

EFFECTIVENESS OF THE NURSE-LED PRE-CHEMOTHERAPY EDUCATION PROGRAM ON KNOWLEDGE AND PREPAREDNESS FOR COMPLIANCE WITH CHEMOTHERAPY AMONG PATIENTS WITH BREAST CANCER IN SELECTED HOSPITAL, CHENNAI.

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INTRODUCTION

Cancer involves uncontrolled cell growth that can spread in the body (Gates & Fink, 2008). Breast cancer is the most common cancer in women worldwide (WHO, 2024). It often begins in the ducts or lobules of the breast. Early detection through screening improves outcomes. Treatment options include surgery, radiation, and drug therapies. Chemotherapy is a key systemic treatment for many cases. It works by destroying or slowing cancer cell growth. However, it also affects healthy fast-growing cells, causing side effects. Managing side effects helps patients continue treatment. Following the full chemotherapy plan improves recovery and survival (National Cancer Institute, 2023). Chemotherapy drugs act in different ways to stop cancer growth. Some damage the DNA of cancer cells, while others block cell division. This prevents the cells from multiplying and spreading further. Chemotherapy may be given before surgery to shrink tumours or after surgery to destroy remaining cells. It is also used in advanced stages to control disease progression. The effectiveness depends on the cancer type and stage. Regular monitoring by doctors ensures proper response to treatment. Dose adjustments may be made based on patient tolerance. Supportive care is important during treatment (Canadian Cancer Society, 2024).

Home care plays an important role during chemotherapy treatment. Patients should maintain a

balanced diet and stay hydrated. Good hygiene helps reduce the risk of infections due to low immunity.

Adequate rest and stress management improve overall well-being. Patients must report serious symptoms like fever or severe weakness immediately. Emotional support from family and healthcare providers is essential. Simple lifestyle changes can reduce discomfort during treatment. Education about side effect management improves confidence. Following medical advice strictly ensures better outcomes. Proper care improves quality of life during chemotherapy (Mehta, 2007).

OBJECTIVES OF THE STUDY

1. To assess the pre and post intervention knowledge and preparedness for compliance with chemotherapy among patients with breast cancer.
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.
3. To find correlation between post interventional knowledge and preparedness for compliance with chemotherapy among patients with breast cancer.
4. To associate the post interventional level of knowledge and preparedness for compliance with chemotherapy with selected demographic and clinical variables of patients with breast cancer.

HYPOTHESES

H01- There is no significant difference in pre and post interventional level of knowledge and preparedness for compliance with chemotherapy among patients with breast cancer

H02- There is no significant association of post interventional level of knowledge and preparedness for compliance with chemotherapy and the selected demographic and clinical variables of patients with breast cancer

METHODOLOGY

The data for the main was collected from 19.1.2025 to 15.02.2025 at oncology wards of Government Royapettah Hospital, Chennai. After obtaining approval from the research committee in the college, permission was obtained from the concerned authorities to conduct the study. Totally 100 patients who fulfilled the inclusion criteria were selected as samples non-probability purposive sampling technique. Informed consent was obtained from the participants after briefing about the study. Data was collected from the participants using

interview schedule consisted of semi-structured questionnaire to collect demographic, clinical data and structured questionnaire and ratings scale to assess the knowledge and preparedness for compliance with the chemotherapy respectively. It took approximately 15-20 minutes for the investigator to complete interview with one participant.

After collecting the data, pre-chemotherapy education about chemotherapy its side effects and its homecare management was given to the participants on the same day. It took approximately 45 minutes to complete education and counselling for one participant. Post test 1 was conducted on day 7 through telephonic conversation and in person on day 21 during which a pamphlet on homecare management of chemotherapy side effects was distributed to the participants.

DESCRIPTION OF THE TOOL

Structured Questionnaire

It consisted of 20 multiple choice questions to assess the knowledge towards basics of chemotherapy, its side effects and homecare management. Each question consisted of one right answer and three wrong answers. **Scoring**

Each correct option carries '1' mark. Incorrect option carries '0' mark.

The overall minimum score is 0 and maximum score is

20. High score indicates adequate knowledge. Based on the score, the percentage was calculated as follows:

$$\text{Percentage} = \frac{\text{Obtained score}}{\text{Total score}} \times 100$$

Scoring and interpretation of level of knowledge

Score	Level of knowledge
>75%	Adequate
50-75%	Moderately adequate
<50%	Inadequate

Ratings scale

It is a 3-point rating scale which consisted of 15 statements (both positive and negative) to assess the preparedness for compliance with chemotherapy among patients.

