

## Health Promotion Program among Breast Cancer Clients Receiving Chemotherapy in South Governorates in Gaza

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### Abstract

Worldwide breast cancer was the second most common cancer when men and women were analyzed together. It is estimates there were 1.5 million new cancer cases in the United States in 2010 and 569,490 deaths. In Palestine the top cancer incidence among women is cancer breast. **The aim of this study** is to evaluate the effects of health promotion program among breast cancer clients during their chemotherapy in south governorates of Gaza Strip. **Aquai-experimental design** (pre-test/post-test) was used in this study; **The study sample** was 50 subjects were selected randomly from European Gaza Hospitals oncology outpatient clinic. **Tools and data collection:** 1-Structured interviewing questionnaire was used to collect data on socio-demographic characteristics, 2-(pre-test post-tool) based on Pender,s model which related to knowledge and practice, life style, physical activities, psychological and social role performance. The educational program was delivered Individual health promotion program comprised two teaching interviews with five sessions, scheduled over two weeks of clients visit. **Results** revealed that there was statistical significant difference between pre and post test in health promotion program in most variables related to clients knowledge about breast cancer and it's treatment side effect, benefits of nutrition and exercise during chemotherapy course, either the result illustrate significant improvement in physical , psychological and social role performance and practice after the health promotion program. **The study results concluded and recommended that:-** The health promotion program for breast cancer clients under chemotherapy had improve the knowledge and practice concerning the side effects, and management of breast cancer as physical, psychological activities ,life style, and social role performance .Establish special oncology nursing courses for all nurses whom working with cancer clients to increase their knowledge and practice in how to deal and care of cancer client who under chemotherapy treatment.

**Keywords:** health promotion program, breast cancer, chemotherapy side effects,. south governorates in Gaza.

### 1. Introduction

Cancer is a group of disease characterized by uncontrolled growth and spread of abnormal cells, anyone can develop cancer, since the risk of being diagnosed with cancer increases as individuals age, for that most cases occur in adults who are middle-age or older, and about 78% of all cancers are diagnosed in persons 55 years and older. The American Cancer Society, (2010) estimates there were 1.5 million new cancer cases in the United States in 2010 and 569,490 deaths. (American cancer society, 2010). Eleven million cases of cancer now occur annually worldwide, six million of them in low- and middle-income countries (LMCs). Five million deaths from cancer occur each year in LMCs (Medicus Mundi Switzerland, 2007). Cancer is a leading cause of death worldwide it accounted for 7.6 million deaths (around 13% of all deaths) in 2008, Lung, stomach, liver, colon and breast cancer causes the most cancer deaths each year, the most frequent types of cancer differ between men and women, about 30% of cancer deaths can be prevented (WHO, 2011).

Worldwide breast cancer was the second most common cancer when men and women were analyzed together and this represents 10.9% of all cancers (excluding non-melanoma skin cancer). Either breast cancer is the top cancer among women it consists (23%), among total cancers incidence of all female cancers (WHO, 2008). Breast cancer is by far the commonest cancer in women in the UK accounting for 31% of all cases in women. The next most common cancer in women is lung cancer, with 17,960 cases (12% of total) in 2008. So nearly a third of all new cancers in women are breast cancers (Cancer research UK, 2008).

According to cancer registry centers, in West Bank and Gaza Strip, epidemiology of cancer morbidity indicated that the total reported new cases were 1,623 (1,168 in the west bank, and 455 in Gaza Strip), with an incidence rate of 43.1 per 100,000 population, (49.2 per 100,000 in the West Bank, 32.7 per 100,000 in Gaza Strip), incidence rate for male was 37.7 per 100,000 with proportion of 44.8% of total reported cases, and incidence rate among female was 48.3 per 100,000 with proportion of 55.2% of total reported cases (MOH, 2006).

Cancer was the second cause of deaths in Palestine, and about (21%) of the leading causes of death (MOH, 2010). Cancer breast was the most common cancer in both sexes (13.3%) of total cancer incidence in Palestine, and it estimated that (31.5%) among female cancer (about 45.9% in Gaza, 17.5% in West bank), cancer breast in

Gaza consist (27.3%) of total cancer incidence among both sexes (MOH, 2008). Chemotherapy drugs used to kill or slow the growth of cancer cells; these drugs are also called cytotoxics, there are many different types of chemotherapy drugs, sometimes only one drug is used but many people are given two or more drugs at the same time, this is called combination treatment. Chemotherapy can produce different reactions in different people, some people will have no side effects, others may have a few, and reactions can also vary from one chemotherapy treatment period to the next. However, many side effects can be controlled or reduced (The Cancer Council New South Wales, 2011).

