

# Effect of Back Massage on Nausea, Vomiting, Anxiety and Fatigue among Breast Cancer Women Who Receive Chemotherapy: Supportive care in Oncology Nursing.

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**Abstract:** Chemotherapy is one of the breast cancer treatment modalities. But it has various side effects which affect quality of life and patients' compliance as nausea, vomiting, fatigue and anxiety. There are many studies which indicated that the massage therapy help in reducing these effects.

**Aim of the study:** to evaluate effect of back massage on nausea, vomiting, anxiety and fatigue among breast cancer women who receive chemotherapy.

**Subjects and Method: Design;** A quasi-experimental research design was used in the current study.

**Setting:** the study was conducted in chemotherapy unit, Oncology Institute, Menoufia University Hospitals, Egypt.

**Sample:** purposive sample of 98 women had breast cancer and receiving chemotherapy were taken from the above-mentioned setting and divided into two equal groups; intervention (study) and control groups.

**Tools:** (1) An interviewing questionnaire sheet for demographic and medical data, (2) Rhodes Index of Nausea and Vomiting (RINV), (3) Beck Anxiety Inventory (BAI), and (4) The Brief Fatigue Inventory (BFI).

**Results:** No statistically significant differences were found between both study and control groups concerning to the scores of RINV, BAI and BFI before back massage intervention. But after back massage intervention there were significant reduction in the scores of RINV, BAI and BFI in the study group as compared to control group.

**Conclusion:** implementing of back massage during chemotherapy session in breast cancer women reduced the anxiety, fatigue, nausea and vomiting significantly in the study group.

**Recommendations:** Increase awareness of oncology nurses about the positive effects of back massage during chemotherapy and encourage the nurses to apply this intervention.

**Key words:** Chemotherapy - Breast Cancer - Nausea - Vomiting - Anxiety - Fatigue

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## I. Introduction

Breast malignancy is the major cancer in the women in both the developing and the less developing countries<sup>[1]</sup>. More than 2 million cases were newly diagnosed in 2018<sup>[2]</sup>. The burden of breast cancer is expected to increase all over the world due to the rise in the average age of the population. The change in the lifestyle behaviors that resulted in increase in risk of cancer such as smoking, unhealthy diet, sedentary life and reproductive changes including; lower parity and increase age of marriage, and getting first birth after 28 years among large numbers of women<sup>[3]</sup>. Breast cancer is the second most common cancer worldwide and it is the second cause of death after lung cancer with the rate of 11.6%<sup>[4]</sup>.

In Egypt, the prevalence of breast cancer ranked the second after liver cancer<sup>[5]</sup>. The Breast Cancer Foundation of Egypt<sup>[6]</sup> said that the breast the more prevalent type of cancer among Egyptian women. The early diagnosis provides numerous options of treatment and better survival chance. Breast cancer represents 33% among female cancers. In the Arab world it is the most prevalent cancer among women due to a lack in the women knowledge about the breast self-examination and early recognition methods.

The treatment modalities for breast depend on cancer stage and patient conditions. These modalities include; surgery, hormonal therapy, radiation therapy and chemotherapy. The chemotherapy produces several undesirable effects. The common side effects of the chemotherapy are fatigue, loss of appetite, nausea and vomiting, mouth sores, risk for infection, peripheral neuropathy and Constipation or diarrhea<sup>[7]</sup>. Other side effects as feelings of fear and anxiety can compound the physical side effects of chemotherapy, both during and after treatment. During chemotherapy, oncologists and nurses must keep regular contact with the patients, support them

and offer all possible interventions to reduce anxiety to improve patient condition. Everyone involved is working toward the same goal; completion of treatment with the best possible outcome<sup>[8]</sup>.

The nausea and vomiting are very serious complications and the most stressful and uncomfortable symptoms reported by oncology patients. Nausea caused by chemotherapy has a great effect on the nutritional status, fluid and electrolyte status and daily activities, which reduce the quality of life and may result in stop or delay treatment. Anyway, nausea is a key-symptom linked with other symptoms, like as vomiting so that a great attention must be given to control it through medical and alternative therapies<sup>[9, 10]</sup>.

Approximately 50% of patients with cancer will experience nausea and vomiting during the chemotherapy treatment<sup>[11]</sup>. There is variation between the studies about the incidence of nausea and vomiting among breast cancer patients. Al Qadire (2018)<sup>[12]</sup> reported that, The rate of nausea and vomiting was high, about 71.4% and 57.3%, respectively but, Gozzo et al (2014)<sup>[13]</sup> told that, 77.3% of breast cancer women reported nausea and 50% of them reported vomiting during chemotherapy. In Other study done by<sup>[14]</sup> to evaluate adjuvant chemotherapy side effects in breast cancer patients, they informed that 29.46% to 30.9% of patients reported nausea and 9.42 reported vomiting in the first and third cycles of chemotherapy.

