

# Effect of Nursing Intervention for Chemotherapy Induced Nausea and Vomiting among Breast Cancer Women

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**Abstract:** Nursing intervention of chemotherapy therapy induced nausea and vomiting as complementary care considered safe, noninvasive, and generally free from side effect. The aim of this study was to identify the effectiveness of nursing intervention on reducing chemotherapy induced nausea and vomiting among breast cancer women.

**Methods: Design:** A quasi experimental pre-post-test design was used to evaluate the effectiveness of nursing intervention for chemotherapy induced nausea and vomiting among breast cancer women. **Subjects:** A convenience sample of 150 women with breast cancer. women were selected from the out-patient clinics at Oncology Institute, Menoufia University, Egypt. **Instruments:** (1) Structured interview questionnaire schedule to assess socio demographic data, medical data , knowledge about the disease process and nursing intervention. **Tool (2):** Functional Assessment of Cancer Therapy General Population. It comprised of four dimensions were assessed: physical wellbeing, social well-being, emotional well-being, and functional well-being pre and post nursing intervention.

**Results:** It was illustrated that, regarding the total physical wellbeing was (7.8%, 6.36% respectively), the total social wellbeing was (13.20%, 14.61% respectively), the total emotional wellbeing was (9.2% , 6.7% respectively) and, The total functional wellbeing was (6.45%, 9.9% respectively) post intervention among the studied group. There were statistically significant differences between the study groups pre and post nursing intervention regarding knowledge and practices among pre and post nursing intervention. where p- value were  $\leq 0.0001$ .

**Conclusions:** the study concluded that application of nursing intervention proved to be effective in improving the four dimensions and knowledge regarding chemotherapy therapy induced nausea and vomiting among breast cancer women.

**Recommendation:** Application of nursing intervention of chemotherapy-induced nausea and vomiting as a complementary therapy should be carried out at different setting and different types of cancer.

**Keywords:** Nursing intervention, Chemotherapy therapy induced nausea - vomiting and Breast cancer.

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## 1. INTRODUCTION

Breast cancer consider the most prevalent type of cancer among women all over the world in developing and developed countries. Breast cancer is a complex disease to diagnose and treat, and represents a significant burden to patients and their families, the health system, and the community at large [1]. Chemotherapy induced nausea and vomiting are

common and feared symptoms among breast cancer patients, and up to 80% of patients will experience CINV without prophylactic therapy [2].

Chemotherapy induced nausea and vomiting can be described as acute, delayed and anticipatory according to time course. The acute form of CINV is the well-recognized form. Acute CINV is usually defined as nausea and/or vomiting within the first 24 h after administration of chemotherapy. Delayed CINV is usually defined as nausea and/or vomiting that begins after the first 24 hours of administration of chemotherapy, anticipatory CINV has a strong psychological component and does not respond well to antiemetic prophylaxis or treatment [3].

In Egypt, a cross sectional studies were conducted by [4] to estimate the cancer incidence in Egypt. Studies results on national population based cancer registry program revealed that breast cancer is the most common cancer among Egyptian women, the annual rate of developing cancer is equivalent to 115.5 cases per 100 thousand people and the annual rate diagnosed with breast cancer for females is equivalent to 36 cases per 100 thousand females and accounting for 36% of all cases treated at the National Cancer Institute as well as, a progressive increase in number of incident cases of breast cancer to reach 47,245 case in 2050 [4].

Nursing interventions must be based on evidence that the interventions and actions being implemented are likely to result in more good than harm. It is therefore nurses should develop the knowledge and expertise to advance and embrace research methodologies that provide the highest form of evidence to support practice, so that choices are well informed and likely to lead to benefits for service users and society [5].

Uncontrolled CINV can increase risk to medical complications, including poor nutrition, electrolyte imbalances, dehydration, physical and mental deterioration some cases, patients may refuse to continue potentially beneficial treatment regimens due to chemotherapy induced nausea and vomiting [6].

Chemotherapy induced nausea and vomiting is often associated with physiological complications such as fatigue, muscle strain and metabolic imbalance. Distressing complications may contribute to inadequate caloric and fluid intake, which can aggravate lethargy and fatigue. Chemotherapy induced nausea and vomiting that is insufficiently managed adversely affects quality of life and can affect how treatment is perceived [7].

The need for additional ways and relief has led to interest in nursing intervention adjuncts to drugs like acupuncture or acupressure. Combining antiemetics with other non-pharmacological treatments may prove more effective in decreasing nausea than antiemetics alone [8].

Nursing management/complementary therapy of CINV is considered neglected area for both nurses and physicians, although it is safe, noninvasive, and generally considered to be relatively free from side effect so it is necessary for raising awareness, improving treatment, and growing support to foster greater understanding of non pharmacological therapy and provide more effective and accessible treatment options. Researches in this area are very limited, so it is hoped that the current study help nurses to develop a more effective management plan for CINV and improving quality of life [7, 8].

According literature, this is matched with [9] who reported that many patients still experience nausea and vomiting in relation to chemotherapy so the need to evaluate additional ways to reduce these symptoms is still having the highest priority.