Adverse effects of chemotherapy can be severe and can have a significant impact on a person's quality of life. With chemotherapy treatment increasingly administered in the ambulatory setting, there is a need for patients to be informed about effective self-care strategies to manage treatment adverse effects. Advice for patients needs to be based on evidence (Kerryann et al., 2008).

### **Significant of the study**

In Palestine the top cancer incidence among women is cancer breast. The most cancer mortality rate among breast cancer women is (9.8%), among total cancers mortality (WHO, 2008). Patients undergoing chemotherapy are at risk of developing treatment-related symptoms, such as neutropenia, anemia, nausea/vomiting, and anxiety. When treating patients with cancer, clinicians primarily focus on treating and controlling the tumor, sometimes neglecting the side effects of the treatment. Yet, deficiencies in supportive care can compromise treatment outcomes. Poorly managed side effects and symptoms may result in delayed therapy, dose reductions, omitted doses, increased hospitalizations, and poor quality of life.

Oncology clients in Gaza always feel apprehensive when chemotherapy is prescribed, and the problem becomes worse when they start to feel the side effects of chemotherapy, clients try to ask other clients about how to manage these side effects at home, and those clients do not have health education guideline for the management of chemotherapy side effects. After review of the literature there are many studies concerning the health education about chemotherapy side effect like: hair loss, hematological problems, nausea and vomiting, psychological stress, and social disturbances. Side effect of chemotherapy were studied each one as a separate variable. There is no previous studies done in Gazae in this subject, so this study was the first one in this issue, and it concerned with the cancer client as a whole (biopsychosocial), so it explore and manage the side effects which occur with cancer client, health promotion concept means holism, the holistic approach takes the broadest possible view of wellness for cancer client, holistic approach is an ongoing process. As a healthy lifestyle, it includes a personal commitment to be moving toward the right end of the wellness continuum.

### **Aim of the study**

The aim of this study is to evaluate the effects of health promotion program among breast cancer clients during their chemotherapy in south governorates of Gaza Strip. The study examined the difference in knowledge, practice outcomes among 50 adult study subject with breast cancer who met the inclusion criteria and attending to oncology outpatient clinics at European Gaza hospital after receiving educational program.

### **Research hypotheses**

The following hypotheses will be tested to determine the effect of health promotion program on the health improvement of chemotherapy clients in Gaza Strip.

1. There will be higher scores of physical activities of chemotherapy breast cancer clients after being exposed to health promotion program.
2. There will be higher scores of psychological activities of chemotherapy breast cancer clients after being exposed to health promotion program.
3. There will be higher scores of social role performance of chemotherapy breast cancer clients after being exposed to health promotion program.

## **2- Material and Methods**

### **2-1 Research design:**

A quasi-experimental design was used in this study, the researcher couldn't use control group due to an ethical concern. This study was pre/post-test intervention.

### **2-2 Setting of the study**

This study was conducted in oncology day-care unit in European Gaza Hospitals. This unit serves chemotherapy treatment for the cancer client in the south governorates in Gaza (Rafah governorate and Khanyonis governorate).

### **2-2 Sample:**

The sample consist of 50 subjects were selected randomly from European Gaza Hospitals oncology outpatient clinic.

### **2-3 Study subjects:**

Any female cancer client age 40 -59 years old had been diagnosed as breast cancer, and has received 2-3 chemotherapy cycle of his 6 cycle in the chemotherapy protocol.

### **2-4 Tools of data collections:**

Two tools was constructed by the researcher and used in this study after the testing for their validity by a group of experts from different specialty like community health nursing, medical surgical nursing, and oncology. They were administered at the beginning and the end of data collection times i.e. (pre and post implementation of the educational intervention program). The researcher administered that questionnaire at the initial meeting at the day-care oncology unit; and post-test was done in the place where the clients reside. These tools include:

#### **I. Structured interviewing questionnaire**

The Data in this questionnaire include;

- Socio-demographic data about the client: age, gender, marital status, personal characteristics, job, place of residency and current client medical status.
- Client knowledge about his disease, treatment and the side effect of that treatment.

#### **II. Constructed scale based on Pender health promotion lifestyle**

This tool based on the six dimensions of Pender's model:

- Exercise (physical activities): e.g. many physical activities can be done by the client, regular physical exercise
- Nutrition: e.g. item about what to do and not to do when feel nausea and vomiting, and what is the proper food for cancer client.
- Interpersonal support: e.g. relationship between the patient with his family, friends, and the community
- Stress management: e.g. psychological status and its effect on life.
- Self-actualization and health responsibility: e.g. the ability of the client to do what she can do with maximum potential.

