36.33%) developed good knowledge regarding the breast anatomy and physiology and incidence of breast

cancer and 54 women 90% had good knowledge regarding Treatment and Prevention of breast cancer and 39 women (65%) good knowledge and only 1 women (1.66%) had poor knowledge regarding Risk factor, Sign and symptoms and Early detection of breast cancer.

SECTION II-MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF PRE –TEST AND POST-TEST KNOWLEDGE OF WOMEN REGARDING BREAST CANCER

n = 60

Knowledge Test	Mean	Mean percentage	Mean difference	Standard Deviation	Standard Error	df	't' value
Pre-test	15.93	53.10%	5.67	2.47	0.319	59	17.77*
Post test	21.6	72.00%					

(*p< 0.01)

The mean knowledge score of the respondents on pretest was 15.93 whereas the mean knowledge score of post-test was 21.6.

From the above table it is clear that there is significant difference in the knowledge score of the women in the post test level at p <0.01 level. Hence self- instructional on breast cancer provides pertinent information and is effective.

ASSOCIATION OF KNOWLEDGE SCORE WITH SELECTED DEMOGRAPHIC VARIABLE

The results reveal that there is no significant association between the age groups and the knowledge scores, as the calculated χ^2 value (2.11) is less than tabulated value at 0.05 level of significance. Hence the Research Hypothesis H2 is rejected.

There is a significant association between the marital status and the knowledge scores according to the χ^2 value (15.8) calculated which is more than the tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is accepted.

There is a significant association between the Educational status and the knowledge scores according to the χ^2 value (44.0) calculated which is more than the tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is accepted.

There is a significant association between the Occupational status and the knowledge scores according to the χ^2 value (26.78) calculated which is more than the tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is accepted.

There exists no significant association between the Number of children and the knowledge scores, as the calculated χ^2 value (6.32) is less than tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is rejected.

There exists no significant association between the use of oral contraceptives and the knowledge scores, as the calculated χ^2 value (0.01) is less than tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is rejected.

There is no significant association between the duration of Breast Feeding and the knowledge scores, as the calculated χ^2 value (1.96) is less than tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is rejected.

There is a significant association between the Monthly income of the family and the knowledge scores according to the χ^2 value (29.52) calculated which is more than the tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is accepted.

There exists no significant association between the Family History of breast cancer and the knowledge scores, as the calculated χ^2 value (0.04) is less than tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is rejected.

There is a significant association between the Source of information and the knowledge scores according to the χ^2 value (12.7) calculated which is more than the tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is accepted.

V. DISCUSSION

Demographic Information

Findings show that maximum women 30 (50%) were from the age group of 41-50 years, Most of them 42 (70%) were married, Maximum women 30 (50%) of the study population were graduate, Majority of women were 36(60%) were Clerks, Majority of women 24(40%) had 2 children, Majority of women 48(80%) haven't used contraceptive pills, Maximum women 24(40%) had never breast feed their child. The majority 24 (40%) of women's total monthly incomes were in between Rs. 20001-30000, 54 (90%) of the respondents do not have the history of breast cancer in the family, Findings also showed that Television and radio plays an important role in educating the women as 36(60%) of the women learned about breast cancer from Television and radio.

Assessment of level of knowledge of women regarding breast cancer

The findings of the study revealed that during pretest there was Average knowledge in 47 women (78%) of the study population, 13 (22%) had poor knowledge and no one had Good knowledge. Even-though the facilities are available in the urban area they are not made use of in improving the knowledge regarding breast cancer. During posttest majority 41 (68%) women had good knowledge level, 19(32%) women had average knowledge and no woman had poor knowledge pertaining to breast cancer.

Area wise assessment of knowledge during pre-test

Area wise assessment of knowledge during pre-test revealed that 41 women (68.33%) have a poor knowledge regarding the breast. Breast anatomy and physiology and incidence of breast cancer 27 women (45%) had poor knowledge regarding risk factor, Sign and symptoms and Early detection of breast cancer and 21 women (35%) women have good knowledge regarding. Treatment and prevention of breast cancer and there was no good knowledge regarding Risk factor, Sign and symptoms and Early detection of breast cancer.

Area wise assessment of knowledge during post test

Area wise assessment of knowledge during post test revealed that only 12 women (20%) have a poor knowledge, 43.33% (26 women) had average knowledge and 22 women (36.66%) developed good knowledge regarding the breast anatomy and physiology and incidence of breasts cancer, and 54 women 90% had good knowledge regarding Treatment and Prevention of breast cancer and 39 women (65%) good knowledge and only 1 women (1.66%) had poor knowledge regarding Risk factor, sign and symptoms and early detection of breast cancer.