Psychological side effects of chemotherapy as anxiety are disturbing the patients and lower the patients' spirits so the number of chemotherapy sessions may increase<sup>[15]</sup>. Prevalence of this problem in patients with breast cancer is reported to be 16% to 65%<sup>[16]</sup>. Various reasons are allied with the causing of emotional and physical problems in these patients as anxiety related to recurrence and death, change in the body image, alteration in womanhood and sexuality. The high anxiety level affects the prognosis and patient compliance with disease. In cancer patients, there is a strong relationship between fatigue and anxiety<sup>[17]</sup>. So reducing distress and anxiety in breast cancer women during chemotherapy is important to optimize treatment, maximize the patient's compliance with treatment and improve quality of life<sup>[18]</sup>.

Fatigue is maximum tiredness and exhaustion. It often doesn't remove by rest or sleep and may influence physical and emotional conditions. It's a very common side effect for medical therapies of breast cancer, and may continue for weeks, months or lengthier after finishing of treatment<sup>[19]</sup>.

The most of breast cancer therapies accompanied with side effects that can cause or worsen fatigue. The side effects of chemotherapy might include an impaired immune response, anemia, nausea, vomiting, changed eating patterns, immobility and sleep disturbance. These side effects can cause or worsen fatigue. Also, any people feel worried about their disease and treatment, these feelings and emotions can aggravate the fatigue<sup>[20, 21]</sup>.

There were various studies indicated that complementary therapies, and supportive care help in controlling of nausea, vomiting, fatigue and anxiety suffered during chemotherapy<sup>[22]</sup>. The nurses should be informed about complementary therapies and non-pharmacological methods to regain confidence and relive unwanted effects of chemotherapy and other treatments of cancer<sup>[23]</sup>. Complementary therapies are not cure the cancer, but they aim to reduce the clinical picture of the disease, lessen the complications of conventional treatment and promote individuals well-being and quality of life<sup>[24, 25]</sup>.

Massage is an antique method that includes handling muscles and rubbing or stroking soft tissues of the body. Massage "well-defined as a manual systemic stimulation of the body's soft tissues assist in maintaining blood and lymphatic flow, relax muscles, control pain, lessen fatigue and improve the pattern of sleep<sup>[26]</sup>. It is considered a type of alternative therapy which aims to treat the whole body, not just the symptoms of disease. It is beneficial for cancer patients. Light, relaxing massage is safe to patients at all cancer stages. Cancer sites should not be massaged to avoid pain or pressure on the affected area and underlying structures. Complementary therapies aren't used as an alternative for conventional treatments of cancer but, they used together<sup>[27]</sup>.

There are many studies showed that massage Lessens; pain, fatigue, nausea, vomiting, anxiety<sup>[28, 29]</sup> and persons who received massages during chemotherapy have conveyed a variety of positive outcomes such as improvements in the pattern of sleep, quality of life, mental clarity and alertness<sup>[30, 31, 32]</sup>. Back massage is a significant procedure and it is performed by the nurses in various aspects of patients' care. In the current study we tried to examine the effect of back massage on nausea, vomiting, anxiety and fatigue among breast cancer women who treated by chemotherapy.

### **Significance:**

The cancer treatment modalities have adverse effects because they affect healthy cells as well as unhealthy cells. It is imperative that more attention should be provided to control these side effects through complimentary therapies and supportive care beside pharmacological measures<sup>[10]</sup>. There are numerous researches showed that, massage improve chemotherapy related symptoms<sup>[26]</sup>. Back massage is an important nursing procedure. However, there are no sufficient research studies to demonstrate the effects of back massage provided by the nurse during chemotherapy on acute chemotherapy-induced, nausea, vomiting fatigue and anxiety. In Egypt, the experimental researches specific to alternatives treatment approaches directing to control the side effects of chemotherapy is little in number, so we try to test the influence of back massage on anxiety level, fatigue, nausea and vomiting.

**The Study Aim:** to evaluate the effect of back massage on nausea, vomiting, anxiety and fatigue among breast cancer women receiving chemotherapy.