### **2-5 Scoring system**

The researcher used scoring system in the questionnaire which measured the client knowledge about his disease, treatment and the side effect of that treatment. This questionnaire described the following:

#### **I. Structured interviewing questionnaire to measure the total knowledge of breast cancer:**

- Knowledge about the breast disease contained 3 questions with 14 choices each choice weighted with 1 score, so total cancer breast knowledge scores was 14 scores.
- Knowledge about of breast cancer treatment and the side effect of that treatment contained 4 questions with 15 choices each weighted 1 score; so that total breast cancer treatment and it's side effect knowledge scores was 15 scores.
- The total cancer breast knowledge contained seven questions with 29 choices and 29 scores.

#### **II. Constructed scale based on Pender health promotion to measure the knowledge and practices which affect lifestyle**

- Knowledge concerning physical activities and nutrition projected in 7 questions with 25 choices and 25 scores.
- Scale to measure Physical activities behavior and fatigue included 14 item each item was rated with, always = 3, sometimes = 2, never =1.
- Scale to measure nutritional behavior what to do and not to do when feel nausea and vomiting, and what is the proper food for cancer client.

### **2-6 Tools Validity**

Two tools were constructed by the researcher and used in this study after the testing for their validity by a group of experts from different specialties like community health nursing, medical surgical nursing, psychological health nursing and oncology. They were administered at the beginning and at the end of data collection times i.e. (pre and post implementation of the educational intervention program). The researcher administered that questionnaire at the initial meeting at the day-care oncology unit; and post-test was done in the place where the clients reside.

### **2-7 Educational program**

The structured health promotion program and booklet were designed by the researcher after conducting advanced search and reviewing the related literature on local, regional, and global levels. Individual health promotion program comprised two teaching interview with five sessions, scheduled over two weeks of her visit. Each interview was about 30-45 minutes. The program and booklet covered the following issues: education about definition of cancer disease, treatment and its side effect, and education about lifestyle modification including dietary intake, physical activity, stress management, and socialization. The program was two interviews with five sessions for each one of the clients; the first interview for orientation and covered two sessions, the definitions of client's disease (cancer breast), and her chemotherapy. The second interview was how

to clarified bio-psychosocial lifestyle modification, including the third session was education about dietary intake and lifestyle modification, the fourth was how to do physical activity, and the fifth session was how to do stress management and socialization.

### **2-8 Ethical consideration**

- Human subject approval was received from the ethical committee at the faculty of nursing in Cairo University as well as from the MOH in Gaza Strip.
- Written consent from the director of general hospital directorate.
- Written Informed consent of participation before the first session and data will be kept confidential.
- Subjects informed that participation is voluntary and that the study poses no harm to them and they can withdraw at any time.

### **2-9 Procedure**

#### **The administration phase**

All the clients who are selected informed to obtain their consent for participating in the study and explained to them about the study plan and objectives and will assess their perceived knowledge, barriers, benefits, and their self-efficacy.

#### **The assessment phase**

All selected sample who match the criteria for inclusion were interviewed face to face by the researcher for data collection and fill the questionnaire after they taking at least two cycles of chemotherapy. Each one of the study subjects was participate in two interviews individually concerning the educational intervention program. The first interview was done at the outpatient oncology clinic at the European Gaza Hospital, in this interview each subject was assessed by the research tools as pre-program assessment, these tools includes socio-demographic assessment tool and other tools to assess knowledge, practice, socio-psychological status and self-realization.

#### **The implementation phase**

First session of educational program was given by the researcher, this session concerning knowledge about what is cancer breast and it's treatment, this session conducted after the client has at least two cycles of chemotherapy meaning that chemotherapy side effect started to affect the client quality of life. The second interview was done at each subject's home once week after the first session. In the second session the researcher was clarified bio-psychosocial lifestyle modification including education about dietary intake, lifestyle modification, physical activity, stress management and socialization.

#### **The evaluation phase**

After implementation of the health promotion program, all chemotherapy clients were reassessed three months after completion of the health promotion program using post-test tool. The study results were compared concerning pre and post implementation phase.

### **2-10 Statistical analysis**

The collected data was tabulated, and analyzed utilizing the (SPSS) program version 19. Descriptive analysis was done to describe socio-demographic factors these qualitative data were expressed as frequency in tables; inferential analysis was done by using independent Paired T test to test the differences between pre and post-test. Spearman correlation coefficient test used to test the relation between different variables and major socio-demographic factors. All reported P value compared to a significant level of 5% differences were been considered statistically significant at  $P \leq 0,05$ .

