

Quality of life for patients with breast cancer: An assessment study

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Abstract:

Background: Breast cancer is a disease in which malignant (cancer) cells form in the tissues of the breast. Breast cancer affects the daily lives of many patients and families confronted by changes in health status, lifestyle and roles, leading to impaired quality of life. **The aim of the study** to assess quality of life (QOL) of patients with breast cancer through four dimensions of quality of life physical, mental, emotional, and social functioning. **Research design** is an exploratory descriptive design. **Subject:** A purposive sample composed of 100 adult female patients with breast cancer. **Setting:** The study was conducted in Ain Shams University Hospitals ,Breast cancer clinic. **Tools:** structure Interviewing Questionnaire, European Organization For Research and Treatment of Cancer QLQ-C30 Instrument(EORTC QLQ-C30) and (EORTC QLQ - BR23). **The study results:** The mean age of patients was 52 ± 7.1 years. There was statistically significant relation between EORTC QLQ C-30 total global health of life of studied patients and age, residence, previous job (before illness) and smoking. There was statistically significant relation between EORTC QLQ C-30 functional scales of life of studied patients and age, marital status, type of housing and smoking. There was statistically significant relation between EORTC QLQ C-30 symptom scales of life of studied patients and age, type of housing and smoking. There was statistically significant relation between EORTC QLQ-BR23 symptom scales of life of studied patients and age. **Conclusion:** there was a moderate quality of life between all studied patients for all dimensions measured for quality of life. **This study recommended that:** Improving patients quality of life should be the main objective for nurses during their care of patients with breast cancer. Using specific instrument for evaluating quality of life for patients at disease terminal stages.

Key words: Breast cancer, Quality of life, Nursing process.

Introduction

Breast cancer is a disease in which malignant (cancer) cells form in the tissues of the breast. The etiology of breast cancer is not fully understood. A variety of interrelated factors, such as genetics, hormones, the environment, sociobiology and physiology can influence its development. Although breast cancer cannot be prevented, the risks of developing breast cancer can be minimized through specific preventive activities in lifestyle, diet, overall physical characteristics and obesity, and interventions for women at high risk of developing breast cancer using tamoxifen and other anti-estrogen compounds(Davies, Pan, Godwin, Gray&Arriagad,2013).

Breast cancer can be classified as non-invasive: Ductal carcinoma in situ (DCIS) and Lobular carcinoma in situ (LCIS) and invasive (relative incidence in brackets): Infiltrating ductal (85%) ,Infiltrating lobular (10%) , Mucinous (2%),Tubular (2%) ,Medullary (<1%) ,Papillary (<1%) ,Others (<1%) . There are many different histological subtypes of invasive breast cancer, the vast majority of which are adenocarcinomas (>99%), and they are classified according to their histological appearance. However, it is well recognized that most breast carcinomas arise from the terminal-duct lobular unit, and the names given to these tumors are based on their histological appearance, and do not refer to a presumed site of origin(Di Renzo et al.,2015).

Early detection of breast cancer (screening) linked to a decrease in the mortality and morbidity of the illness. There are a number of approaches to the screening of breast cancer.,Breast self-examination, Clinical breast examination, Mammography, Ultrasonography, Computed tomography (CT), Magnetic resonance imaging (MRI), Nuclear medicine breast imaging, Positron emission tomographic screening (PET), Guided breast biopsy, Breast mass evaluation The major therapies for breast cancer are surgery, radiation, cytotoxic drugs and endocrine drugs(**Ibrahim, Khaled, Mikhail, Baraka & Kamel.2014**).

Quality of life (QOL) is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life. Quality of life is determined by several definitions ,it can be the extent to which hopes and ambitions are matched by experience or individuals' perceptions of their position in life taken in the context of the culture and value systems where they live and in relation to their goals, expectations, standards and concerns, also appraisal of one's current state against some ideal or the things people regard as important in their lives(**Bennadi & Reddy, 2013**).

Quality of life (QOL) is considered an important endpoint in cancer clinical trials. It has been shown that assessing quality of life in cancer patients can contribute to improved treatment and can be as prognostic as medical factors can be prognostic. Studies of quality of life can further indicate directions needed for more efficient treatment of cancer patient(**Osborne, Ramsenthaler, de Wolf-Linder, Schey, Siegert.2014**).