**AIM OF THE STUDY:** The present study aimed to identify the effectiveness of nursing intervention on reducing chemotherapy therapy induced nausea and vomiting and improving knowledge, practices among breast cancer women.

## 1.2 RESEARCH HYPOTHESES

The following research hypotheses were formulated in an attempt to achieve the aim of the current study:

- Breast cancer women who will receive nursing intervention will have better knowledge and practices regarding chemotherapy therapy induced nausea and vomiting than who will receive routine hospital care.
- Breast cancer women who will receive nursing intervention will reduce chemotherapy therapy induced nausea and vomiting than who will receive routine hospital care.

## 2. METHODS

**2.1 Design:** - A quasi experimental pre-post test design was used.

**2.2 Settings:-** This study was conducted at the outpatient clinics of Clinical Oncology department of Menoufia university hospital, Menoufia Governorate, Egypt. They were chosen because women in those oncology department did not know and practice optimal care of CINV.

**2.3 Sample:-** A convenience sample of 150 women with breast cancer and it divided randomly into two equal groups; 75 for each group:

- **Control group:** received routine hospital care only.

- **Study group:** women who were given instructions about knowledge and practices of coping chemotherapy induced nausea and vomiting using nursing intervention. The study subjects were selected according the following criteria:

### 2.3.1 Inclusion criteria:

(1) All women who were experiencing chemotherapy induced nausea and vomiting, in all ages were recruited.

(2) Willing to sign a consent form.

### 2.3.2 Sample size

- The sample size in the present study calculated according to small effect size that is expected to be 0.3 [10] to achieve 80% power to detect this difference with significance level of 0.05 it is estimated that 65 subject per group would be required.

- With a withdrawal/non-evaluable subject rate of 10 % a total of 75 per group. Subjects will be recruited leading to total required sample size of 150 subjects.

### 2.3.3 Sampling technique

The technique used to select the sample was:

(1) All women attending the outpatient clinics of clinical oncology department were registered in the hospital records, diagnosed with breast cancer and prescribed for them chemotherapy as a line for management. The researcher used the record of breast cancer women. All the names of women were registered at hospital record. The women who complain from chemotherapy induced nausea and vomiting were selected (150).

(2) All the names were put in a bowl and the 150 names were divided randomly based on sample size calculation were divided alternatively into two equal groups; 75 for each group.

## 2.4 Data Collection Instruments:

**Data was collected through using the following tools:**

1-**A structured interviewing questionnaire:** it was include the following.

(1) Socio-demographic data of the studied women such as age, marital status, education, occupation, and income.

(2) **Medical data:-**

A) Past history such as menstrual / obstetric / contraceptive methods, family history of breast cancer and degree of relation.

B) Present medical history included, chronic diseases, diagnosis of breast cancer, onset of disease, stages of breast cancer, type of chemotherapy, frequency and side effect of chemotherapy.

C) Health component: Included evaluation of changes in health mild, moderate or severe , causes of changes in health physical or psychological.

2- **Functional Assessment of Cancer Therapy-General Population [11,12].** A measure included four dimensions were assessed: physical wellbeing, social well-being, emotional well-being, and functional well-being. This a measure included four dimensions were divided into subscales which assessed: physical wellbeing (six questions) (0-24), social well-being (six questions) (0-24), emotional well-being (five questions) (0-20) , and functional well-being (four question ) (0-16). Participants are asked to rate 21 with total score (0-84). Items on a 5-point likert scale ranging from 0 = 'not at all' 4 = to 'very much' in the past week. A review of the literature examining women variable of physical, social, and emotional well-being in breast cancer patients. The scores were ranged from 0 (Minimum score) to 84 (The highest score).

3- **Knowledge Assessment Questionnaire:** It was comprised of questions to assess women knowledge about the disease process and nursing intervention as following:-

(a) Nursing intervention for chemotherapy induced nausea and vomiting according to three level of prevention:

- Primary prevention: Disease process (definition, risk factors, chemotherapy, causes of nausea and vomiting at home and hospital & factors that increase and decreased chemotherapy induced nausea and vomiting). Each question was given a score of two for complete correct answer, one for incomplete correct answer and zero for wrong answer or no answer, and then all score was summed up. The total score ranged between zero to 100.

The women score	Knowledge level
Less than 50%	Poor
From 51- 80%	Good
≥ 81%	Very good

- Secondary & Tertiary prevention: Diet, exercise, relaxation technique, social support.

#### 2.4.1 Reliability of the tools:

Reliability was applied by the researcher for testing the internal consistency of the tool by administration of the tool to the same subjects before collecting the data actually to assess clarity and simplicity of the questions.

Reliability was estimated among 15 participants by using test retest method with two weeks apart between them. Then correlation coefficient was calculated between the two scores. The reliability of the study instrument was tested using Cronbach Alpha. Correlation coefficient was 0.88 for the first tool part three, and the second tool was 0.89.

#### 2.4.2 Validity of the tools:

The tool was tested for its content by jury of five experts in the field of Community Health Nursing and Medical Surgical Nursing to ascertain relevance and completeness.