## **Results**

The results presented in the data which was collected from this cohort, data classified into the following:

**Section (1):** Description of the study clients' socio-demographic characteristics.

**Section (2):** Knowledge and physical activities of chemotherapy breast cancer clients before and after being exposed to health promotion.

**Section (3):** Psychological activities of chemotherapy breast cancer clients after being exposed to health promotion program.

**Section (4):** Social role performance of chemotherapy breast cancer clients after being exposed to health promotion program.

#### **Section (1): Description of patients' socio-demographic characteristics and study setting**

Table (1) reveals that 18% of the client's age was 40 – <45 years, 22% were 45 – <50 years, 44% were 50 to <55 years, and 16% of them were 55 to 59, mean  $\pm$  SD (50 $\pm$ 5.14). Marital status showed 74% married, 8% single, 4% divorced, and 14% widowed. The majority (46%) had secondary study level education followed by 18% preparatory, 16% university, 10% primary, 6% did not read or write, 2% with diplomas, while only 2% had postgraduate studies. Most of clients (60%) live in Khanyounis governorate, and the remained 40% of clients live in Rafah. Employment status shows that 84% of clients were housewives, only 14% held academic jobs and 2% were in vocational jobs.

Table (1): Distribution of clients' socio-demographic characteristics (n=50)

| Variable          |                       | Frequency | Percent |
|-------------------|-----------------------|-----------|---------|
| Age               | 40 – <45              | 9         | 18.0    |
|                   | 45 – <50              | 11        | 22.0    |
|                   | 50 – < 55             | 22        | 44.0    |
|                   | 55 – 59               | 8         | 16.00   |
|                   | Mean ± SD             |           | 50±5.14 |
| Marital status    | Married               | 37        | 74.0    |
|                   | Single                | 4         | 8.0     |
|                   | Divorced              | 2         | 4.0     |
|                   | Widow                 | 7         | 14.0    |
| Educational level | Did not read or write | 3         | 6.0     |
|                   | Primary               | 5         | 10.0    |
|                   | Preparatory           | 9         | 18.0    |
|                   | Secondary             | 23        | 46.0    |
|                   | Diploma               | 1         | 2.0     |
|                   | University            | 8         | 16.0    |
|                   | Post graduate         | 1         | 2.0     |
| Governorates      | Rafah                 | 20        | 40.0    |
|                   | Khanyounis            | 30        | 60.0    |
|                   | Others                | 5         | 10.0    |
| Employment Status | Vocational            | 1         | 2.0     |
|                   | Academy               | 7         | 14.0    |
|                   | Housewife             | 42        | 84.0    |

**Section (2): physical activities of chemotherapy breast cancer clients before and after being exposed to health promotion program**

Table (2) reveals the total client's knowledge about breast cancer, treatment of cancer breast, effects of physical exercise, and the benefit of nutrition between pre-test and post-test, it showed that the total mean scores knowledge of clients in pre-test was (23.8 ± 6.88) while it improved to (47.66 ± 3.80) in post-test with (t=-21.42, p=0.000) meaning that the total knowledge was improved after the educational programs.

Table (2): Total client's knowledge about breast cancer, treatment of cancer breast, the effects of physical exercise, and the benefits of nutrition pre post-test (n=50)

| Variable                                      | Total knowledge mean scores |                     | t             | p-value       |
|---|-----------------------------|---------------------|---------------|---------------|
|   | Pre-test                    | Post-test           |               |               |
|   | Mean ±SD                    | Mean ±SD            |               |               |
| Knowledge about breast cancer                 | 4.22 ± 2.28                 | 11.20 ± 1.61        | -17.61        | 0.000*        |
| Knowledge about breast cancer treatment plan. | 9.62 ± 2.16                 | 14.66 ± 0.59        | -15.87        | 0.000*        |
| Knowledge about the benefit of exercise.      | 1.10 ± 0.78                 | 2.98 ± 0.65         | -12.96        | 0.000*        |
| Nutritionnal knowledge.                       | 8.86 ± 2.82                 | 18.82 ± 1.81        | -20.95        | 0.000*        |
| <b>Total client's knowledge</b>               | <b>23.8 ± 6.88</b>          | <b>47.66 ± 3.80</b> | <b>-21.42</b> | <b>0.000*</b> |