S.No.	SCALE LEGEND	SCORE OF POSITIVE STATEMENT	SCORE OF NEGATIVE STATEMENT
1	Disagree	0	2
2	Uncertain	1	1
3	Agree	2	0

Statement	Number of statements	Total
Positive	1,2,3,4,5,6,7,8,9,10,11	11
Negative	12,13,14,15.	4
TOTAL		15

Scoring

The overall minimum score is 0 and maximum score is 30. High score indicates well preparedness.

Based on the score, the percentage was calculated as follows:

$$\text{Percentage} = \frac{\text{Obtained score}}{\text{Total score}} \times 100$$

Based on the score, the level of preparedness was interpreted as follows:

Scoring and interpretation of level of preparedness for compliance

PERCENTAGE	LEVEL OF PREPAREDNESS
5%	Well preparedness
75%	Moderate preparedness
0%	Minimal preparedness

VALIDITY OF THE TOOL

The tool was validated by three nursing experts, two medical oncologists and one psychologist.

The suggestions given by the experts were incorporated in the tool.

RELIABILITY OF THE TOOL

Test-retest and Inter rater method were used to find the reliability of the structured questionnaire and structured rating scale respectively. The reliability score of structured questionnaire was $r = 0.82$. The reliability score of structured rating scale was $r = 0.76$. This showed that the tools were highly reliable and feasible for conducting the main study.

ETHICAL CONSIDERATION

- Ethical committee clearance was obtained from VHS- M.A Chidambaram College of Nursing.
- Permission was obtained from head of the institution and oncology department HOD.
- Written informed consent was obtained from each study participants before collecting the information.
- The confidentiality of the participants was maintained.

RESULTS

ASSESSMENT OF THE DEMOGRAPHIC AND CLINICAL VARIABLES OF THE PATIENTS WITH BREAST CANCER

Table 1.1 Frequency And Percentage Distribution Of The Demographic Variables Of The Patients. N=100

Demographic Variables	F	%
Age in years		
a) 35 – 45	27	27.0
b) 46 – 55	52	52.0
c) 56 – 65	21	21.0
Educational status		
a) No formal education	12	12.0
b) Primary education	22	22.0
c) High school	22	22.0
education	21	21.0
d) Higher secondary	9	9.0
education	14	14.0
e) Graduate		
f) Post graduate		
Occupation		
a) Employed	69	69.0
b) Unemployed	31	31.0
Family monthly income		
a) Rs. <10,000/-	44	44.0
b) 10,000 – 20,000	18	18.0
c) >20,000/-		
Religion		
a) Hindu	48	48.0
b) Christian	47	47.0
c) Muslim	5	5.0
Marital status		
a) Married	88	88.0
b) Separated	12	12.0
Type of family		
a) Nuclear family	72	72.0
b) Joint family	28	28.0
Area of residence		
a) Urban	22	22.0
b) Rural	78	78.0

Table 1.1 shows that majority (52%) of the patients were in the age group of 46-55 years, 22% of them had primary education and high school education, 69% of them were employed and 44% of them had a family monthly income of Rs.10,000- 20,000. Forty eight percentage of the patients were Hindus and 47% were Christians and 88% of the patients were married and 72% of them belonged to nuclear family and 78% of them were from rural area.

Table 2.1 Frequency and Percentage Distribution of The Clinical Variables of The Patients
N=100

Clinical Variables	F	%
BMI(Kg/m²)		
a) Upto 18	37	37.0
b) 19 to 25	54	54.0
c) 26 to 30	9	9.0
d) More than 30	-	-
Family history of breast cancer		
a) Yes	18	18.0
b) No	82	82.0
History of smoking		
a) Yes	-	-
b) No	100	100.0
Consumption of alcohol		
a) Yes	-	-
b) No	100	100.0
Menstrual history		
a) Regular	76	76.0
b) Irregular	24	24.0
History of childbirth		
a) Yes	100	100.0
b) No	-	-
If yes, number of children		
a) 1	2	2.0
b) 2	61	61.0
c) More than 2	37	37.0

Table 2.1 shows that majority (54%) of the patients BMI was between 19 to 25 kg/m² and 18% of them had family history of breast cancer and none of them had a history of smoking and alcoholism. Majority (76%) of the patients had regular menstrual history, all of them had given birth to child and 61% of them were having two children.