**Hypotheses:**

1. The study group subjects who receive the back massage experience significant reduction in the chemotherapy related nausea and vomiting than the control group subjects.
2. The subjects in the study group who receive the back massage during chemotherapy had a significant decrease in the anxiety score when compared with the subjects in control group.
3. The patients in the study group who receive the back massage during chemotherapy had a significant reduction in the fatigue level as compared with the patients in the control group.

## **II. Subjects And Method**

**Research Design:**

A quasi-experimental research design was used to attain the aim of the study.

**Setting:**

The present study was conducted at chemotherapy unit, Oncology Institute, Menoufia University Hospitals–Menoufia Governorate - Egypt.

**Sample**

A purposive sample including 98 women with breast cancer who come to chemotherapy unit, oncology Institute, Menoufia University Hospitals to receive cycles of chemotherapy and fulfill the inclusion criteria. The study subjects were divided randomly and alternatively into two equal groups 49 patients in each group as follows:

- The study (intervention) group (I): received routine hospital care and back massage during the session of chemotherapy.
- The control group received only routine hospital care.

**Inclusion criteria:**

- The women, who agreed to participate in the study, treated with chemotherapy after breast surgery with the same chemotherapeutic agents, took at least two cycles of chemotherapy at the beginning of the study and didn't had skin lesion or injury at the site of massage.

**Exclusion criteria**

- Patients with mental history of anxiety disorders, patients with metastasis (in late stage) and the patients with cancer in another site.

**Sample size:**

The ideal sample size was calculated by **the following equation** that offers sample size calculator through these values: level of confidence, population size and margin of error (confidence interval) (Israel, 2013)<sup>[33]</sup>.

$$n = \frac{N}{1 + N(e)^2}$$

Where; n= sample size; N= total population number (129); e= margin error(0.05).

**Instruments of data collection:**

There are four instruments were used by the researchers to achieve the aim of the study and gather the necessary data. These instruments were as follow:

**I: Interviewing Questionnaire sheet:**

It was developed by the researchers. It was included two parts:

**Part 1:** related to patient's demographic characteristics such as age, marital status, educational level occupation, residence, economic status... etc.

**Part 2:** Medical data as: stage of cancer, cancer family history in the first degree relatives, presence of other disease with breast cancer, the most common disease, the number of chemotherapy cycle before the beginning of the study....etc.

## **II: Rhodes Index of Nausea, Vomiting (RINV).**

It was developed and validated by Rhodes and McDaniel (1999)<sup>[34]</sup>. It is five linkert point scale, it was translated into Arabic language and modified to fit Egyptian society. It was used evaluate nausea, vomiting induced by chemotherapy in a period of 24 hours. It consisted of 6 items.

Scoring system: each item scored from zero to four as follows: 0 donated no distress and 4 indicated maximum distress. Items scores are summed for a total score to range from 0-24.

**Reliability:**Rhodes and McDaniel (1999)<sup>[34]</sup>test the reliability; the scale had high internal consistency with Spearman correlation coefficient equal 0.87. Also, **Ozdelikara and Tan (2017)**<sup>[35]</sup> tested the reliability of the questionnaire and found that, the alpha internal consistency coefficient = 0.94.

## **III: Beck Anxiety Inventory (BAI) (Beck AT, Steer RA, 1993)**<sup>[36]</sup>:

It was developed by **Beck, Epstein, Brown and Steer (1988)**<sup>[37]</sup> and used to assess the severity of anxiety. It consists of twenty one items such as numbness or tingling, feeling hot, wobbliness in the leg, nervous and dizzy or lightheaded ....etc.

Scoring system: the questionnaire is 4 point scale ranged from zero to three. In which zero means not at all, one donated mild, two means moderate, while three referred to severe experiences of the anxiety symptoms. The total score was summed; higher total scores indicate more severe anxiety symptoms, the possible score ranged from 0 to 63 and the patients were categorized into four groups based on their scores in which a score from 0–9 denoted normal anxiety, a score from 10–18 referred to mild anxiety, a score from 19–29 referred to moderate anxiety and a score from 30–63 denoted severe anxiety.

**Reliability:** Fydrich, Dowdall, and Chambless (1992)<sup>[38]</sup> tested the reliability of the questionnaire and told that the questionnaire had high internal consistency (Cronbach's alpha = 0.94) with high-test re-test reliability.