\* P value is significant at level of ≤ 0.05 Total scores are 54

Table (3) illustrate that that the total mean of physical activities pre-test was (12.92±2.12), it changed to (22.56±1.80) after the educational program, so it was statistically significant differences with (t=-24.41, p=0.000). Also total fatigue mean scores level was increased after the educational program from (6.1±1.82) before the programs to (11.84±2.01) after the educational program with statistically significant differences (t=-14.94, p=0.000), there was improvement in client's activities to overcome nausea and vomiting after chemotherapy post the educational program, it shows that the total mean clients' activities pre-test was (9.9±1.85) changed to (22.4±1.04) in post-test after the educational program with statistically significant differences (t=-41.47, p=0.000), in relation to activities that avoided by clients during nausea and vomiting; it shows that the total mean scores in pre-test are (9.22±2.14) while the total mean scores increases to (17.48±0.97) in the post-test after the educational program with statistically significant differences (t=-13.63, p=0.000) there was positive changes in client's healthy nutritional activities to maintain health after chemotherapy after the educational program, it shows that the total mean scores in pre-test are (8.66±1.40) while the total mean scores

increases to (14.56±0.90) in the post-test with statistically significant differences in all these items ( $t=-24.90$ ,  $p=0.000$ ). Sum of total client's practice shows that (46.80±5.85) in pre-test while increased to (88.84±4.23) in the post-test with statistically significant differences in all these items ( $t=-41.12$ ,  $p=0.000$ ).

Table (3): Daily activities after chemotherapy and nutritional behaviors when experiencing chemotherapy side effects .pre post-test (n=50)

| Variable  | Total mean scores |                   | t             | P value       |
|---|-------------------|-------------------|---------------|---------------|
|   | Pre-test          | Post-test         |               |               |
|   | Mean ±SD          | Mean ±SD          |               |               |
| Daily physical activities scores after chemotherapy (total scores are 27)                               | 12.92±2.12        | 22.56±1.80        | -24.41        | 0.000*        |
| Fatigue after chemotherapy. (total scores are 15)   | 6.1±1.82          | 2.01±11.84        | 14.94         | 0.000*        |
| Activities to overcome nausea and vomiting. (total scores are 24)                                       | 9.9±1.85          | 22.4±1.04         | -41.47        | 0.000*        |
| Activities that avoided by clients during nausea and vomiting after chemotherapy. (total scores are 18) | 9.22±2.14         | 17.48±0.97        | -13.63        | 0.000*        |
| Healthy activities to maintain health. (total scores are 15)  | 8.66±1.40         | 14.56±0.90        | -24.90        | 0.000*        |
| <b>Total client's practice</b> (total scores are 99)  | <b>46.80±5.85</b> | <b>88.84±4.23</b> | <b>-41.12</b> | <b>0.000*</b> |

\* P value is significant at level of  $\leq 0.05$

**Section (3): Psychological activities of chemotherapy breast cancer clients after being exposed to health promotion program which include three domains to measure self-efficacy, psychological stress, and self-realization.**

Table (4) illustrates increment in clients' total mean scores of self-efficacy during chemotherapy, the total mean scores in pre-test was (10.44±1.90) increased in post-test to (22.56±1.18) that increment had statistically significant differences ( $t=-38.19$ ,  $p=0.000$ ), the total mean scores in pre-test was (22.3± 3.74) increased in post-test to (36.0 ± 2.89) after the educational program and that increment have statistically significant differences ( $t=-20.73$ ,  $p=0.000$ ), self-realization mean scores was in pre-test (12.9±2.17) while it was (21.06±2.09) in post-test, indicate that there was a statistical significance improvement with ( $t=-19.09$ ,  $p=0.000$ ) after intervention program.

Table (4): Psychological activities of chemotherapy breast cancer clients after being exposed to health promotion program (n=50)

| Variable   | Total mean scores |             | t      | P value |
|--|-------------------|-------------|--------|---------|
|  | Pre-test          | Post-test   |        |         |
|  | Mean ±SD          | Mean ±SD    |        |         |
| Total clients' self-efficacy (total scores are 24) | 10.44±1.90        | 22.56±1.18  | -38.19 | 0.000*  |
| Psychological status (total scores are 42)         | 22.3± 3.74        | 36.0 ± 2.89 | -20.73 | 0.000*  |
| Self-realization (total scores are 24)             | 12.9±2.17         | 21.06±2.09  | -19.09 | 0.000*  |

\* P value is significant at level of  $\leq 0.05$

**Section (4): Social role performance of chemotherapy breast cancer clients after being exposed to health promotion program which include two domains to measure social interaction and marital harmony.**

Table (5) indicates increment in clients' total mean scores of social interaction level after chemotherapy the total mean scores in pre-test was (21.32 ± 2.54) increased in post-test to (28.1±1.97) after the educational program and that increment have statistically significant differences ( $t=-14.89$ ,  $p=0.000$ ), either there is increment in clients' total mean scores of marital harmony after chemotherapy, the total mean scores in pre-test of (12.8 ± 1.62) increased in post-test to (14.52 ± 1.13) after the educational program and those increments have statistically significant differences ( $t=-5.32$ ,  $p=0.000$ ).