Table 2.2: Frequency and percentage distribution of the clinical variables of the patients. N=100

S.No.	Clinical Variables	F	%
1	History of breastfeeding		
	a) 1– 3 months	-	-
	b) 4– 6 months	36	36.0
	c) 7 months– 1 year	64	64.0
	d) Not given	-	-
2	History of use of hormonal contraceptives		
	a) Yes	-	-
	b) No	100	100.0
3	Presence of co-morbidities		
	a) Yes	8	8.0
	b) No	92	92.0
4	Types of breast cancer		
	a) Invasive	84	84.0
	b) Noninvasive	16	16.0
5	Stages of breast cancer		
	a) Stage I	11	11.0
	b) Stage II	51	51.0
	c) Stage III	38	38.0
	d) Stage IV	-	-

Table 2.2 shows that majority (64%) of the patients had breastfed for 7 months-1 year and none of them used any hormonal contraceptives and 92% of the patients did not have any co-morbidities. Majority (84%) of the patients had invasive type of breast cancer and 51% of the patients were in stage II of breast cancer and 38% were in stage III cancer.

ASSESSMENT OF KNOWLEDGE AND PREPAREDNESS FOR COMPLIANCE WITH CHEMOTHERAPY.

Table 3.1: Frequency and percentage distribution of patients with breast cancer based on level of pre and post-test knowledge on chemotherapy. N=100

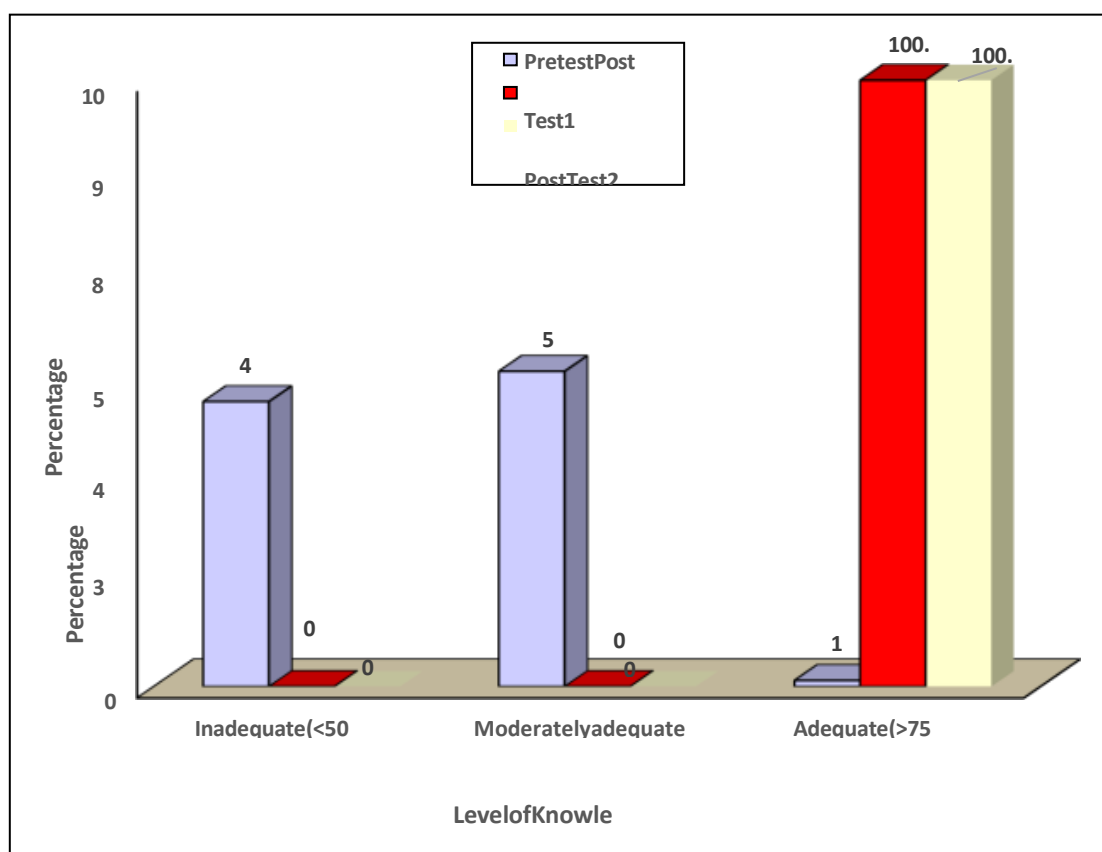
S.No.	Level of Knowledge	Pretest		Post Test 1		Post Test 2	
		F	%	F	%	F	%
1	Inadequate (<50%)	47	47.0	-	-	-	-
2	Moderately adequate (50–75%)	52	52.0	-	-	-	-
3	Adequate (>75%)	1	1.0	100	100	100	100