Validity of the questionnaire was assessed using content validity by an Expert. The relevancy, clarity, fluency, and simplicity of each component in the questionnaire was examined by the expert and she found the questionnaire is useful and helpful.

#### 2.5 Pilot Study:

Pilot study was conducted to test the practicality and applicability of the questionnaire and to detect the problems that may encounter during data collection. Also, help to estimate the time needed to fill the questionnaire. The pilot study was conducted on 15 chemotherapy induced nausea and vomiting of women with breast cancer. who participated in the pilot study were not involved in the sample. However, they were given a copy of the educational intervention booklet.

#### 2.6 Ethical Consideration:

The agreements for participation of the subjects were taken after the aim of the study was explained to them. Before data collection, the women were informed about the aim of the study and what would be done with the results. They were given the opportunity to refuse to participate and they could withdraw at any stage of the research. Also, they were assured that the information would remain confidential and used for the research purpose only. The researcher gave copies from the educational intervention booklet about chemotherapy induced nausea and vomiting among breast cancer women for achieving the ethical principles of research as well as the principle of beneficence. The ethics committee approval is in the College of Nursing, Menoufia University, Egypt on the subject of research.

### 2.7 Procedure and Data Collection:

A reviewing of past and current literature covering the various aspects of the problem was done using books, articles periodicals, magazines and studies related to nursing intervention of chemotherapy induced nausea and vomiting .

#### Approval:

- Official letters were issued from Faculty of Nursing Menoufia University, Egypt, and sent to the directors of oncology institute to get their permission for data collection from the authorized personal. The letters explained the purpose of the study, and sought their cooperation.
- Data were collected in 8 months from the first of January 2018 to the end of August 2018.
- Before starting the data collection, the agreements and the aim of the study were explained to each head of nursing at oncology unit to gain their cooperation.
- The researcher met the subjects in the waiting room, in outpatient clinics of oncology institute. The researcher introduced herself and explained to the women the aim of the study and their consent to participate was obtained.
- Each woman was personally interviewed and sometimes groups of women (minimum one woman and maximum ten women) in the outpatient clinics.
- The interview lasted for from 8:30–12:30 AM, three times per week, in a period of 8 months.
- The researcher distributed the baseline questionnaire to all 150 CINV women during the period of intervention (minimum one woman and maximum ten women) in each interview. The baseline questionnaire was distributed to assess their knowledge and practice regarding chemotherapy induced nausea and vomiting.
- Filling in the baseline questionnaire related chemotherapy induced nausea and vomiting knowledge , practices and dimensions of functional assessment of cancer therapy general population including (physical, social, emotional and functional dimension) took about 20-30 minutes and application of nursing intervention took about 10-15 minutes.
- The researcher filled the baseline questionnaire by herself. This took about 20-30 minutes.
- The researcher explained the educational intervention booklet. After that it was based on the results of the baseline questionnaire, the researcher explained the effect of nursing intervention of chemotherapy induced nausea and vomiting among breast cancer women.
- The post-test was done after the baseline questionnaire, it took about 15-20 minutes to evaluate their knowledge and practice.
- The researcher explained the educational intervention booklet components guided by lecture, group discussion and role playing.
- The evaluation included women who answered questions about nursing intervention and dimensions of functional assessment of cancer therapy-general population including (physical, social, emotional and functional dimension) to determine the intervention's effectiveness in improving them. These steps took about 30 minutes.

#### Contents of educational intervention booklet:

- (a) Introduction about breast cancer.
- (b) chemotherapy and its side effects.
- (c) factors that increased and decreased chemotherapy induced nausea and vomiting.
- (d) nursing intervention and coping strategies for caring chemotherapy induced nausea and vomiting among breast cancer women regarding levels of prevention.

### 2.8 Statistical analysis:

The collected data were organized, tabulated and statistically analyzed using SPSS software [13]. For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, which describe a categorical set of data by frequency, percentage or proportion of each category, comparison between two groups and more was done using Chi-square test ( $\chi^2$ ). For comparison between means of two groups of parametric data of independent samples, student t-test was used. For comparison between means of two groups of non-parametric data of independent samples, Z value of Mann-whitney test was used. Significance was adopted at  $p < 0.05$  for interpretation of results of tests of significance.

- P-value at 0.05 was used to determine significance regarding:
- P-value  $> 0.05$  to be statistically insignificant.
- P-value  $\leq 0.05$  to be statistically significant.
- P-value  $\leq 0.001$  to be highly statistically significant.

## 3. RESULTS

**Table (1)** demonstrated sociodemographic characteristics of both the study and the control group. The range of studied women age was 45 to 65 years (33% & 40.0% respectively), were married (54.4% & 78.7% respectively). More than one third were secondary education (33.3%) among study group & nearly two third (38.7%) read and write among control group, Also, observed that, more than half of the women were housewives (73.3% & 54.7% respectively) as well as the majority of both study and control group had not enough income (100.0% & 90.7% respectively).