Table (5): *Social role performance of chemotherapy breast cancer clients after being exposed to health promotion program (n=50).*

| Variable                                     | Total mean scores |                  | t      | P value |
|--|-------------------|------------------|--------|---------|
|  | Pre-test          | Post-test        |        |         |
|  | Mean $\pm$ SD     | Mean $\pm$ SD    |        |         |
| Social interactions<br>(Total scores are 33) | 21.32 $\pm$ 2.54  | 28.1 $\pm$ 1.97  | -14.89 | 0.000*  |
| Marital harmony<br>(Total scores are 21)     | 12.8 $\pm$ 1.62   | 14.52 $\pm$ 1.13 | -5.32  | 0.000*  |

#### 4. Discussion

The current study revealed that the mean age of clients was 50 $\pm$ 5.14. Data from previous studies shows the same age characteristics, a study done by Jassim, and Whitford (2013) in Bahrain which measure the quality of life of Bahraini women with breast cancer, showed that the mean ages of participants were (50.2  $\pm$  11.1). Also Mutrie et al (2007) said that “The women in their study had a mean age of just over 50, in another study; done by Rockenbach et al (2011) mention that the mean age of the participants 51.5  $\pm$  9.9 years.

Regarding marital status result showed the majority (three fourth) of clients were married, while the educational status, about half of clients had secondary study level of education. That result is in accordance to the study done by Ögce and Özkan (2008) which showed the same result that three fourth of study sample was married and half of the study sample was secondary level education and lower.

More than half of clients lived in Khanyounis governorate, and the remained of clients live in Rafah, present study showed that the majority of clients were housewives, monthly income illustrates that less than half of clients their monthly income was between 200 to 299.

Regarding client’s knowledge concerning what is breast cancer, the result revealed improvement in client's knowledge after the implementation of health promotion program. The study result is congruent with the following three study results; the first study results revealed that, majority (82.5%) had an inadequate knowledge in pre-test and in post-test 92.5% had adequate knowledge regarding breast cancer (Kokilvani, Valson & Radhak 2010). The second study done by Hall et al. (2007) conducted that the intervention arm performed better on a breast cancer knowledge test administered post intervention than did women in a control group. The third study was done by Mohamed and Sebae (2013) said that half of a modified radical mastectomy group did not know the cause of cancer compared to about one quarter of breast conserving surgery group, while the other half of the a modified radical mastectomy, and about three quarters of breast conserving surgery group outlined hereditary, food, hormonal therapy, obesity, and psychological stress as the possible causes of cancer.

In relation to the knowledge about breast cancer treatment plan current study shows that there was improvement of knowledge mean scores in post-test than in pre-test, that improvement showed positive statistically significant differences after the educational program. Ögce & Özkan (2008) concluded in their study that nurses who administer chemotherapy need to keep patients’ individual differences in mind when providing care according to changes that occurs before and after chemotherapy. Lotfi-Jam et al. (2008) said that patients require preparation before commencing chemotherapy, which is commonly a very stressful time. In a study title “Assessment of knowledge, skill and attitude of oncology nurses in chemotherapy administration in tertiary hospital Pakistan”; done by Khan, Khowaja, And Ali (2012) they concluded that the overall finding of the study indicated that the participants have poor knowledge and skills, however their attitude is good. Regarding the knowledge about the benefits of exercise on health, study results showed that the mean score was more higher in post-test than in pre-test with positive statistically significant differences ( $t = -23.36$ ,  $p = 0.000$ ) after the health promotion program. Physical exercises appear to be an intervention that effectively improves health-related physical fitness even in the period of breast cancer treatment. There is evidence for a medium effect of exercise on cardiorespiratory fitness, strength, and body composition. Moreover, exercise offered a small benefit against fatigue, anxiety and depression compared to no exercise. (Markes, 2011). The women should be informed about the changes in life style such as increasing her exercise level (Malak, & Gümüs, 2009). In relation to the knowledge regarding nutrition benefits in pre and post-test, the study showed improvement in what are nutritional benefits. Malak, & Gümüs (2009) revealed that the women should be informed about the changes in life style such as increasing the consumption of vegetable and fruits instead of fatty and starchy foods, eating the foods which will strengthen the immune system

Concerning to the total knowledge about the benefits of nutrition in pre-test and post-test, the study reflect a positive statistically significant differences with ( $t = -20.95$ ,  $p = 0.000$ ). A study was done to determine the knowledge, attitudes and practices of young Malaysians towards nutrition related to cancer treatment, the study concluded that 83% of participants had poor knowledge on nutrition as related to cancer treatment (Shintani, Ikeda & Matsumoto, 2012), study also concluded that unsatisfactory knowledge was observed regarding

nutritional management among patients undergoing chemotherapy (Aimono, & Sakamoto, 2012).