Table 3.1 shows that in pretest 52% of the patients had moderately adequate knowledge, 47% of the patients had inadequate knowledge and only one patient had adequate knowledge whereas, in post-test 1 and 2 all (100%) patients had adequate knowledge.

Table3.2: Frequency and percentage distribution of patients with breast cancer based on level of pre and post test preparedness for compliance with chemotherapy.

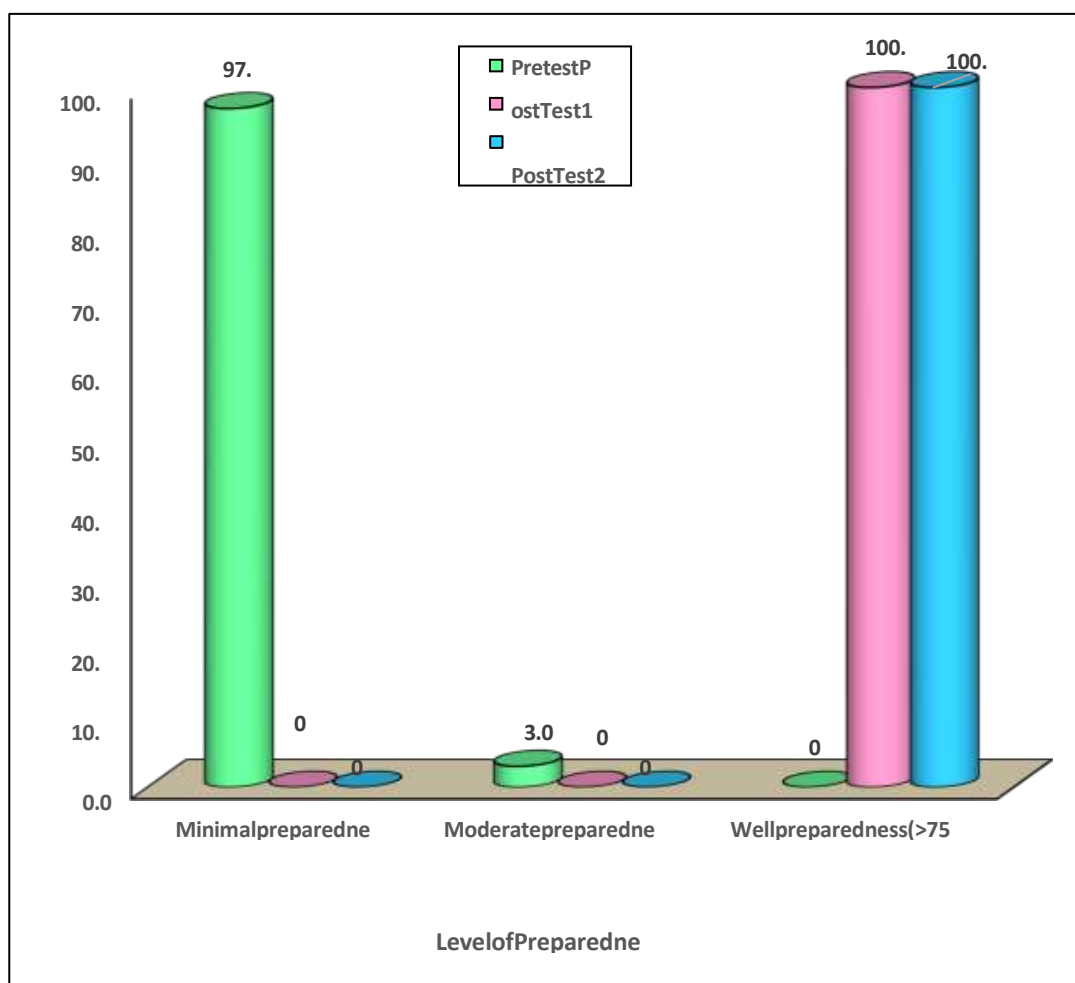
N=100

S.No.	Preparednessfor compliance	Pretest		PostTest1		PostTest2	
		F	%	F	%	F	%
1	Minimalpreparedness(<50%)	97	97.0	-	-	-	-
2	Moderatepreparedness(50–75%)	3	3.0	-	-	-	-
3	Wellpreparedness(>75%)	-	-	100	100	100	100



FigureNo.1: Percentage distribution of patients based on level of pre and post test knowledge on chemotherapy.