**Table (2)** showed the reproductive history data of the studied women with breast cancer experiencing chemotherapy induced nausea and vomiting, it showed that more than half of both control and study group complained from irregular menstruation, half of them using hormonal methods (46.7% & 57.3% respectively) for more than 10 years (46.7% & 37.3% respectively).

**Fig.(1):** showed the mean total scores of Functional Assessment of Cancer Therapy-General Population for chemotherapy-induced nausea and vomiting pre and post nursing intervention, it showed the same result pre and post intervention among control group where, The total physical wellbeing was nearly one third, the total social wellbeing was nearly ten percent, the total emotional wellbeing was (13.20%) and the total functional wellbeing was (6.45%). Otherwise, the total physical wellbeing was more than one third pre intervention decreased to less than ten percent post intervention and the total social wellbeing was (14.61%), The total emotional wellbeing was (6.79%) and, the total functional wellbeing was (9.93%) among the study group.

**Fig.(2):** showed evaluation of health as perceived by the studied women with breast cancer experiencing chemotherapy induced nausea and vomiting under nursing intervention pre and post nursing intervention. It showed that all of the sample (100%) reported severe change in health among the control group and the study group pre and post intervention. While, it became more than two third of the study group reported moderate change and more than quarter reported severe change in health post nursing intervention.

**Table (3)** showed the primary nursing care of nursing intervention of chemotherapy induced nausea and vomiting pre and post nursing intervention. It showed there were statistically significant differences between study and control group regarding to primary nursing care for nursing intervention where p-value were  $\leq 0.0001$ .

**Table (4)** illustrated secondary nursing care of nursing intervention of chemotherapy induced nausea and vomiting pre and post nursing intervention. It was observed that statistically significant differences between study and control group regarding to secondary nursing care for nursing intervention where p-value were  $\leq 0.0001$ .

**Table (5)** showed the rehabilitation nursing care of nursing intervention of chemotherapy induced nausea and vomiting pre and post nursing intervention. It was observed that statistically significant differences between study and control group regarding to the rehabilitation nursing care for nursing intervention where p-value were  $\leq 0.0001$ .



**Table (6)** showed the knowledge level scores of nursing intervention for chemotherapy induced nausea and vomiting among the studied women with breast cancer pre and post nursing intervention. where, Mean±SD (16.49±6.98 : 32.85±0.48 respectively). It was observed that statistically significant differences between the studied group regarding to improve of knowledge post nursing intervention than pre intervention where p- value were ≤ 0.0001.

**Table (1): Socio-demographic data of the studied groups.**

Socio-demographic data	The studied women with breast cancer (No.=150)			
	Control group (N=75)		Study group (N=75)	
	No.	%	No.	%
<b>•Age years:</b>				
45 <50	20	27	22	29.3
50-<55	22	29.3	18	24.0
55-<60	25	33	30	40.0
60-65	8	10.7	5	6.7
Range	45.00-65.00		45.00-65.00	
Mean±SD	52.97±4.72		52.80±5.06	
t-test	0.316			
P	0.752			
<b>•Marital status:</b>				
Single	11	14.6	6	8.0
Married	41	54.7	59	78.7
Widow	15	20.0	10	13.3
Divorced	8	10.7	0	0
<b>•Educational level:</b>				
Illiterate	26	34.6	17	22.7
Read and write	29	38.7	21	28.0
Secondary education	5	6.7	25	33.3
High education	15	20.0	12	16.0
<b>•Occupation:</b>				
House wife	55	73.3	41	54.7
Worker	20	26.7	34	45.3
<b>•Family income:</b>				
Enough	0	0	7	9.3
Not enough	75	100	68	90.7

**Table (2): Reproductive history data of the studied groups.**

Variables	The studied women with breast cancer (N=150)			
	Control group (No.=75)		Study group (No.=75)	
	No.	%	No.	%
<b>•Menstrual history:</b>				
Regular menstruation	35	46.7	29	38.7
Irregular menstruation	40	53.3	46	61.3
<b>•Used family planning methods:</b>				
Natural methods	12	16.0	1	1.3
Hormonal methods	35	46.7	43	57.3
Mechanical methods	16	21.3	14	18.7
No methods	15	20.0	17	22.7
<b>•Duration of using family planning methods (years):</b>				
< 5	10	13.3	10	13.3
5-10	15	20.0	20	26.7
>10	35	46.7	28	37.3
No methods	15	20.0	17	22.7