Concerning daily physical activities as reported by the clients after chemotherapy in pre-test and post-test which positive improvement in post-test than in pre-test. Regarding reported total daily physical activities; the mean scores performed by clients after chemotherapy in pre-test and post-test showed improvement in physical activities after the educational program with positive statistically significant differences. Markes, (2011) concluded that physical exercise appears to be an intervention that effectively improves health-related physical fitness even in the period of breast cancer treatment, exercise offered a small benefit against fatigue, anxiety and depression compared to no exercise. Evidence for quality-of-life outcomes is limited; cancer-site-specific quality of life was better in exercisers than in non-exercisers, also Yoon et al. in (2008) concluded that almost half of all breast cancer patients reported at least one symptom of chemotherapy side effects severe enough to affect their daily functioning or mood.

Regarding the effect of fatigue in clients' after chemotherapy in pre-test and post-test the study revealed that the total mean scores for the effect of fatigue among clients' after chemotherapy showed improvement in post-test than in pre-test and that improvement shows positive statistically significant differences. Furthermore, fatigue patients are less physically active, less able to participate in enjoyable activities with increased weakness; in addition, fatigue may be indicators of tiredness, such as reduced energy expenditure, sleep disturbance, decreased endurance, and weakness (Muhbes, Hadayat, & Amasha, 2012). Fatigue is one of the most common symptoms that cancer patients experience when receiving treatment with chemotherapy and/or radiation. Percentages of patients who experience cancer-related fatigue vary across studies from 25% to 100% depending on the type of treatment and the type and stage of cancer (Berger, 2009).

Regarding client's activities to overcome nausea and vomiting after chemotherapy study illustrated that have higher mean scores in post-test than the mean scores in pre-test after the educational program with statistically significant differences. In discussion of activities that avoided by clients during nausea and vomiting after chemotherapy the study result showed that the mean score was greater in post-test than in pre-test with positive statistically significant after the health promotion program. Concerning client's healthy nutritional activities to maintain health after chemotherapy the current study illustrated greater mean scores in post-test than in pre-test with positive statistically significant. Prutipinyo, Maikeow and Sirichotiratana, (2012) in their study found that knowledge about the disease and treatment is associated with self-care behavior. This means that providing information support is a crucial importance for the care of cancer patients. Therefore, format of activities should promote informational support to patients, with emphasis on educating patients about the side effects of treatment with chemotherapy. This includes the distribution of pamphlets about self-care and quality of life of cancer patients treated with chemotherapy to every patient in Out-patient department; providing one-on-one health education session; providing easy to understand pamphlet on health education & self-care. Our current study was consistent with the study of Haghpanah, Amini, Kherad, and Sadeghimehr (2006), when they said that their result was as follows: 67.5% of participants used to drink too much amount of liquid during the day to remove the harmful agents from the body, 10% of patients who were suffering ulcer of mouth reported that they applied sodium bicarbonate solution as mouth wash solution, 57.5% used soft tooth brush, 37.5% of patients kept themselves against people who had common cold or infectious disease. Schueren (2005) said that "Dietary counselling is aimed to improve the food intake of patients with cancer via normal foods, to circumvent that patients become malnourished. Therefore, early nutritional intervention is necessary". Even when no nutritional problems are identified in patients with cancer, it is important to have a good nutritional status, for example to undergo anti-cancer

In current study it was clear that clients had incorrect behavior in how to deal with problems arising from the nutritional side effects of chemotherapy. This incorrect behavior caused by deficiencies in community health programs in cancer care, most of community health programs focus on clients with diabetes and blood pressure, but cancer clients didn't have any interest by those in charge of these programs, so the cancer patients do not have adequate information for the solutions of their problems they face while they are under chemotherapy treatment, so clients with cancer breast only have the way of trial and error in the treatment of the problems they face, the other way, which is that the clients asking another clients about the way in which they used to solve the problems they faced, and it is known that this behavior may expose the cancer breast clients to many health problems and increase their suffering. When breast cancer clients attend current study health promotion program, the result of the study showed improvement in nutritional behavior in the post-test, that prove the effectiveness of the study health promotion program.