Table 3.2 shows that in pretest majority (97%) of the patients were in minimal level of preparedness for chemotherapy, 3% of the patients were in moderate level of preparedness whereas in post-test 1 and 2 all patients were well prepared to comply with chemotherapy.



FigureNo.2:percentage distribution of patients based on level of pre and posttest preparedness on chemotherapy.

COMPARISON OF PRE AND POST TEST KNOWLEDGE AND PREPAREDNESS FOR COMPLIANCE WITH CHEMOTHERAPY.

Table 4.1: Pair-wise comparison of pretest, post-test 1 and post-test 2 scores of knowledge and preparedness for compliance chemotherapy among patients. N=100

Variables	Mean	S.D	Mean	S.D	Mean difference	Paired 't' test
Knowledge	Pretest		Posttest1		9.60	t = 43.873 P=0.0001, S***
			19.23	0.85		
			Posttest2		9.84	t = 48.744 P=0.0001, S***
			19.47	0.52		
	9.63	1.94				
	Posttest1		Posttest2		0.24	t = 2.295 P=0.024, S*
	19.23	0.85	19.47	0.52		
	Pretest		Posttest1		17.10	t = 73.697 P=0.0001, S***
			28.09	1.19		
	10.99	1.73	Posttest2		17.89	t = 85.269 P=0.0001, S***
			28.88	1.17		

Preparedness	Posttest1	Posttest2	0.79	t = 5.292 P=0.0001,S***
	28.09	1.19	28.88	

***p<0.001,*p<0.05,S–Significant

Table 4.1 shows that the mean knowledge score in pretest was 9.63 with the standard deviation of 1.94 where as in post test 1 the score was 19.23 with the standard deviation of 0.85 and in posttest 2 it was 19.47 with the standard deviation of 0.52. The mean difference between pretest 1 and post test 2 was 0.24. This difference was statistically significant at 1% level of significance.

The mean preparedness score in pre-test was 10.99 with the standard deviation of 1.73 where as in posttest 1 the score was 28.09 with the standard deviation of 1.19 and in posttest 2 it was 28.88 with the standard deviation of 1.17. The mean difference between pre - test 1 and post-test 2 was 0.79. This difference was statistically significant at 1% level of significance.

Table 4.2: Comparison of pretest, post-test 1 and 2 scores of knowledge on chemotherapy among patients with breast cancer using Repeated Measures ANOVA. N=100

Knowledge	Mean	S.D	Mean Difference	Repeated Measures ANOVA “F” & p-value
Pretest	9.63	1.94	9.84	F=1898.72 P=0.0001,S***
PostTest1	19.23	0.85		
PostTest2	19.47	0.52		

***p<0.001,S–Significant

Table 4.2 shows that in the mean knowledge score in pretest was 9.63, where as in post-test 1, was 19.23 and in post-test 2, the score was 19.47 thus showing again in score of 9.84, which showed a statistically significant difference in knowledge score between pre-test, post-test 1 & 2 at 1% level of significance.

Table 4.3 Comparison of pretest, post-test 1 and 2 scores of preparedness for compliance with chemotherapy among patients with breast cancer using Repeated Measures ANOVA. N=100

Preparedness for compliance	Mean	S.D	Mean Difference	Repeated Measures ANOVA “F” & p-value
Pretest	10.99	1.73	17.89	F=5103.12 P=0.0001,S***
PostTest1	28.09	1.19		
PostTest2	28.88	1.17		

***p≤0.001,S–Significant

Table 4.3 shows that in pretest the mean score of preparedness for compliance with chemotherapy score was 10.99, whereas in post-test 1 mean score was 28.09 and post-test 2 the score was 26.88 thus showing the gain score of 17.89, which showed a statistically significant difference in preparedness for compliance with chemotherapy score between pretest, post-test 1 & 2 at 1% level of significance.