Nurses have a role can be regarded as having two aspects: One technical and one expressive. The former refers to the instrumental activities the nurse engages in to support the patient's physical treatment and general care, and the latter to the effort the nurse makes to reduce the patient's emotional tensions. Nurses should care for the whole

person. They should recognize that psychological, social, emotional, spiritual and environmental factors affect the well-being of the individual patient as well as physical ones (**Ray & Baum.2013**).

Nursing process is a deliberate problem-solving approach for meeting a person's health care and nursing needs. Although the steps of the nursing process have been stated in various ways by different writers, the common components cited are; assesment, diagnosis, planning, interventions, and evaluation(**Ricci, 2013**).

Significance of the study:

Quality of life (QOL) for patients with breast cancer represents a basic corner, because breast cancer is the commonest site of cancer in females represents (38.8%) of female cancer types in Egypt (**Ibrahim et al.,2014**), and its impact is therefore profound on physical, social, psychological status and well being of both the woman diagnosed with the disease and her family, and thus on whole society.

Aim of the Study

The present study was conducted to assess quality of life (QOL) for patients with breast cancer.

Research Question

What is the quality of life of patients with breast cancer?

Subjects and Methods

I. Technical Design:-

The technical design include research design, study setting, subjects of the study and tools of data collection.

Research Design:-

A descriptive exploratory design was utilized to achieve the aim of this study

Setting:-

The study was conducted in Medical Nuclear Centre , Ain Shams University, Out-Patient Department.

Subjects

A purposive sample composed of 100 patients with breast cancer were selected to be included in the study. Sample size was calculated by using the minimal detectable

power equation to detect a difference as small as (1 SD) significance level ($\alpha = 0.05$), and a power $(1-\beta) = 0.9$). **Inclusion criteria:** Conscious female, adult with breast cancer disease, first three months post starting of chemotherapy treatment. **Exclusion criteria:** terminal stage and mortality problem

Tools of data collection:

The data for this study were collected by using three tools:

Tool I: Socio Demographic Interviewing Questionnaire for patients with breast cancer; It includes data related to socio demographic characteristics as; age, gender, marital status, housing, income.

Tool II: - European Organization For Research and Treatment of Cancer QLQ-C30 Instrument (EORTC QLQ-C30); This tool is used for assessing quality of life of patients with breast cancer. It is a standardized tool adopted from the EORTC. QLQ-C30 incorporates nine multi-item scales: a global health and quality-of-life scale, five functional scales (physical, role, cognitive, emotional and social), three symptom scales (fatigue, pain, and nausea and vomiting) and several single-item symptom measures are also included (Petersen et al., 2019).

Scoring system:

The QLQ-C30 is composed of both multi-item scales and single-item measures. These include a global health status / QoL scale, five functional scales, three symptom scales and six single items. Each of the multi-item scales includes a different set of items - no item occurs in more than one scale.

All of the scales and single-item measures range in score from 0 to 100. A high scale score represents a higher response level. Thus a high score for a functional scale represents a high / healthy level of functioning, a high score for the global health status / QoL represents a high QoL, but a high score for a symptom scale / item represents a high level of symptomatology / problems.

The principle for scoring these scales is the same in all cases:

1. Estimate the average of the items that contribute to the scale; this is the raw score.

2. Use a linear transformation to standardize the raw score, so that scores range from 0 to 100.

In practical terms, if items I_1, I_2, \dots, I_n are included in a scale, the procedure is as follows:

Raw score

Calculate the raw score

$$\text{Raw Score} = RS = (I_1 + I_2, \dots, I_n) / n$$

Linear transformation

Apply the linear transformation to 0-100 to obtain the score S, Functional scales:

$$S = \left\{ 1 - \frac{(RS - 1)}{\text{range}} \right\} \times 100$$

Symptom scales / items: $S = \{(RS - 1) / \text{range}\} \times 100$

• Global health status / QoL: $S = \{(RS - 1) / \text{range}\} \times 100$.