## **IV: The Brief Fatigue Inventory (BFI):**

It was developed by **Mendoza et al (1999)**<sup>[39]</sup>, it included nine items, every item measured on 0 –10 numeric rating scales. The first three items ask patients to rate the severity of their fatigue at its “worst,” “usual,” and “now” during the past 24 hours, with 0 referred to “no fatigue” and 10 means “the worst fatigue.” The other six items assess the amount that fatigue has interfered with various aspects of the patient's life during the past 24 hours. The interfering items comprise general activity, mood, walking ability, normal work, relations with other people and enjoyment of life. The interference items are measured on a 0 –10 scales, with 0 being “does not interfere” and 10 being “completely interferes. The total score of BFI the sum of the nine items into 9

The scoring system has been interpreted as follows: 0” referred to no fatigue at all, “1–3” indicated mild fatigue level, “4–6” denoted moderate fatigue level, “7–9” donated high fatigue level and “10” means worst fatigue.

**Reliability:** **Mendoza et al (1999)**<sup>[39]</sup> tested the validity and reliability of the scale based on 303 patients and 275 normal persons. Construct validity and reliability were shown by factor analysis; this procedure identified a single underlying construct among the nine BFI items and showed that the BFI It is a reliable (internally stable) instrument. The factor loadings ranged from 0.81 for usual fatigue to 0.92 for activity.

## **Methods**

- Formal endorsement was attained from administrative authorities of the site where the study was conducted in after a clarification of the study purpose.
- Tools development: After revising the literature extensively, the study Instrument I was developed by the researchers while the Instruments II, III and IV were approved by Rhodes and McDaniel (1999)<sup>[33]</sup>, Beck, Epstein, Brown and Steer (1988)<sup>[36]</sup> and Mendoza et al., (1999)<sup>[38]</sup> respectively. They were tested for their contents validity by a panel of five experts in oncology Nursing and oncology medicine to find out applicability and integrity of instruments.
- The reliability of the interviewing questionnaire for socio-demographic characteristics and Medical data was measured using a test and retest technique and Pearson correlation coefficient formula to determine relevance and consistency of the tool to measure their items. The value was  $r = 0.89$ .
- **Ethical considerations and human rights:** An official letter was taken from ethical review committee of the Faculty of Nursing was delivered to university hospital, and approval to conduct this study was obtained after clarification of the aim of the study. A written consent to participate in the study was taken from all patients after explaining the aim of the study, and they were informed that all collected data would be totally confidential and only will be used for the research purposes. The researchers stressed that

participation in the study is voluntary and anonymity of the participants were maintained through coding data. Subjects were also told that rejection to participate in the study would not influence their care.

- **Pilot study:** A pilot study was conducted before data collection on ten patients (about 10%) to check all tools for clarity, objectivity, viability and the applicability. Also, it was conducted to identify any problem related to administration of the instruments and measure the time required for data collection then the necessary modifications were carried out accordingly. Data included in pilot study was excluded from the current study.
- **Data collection Procedure: -**
  - Data was gathered over a period of 7 months from the end of May 2018 to the end of January 2019.
  - The participants of the study were selected and separated randomly and alternatively into two equal groups. Study group (I) received routine hospital care and back massage during session of chemotherapy. The control group (II) received only routine hospital care
  - Before starting chemotherapy all patients interviewed to get personal Information and medical data. Also INV, BAI and BFI questionnaires were filled in through direct interviews with all the patients sharing in the study to obtain base line data.
  - The socio-demographic data and information scale by using the tools II, III and IV respectively took about 25 to 35 minutes
  - **For the study group:**
    - ✓ The back massage was applied to study group for 15 minutes three times before the infusion, at the middle of the session and directly after the chemotherapy
    - ✓ The room environment was adjusted, the light was turned off and the door was closed to diminish interruptions and assure relaxing environment as possible.
    - ✓ The patient received information about and purpose and duration of massage
    - ✓ The patient privacy and security were considered by separating hers from others through closing of bed curtains.
    - ✓ The patient is seated on massage table leaning her head on a pillow. Ensure patient's position is comfort to receive massage.

