

Effectiveness of Nurse Led Interventions On Symptom Management Among Breast Cancer Patients In Selected Oncology Units, Bangalore

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ABSTRACT

Background: Improving the quality of life of cancer survivor through the management of symptoms is a vital aspect of health care delivery system in the present scenario which often under investigated domain of the patients.

Objective: This study examined the effectiveness of nurse-led teaching in the management of symptoms among breast cancer survivors in the selected oncology units at Shri Shankara cancer hospital. The present study aimed to enhance the breast cancer patients well-being through symptom management strategies based on Ernestine Wiedenbach's "The Helping Art of Clinical Nursing Theory".

Methods: A pre-test – post-test design was adopted and EORTC QLQ 30 has been used to collect the required data.

Results: Findings evidenced a highly significant improvement in the symptom management among breast cancer clients in the study group than the control group at $p < 0.001$

Conclusion: Findings showed that nurse led interventions were effective in management of breast cancer symptoms along with medical interventions.

Keywords: Breast cancer; Nurse led interventions; Symptoms management; Quality of life

1. INTRODUCTION

Cancer is recognized as a significant contributor to mortality and a significant obstacle to extending life expectancy in every nation worldwide. The growing prevalence of cancer as the primary cause of death could be partially explained by the significant drops in the death rates from coronary artery diseases and stroke when compared to cancer in numerous nations¹.

Cancer is the first or second cause of death before the age of 70 in 112 of 183 countries, and ranks third or fourth in 23 more countries, according to estimates from the World Health Organization².

According to estimates, there were around 10 million cancer-related fatalities and 19.3 million new cancer diagnoses. The illness is a significant contributor to mortality and morbidity in all parts of the globe, across all geographical areas and regardless of human progress³.

"Female breast cancer has now surpassed lung cancer as the leading cause of global cancer incidence in 2020, with an estimated 2.3 million new cases, representing 11.7% of all cancer cases. It is the fifth leading cause of cancer mortality worldwide, with 685,000 deaths. Among women, breast cancer accounts for 1 in 4 cancer cases and for 1 in 6 cancer deaths, ranking first for incidence in the vast majority of countries (159 of 185 countries) and for mortality in 110 countries" (Hyuna Sung)³.

A person's *well-being is impacted by cancer* in all areas. The impairment in the *quality of life begins with* the diagnosis of cancer and continues with aggressive treatment. The wide commonly used therapy to treat cancer is Chemotherapy, which has been used as the *first line of treatment for 25% of the cancer population*. Chemotherapy is used to treat cancers by *destroying* the rapidly dividing abnormal cells, and it's believed to lower the recurrence of *the disease* and *boost its prognosis*. However, *in addition to its therapeutic benefits*, it can also have serious *side effects that* can have a *negative impact on a person's quality of life*. Furthermore, chemotherapy therapy is *prolonged in order to achieve* the desired *result* and requires frequent hospitalization for disease management, *adding to the burden on cancer patients*⁴.

The state of health especially quality of life is now considered a crucial outcome in research on cancer. The results of studies have shown that assessing the quality of life in cancer patients may contribute to better treatment and may even serve as a prognostic factor, along with other medical parameters. Hence, the current study sought to determine how a nurse-led intervention program affected the patients' quality of life with breast cancer pertaining to their symptom management aspects.

*The profession of nursing is the largest in the health care sector, and they play a crucial part in taking care of breast cancer patients across all ages and settings, and they have a significant impact on treatment outcomes. The role of nurses is integral to all aspects of the cancer path, from lowering risk, early detection, treatment administration, to care for survivors and the final stages of life care*⁵.