The average mean value of all patients for QLQ-C30 were between (0-100):

• Functional scales and global health status / QoL, they are divided into 3 groups as the following; low (0-30), moderate (30-70) and high (70-100).

• Symptom scales / items: they are divided into 3 groups as the following; high (0-30), moderate (30-70) and low (70-100).

Tool III:- European Organization For Research and Treatment of Cancer BR23 Instrument (EORTC BR23); It is a standardized tool adopted from the EORTC. This tool was added because it was very specific to measure Q.O.L for patients with breast cancer. The breast cancer tool is meant for use among patients varying in disease stage and treatment modality (i.e. surgery, chemotherapy, radiotherapy and hormonal treatment). The tool comprises 23 questions assessing body image, sexual functioning, future perspective, disease symptoms, side effects of treatment (surgery, chemotherapy, radiotherapy and hormonal treatment) (Gadisa, Gebremariam & Ali, 2019).

Scoring system:

The breast cancer module incorporates five multi-item scales to assess systemic therapy side effects, arm symptoms, breast symptoms, body image and sexual functioning. In addition, single items assess sexual enjoyment, hair loss

and future perspective. The scoring approach for the QLQ-BR23 is identical in principle to that for the function and symptom scales / single items of the QLQ-C30.

The average mean value of all patients for QLQ-BR23 were between (0-100):

- Functional scales / QoL, they are divided into 3 groups as the following; low(0-<30) ,moderate (30-<70) and high (70-100).

- Symptom scales / items: they are divided into 3 groups as the following; high (0-<30) ,moderate (30-<70) and low (70-100).

II. Administrative design

An official permission was issued from Dean of the Faculty of Nursing to the Director of Medical Nuclear Centre , Ain Shams University , Out-Patient Department to obtain the approval for data collection, the objectives and the nature of the study were explained and then it was possible too carry out the study with minimum resistance.

III. Operational design

Preparatory phase

Review of the national and international related literature using journals, periodicals, textbooks, internet and theoretical knowledge of the various aspects concerning the topic of the study for translating the tools into Arabic language and back translation to check its accuracy.

Pilot study

Pilot study was conducted in February (2019) to assess tool clarity and applicability. It has also served in estimating the time needed for filling the form .The study was tested on 10 % of total subjects, it was done on 10 patients at Medical Nuclear Centre , Ain Shams University , Out-Patient Department. No modification was needed. Pilot study was excluded from the study sample.

Implementation phase

Implementation phase

- Each patient was interviewed after explaining the purpose of the study and getting agreement of patients to participate in the study.

- Data has been collected in Medical Nuclear Centre , Ain Shams University , Out-Patient Department.

- Collection of data took 3 months from beginning of February (2019) to the end of April (2019), the investigators applied interview for study sample for 1 day per a week(sunday).

- The time needed to complete essentials of EORTC QLQ-C30 and EORTC BR23 was 20 minutes and 10 minutes for completing Socio Demographic Interviewing Questionnaire.

- The appropriate time of data collection was according to type of work and workload of department, sometimes it was in the middle of the shift and other time before the end of the shift.

Ethical Considerations

- All subjects have their rights secured.
- Each subject was informed about the nature process on expected outcomes.
- All data was confidential and informed that it will be used only for the research purpose.
- Each study subject was informed time.

Statistical Design

Data were verified prior to entry into computer .Statistical package for social science (SPSS, Version twenty) was used for that purpose, followed by data analysis and tabulation. Descriptive statistics were applied quantitative data (eg, arithmetic mean, standard deviation, frequency and percentage). A significance level value was considered when $p\text{-value} \leq 0.05$ while $p\text{-value} > 0.05$ indicates insignificance results.

Results

Table (1): Showed that, the mean age of patients was 52 ± 7.1 years. 56% of studied patients' monthly income was (1800-<3600) Egyptian pounds. 54% of studied patients' monthly income was insufficient to cover the costs of treatment.

Figure (1): Demonstrated that, the highest mean score of functional scales of EORTC QLQ-C30 for studied patients was related to social functioning. In addition, the lowest mean score of functional scales for studied patients was related to physical functioning.