***The technique of back massage:***

1. The researcher warmed his hands by rubbing, and put some Vaseline on the skin for lubrication.
  2. The back massage was initiated from the waist with long-slow effleurage and directed toward the cervical spine area with circular movements. Effleurage is a repeated circular smoothing and stroking movement made with the palm of the hand in the beginning and end of massage., it was done for 5 minutes in the start of massage and another 4 minutes at the end of massage,
  3. The second phase of back massage was petrissage for 3 minutes; petrissage is clutching of the skin layers and muscles with the thumb and other fingers and making cycles of regular lifting, squeezing, and releasing of tissue in the same direction to the muscle fibers. We used two hands and started from the waist and continual to the shoulders and arms.
  4. After petrissage the researchers start the third phase of back massage for 3 minutes by applying circular friction movements by fingertips starting from the sacroiliac region to the occipital area and this repeated several times,
  5. The effleurage was applied again for 4 minutes.
  6. At the end of massage, the excess Vaseline was removed and patient's skin was cleaned
    - ✓ BAI was applied after chemotherapy to assess the effects of back massage on anxiety level.
    - ✓ Patients were contacted by telephone to fill the Rhodes index of nausea, vomiting to evaluate the effect of massage on chemotherapy related nausea and vomiting during the 24 hours after chemotherapy.
    - ✓ The level of fatigue experienced at home in the day following chemotherapy was assessed through Telephone calls.
- All steps were done with the individuals in the control group except that they did not receive back massage during chemotherapy.
  - Both the study group and the control group were patronized by the same way throughout the study, and the contact and interaction with the persons in both groups were accomplished by the same manner.
  - The comparison between both groups was carried out to evaluate the effeciacy of back massage on nausea, vomiting, anxiety and fatigue among breast cancer women.

### I. Statistical Analysis

The collected data were organized, arranged and statistical analysis was done by using SPSS software (Statistical Package for the Social Sciences, version 20. For quantitative data, the range, mean and standard deviation were calculated. The frequency and percentage were calculated of each category of qualitative data and then comparison between the both groups was done using Chi-square test ( $\chi^2$ ). For comparison between means of two groups of parametric data, t-test was used. Pearson’s correlation coefficient (r) was used to find the correlation between variables. Significance was adopted at  $p \leq 0.05$  for interpretation of results of tests of significance [40].

### III. Results

**Table (1)** presented that the mean age of the patients in the massage group and the control groups was (51.2 and 49.58, respectively) and the common age group was over 50 years. Moreover, more than two-thirds of women in the both groups were married. The most common educational level in the subjects of the study and the control group was secondary education; it was (51.14% and 59.17%, respectively). About two-thirds in each group were employees and the majority of them live in urban areas. Concerning to economic status, most of them in both groups had moderate and low economic conditions.

**Table (2)** described that most of cases in study and control group were in stage III (71.43% and 69.39%, respectively). More than half of subjects in both groups had family history in the first degree relatives and more than two-thirds in both groups had not any disease with breast cancer.

**Table (3)** showed that, the incidence rate of nausea and vomiting respectively was (40.81% and 24.49%) in the study and (42.85% and 22.44%) in the control group in chemotherapy session before the study.

**Table (4)** revealed that no statistically significant differences were existed between the both groups before the massage concerning to the total score of RINV scale and its items but a significant improvement in the study group compared to the control group were found after massage where the  $p \leq 0.001$ .

**Figure (1)** indicated that the total score of RINV scale reduced significantly in the study group than the control group after massage.

**Figure (2)** demonstrated a significant reduction in anxiety levels in the study group compared to the control group after back massage. Where the severe anxiety decreased from 44.90% to 24.48%. but the severe levels of anxiety increased from 42.86% to 48.99%.

**Table (5)** displayed that no statistically significant difference was found between the study and control groups before massage in relation to mean score of anxiety. However, after massage, a highly significant difference was found between the both groups and study group had highly significant reduction in the anxiety score but the control group had significant increase in the anxiety score. The p values were 0.000 and 0.049, respectively.

**Table (6)** clarified the relationship between the study group and the control group concerning to BFI score and showed a statistically significant decrease in BFI score in the study group than the control a group after massage with p value  $\leq 0.001$ , while control group had significant increase in BFI score after chemotherapy than before chemotherapy.

**Table1:** Distribution of demographic characteristics among studied subjects in the study and control group.

	Study group N=49		Control group N=49	
	No	%	No	%
<b>Age groups</b>				
≤ 50	14	28.57	12	24.49
>50	35	71.43	37	75.51
<b>X ± SD</b>	51.2 ± 7.43		49.58 ± 8.21	
<b>Marital status</b>				
• married	35	71.43	33	67.35
• single	7	14.29	6	12.24
• divorced	3	6.12	4	8.12
• widow	4	8.16	6	12.44
<b>Education</b>				
• Illiterate	4	8.16	3	6.12
• Read and write	10	20.41	9	18.37
• Secondary	28	57.14	29	59.18
• university	7	14.29	8	16.32
<b>Occupation</b>				
• Employee	34	69.38	30	61.22
• Housewife	15	30.62	19	38.78
<b>Residence</b>				
• Urban area	30	61.22	31	63.26
• Rural area	19	38.78	18	36.74