2. MATERIALS AND METHODS

A study based on the quasi-experimental pre-test – post-test design, which was carried out in Sri Shankara Cancer Hospitals, Bangalore. Wiedenbach's "The Helping Art of Clinical Nursing Theory" has been utilized to achieve the objective of the study. The samples were selected based on inclusive and exclusive criteria and by adopting purposive sampling technique; sample size consisted of eighty breast cancer patients undergoing various therapies/surgery and equally divided into experiment and control group. EORTC tool has been used to collect the information related to quality of life among the samples through paper- based questionnaire. The tool contained two sections, the 1st section included items related to socio demographics – age, education, marriage, affected breast, employment, income, years of survivorship and clinical variables included family history, co-morbid conditions, grade of tumour, metastasis, current treatment and the second section the "EORTC QLQ Core 30 (QLQ-C30) is a version 3 of the quality-of-life questionnaires originally developed by the European Organization for Research and Treatment of Cancer. Most scales have high internal consistency, and there are expected differences between patients in active chemotherapy and those in follow-up groups. Five functional scales—physical functioning, role functioning, emotional functioning, cognitive functioning, and social functioning—were incorporated into the QLQ-C30. There are nine symptom scales for fatigue, nausea, vomiting, pain, dyspnea, insomnia, loss of appetite, constipation, diarrhea, and financial difficulties, as well as global health status and quality of life scales"⁶.

Both the groups have been received the standard treatment as per the hospital treatment regime whereas experimental group received an additional intervention of symptom management developed by the researcher, utilization various visual teaching aids relaxation techniques in improving quality of life in a group of 5-8 patients for each session based on face-to-face interaction during pre-test, while two post-tests follow up was done using WhatsApp communication and paper based system as well. Researchers used descriptive and inferential statistics to study the information collected in the study. Likert Scale opinionnaire was administered to patients at the end of the intervention programme to assess their opinion on acceptability. Post-test was done on 4th and 8th week respectively.

The data were *analyzed* in the current study utilizing Statistical Package for Social Sciences version 20, and measured information *was derived* as average predictable error. The inferential statistical tests were *employed to compare* 2 groups, before-after within the same group respectively keeping $P < 0.05$ as significant statistical differences.

3. RESULTS

Analysis of demographic data showed that most of the subjects (50% and 80%) fall between the age of 41-60 years in both the groups, 60% of the subjects completed degree education, 60-90% of the subjects were married and almost all the subjects are employed. 60% of the subjects reported affected breast as left and 10% subjects were affected in both the breast. In years of survivorship 50% of the subjects were in less than one year. (Table 1)

Table I: Distribution of Socio Demographic Variables among breast cancer clients

N=80

S.No	Variables	Study		Control	
		N	%	N	%
1	Age in years				

	a) < 40	12	30	4	10
	b) 41-60	20	50	32	80
	c) >60	8	20	4	10
2	Educational qualification				
	a) No formal education	8	20	8	20
	b) PUC/+2	8	20	8	20
	c) Any diploma	-	-	-	-
	d) Any degree	24	60	24	60
3	Marital status				
	a) Single	4	10	16	40
	b) Married	36	90	24	60
	c) Divorced	-	-	-	-
4	Number of Children				
	a) 1	8	20	10	25
	b) 2	8	20	14	35
	c) 3	16	40	12	30
	d) >3	8	20	4	10
5	Employment status				
	a) Unemployed	16	40	16	40
	b) Self employed	8	20	8	20
	c) Employee	16	40	16	40
	d) Retired	-	-	-	-
6	Monthly income				
	a) INR 0-10000	12	30	12	30
	b) INR 10001-15000	12	30	12	30
	c) INR 15001-20000	4	10	4	10
	d) INR > 20000	12	30	12	30
7	Affected breast				
	a) Left	24	60	22	50
	b) Right	12	30	16	40
	c) Both	4	10	4	10
8	Years of survivorship				
	a) <1	20	50	12	30
	b) 1-<2	4	10	12	30
	c) 2-<3	-	-	-	-

	d) $3 < 4$	-	-	4	10
	e) $4 < 5$	8	20	10	25
	f) ≥ 5	8	20	2	5
9	Undergone PMRT				
	a) Yes	-	-	-	-
	b) No	40	100	40	100

Table-2: Frequency and percentage distribution of clinical variables among breast cancer clients