Table (2): Showed that the mean score of symptoms scales of EORTC QLQ-C30 for studied patients related to fatigue regarding feeling tired and need to rest were 87.60 ± 21.29 & 59.67 ± 30.95 respectively. The average mean score of fatigue for studied patients was 69.39. Meanwhile, the mean score of symptoms scales for studied patients related to nausea and vomiting regarding felt nauseated and vomited were 39.67 ± 21.08 & 37.61 ± 19.43 respectively. The average mean score of nausea and vomiting for studied patients was 38.64. In addition, the mean score of symptoms scales for studied patients related to pain regarding presence of pain and illness interference with daily living activities were 43.33 ± 16.17 & 28.08 ± 27.02 respectively. The average mean score of pain for studied patients was 35.71.

Figure (2): Showed that the average mean score of total global health, functional

scales and symptoms scales of EORTC QLQ-C30 for studied patients were 47.89 ± 11.32 , 64.63 ± 17.39 & 38.64 ± 19.61 respectively.

Figure (3) showed that, the average highest mean score of functional scales of QLQ-BR23 for studied patients was related to dissatisfaction with body image. In addition, the average lowest mean score of functional scales for studied patients was related to future perspective.

Figure (4) shows that, the average highest mean score of symptoms scales of QLQ-BR23 for studied patients was related to upset by hair loss. In addition, the lowest mean score of symptoms scales for studied patients was related to breast symptoms.

Figure (5) shows that, the average mean score of functional scales and symptoms scales of QLQ-BR23 for studied patients were 44.66 ± 30.49 & 63.99 ± 24.99 respectively.

Table (3): Shows that, there was statistically significant relation between EORTC QLQ C-30 total global health of life of studied patients and age, residence, previous job (before illness) and smoking at ($P = < 0.01$). Moreover, there was statistically insignificant relation between EORTC QLQ C-30 total global health of life of studied patients and marital status, education level, type of dwelling and monthly income at ($p > 0.05$).

Table (1): Frequency and percentage distribution of studied patients according to their demographic characteristics. (n=100)

Demographic characteristics of patients.	No	%
Age		
19-<30	10	10
30-<45	25	25
45-<65	65	65
Mean SD 52±7.1		
Marital Status		
Single	12	12
Married	63	63
Widow	7	7
Divorced	18	18
Educational level		
Illiterate	13	13
Read and write	8	8
Secondary school	42	42
University	37	37
Residence		
Urban	56	56
Rural	44	44
Housing		
Home ownership	51	51
Tenancy	36	36
Living with family	13	13
Number of individuals living in the same house		
1-3	30	30
4-6	65	65
7-10	5	5
>10	0	0
Previous job (before illness)		
Employee	48	48
Housewife	32	32
Handcrafts	20	20
Current job status		
Full-time work	18	18
A part time job	60	60
Not currently working	22	22
Monthly income in Egyptian pounds		
< 1800	10	10
1800-<3600	56	56
3600-<5200	26	26
> 5200	8	8
Monthly income is sufficient to cover the costs of treatment		
Yes	46	46
No	54	54
Smoking		
Positive	12	12
Negative	35	35
Non-smoker	53	53

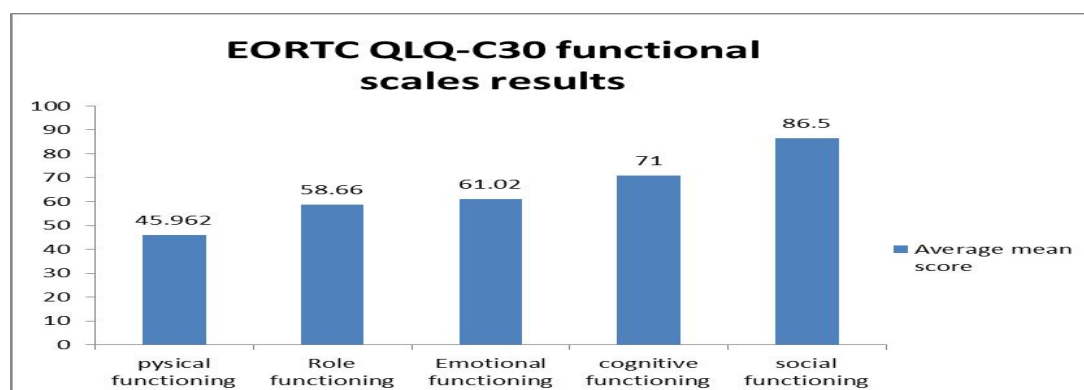


Figure (1): Average mean score of functional scales for studied patients using EORTC QLQ-C30.