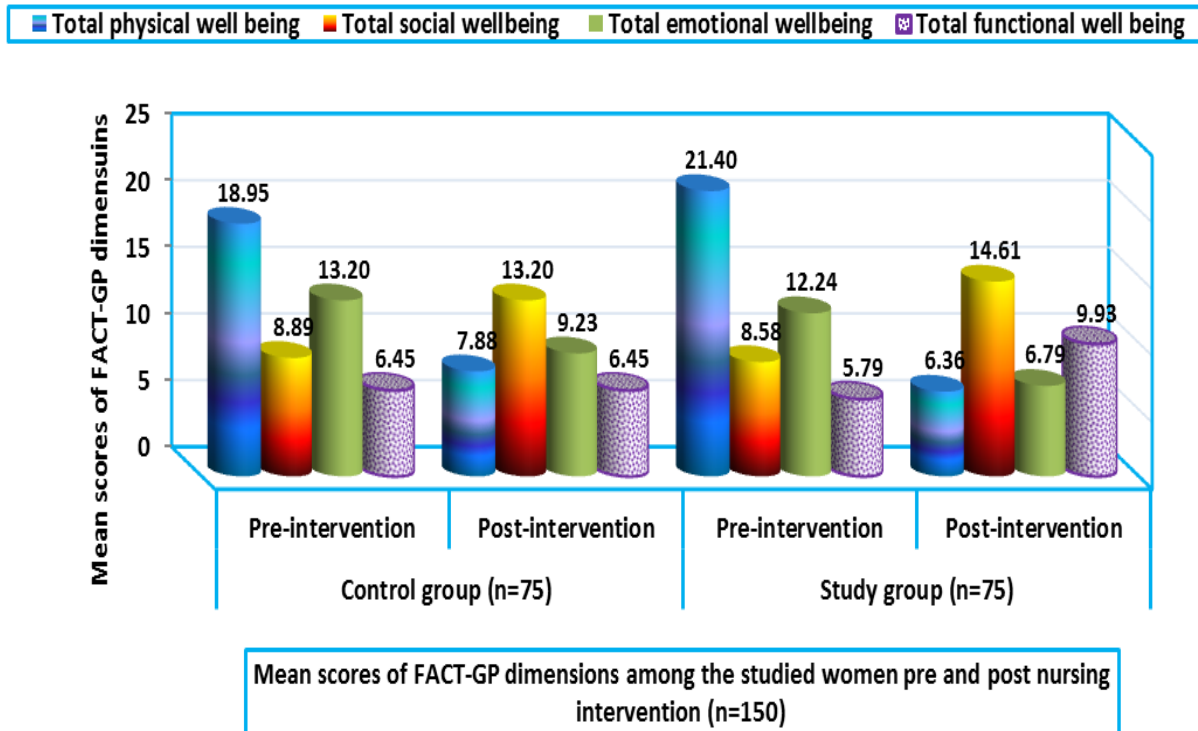


Figure (1) shows the mean total scores of Functional Assessment of Cancer Therapy-General Population for studied group.

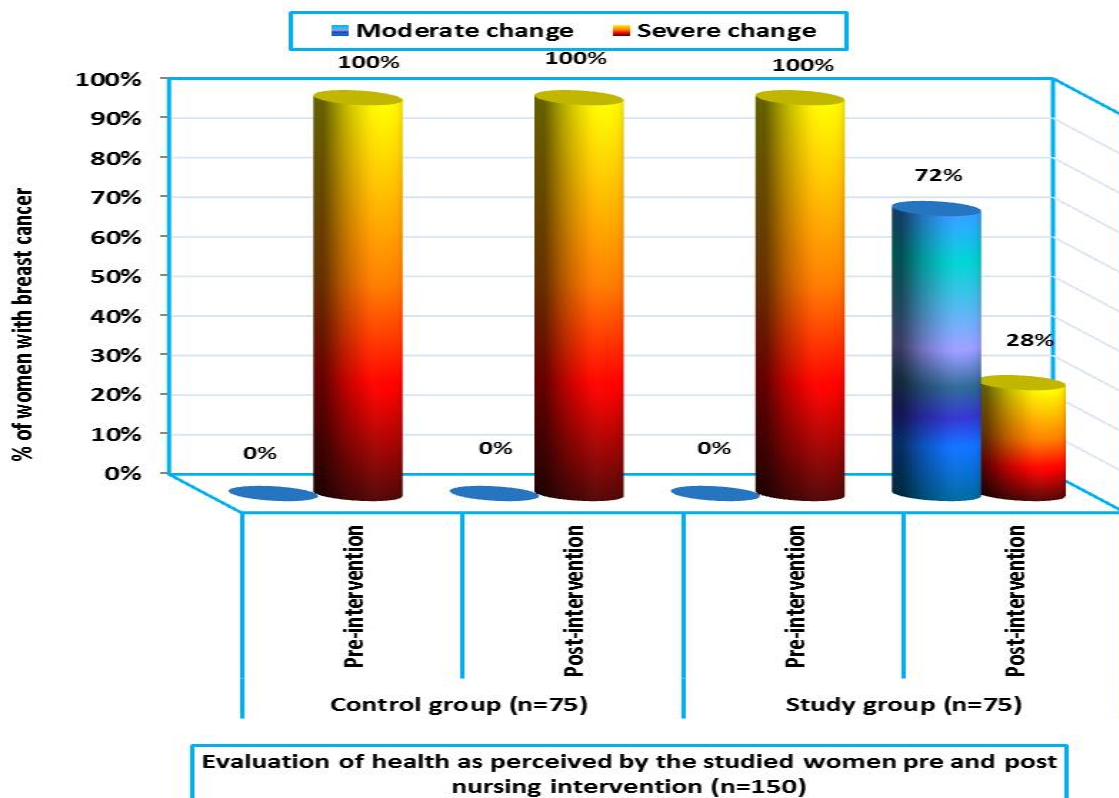


Figure (2): Evaluation of health as perceived by the studied groups.