Association of knowledge score with Demographic variable

The results reveal that there is no significant association between the age groups, Number of children, duration of Breast Feeding, Family History of breast cancer and use of oral contraceptives and the knowledge scores, as the calculated χ^2 value is less than tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is rejected.

There is a significant association between the marital status, Educational status, Occupational status, Monthly income of the family and source of information and the knowledge scores as calculated χ^2 value is more than the tabulated value at 0.05 level of significance. Thus the Research Hypothesis, H2 is accepted.

VI. CONCLUSION

There is lack of knowledge even in the educated women regarding breast cancer. It is the responsibility of all the nursing educators, administrators and policy makers to find out the barriers in the gain of knowledge and should try to remove them and to develop strategies which can make emphasis on prevention and early detection of diseases.

IMPLICATIONS

Knowledge is a right of every human being and every human person has the right to health. Attainment of health by all is proposed by the Alms Ata Declaration of WHO. This is slogan should be felt by all and every individual should take

the responsibility towards promoting health. The findings of the study have implication for nursing practice, nursing education, nursing administration and nursing research.

Nursing Practice
- The nursing practice has been undergoing many evolutions in the recent past the expanded role of professional nurse emphasizes the activities which promote health and promotivebehaviors among people.
- Since there is less knowledge regarding breast cancer even in the young and educated women every nurse should make the   use of these results to update their knowledge.
- The nurse can motivate their clients to participate in the awareness camp, help them to get to know the newer screening procedures to lessen the anxiety, which surely will be in them.
- The promotion of the health in high risk group may be done by emphasizing the importance of healthy diet, regular exercise prevention of long use of contraceptive pills, breast feeding and avoidance of radiation.
- When such instructional module with low cost can better increase the knowledge of the women, it is always possible for the nurses to develop such instructional module for the patient and at risk people in the community.
- The self-instructional module prepared for the study can be utilized to educate the women and can be used to promote health and prevent various complications of ill health.
- The prepared SIM will also provide sound and comprehensive knowledge to practice better while dealing with the women and in planning and health teaching to all categories of individuals. Thus will enable the women to care for self and maintain good health and prevent breast cancer.

Nursing Education
- Nurse educators should get the benefit of these studies to include them in their classroom teachings to enhance the knowledge of the students.
- Nurse may make the use of the self-instructional module, which is prepared for use as a teaching tool. The students should be motivated to give health teaching using the teaching materials available.
- There is a dire need to plan the education programs according to the level of understanding of the beneficiaries, their attitudes and the needed improvement in them.
- The studies of this nature will help the nurse educators in planning the awareness camps as well as classroom teachings.
- The education curriculum must include preparation of such self-instructional module and inspire young aspiring students to explore their talent in writing specially relating to health because health matters and in doing so the nursing education can no doubt increase in the quality.
- Opportunities should be given to nursing students to develop and use such educational material in a variety of setting like school, College. Hence preparation of such self-instructional module can be included in the nursing education curriculum.

Nursing research
- The study will be a reference for research scholars.
- The result of this study indicates that the educated urban women too lack knowledge regarding breast cancer and further insights into existing situation will enlighten to understand the problems and find a definite way out.
- There is a need for advanced research for improving the nursing services.
- Various methods can be used to strengthen the knowledge of the people by the researcher, which should be published for the benefit of those who are not able to participate in the studies.

Nursing Administrations

- The Nurse administrators should plan, organize and provide materials for the effective awareness programs regarding breast cancer, and should be open for discussion and suggestions.
- The Nurse administrators should modify the behavior of the nurses to match the corporate level clients. So that everybody will have faith in health teachings given by nurses.
- Nurses as administrators should take great interest in encouraging nurses to learn more about breast cancer detection and prevention measures and to use their knowledge in practice.
- Nurse administrator should formulate policies and adopt various modalities of treatment for breast cancer. Every patient visiting the hospital either outpatient or inpatient should receive information about the detection. Treatment and prevention measures about breast cancer.
- This is possible if the nurse as an administrator takes initiatives in imparting the health information through printed materials, in the from of booklets, pamphlets, and posters to patients who can read and write, and arrange for group teaching for patients who cannot use printed materials.
- Nurse administrators should take initiative in organizing in-service education programme for nurses and motivate nurses to participate in such activities.
- The nurse administrators should see that enough support is provided in terms of manpower, money and material for disseminating information about breast cancer.

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DOI: 10.48175/IJARSCT-12472

ISSN
2581-9429
IJARSCT

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