



## **Effectiveness of the nurse-led pre-chemotherapy education program on knowledge and preparedness for compliance with chemotherapy among patients with breast cancer - Pilot Study.**

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### **ABSTRACT :**

Cancer is a complex disease characterized by abnormal cell growth and division, often leading to the formation of tumours or the invasion of surrounding tissues. Breast cancer specifically originates in the cells of the breast and is one of the most prevalent types of cancer among women worldwide. Chemotherapy remains a cornerstone in the treatment regimen for patients diagnosed with breast cancer. Aim: The present study aimed to evaluate the effectiveness of nurse-led pre chemotherapy education on knowledge and preparedness for compliance with chemotherapy among patients with breast cancer. Methods: A Pre experimental one group pre and post-test design was used in this study. A total of 10 patients with breast cancer and receives chemotherapy in selected hospital were selected as samples for the pilot study by non-probability purposive sampling technique. semi-structured questionnaire was used to collect the demographic and clinical data of patients. Structured questionnaire and rating scale was used to assess the knowledge and preparedness of patients respectively. Results: The study findings revealed a statistically significant difference between the pre and post-test and between post-test 1 & 2 level of knowledge and preparedness for chemotherapy at 1% level of significance. Conclusion: The study findings gave an insight that the nurse-led pre-chemotherapy education program can be used as a standardized instructional module to educate the side effects and its home care management among patients undergoing chemotherapy.

**Keywords:** Chemotherapy, Cancer, Knowledge, Preparedness for chemotherapy

### **1. Introduction**

Breast cancer is a pervasive health concern affecting millions of women worldwide. It is a type of cancer that forms in the cells of the breasts. The administration of chemotherapy for breast cancer is a multifaceted process that necessitates a thorough understanding of the treatment regimen, potential side effects, and the importance of adherence. Chemotherapy works by targeting rapidly dividing cells, a characteristic of cancer cells, but it also affects healthy cells, leading to the aforementioned side effects. The effectiveness of chemotherapy is highly dependent on strict adherence to the prescribed schedule and dosage. Proper education and preparedness for chemotherapy can significantly enhance patients' ability to comply with treatment regimens, thereby improving clinical outcomes. However, many patients struggle with understanding the complexities of chemotherapy, which can lead to non-compliance and suboptimal treatment results. Comprehensive education about chemotherapy can empower patients to manage side effects better, adhere to their treatment schedules, and maintain a higher quality of life during and after treatment. Studies indicate that adequate preparation and education can positively influence patients' knowledge, decision-making processes, and emotional resilience during treatment (Dai et al., 2020; Kim et al., 2018). Research suggests that well-informed patients are more likely to adhere to treatment plans and experience better outcomes (Jansen et al., 2017). Investigator while working in chemotherapy units found that patients are ignorant about chemotherapy and its side effects. They were not emotionally and physically prepared to undergo chemotherapy, due to that acceptance towards chemotherapy was poor in those patients. This motivated the investigator to assess the effectiveness of nurse-led pre chemotherapy education on knowledge and preparedness for compliance with chemotherapy among patients with breast cancer.

#### **1.1. Objectives of the study**

- To assess the pre and post interventional knowledge and preparedness for compliance with chemotherapy among patients with breast cancer.
- To assess the effectiveness of nurse-led pre- chemotherapy education program on knowledge and preparedness for compliance with chemotherapy among patients with breast cancer.

- To associate post interventional level of knowledge and preparedness for compliance with chemotherapy with selected demographic and clinical variables of patients with breast cancer.

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## Review of Literature

Reviews related to,

- Prevalence and incidence of breast cancer in India
- Assessment of knowledge on chemotherapy among patients with breast cancer
- Assessment of preparedness for compliance with chemotherapy among patients with breast cancer
- Impact of nurse-led pre-chemotherapy education program on knowledge and preparedness for compliance with chemotherapy among patients with breast cancer
- Were carried out by the investigator.

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## 1.3. Research Methodology

The research employs a quantitative approach with a Pre experimental one group pre and post- test design. The independent variable is the nurse-led pre-chemotherapy education program, while the dependent variables are the knowledge and preparedness for compliance with chemotherapy among patients with breast cancer.. The study was conducted at Chennai Meenakshi Multispecialty Hospital,

The study sample comprised of patients diagnosed with breast cancer undergoing chemotherapy who met the inclusion criteria selected from specific setting. A total of 10 patients with breast cancer and receives chemotherapy were included using purposive sampling techniques. The inclusion criteria include female patients who were, between 35 - 65 years of age, newly diagnosed with breast cancer, going to receive chemotherapy for the first time and able to read and speak in Tamil or English.. Exclusion criteria included Patients who were, receiving concurrent chemo/radiation therapy, critically ill and having difficulty in understanding Tamil or English.

Institutional ethical committee approval was obtained. After obtaining informed consent from the patients, Data were collected by the researcher. It took approximately 45 minutes to complete education and counseling for one sample

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## 1.4 Data collection procedure