Table (3): Primary nursing care of nursing intervention of the studied groups.

Primary nursing care component items	The studied women with breast cancer (n=150)										$\chi^2$	P	
	Control group (n=75)					Study group (n=75)							$\chi^2$
	Pre-intervention		Post-intervention			Pre-intervention		Post-intervention			Pre-intervention	Post-intervention	
	N	%	N	%		N	%	n	%				
Define breast cancer:													
Know adequately	0	0	0	0	0.000	6	8.0	54	72.0	68.800	6.250	89.100	
Inadequate knowledge	26	34.7	26	34.7	1.000	24	32.0	14	18.7	0.0001*	1.044	0.0001*	
Don't know	49	65.3	49	65.3		45	60.0	7	9.3				
What are the risk factors of breast cancer?:													
Know	0	0	0	0	0.000	5	6.6	49	65.3	56.070	28.010	83.400	
Inadequate knowledge	26	34.7	26	34.7	1.000	52	69.4	20	26.7	0.0001*	1.0001	0.0001*	
Don't know	49	65.3	49	65.3		18	24.0	6	8.0				
What is the chemotherapy:													
Know	10	13.3	10	13.3	0.000	5	6.7	50	66.7	36.150	1.890	56.470	
Inadequate knowledge	25	33.3	25	33.3	1.000	28	37.3	21	28.0	0.0001*	0.390	0.0001*	
Don't know	40	53.4	40	53.4		42	56	4	5.3				
Route of chemotherapy administration:													
Know	0	0	0	0	0.000	15	20.0	60	80.0	57.340	58.420	96.050	
Inadequate knowledge	26	34.7	26	34.7	1.000	54	72.0	10	13.3	0.0001*	1.001	0.0001*	
Don't know	49	65.3	49	65.3		6	8.0	5	6.7				
What are the causes increase nausea and vomiting?:													
Know	6	8.0	6	8.0	0.000	10	13.3	55	73.3	58.650	5.320	66.950	
Inadequate knowledge	44	58.7	44	58.7	1.000	30	40.0	15	20	0.0001*	0.070	0.0001*	
Don't know	25	33.3	25	33.3		35	46.7	5	6.7				
Causes of nausea and vomiting at home:													
Know	4	5.3	4	5.3	0.000	35	46.7	60	80.0	20.470	49.040	86.470	
Inadequate knowledge	34	45.4	34	45.4	1.000	35	46.7	10	13.3	0.0001*	5.0001	0.0001*	
Don't know	37	49.3	37	49.3		5	6.7	5	6.7				
Causes of nausea and vomiting at hospital:													
Know	12	16.0	12	16.0	0.000	12	16.0	12	16.0	0.000	0.000	0.000	
Inadequate knowledge	38	50.7	38	50.7	1.000	38	50.7	38	50.7	1.000	1.000	1.000	
Don't know	25	33.3	25	33.3		25	33.3	25	33.3				

Table (4): Secondary nursing intervention of nursing intervention of the studied groups.

Secondary nursing intervention component items	The studied women with breast cancer (N=150)										$\chi^2$ P	Pre-intervention	Post-intervention	
	Control group (N=75)					$\chi^2$ P	Study group (N=75)							$\chi^2$ P
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention							
	N	%	n	%	N	%	n	%						
<b>What are the primary nursing intervention used to prevent nausea and vomiting?:</b>														
Know	4	5.3	4	5.3	1.000	35	46.7	60	80.0	20.470	49.040	86.470		
Inadequate knowledge	34	45.4	34	45.4	0.000	35	46.7	10	13.3	0.0001*	0.098	0.0001*		
Don't know	37	49.3	37	49.3		5	6.7	5	6.7					
<b>How the patient cope with chemotherapy induced nausea and vomiting when occur?:</b>														
Know	6	8.0	6	8.0	0.000	10	13.3	55	73.3	58.650	5.320	66.950		
Inadequate knowledge	44	58.7	44	58.7	1.000	30	40.0	15	20	0.0001*	0.070	0.0001*		
Don't know	25	33.3	25	33.3		35	46.7	5	6.7					

Table (5): Tertiary (rehabilitation) nursing intervention nursing intervention of nursing intervention of the studied groups.