CORRELATION OF POST-INTERVENTIONAL KNOWLEDGE WITH PREPAREDNESS FOR COMPLIANCE WITH CHEMOTHERAPY AMONG PATIENTS WITH BREAST CANCER

Table 4.4: Correlation of post-test scores of knowledge with preparedness for compliance with chemotherapy among patients with breast cancer.

Variables	Mean	S.D	Karl Pearson's Correlation & p-value
Knowledge	19.47	0.52	r = 0.324 p = 0.001, S***
Preparedness	28.88	1.17	

***p < 0.001, S-Significant

Table 4.4 shows that there was a weak, positive correlation between post-test knowledge and preparedness for compliance with chemotherapy among patients with breast cancer at 1% level of significance.

ASSOCIATION THE MEAN DIFFERENCE SCORE OF KNOWLEDGE AND PREPAREDNESS FOR COMPLIANCE WITH CHEMOTHERAPY WITH SELECTED DEMOGRAPHIC AND CLINICAL VARIABLES.

Table 5.1: Association of mean differed score of knowledge on chemotherapy among patients with breast cancer with their demographic variables. N=100

Demographic Variables	Pretest		Post Test		Mean Difference		One Way ANOVA "F" / Student Independent "t" test & p-value
	Mean	S.D	Mean	S.D	Mean	S.D	
Age in years	8.97	1.81	19.50	0.51	10.53	1.87	F=3.590 p=0.031 S*
a) 35-45	10.12	1.93	19.46	0.50	9.34	2.02	
b) 46-55	9.40	1.90	19.45	0.60	10.05	1.99	
c) 56-65							
Educational status							F=1.028 p=0.406 N.S
a) No formal education	9.75	1.42	19.50	0.52	9.75	1.36	
b) Primary education	9.54	2.02	19.27	0.55	9.73	2.07	
c) High school education	10.32	2.46	19.45	0.51	9.14	2.55	
d) Higher secondary education	9.57	1.69	19.67	0.48	10.09	1.97	
e) Graduate	9.22	1.71	19.55	0.53	10.33	1.58	
f) Postgraduate	8.93	1.73	19.43	0.51	10.50	1.69	

Occupation							t=0.828
a)Employed	9.78	2.06	19.52	0.50	9.74	2.17	p=0.410
b)Unemployed	9.29	1.64	19.34	0.55	10.06	1.63	N.S
Familymonthlyincome	9.47	1.64	19.55	0.55	10.08	1.74	F=1.307 p=0.275
a) Rs.<10,000/-	9.98	2.25	19.45	0.50	9.48	2.31	N.S
b) 10,000–20,000	9.11	1.64	19.33	0.48	10.22	1.73	
c)>20,000/-							

N.S-NotSignificant,p>0.05

Table5.1 revealed astatisticallysignificantassociationbetween age andimprovementinknowledge scoresfollowingthenurse-ledpre-chemotherapyeducationprogram(F=3.590,p=0.031).Patients intheagegroupof35–45years demonstratedthehighestimprovementinknowledgescores(Mean Difference = 10.53).

Table5.2:Associationthemeandifferedscoreofknowledgeonchemotherapyamongpatientswith breast cancer with their clinical variables.N = 100

S.NO	ClinicalVariables	Pretest		PostTest		MeanDifference		OneWay ANOVA “F” / Student Independent“t” test&p-value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	BMI(kg/m²)							F=4.103 p=0.019 S*
	Upto18	9.70	2.17	19.57	0.55	8.86	2.29	
	19to25	9.83	1.78	19.37	0.49	9.54	1.78	
	26to 30	8.11	1.27	19.87	0.50	11.55	1.42	
2	Familyhistoryof breast cancer							t=0.405 p=0.689 N.S
	Yes	9.83	2.01	19.50	0.51	9.67	2.00	
	No	9.58	1.94	19.46	0.52	9.88	2.03	
3	Menstrualhistory							t=1.212 p=0.232 N.S
	Regular	9.78	1.98	19.49	0.53	9.71	2.06	
	Irregular	9.17	1.76	19.42	0.50	10.25	1.85	
4	Ifyes,numberof Children							F=0.246 p=0.782 N.S
	1	10.50	0.71	19.50	0.71	9.00	1.41	
	2	9.57	1.96	19.49	0.54	9.92	2.02	
	Morethan2	9.67	1.97	19.43	0.50	9.76	2.07	

N.S–NotSignificant,p>0.05

Table5.2showsthattherewasastatisticallysignificantassociationbetweenmeandeferredknowledg eof patients and their BMI (kg/m2) at 5% level of significance.All other clinical variables did not infer any statistical significance