- Permission was obtained from the concerned authority to conduct the study.
- Totally 10 patients who fulfilled the inclusion criteria were selected as samples using non-probability purposive sampling technique.
- Informed consent was obtained from the samples after briefing about the study. Data was collected from the samples using interview schedule consists of semi-structured questionnaire to collect demographic, clinical data and structured questionnaire was used to assess the knowledge and rating scale was used to assess the preparedness of chemotherapy.
- It took approximately 15-20 minutes for the investigator to complete interview with one sample. After collecting the data, Pre-chemotherapy education was given to the samples about chemotherapy its side effects and its homecare management.
- It took approximately 45 minutes to complete education and counseling for one sample.
- Then post test was conducted on day 7 through telephonic conversation and in person on day 21 and a pamphlet on homecare management was distributed to samples on the same day.
- The study used Semi structured questionnaire to collect demographic and clinical data.
- Structured questionnaire to assess knowledge. It consists of 20 multiple choice questions to assess the knowledge towards basics of chemotherapy, its side effects and home care management. A total 20 questions was prepared each question consists of one right answer and three wrong answers.
- Structured rating scale for assessment of preparedness of chemotherapy. It is a 3 point rating scale which consists of 15 statements (both positive and negative) to assess the preparedness for compliance with chemotherapy among patients.
- The tool was validated by three Medical Surgical Nursing experts, two Medical Oncologists and one psychologist .The suggestions given by the experts were incorporated in the tool. Test-retest and Inter method were used to assess the reliability of the structured questionnaire and structured rating scale respectively. The reliability score of structured questionnaire was  $r = 0.82$  (Highly Reliable). The reliability score of structured rating scale was  $r = 0.76$  (Highly Reliable)

## 1.5 Data Analysis

In data analysis, Frequency and Percentage distribution was used to describe demographic variables of samples. Mean and Standard deviation score was used to assess the knowledge and preparedness for compliance with chemotherapy among samples. Paired 't' test and one way ANOVA "F" test was used to compare the pre and post interventional level of knowledge and preparedness for compliance with chemotherapy among samples. Chi square test was used to associate the post interventional level of knowledge and preparedness with selected demographic variables of samples.

## 1.6 Results and Discussion

Objective 1: To assess the pre and post interventional knowledge and preparedness for compliance with chemotherapy among patients with breast cancer

**Table 1.1 Frequency and percentage distribution of samples based on level of pre and post test knowledge.**

S.NO	LEVEL OF KNOWLEDGE	Pre test		Post test I		Post test II	
		F	P	F	P	F	P
1	Inadequate knowledge	9	90%	-	-	-	-
2	Moderate knowledge	1	10%	-	-	-	-
3	Adequate knowledge	-	-	10	100%	10	100%

**Table 1.2 Frequency and percentage distribution of samples based on pre and post test level of preparedness for chemotherapy.**

S.No	LEVEL OF PREPAREDNESS	Pre test		Post test I		Post test II	
		F	P	F	P	F	P
1.	Well preparedness	6	60%	10	100%	10	100%
2.	Moderate preparedness	4	40%	-	-	-	-
3.	Minimal preparedness	-	-	-	-	-	-

- Objective 2: To assess the effectiveness of nurse-led pre- chemotherapy education program on knowledge and preparedness for compliance with chemotherapy among patients with breast cancer.

**Table 2.1. Pair-wise comparison of pretest, post test 1 and post test 2 scores of knowledge on chemotherapy among samples.**

Variables	Mean	S.D	Mean	S.D	Mean difference	Paired ‘t’ test
Knowledge	Pre test		Post test 1		10.90	t= 28.781 p=0.0001 S***
	7.70	1.25	18.60	0.84		
			Post test 2		11.50	t=28.651 p=0.0001 S***
			19.20	0.79		
	Post test 1		Post test 2		0.60	t=2.714 p=0.024 S***
	18.60	0.84	19.20	0.79		
Preparedness	Pre test		Post test 1& 2		5.50	t=5.104 p=0.001 S***
	23.0	3.59	28.50	0.53		

\*\*\*p≤0.001, \*p<0.05, S – Significant

Table 2.1 shows that there was a statistically significant difference between the pre and post test and between post test 1 & 2 level of knowledge and preparedness for chemotherapy at 1% level of significance.

**Table 2.2 Comparison of pretest, post test 1 and post test 2 scores of knowledge and preparedness for compliance on chemotherapy among samples using Repeated Measures ANOVA.**

Variables	Mean			S.D			Mean Difference	Repeated Measures ANOVA
	Pre test	Post test-1	Post Test-2	Pre test	Post test -1	Post test-2		
Knowledge	7.70	18.60	19.20	1.25	0.84	0.79	11.5	F=711.566 P=0.0001, S***

Preparedness	23.00	28.50	28.50	3.59	0.53	0.53	5.50	<b>F=26.053</b> <b>P=0.001,</b> <b>S***</b>
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\*\*\* $p \leq 0.001$ , S – Significant

Table 2.2 shows that in pre test the mean knowledge score was 7.70, where as in post test I, mean knowledge score was 18.60 and in post test II the score was 19.20. Mean difference score was 11.5, which showed statistically very high level of significant difference in knowledge score between pretest, post test I and post test II at 1% level of significance.

In relation to preparedness for chemotherapy, in pretest the mean preparedness for chemotherapy score was 23.00, whereas in post test I and II the score was 28.50. Mean difference score was 5.50, which showed a statistically very high level of significant difference in preparedness for chemotherapy score between pretest, post test I and post test II at 1% level of significance.

- Objective 3: To associate post interventional level of knowledge and preparedness for compliance with chemotherapy with selected demographic and clinical variables of patients with breast cancer

There was no statistically significant association between post intervention level of knowledge and preparedness for compliance with chemotherapy and selected demographic and clinical variables of samples.

## 1.7. Conclusion

The main aim of the pilot study was to identify the reliability of the tool and feasibility of the study. The pilot study revealed the tool was reliable and the study is practicable and feasible to carry among patients with breast cancer undergoing chemotherapy. The study results revealed that majority of the samples had inadequate knowledge and moderate level of preparedness for chemotherapy before intervention. Then the investigator provided pre-chemotherapy education. After the intervention in post- test majority of the samples had adequate knowledge and well preparedness for chemotherapy. Comparison of pre and post- test knowledge and preparedness for chemotherapy revealed a statistically significant difference at 1% level of significance.

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