<b>Economic status</b>				
• Low	18	36.73	17	34.68
• Moderate	24	48.98	26	53.06
• High	7	14.29	6	12.24

**Table 2:** Frequency and percentage distribution of medical data for patients in the both groups.

	Study group N=49		Control group N=49	
	N	%	N	%
<b>Stage of cancer</b>				
• Stage I	4	8.16	4	8.16
• Stage II	10	20.41	11	22.45
• Stage III	35	71.43	34	69.39
<b>Family history in the first degree relatives</b>				
• Yes	29	59.18	27	55.10
• No	20	40.82	22	44.90
<b>Presence of other diseases with cancer,</b>				
• Yes	15	30.62	13	26.53
• No	34	69.38	36	73.47
<b>The number of chemotherapy cycle prior to the study</b>				
• Two cycle	37	75.51	35	71.43
• More than 2cycle	12	24.49	14	28.57

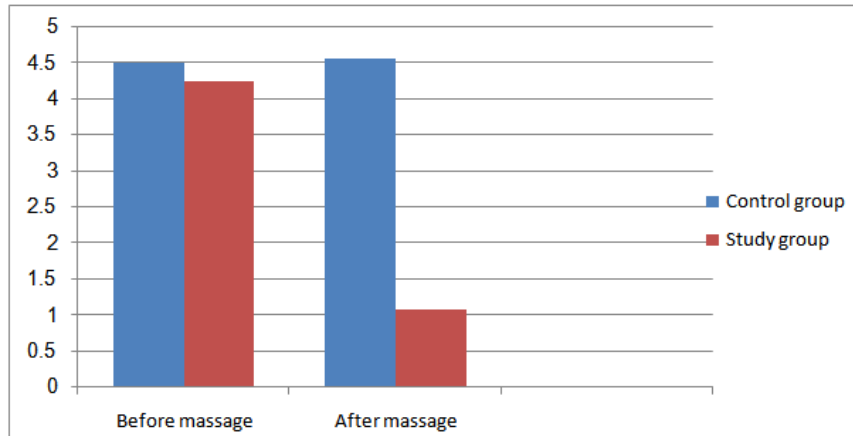
**Table 3:** the incidence rate of nausea and vomiting studied subjects in the both groups in the sessions of chemotherapy before the study

variable	Incidence rate		p-value
	Study group (N=49) N (%)	Control group (N=49) N (%)	
Nausea	20(40.81%)	21(42.85%)	.462
Vomiting	12(24.49%)	11 (22.44%)	.432

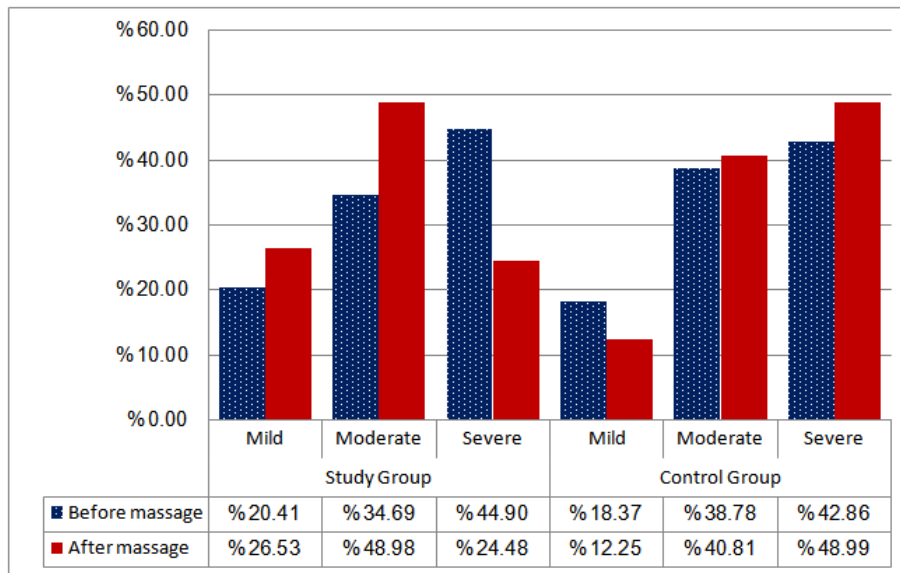
**Table 4:** The difference between subjects in the study and the control groups as regards RINV scale before and after massage