Table 5.3 Association the mean and difference score of preparedness for compliance with chemotherapy among patients with breast cancer with their demographic variables. N = 100

S.NO	Demographic Variables	Pretest		PostTest		Mean Difference		One Way ANOVA "F" / Student Independent "t" test & p-value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	Religion Hindu Christian Muslim Others,specify	10.77	1.78	28.78	1.24	0.94	1.55	F=1.193 p=0.308 N.S
		11.19	1.73	29.08	1.04	0.83	1.46	
		11.20	1.09	28.00	1.41	-0.20	2.59	
		-	-	-	-	-	-	
2	Marital status Single Married Separated Widow	10.91	1.64	28.85	1.19	0.78	1.61	t=0.947 p=0.358 N.S
		11.58	2.27	29.08	1.08	1.17	1.27	
		-	-	-	-	-	-	
		-	-	-	-	-	-	
3	Area of residence Urban Rural Semiurban	11.24	1.66	28.76	1.16	1.44	1.50	t=2.326 p=0.026 S*
		10.91	1.75	28.92	1.18	0.63	1.55	
		-	-	-	-	-	-	
		-	-	-	-	-	-	

*p<0.05, S-Significant NS-Non-Significant

Table 5.3 shows that there was a statistically significant association mean difference between post-interventional level of preparedness of patients and their demographic variables such as area of residence at 5% level of significance.

Table 5.4 Association the mean and difference score of preparedness for compliance with chemotherapy among patients with breast cancer with their clinical variables. N=100

S.NO	Clinical Variables	Pretest		PostTest		Mean Difference		One Way ANOVA "F" / Student Independent "t" test & p-value
		Mean	S.D	Mean	S.D	Mean	S.D	
1	BMI Upto 18 19 to 25 26 to 30 More than 30	11.35	1.83	28.92	1.25	1.11	1.39	F=8.866 p=0.0001 S***
		10.83	1.71	28.72	1.16	0.37	1.47	
		10.44	1.13	29.67	0.50	2.44	1.67	
		-	-	-	-	-	-	
2	Family history of breast cancer Yes No	-	-	-	-	-	-	t=0.011 p=0.991 N.S
		11.17	1.69	28.50	1.25	0.83	1.34	
		10.95	1.74	28.96	1.15	0.83	1.62	
5	Menstrual history Regular Irregular	11.04	1.78	28.83	1.16	0.89	1.68	t=0.878 p=0.384 N.S
		10.83	1.58	29.04	1.23	0.62	1.17	

Table 5.4 shows that there was a statistically significant association between mean difference in post-interventional level of preparedness of patients and their clinical variables such as BMI (kg/m²) at 5% level of significance.

DISCUSSION

Objective 1: Assessment of Pre- and Post-Interventional Knowledge and Preparedness for Compliance with Chemotherapy

The present study revealed that before the intervention, 52% of the patients had moderately adequate knowledge, 47% had inadequate knowledge, and only 1% had adequate knowledge regarding chemotherapy. Following the nurse-led pre-chemotherapy education program, all participants (100%) demonstrated adequate knowledge in both post-test assessments. Similarly, regarding preparedness for compliance with chemotherapy, 97% of the participants exhibited minimal preparedness during the pretest, whereas all participants (100%) were categorized as well prepared in both post-test assessments.

These findings indicate that breast cancer patients initially possessed limited knowledge and preparedness concerning chemotherapy and its management. The substantial improvement observed after the educational intervention highlights the importance of structured patient education before the initiation of chemotherapy.

The findings are consistent with those reported by Ayalew K. et al. (2022), who found that a majority of women undergoing chemotherapy had inadequate knowledge regarding chemotherapy treatment and its management. Similarly, Ruchika Rani (2021) reported that patients receiving chemotherapy possessed only moderate levels of knowledge prior to educational intervention. These findings emphasize the need for comprehensive educational programs to improve patient understanding and readiness for treatment.

The findings support the investigator's assumption that the level of knowledge and preparedness for compliance with chemotherapy may vary among patients with breast cancer.