Regarding self-efficacy during chemotherapy study showed that, there was increment in clients' self-efficacy total mean scores in post-test than in pre-test and that improvement have positive statistically significant differences after the health promotion program. Regarding of psychological stress after chemotherapy result revealed that there was improvement in clients' total mean scores in post-test than in pre-test after and that increment has positive statistically significant differences. In relation to the level of self-realization among the clients study showed that, there was improvement in the mean scores of self-realization in Post-test than in pre-

test in all items that improvement have positive statistically significant.

In relation to self-efficacy our study agreed with a study performed by Hass In (2011) findings indicate that even at low to moderate levels of fatigue, women experienced associated decreased self-efficacy. Either Porter et al. (2008) concluded that an important source in people to cope with physical problems is self-efficacy. Several studies found that It plays a vital role in the prediction of Psychological and functional outcomes and high self-efficacy-confidence in once ability to adapt to stressors can cause less emotional distress and better outcomes (e.g. less pain). In relation to psychological stress our study was consistence with the results of two studies done by Hopwood et al., (2007); Takahashi et al., (2008) showed that more than half of the participants had anxiety or depression and 15.6% had both of these psychological symptoms. The findings reflect those reported in other studies. Wong, (2007) said that “Anxiety and depression have both been shown to be negatively associated with the quality of life among breast-cancer patients after diagnosis, at the start of treatment and post-treatment. Weinberger et al. (2010) revealed that cancer diagnosis and its treatment are recognized to be stressful times that underscored the need for clinicians to actively identify its psychological sequelae such as depression in the vulnerable patients. Early detection and treatment of depression in breast cancer sufferers not only significantly improved their quality of life but also increased their survival rates. Either the study done by Medeiros et al. (2010) found that most of patients (56%) have no depression and mild, moderate and severe depression are seen in 18%, 22% and 4 % of these patients.

Concerning social interaction level after chemotherapy study showed, increment in clients’ total mean scores in pre-test than in post-test to after the educational program and that increment have statistically significant differences ( $t=-14.89$ ,  $p=0.000$ ). Regarding of marital harmony after chemotherapy study showed that, there was increment in clients’ total mean scores in post-test than in pre-test after the educational program and those increments have statistically significant differences ( $t=-5.32$ ,  $p=0.000$ ).

Poorly controlled physical symptoms, poor communication, lack of support, past history of a mood disorder, greater personal life stress, avoidant coping styles, and lower optimism and hope are pivotal factors that affect the psychological symptoms and quality of life of a breast cancer patient (Knobf, 2011). In breast cancer clients under treatment it may have severe social and economic consequences, and can limit a patient's ability to carry out activities of daily living and participate in clinical trials (Wyrick, Monthan, Capt & Grant, (2009). Social impairments and body image. These two were also factors identifying patients with a need for help and with unmet supportive care needs (Büchi, 2010). Research confirms that distress between partners and patients can be interlinked, with partner anxiety affecting patient anxiety in couples dealing with breast cancer (Bolks, et al, 2008). There is modest evidence that perceived social support is positively associated with well-being and quality of life of cancer clients (Richardson et al., 2007). Most couples would recognise that communication about cancer-related issues and concerns is important. In reality, ineffective communication can be a source of contention. Couples may not always share the view that talking is important (Manne, et al, 2006).

### **5. Conclusion:**

The current study concluded that the health promotion program for breast cancer clients under chemotherapy had improve their knowledge about what is breast cancer and it’s treatment, benefit of exercise and good nutrition during chemotherapy, also improve breast cancer clients practice concerning side effects management of breast cancer chemotherapy treatment such as physical activities and nutrition. Either the current study concluded that there was improvement in psychological activities such as self-efficiency, psychological stress and self-realization, the study show improvement relation to social role performance such as social interaction and marital harmony. So there was improvement in all these activities after the implementation of the health promotion programs; and that support all of current three research hypothesis with positive statistical significance.

### **6. Recommendations:**

- Establish community breast cancer management forum to meet the requirement of breast cancer clients
- Generalize such educational programs as a policy in hospitals oncology outpatient clinic
- Developed illustrated booklet to be available and distributed for each breast cancer clients attended to oncology outpatient clinics.
- Establish special oncology nursing courses for all nurses whom working with cancer clients
- Conduct specialized oncology in service training programs as routine which include special oncology topics.

### **Research recommendations**

- Evaluate the effect of health promotion program in other type of cancer clients under the treatment of chemotherapy.
- Evaluate the community health nurse’s role in oncology health education programs.
- Assess perception of breast cancer clients in relation to community health promotion program.

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