Items of the scale	In the previous sessions before back massage		P value	After back massage		P value
	Study group N = 49	Control group N = 49		Study group N = 49	Control group N = 49	
Vomiting frequency	0.71 ± .62	0.72 ±0.59	.333	0.15 ±.19	0.70 ± 0.48	0.001
Vomiting distress	0.75 ±0.57	0.73 ± 0.49	.331	0.13 ± 0.11	0.74 ±0.53	.000
Vomiting severity	0.81 ± 0.72	0.82 ±0.61	.244	0.23 ± 0.22	0.79 ± 0.51	.001
Nausea duration	0.91 ±0.71	0.79 ± 0.63	.453	0.19 ± 0.18	0.89 ± 0.61	.000
Nausea severity	0.73 ± 0.69	0.75 ± 0.56	.299	0.22 ±0.15	0.74 ± 0.52	.000
Nausea frequency	0.71 ± 0.59	0.70 ± 0.48	.312	0.16 ± 0.11	0.71 ± 0.44	.000
Mean of total score	4.26 ± 3.90	4.51 ± 3.36	.620	1.08 ± 0.96	4.57 ± 3.09	.000

**Figure 1:** the mean of total score of Rhodes Index of Nausea and Vomiting scale for the study and the control group before and after massage



**Figure 2:** the distribution of Anxiety levels among the study and the control group before and after back massage



**Table5:** The comparison the study and control group concerning to total anxiety score before and after back massage

Groups	Study Group (n =49)	Control Group (n =49)	P-value
	Mean ± SD	Mean ± SD	
Before back massage	37.32 ± 9.13	35.98 ± 11.45	.428
After back massage	19 ± 5.62	39.11 ± 10.65	000*
p-value	0.000*	0.049*	

**Table 6:** The comparison between the patients in the study and the control groups concerning to the total score of BFI before and after massage.

Time of assessment	Study group (n =49) M ± SD	Control group (n =49) M ± SD	P-value
Before massage	4.89 ± 2.81	4.7 ± 2.72	.428
In the 24 hours after massage	1.98 ± 1.03.	5.5 ± 2.11	000**
p-value	0.000**	0.050	



#### **IV. Discussion**

It is noteworthy that there is a great interest in the use of complementary therapies (CTs) for cancer patients where these treatments could improve physical & psychological health, enhances immunity, diminish the adverse effects of chemotherapy and improve patient's compliance<sup>[41]</sup>. It is unique chance for nurses to practice CTs as this helps them to provide holistic care for the patients<sup>[42]</sup>.

Massage is one of the complementary approaches that used for improving the outcome and controlling effects of conventional therapies in cancer patients. There were many studies that underscore the influence of massage in reducing side effects of chemotherapy as pain, fatigue, anxiety, nausea and vomiting<sup>[43, 44]</sup>. A little was known about the effect of back massage on controlling effects of chemotherapy. In the current study we conduct a clinical trial to recognize effect of back massage on fatigue, anxiety, nausea and vomiting induced by chemotherapy in breast cancer women. The results of this study will be discussed as follows:

Looking at demographic and medical data: the findings which obtained by the study revealed that the majority of the breast cancer women included in the study had age over 50 years, married, employed, and live in urban areas, this similar to Ngowa et al<sup>[45]</sup> who reported the same findings in a study about breast cancer survival in Cameroon. The finding of the study also stated that most of the patients had secondary school education, low and moderate socioeconomic conditions and had family history for breast cancer in the first degree relatives, these results consistent with Al-Nuaimi et al & Rizvi et al<sup>[46, 47]</sup> in studies to assess the demographic profile for breast cancer patients. The study showed that most of women in both groups are detected in stage III, and this indicate late stage detection and reflect needs of the women in this community for health education about breast health and breast self-examination.

The findings of our study reported that the incidence of nausea related to chemotherapy was 40.81% and 42.85% respectively in the study and the control groups. It also reported that vomiting incidence rate ranged from 22.44% to 24.49% among studied subjects in both groups. There were several studies done in this field to assess incidence of nausea and vomiting among breast cancer patients receiving chemotherapy as Galizia et al<sup>[14]</sup> who stated that, about 30% to 31% of patients suffered nausea and 9 to 11% reported vomiting in the first and third cycles of chemotherapy. The result of the current study was in line with Fernández-Ortega et al<sup>[11]</sup> they told that 44.5% of patients had nausea and 39.3% of them had vomiting during the cycles of chemotherapy.