N=80

S.No	Clinical Variables	Study		Control	
		N	%	N	%
1	Family history				
	a) Yes	12	30	22	55
	b) No	28	70	18	45
2	Co morbid conditions				
	a) Hypertension	4	10	4	10
	b) Diabetes	4	10	4	10
	c) Thyroid	8	20	8	20
	d) a,b,c	4	10	12	30
	e) Any other	20	50	12	30
3	Grade of tumour				
	a) Well differentiated	8	20	8	20
	b) Moderately differentiated	32	80	32	80
	c) Poorly differentiated	-	-	-	-
4	Present stage of cancer				
	a) II	36	90	36	90
	b) III	-	-	-	-
	c) IV	4	10	4	10
5	Metastasis				
	a) Yes	20	50	20	50
	b) No	20	50	20	50
6	Type of first treatment				
	a) Chemotherapy	8	20	8	20
	b) Radiotherapy	-	-	-	-
	c) Hormonal therapy	-	-	-	-

	d) Surgical intervention	32	80	32	80
	e) Any other	-	-	-	-
7	Current treatment				
	a) Chemotherapy	32	80	24	60
	b) Radiotherapy	-	-	-	-
	c) Hormonal therapy	8	20	16	40
	d) Surgical intervention	-	-	-	-
	e) Any other	-	-	-	-

In clinical variable analysis 70% of the subjects had family history of breast cancer and 50% had co-morbid conditions in experimental group, while 80% of the subjects in both groups had moderately differentiated grade of tumour. The present stage of cancer indicated 90% of the subjects were in second stage and equal number of subjects 50% in metastatic stage; 80% of the participants undergone surgical intervention as a mode of treatment. (Table 2)

Table-3: Post test outcome of symptoms aspects of breast cancer patients

N=80

Parameter	Group	Period	Min	Max	Mean	SD	F/P value
Symptom scales							
Fatigue (FA)	Exp	Pre	3	11	7.20	2.50	27.741 .000*** df=2, 38
		4 th wk	3	8	5.50	1.57	
		8 th wk	3	6	4.80	0.95	
	Control	Pre	3	11	7.20	2.50	1.000
		4 th wk	3	11	7.20	2.50	
		8 th wk	3	11	7.20	2.50	
Nausea and Vomiting (NV)	Exp	Pre	2	4	2.60	0.68	7.624 .002*** df=2, 38
		4 th wk	2	3	2.30	0.47	
		8 th wk	2	3	2.15	0.37	
	Control	Pre	2	4	2.60	0.68	1.000
		4 th wk	2	4	2.60	0.68	
		8 th wk	2	4	2.60	0.68	
Pain (PA)	Exp	Pre	2	7	4.20	1.88	13.097 .000*** df=2, 38
		4 th wk	2	7	3.85	1.53	
		8 th wk	2	5	3.00	0.92	
	Control	Pre	2	7	4.20	1.88	1.000
		4 th wk	2	7	4.20	1.88	
		8 th wk	2	7	4.20	1.88	
Dyspnoea (DY)	Exp	Pre	1	3	1.60	0.68	8.805 .001***
		4 th wk	1	2	1.40	0.50	