Rehabilitation nursing intervention component items	The studied women with breast cancer (No.=150)										$\chi^2$ P	Pre-intervention	Post-intervention	
	Control group (No.=75)					$\chi^2$ P	Study group (No.=75)							$\chi^2$ P
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention							
	No.	%	No.	%	No.	%	No.	%						
<b>Rehabilitation with stressors of chemotherapy induced nausea and vomiting:</b>														
Rehabilitate my life with disease	14	18.7	14	18.7	0.000	9	12.0	10	13.3	24.660	22.130	65.080		
Diet program	14	18.7	14	18.7	1.000	9	12.0	14	18.7	0.0001*	0.0002	0.0001*		
Doing relaxation and breathing exercise	5	6.7	5	6.7		4	5.3	6	8.0					
Avoidance of causes of nausea and vomiting	42	56.0	42	56.0		34	45.3	10	13.3					
All the above	0	0	0	0		19	25.3	45	60.0					
<b>Ability to cope with physical stressors:</b>														
Able to cope	0	0	0	0	-	0	0	66	88.0	114.86	-	114.86		
Unable to cope	75	100	75	100		75	100	9	12.0	0.0001*		0.0001*		
<b>Ability to cope with psychological stressors:</b>														
Able to cope	0	0	0	0	-	0	0	70	93.0	127.530	-	127.530		
Unable to cope	75	100	75	100		75	100	5	7.0	0.0001*		0.0001*		
<b>Ability to cope with functional stressors:</b>														
Able to cope	0	0	0	0	-	0	0	66	88.0	114.86	-	114.86		
Unable to cope	75	100	75	100		75	100	9	12.0	0.0001*		0.0001*		
<b>Ability to cope with social stressors:</b>														
Able to cope	0	0	0	0	-	0	0	66	88.0	114.86	-	114.86		
Unable to cope	75	100	75	100		75	100	9	12.0	0.0001*		0.0001*		

Table (6) Knowledge level of the studied women with breast cancer ( the study group) pre and post nursing intervention.

Total knowledge	The studied women with breast cancer ( the study group) (No.=75)				$\chi^2$	P
	Pre-intervention		Post-intervention			
	No.	%	No.	%		
<b>•Grades of total knowledge:</b>						
Poor	53	70.5	0	0	110.561	0.0001*
Moderate	15	20	15	20		
High	7	9.5	60	80		
<b>•Scores of total knowledge:</b>						
Range	5-32		31-34			
Mean±SD	16.49±6.98		32.85±0.48			
Paired t-test	18.392					
P	0.0001*					

#### 4. DISCUSSION

Nurses providing care for the women with breast cancer to achieve holistic care by using of effective nursing interventions. By using these interventions, nursing activities shift away [14]. The aim of this study was to identify the effectiveness of nursing intervention for chemotherapy-induced nausea and vomiting in women with breast cancer.

#### Regarding sociodemographic characters of women with breast cancer experiencing chemotherapy induced nausea and vomiting table (1).

Related to age, the findings of the current study revealed that the majority of both the study and the control group were ranged from 45 to 65 years old, table (1), this finding consistent with [14] who studied “Cancer incidence in Egypt: results of national population based cancer registry program” at Cairo University hospitals among two hundred of breast cancer women they reported that “The majority of the age group for both study and control group were ranged from 45 to 65 years”. As well as, this finding in line with [15], who studied “Effect of stress on immune responses after surgical treatment of breast cancer, Faculty of Nursing; Menoufyia University among 150 patient with breast cancer who reported that “The highest peak age of breast cancer was ranged between 45 to less than 65 years of old”.

Related to marital status, more than half of studied sample were married. This result in line with [16] who studied “Cancer incidence in Egypt: results of national population based cancer registry program” at Cairo university hospitals among 1000 of breast cancer women they reported that the majority of both study and control group were married.

Regarding to educational level, the present study found that the majority of both study and control group had secondary education. This was consistent with [17,18] who studied “Effect of stress on immune responses after surgical treatment of breast cancer”, Faculty of Nursing; Menoufyia university among 150 patient with breast cancer who reported that about one third of the both studied groups had secondary education as well as about one third of the other group was read and write.

Moreover, the findings of the current study approved that the majority of the study and the control group hadn't enough income which consistent with [19] who studied “Established breast cancer risk factors and risk of intrinsic tumor subtypes” Iran among five hundred of breast cancer women, who reported that they were generally low socioeconomic backgrounds with relatively low income among the study and the control group, low socioeconomic status is also negatively correlated with health-related quality of life among the cancer patients.

Regarding the reproductive history data of the studied women the results showed that more than half of both control and study group were complain from irregular menstruation, half of them using hormonal methods for more than 10 years table (2), the result was consistent with [20] who studied “The effect of early versus delayed shoulder exercises on

sarcoma formation and shoulder function after modified radical mastectomy” , Faculty of nursing, Cairo University, Egypt among 75 of breast cancer patient, Who reported that “nearly half of breast cancer women were suffer from irregular menstruation due to hormonal disturbance as result of using hormonal family planning methods as risk factor to breast cancer”. This result could be related to gene factors and hormonal abnormal disturbance for long time.

Regarding the evaluation of health as perceived by the studied women with breast cancer experiencing chemotherapy induced nausea and vomiting under nursing intervention pre and post nursing intervention. The present study showed that all of the sample reported severe change in health among the control group and the study group pre and post intervention. While, it became more than two third of the study group reported moderate change and more than quarter reported severe change in health post nursing intervention figure (2). This result consistent with [21] who studied “Examining the impact of socioeconomic status and socioecologic stress on physical and mental health quality of life among breast cancer survivors” UK among 180 of breast cancer women, who reported that cancer patients suffer from a range of physical, physiological, and psychological symptoms during their cancer journey. These symptoms are either directly related to the adverse effects of cancer, or arise from the different types of treatments, and may range from mild and temporary to severe, chronic, and life threatening [19, 21].