Objective 2: Effectiveness of the Nurse-Led Pre-Chemotherapy Education Program

The findings demonstrated a statistically significant improvement in both knowledge and preparedness scores following the intervention. The mean knowledge score increased from $9.63 \pm$

1.94 during the pretest to 19.23 ± 0.85 in Post-test I and 19.47 ± 0.52 in Post-test II. Similarly, the mean preparedness score increased from 10.99 ± 1.73 during the pretest to 28.09 ± 1.19 in Post-test I and 28.88 ± 1.17 in Post-test II. Repeated measures ANOVA revealed highly significant differences among the three assessments ($p < 0.001$).

These findings clearly indicate that the nurse-led pre-chemotherapy education program was highly effective in improving both knowledge and preparedness for chemotherapy compliance among patients with breast cancer. Adequate education enables patients to understand treatment procedures, recognize side effects, adopt appropriate self-care measures, and actively participate in their treatment process.

The present findings are supported by the study conducted by Wu Y. (2020), which concluded that pre-treatment nursing assessment and education improved the safety and effectiveness of chemotherapy treatment. Similarly, Sehgal M. (2020) reported significant improvement in patient knowledge following a planned teaching program regarding chemotherapy side effects and their management.

Further support is provided by the findings of Piombo S. E. et al. (2021) and Gül Gücüyener and Ülkü Karabacak (2025), who demonstrated that structured patient education significantly enhanced knowledge, symptom management, and adherence to chemotherapy treatment.

Therefore, the null hypothesis (H_0) stating that there is no significant difference in pre- and post-interventional levels of knowledge and preparedness for compliance with chemotherapy among patients with breast cancer was rejected.

Objective 3: Correlation between Knowledge and Preparedness for Compliance with Chemotherapy

The study identified a weak but statistically significant positive correlation ($r = 0.324$, $p = 0.001$) between post-interventional knowledge and preparedness for compliance with chemotherapy.

This finding suggests that patients with higher knowledge levels tended to demonstrate better preparedness for complying with chemotherapy treatment. Knowledge equips patients with the necessary information to anticipate treatment experiences, manage side effects

effectively, and adhere to treatment recommendations, thereby improving preparedness.

The finding is supported by the study conducted by Patel A. (2023), which reported a positive relationship between knowledge and preparedness among breast cancer patients undergoing chemotherapy. Likewise, Wei et al. (2025) identified significant positive relationships between knowledge, attitude, and treatment-related practices.

These findings support the investigator's assumption that higher knowledge levels would be associated with greater preparedness for compliance with chemotherapy.

Objective 4: Association of Knowledge and Preparedness with Demographic and Clinical Variables

The study findings revealed that among demographic variables, patients aged 35–45 years demonstrated significantly greater improvement in knowledge scores. In addition, patients residing in rural areas showed significantly higher improvement in preparedness scores. Among the clinical variables, BMI demonstrated a significant association with improvements in both knowledge and preparedness scores, whereas all other demographic and clinical variables showed no statistically significant association.

The finding related to age is supported by the study of Ayalew K. et al. (2022), which reported higher levels of knowledge among patients aged above 45 years. However, the majority of demographic and clinical variables did not significantly influence the effectiveness of the educational intervention.

The present findings are also in agreement with the study conducted by Ilana U. (2019), which reported no significant association between chemotherapy knowledge and most clinical variables among breast cancer patients.

The absence of significant associations for most variables suggests that the nurse-led educational intervention was effective across diverse patient groups regardless of educational status, occupation, family income, cancer type, stage of disease, or comorbidity status. This indicates that structured educational programmes can be universally applied to breast cancer patients receiving chemotherapy.

Therefore, the null hypothesis (H₀₂) stating that there is no significant association between

post-interventional knowledge and preparedness for compliance with chemotherapy and selected

demographic and clinical variables was partially rejected, as significant associations were observed with age, area of residence, and BMI.

CONCLUSION

Home care management of side effects of chemotherapy is essential to enhance patient comfort, prevent complications, and improve compliance with chemotherapy regimen. The study findings showed that the nurse-led pre-chemotherapy education program is effective in improving

knowledge and preparedness for compliance with chemotherapy among patients with breast cancer.

The study findings gave an insight to the investigator about the effectiveness of nurse-led pre-knowledge slightly improves readiness for chemotherapy compliance. However, no significant association was found between post-intervention outcomes and demographic or clinical variables.

This suggests that the education program was effective across different patient groups, emphasizing the importance of patient chemotherapy education program and concluded that the nurse-led pre-chemotherapy education program can be used as a standardized instructional module to educate patients during chemotherapy is often limited before intervention but improves significantly with proper education.

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