	Control	8 th wk	1	2	1.10	0.31	df=2, 38
		Pre	1	3	1.60	0.68	1.000
		4 th wk	1	3	1.60	0.68	
		8 th wk	1	3	1.60	0.68	
Insomnia (SL)	Exp	Pre	1	4	3.00	1.12	45.225 .000*** df=2, 38
		4 th wk	1	3	2.30	0.80	
		8 th wk	1	2	1.50	0.51	
	Control	Pre	1	4	3.00	1.12	1.000
		4 th wk	1	4	3.00	1.12	
		8 th wk	1	4	3.00	1.12	
Appetite Loss (AP)	Exp	Pre	1	3	1.30	0.66	1.541 .227 df=2, 38
		4 th wk	1	3	1.25	0.55	
		8 th wk	1	2	1.20	0.41	
	Control	Pre	1	3	1.30	0.66	1.000
		4 th wk	1	3	1.30	0.66	
		8 th wk	1	3	1.30	0.66	
Constipation (CO)	Exp	Pre	1	3	1.60	0.68	3.353 .046* df=2, 38
		4 th wk	1	3	1.45	0.60	
		8 th wk	1	3	1.45	0.60	
	Control	Pre	1	3	1.60	0.68	1.000
		4 th wk	1	3	1.60	0.68	
		8 th wk	1	3	1.60	0.68	
Diarrhoea (DI)	Exp	Pre	1	4	1.50	1.05	1.879 .167 df=2, 38
		4 th wk	1	4	1.50	1.05	
		8 th wk	1	4	1.35	0.81	
	Control	Pre	1	4	1.50	1.05	1.000
		4 th wk	1	4	1.50	1.05	
		8 th wk	1	4	1.50	1.05	
Financial Difficulties (FI)	Exp	Pre	1	4	2.40	1.14	13.264 .000*** df=2, 38
		4 th wk	1	4	2.10	0.91	
		8 th wk	1	4	1.70	0.80	
	Control	Pre	1	4	2.40	1.14	1.000
		4 th wk	1	4	2.40	1.14	
		8 th wk	1	4	2.40	1.14	
Global Health Status	Exp	Pre	27	67	41.40	10.91	54.157

(QoL)		4 th wk	24	57	35.75	8.76	.000***
		8 th wk	23	45	31.05	5.89	df=2, 38
	Control	Pre	27	67	41.40	10.91	1.000
		4 th wk	27	67	41.40	10.91	
		8 th wk	27	67	41.40	10.91	

Table 4: Effectiveness of intervention between the experimental and control groups

N=80

Parameter	Group	Mean diff	SD	T value	P value, df=38
Symptoms Scale					
Fatigue (FA)	Exp	1.700	1.218	6.240	0.000***
	Control	0.000	0.000		
	Exp	2.400	2.010	5.339	0.000***
	Control	0.000	0.000		
	Exp	0.700	1.031	3.036	0.004***
	Control	0.000	0.000		
Nausea and Vomiting (NV)	Exp	0.300	0.470	2.854	0.007***
	Control	0.000	0.000		
	Exp	0.450	0.686	2.932	0.006***
	Control	0.000	0.000		
	Exp	0.150	0.366	1.831	0.075
	Control	0.000	0.000		
Pain (PA)	Exp	0.350	0.489	3.199	0.003***
	Control	0.000	0.000		
	Exp	1.200	1.436	3.736	0.001***
	Control	0.000	0.000		
	Exp	0.850	1.089	3.489	0.001***
	Control	0.000	0.000		
Dyspnoea (DY)	Exp	0.200	0.410	2.179	0.036*
	Control	0.000	0.000		
	Exp	0.500	0.688	3.249	0.002***
	Control	0.000	0.000		
	Exp	0.300	0.470	2.854	0.007***
	Control	0.000	0.000		
Insomnia (SL)	Exp	0.700	0.571	5.480	0.000***

	Control	0.000	0.000		
	Exp	1.500	0.889	7.550	0.000***
	Control	0.000	0.000		
	Exp	0.800	0.616	5.812	0.000***
	Control	0.000	0.000		
Appetite Loss (AP)	Exp	0.050	0.224	1.000	0.324
	Control	0.000	0.000		
	Exp	0.100	0.308	1.453	0.154
	Control	0.000	0.000		
	Exp	0.050	0.224	1.000	0.324
	Control	0.000	0.000		
Constipation (CO)	Exp	0.150	0.366	1.831	0.075
	Control	0.000	0.000		
	Exp	0.150	0.366	1.831	0.075
	Control	0.000	0.000		
	Exp	0.000	.000	-	-
	Control	0.000	.000		
Diarrhoea (DI)	Exp	0.000	.000	-	-
	Control	0.000	.000		
	Exp	0.150	0.489	1.371	0.178
	Control	0.000	0.000		
	Exp	0.150	0.489	1.371	0.178
	Control	0.000	0.000		
Financial Difficulties (FI)	Exp	0.300	0.470	2.854	0.007***
	Control	0.000	0.000		
	Exp	0.700	0.801	3.907	0.000***
	Control	0.000	0.000		
	Exp	0.400	0.503	3.559	0.001***
	Control	0.000	0.000		
Global Health Status (QoL)	Exp	8.450	4.594	8.226	0.000***
	Control	0.000	0.000		
	Exp	16.200	9.606	7.542	0.000***
	Control	0.000	0.000		
	Exp	7.750	5.665	6.118	0.000***
	Control	0.000	0.000		