In relation to the effectiveness of back massage on nausea and vomiting, the study concluded that there was no statistically significant difference between both groups in the sessions before back massage but after back massage the study group had less nausea and vomiting and had significant lower score in Rhodes Index of Nausea and Vomiting scale during the 24 hours after chemotherapy than the control group. So, it can be said that the hypothesis H1, which stated that "study group subjects who receive the back massage experience significant reduction in the chemotherapy related nausea and vomiting than the control group subjects was supported" and we can said that the back massage is an important nursing practice during cycle of chemotherapy. However, in the literature, this supported by Vanaki et al<sup>[48]</sup> who reported that the duration, frequency and severity of nausea were significantly lower in the massage group. Our results also enforced by Mao et al<sup>[28]</sup> who stated that the integrative oncology massage program for patients with breast cancer during the session of chemotherapy resulted in significant and immediate short-term decreases in nausea. Other many studies in line with the result of the current study and stated the massage had beneficial effects in controlling chemotherapy related nausea and vomiting as the studies done by Billhult et al, Russell et al & Walters<sup>[49, 50, 51]</sup>.

In reference to anxiety level among the patients included in the study it observed that the anxiety score in the study group participants reduced after chemotherapy. On the contrary the anxiety score increased in the control group after chemotherapy. Before the intervention of massage, there was no significant difference between both groups as regards anxiety and they were compatible. But the statistically significant difference was found between two groups after massage. So it can be said that the hypothesis 2 which stated that "The subjects in the study group who receive the back massage during chemotherapy had a significant decrease in the anxiety score when compared with the subjects in the control group was supported". Therefore it can be believed that back massage during chemotherapy is an effective nursing procedure in reducing anxiety suffered by patients. These results matched to Karagozoglu, & Kahve<sup>[52]</sup> who concluded that conducting back massage during chemotherapy improved anxiety level in cancer patients after chemotherapy. This also agreed with BASIRI et al<sup>[53]</sup> to examine the effect of slow-stroke back massage on the anxiety of old women patients with breast cancer receiving chemotherapy, it indicated that the mean anxiety score was decreased significantly in the experimental group when compared to the control group after chemotherapy. Myers et al Quattrin et al & Campeau et al<sup>[54, 55, and 56]</sup> supported the findings of the current study about the effect of massage therapy on reduction of anxiety related chemotherapy.

In the current study when the researchers compared BFI scores of studied subjects which were got before, and in the 24 hours after chemotherapy they observed that, the control group patients' fatigue level in the day following chemotherapy was higher than those before chemotherapy. However, the patients' fatigue levels in the massage group statistically significantly decreased when it was measured after chemotherapy and

compared with the control group Thus, it can be said that the hypothesis H3 which stated that " The patients in the study group who receive the back massage during chemotherapy had a significant reduction in the fatigue level as compared with the patients in the control group" was supported and it can be said that the back massage is an effective nursing practice in controlling fatigue related chemotherapy. The previous mentioned findings agreed with Gerber et al<sup>[57]</sup> which assessed the level of fatigue after chemotherapy, they listed that seventy to hundred percent of the patients who receiving chemotherapy had fatigue. Lee et al<sup>[58]</sup> told that the maximum fatigue level was observed on the day of chemotherapy. There were many studies that point to effect of massage on fatigue related chemotherapy as Karagozoglu & Kahve<sup>[52]</sup> mentioned the fatigue level can be brought under control through practicing of back massage during administration of chemotherapy in cancer patients, where the fatigue level was significantly reduced in the intervention group which received back massage during infusion of chemotherapy. Miladinia et al<sup>[59]</sup> concluded that the slow stroke back massage for 15 minutes at the end of chemotherapy reduced fatigue level in patient with acute leukemia. Our study results also supported by Mao, et al<sup>[28]</sup> they assessed the effectiveness of an integrative oncology massage program for patients with breast cancer in the chemo-infusion suites of a large, urban academic cancer center. They found that the massage program led to reduction in the fatigue level and other **symptoms** related to chemotherapy.

Finally the study displayed the effectiveness of the complementary and supportive nursing interventions that aid breast cancer women in coping with the side effects of chemotherapy. In addition, the study findings were indicated that the back massage is helpful nursing practice in reducing symptoms related to chemotherapy as nausea, vomiting, fatigue and anxiety.

## V. Conclusion

Based on the study finding the researchers concluded that the implementing of back massage during chemotherapy session in breast cancer women decreased anxiety, fatigue as well as nausea and vomiting significantly in the intervention group.

## VI. Recommendations

The study recommended:

- Increase awareness of health professionals especially the oncology nurses about the positive effects of back massage during chemotherapy.
- The nurses should be encouraged to apply this intervention
- Repeat the study with larger number of participants to generalize the results.

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