#### **Effect of nursing intervention chemotherapy induced nausea and vomiting.**

The current results showed that the primary nursing care of nursing intervention of chemotherapy induced nausea and vomiting pre and post nursing intervention. It showed that there were statistically significant differences between the study and the control group regarding to primary nursing care for nursing intervention where p- value were  $\leq 0.0001$  table (3). This results was consistent with [22] who studied “ Development and preliminary validation of a risk prediction model for chemotherapy-related nausea and vomiting ” USA among one hundred of breast cancer women, the researcher reported that “ The primary prevention should focus on identifying clients at risk for developing CINV and providing them with education programs with instructions on how to prevent the development of CINV”.

Moreover, A meta-analytical review was performed by [23] Who studied “The effectiveness of relaxation training and distraction techniques in reducing treatment-related symptoms and improving emotional adjustment in acute non-surgical cancer treatment of five hundred breast cancer women in UK, relaxation techniques such as progressive muscle relaxation training, guided imagery, and hypnosis have been suggested to be helpful in managing nausea and vomiting in cancer patients receiving chemotherapy. The education plan should be personalized and combined with client education tools so that the client has a full understanding of the plan of care once at home.

Regarding to secondary nursing care for nursing intervention of chemotherapy induced nausea and vomiting pre and post nursing intervention table (4). The present study revealed that, there were low score for control group rather study group pre and post intervention, with statistically significant differences between study and control group regarding to secondary nursing care for nursing intervention where p- value were  $\leq 0.0001$ . the results consistent with [24] who reported that secondary prevention can take place during treatment, when CINV can be identified and treated with additional medications or prevention education materials. Studies with positive acupressure effect conducted by [25] on 17 female breast cancer patients in Arizona, USA, were randomized into two groups: eight patients conducted finger acupressure over one cycle of moderately to highly emetogenic chemotherapy, and nine patients in the control group received the antiemetic therapy only. The results indicated “ statistically significant differences related to the nausea experience ( $p < 0.01$ ) and the nausea intensity ( $p < 0.04$ ) compared with the patients in the acupressure group and those in the control group. It is notable that a significant daily difference was found only on day 2 ( $P < 0.05$ ) ”.

Regarding to the tertiary (rehabilitation) nursing care for nursing intervention of chemotherapy induced nausea and vomiting pre and post nursing intervention the present study revealed that there were statistically significant differences between study and control group regarding to the tertiary (rehabilitation) nursing care for nursing intervention where p- value were  $\leq 0.0001$ table (5). The result was consistent with [19, 26] who studied “ The effectiveness of a coping strategies intervention for people with breast cancer, A cross-sectional study measured patients' needs and unsatisfied support needs by the supportive coping strategies intervention ”. Study was conducted in Geneva, Switzerland among five hundred of breast cancer woman, the study revealed that necessary to develop a mutual agreement through which the

objectives of the clients and the treatment were explained, and various means to promote adherence could be used, such as a manual of daily food to be completed by the client, telephone contacts, home visits, referral to other professionals and participation in self-help groups, available at the philanthropic institution where they attend.

The result in the line of [27,28] who studied “ The mediating effects of social support and self-efficacy on the relationship between social distress and emotional distress in breast cancer outpatients with facial disfigurement” Turkey, among two hundred of breast cancer patient, who reported that the tertiary prevention should aim to reeducate the client about the importance of CINV prevention and client can cope with different life stressors physical, social, psychological and functional.

Related to knowledge scores of nursing intervention for chemotherapy induced nausea and vomiting among the studied women with breast cancer pre and post nursing intervention table (6). The present study showed that, Mean±SD (16.49±6.98 : 32.85±0.48 respectively), with statistical significant differences between the studied group regarding to improve of knowledge post nursing intervention than pre intervention where p- value were  $\leq 0.0001$ . Moreover, the results of the current study was consistent with [30] who studied “ Effect of nursing intervention on nausea and vomiting during chemotherapy cycle” among two hundred Korean postoperative mastectomy patients among women undergoing chemotherapy for breast cancer, the researcher proved that the majority of studied group had low score (poor ) knowledge pre nursing intervention and majority of them had good knowledge post intervention.

This results related to effective nursing intervention to improve knowledge and practices among patient who CINV.

## 5. CONCLUSIONS

Consistent with other studies, the results of this study conclude that implementation of nursing intervention for chemotherapy-induced nausea and vomiting in women with breast cancer had adequate knowledge and practice regarding chemotherapy-induced nausea and vomiting.

## 6. RECOMMENDATION

Nursing intervention for chemotherapy-induced nausea and vomiting in women with breast cancer copies of booklet for chemotherapy-induced nausea and vomiting as a complementary therapy for chemotherapy-induced nausea could be available in chemotherapy units for breast cancer patients and their families with a given instruction from nurses or other health professionals.

### Conflicts of interest disclosure

The authors declare they have no conflict of interest.

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