Analysis of pretest data in relation to quality of life based on functioning and symptom scales showed no variations among the control and experimental subjects at $p < 0.05$. The post test analysis showed that there were significant changes in the all the aspects of functional scales between the control and experimental groups at $p < 0.001$, however, in symptom scale though there were no significant changes evidenced in appetite loss and diarrhoea, other scales had significant changes. (Table 3,4). The overall symptom management between control and experimental group evidenced a highly significant improvement $P < 0.001$. (Table 4)

4. DISCUSSION

In this investigation, the *primary* management for cancer breast *comprised surgery, radio and chemo interventions*. “The continuous *advancement of therapeutic approaches has led to a gradual decrease in the recurrence risk and mortality associated with breast cancer in recent years. The therapy lead by using chemo drugs has been* recognized as the *cornerstone of cancer breast patient’s care*”⁷

There is an evidence of high risk to cancer breast along with family history while compared to women without a background breast cancer data, those who have intimate relation with the disease have a twofold higher chance of getting it themselves. Women who are over 50 and have a close relation with breast cancer were at even higher risk^{8,9,10}.

A survey among Australian which possessed favourable health status and high rates of private insurance, exhibited a high prevalence of comorbidities, and their management, along with the management of breast cancer, was not in accordance with the principles of chronic disease condition management¹¹. According to a study, the overall survival rate was 95%, 92%, 70% and merely 21% for stage I, II, III and stage IV respectively¹².

- a) *The quality of life is a significant worry for terminal cancer patients, as manifestations have a greater well being. “A convenience sampling technique was used to survey 768 cancer patients. Of these patients, 30.2% were between the ages of 51 and 60. Of these, a considerable percentage (40.1%) had been diagnosed with head-and-neck cancer, and 57.7% were in stage III of the disease. Most patients' quality of life (QOL) was impacted by their symptoms; 82.3% of them reported having low QOL scores. According to the findings, cancer patients had a range of symptoms that reduced their quality of life. The development of effective symptom management techniques is urgently needed in order to improve patients' quality of life by giving them more control over their condition and course of treatment”*¹³.

The post implementation analysis showed that there were significant changes in the all the aspects of symptom though there were no significant changes evidenced in appetite loss and diarrhoea, other scales had significant changes. (Table 2,3). The findings of the current study were same as the findings which evidenced nursing interventions based on symptom management theory were found to “increase symptom distress, improve quality of life and sleep quality, increase hope, and decrease negative emotions and pain perceptions”¹⁴. Also, the present study findings were consistently supported that “Nurse-led care was as safe and effective as physician led care. There is strong evidence that nurse-led teaching, guidance, counseling, and case management are effective for *managing symptoms*”¹⁵. Other evidences supported that nurses play a vital role in providing a comprehensive care to the cancer survivors, Of the eight clinical trials studies, five demonstrated that nursing interventions provided by nurses improved the quality of life among cancer survivors¹⁶.

5. CONCLUSION

From the findings, *it appears that* women who received an intervention have a better management of symptoms, which helps to enhance QOL along with routine management of cancer breast patients. The findings provided supportive evidence of effectiveness of intervention, it might be due to the fact that the developed intervention supported their need and requirements in management of their life style practices.

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