Table (2): Mean score of symptoms scales for studied patients using EORTC QLQ-C30 . (n=100)

Items	Mean \pm SD
Fatigue	
Did you need to rest?	59.67 \pm 30.95
Have you felt weak?	60.90 \pm 25.36
Were you tired?	87.60 \pm 21.29
Average mean score	69.39\pm25.87
Nausea and vomiting	
Have you felt nauseated?	39.67 \pm 21.08
Have you vomited?	37.61 \pm 19.43
Average mean score	38.64\pm20.26
Pain	
Have you had pain?	43.33 \pm 16.17
Did pain interfere with your daily activities?	28.08 \pm 27.02
Average mean score	35.71\pm21.60
Dyspnea	
Were you short of breath?	09.61 \pm 14.97
Insomnia	
Have you had trouble sleeping?	28.83 \pm 27.42
loss of appetite	
Have you lacked appetite?	62.00 \pm 25.04
Constipation	
Have you been constipated?	69.83 \pm 12.75
Diarrhea	
Have you had diarrhea?	04.77 \pm 11.10
Financial difficulties	
Has your physical condition or medical treatment caused you financial difficulties?	29.00 \pm 25.23

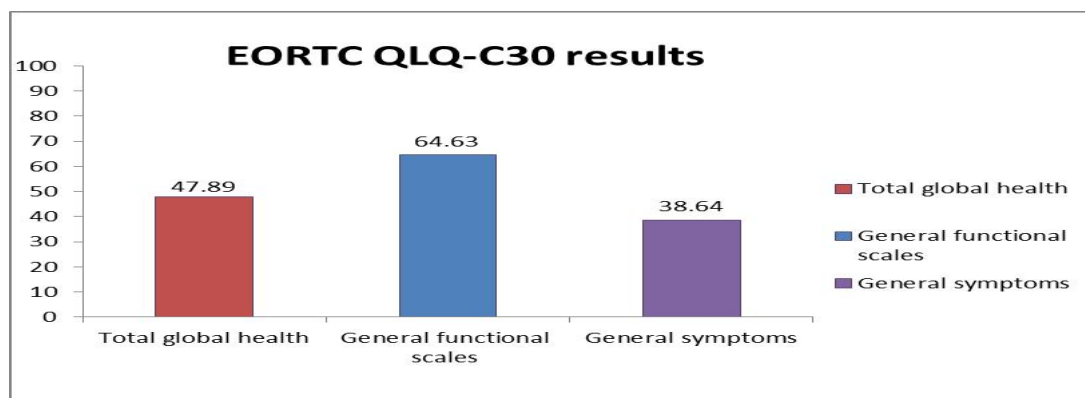


Figure (2): Average mean score of studied patients using EORTC QLQ-C30 scales.

Table (3): Mean score of functional scales for studied patients using QLQ-BR23. (n=100)

Items	Mean± SD
Body image	
Have you felt physically less attractive as a result of your disease or treatment?	66.56± 30.09
Have you been feeling less feminine as a result of your disease or treatment?	57.68 ±18.27
Did you find it difficult to look at yourself naked?	74.95±22.48
Have you been dissatisfied with your body?	88.23±17.16
average mean score	66.39±22
Sexual functioning	
To what extent were you interested in sex?	55.67±23.71
To what extent were you sexually active?(with or without intercourse)	44.22±21.23
average mean score	49.95±22.47
Sexual enjoyment (n=63)	
Answer this question only if you have been sexually active: To what extent was sex enjoyable for you?	61.28±20.45
Future perspective	
Were you worried about your health in the future?	01.00±01

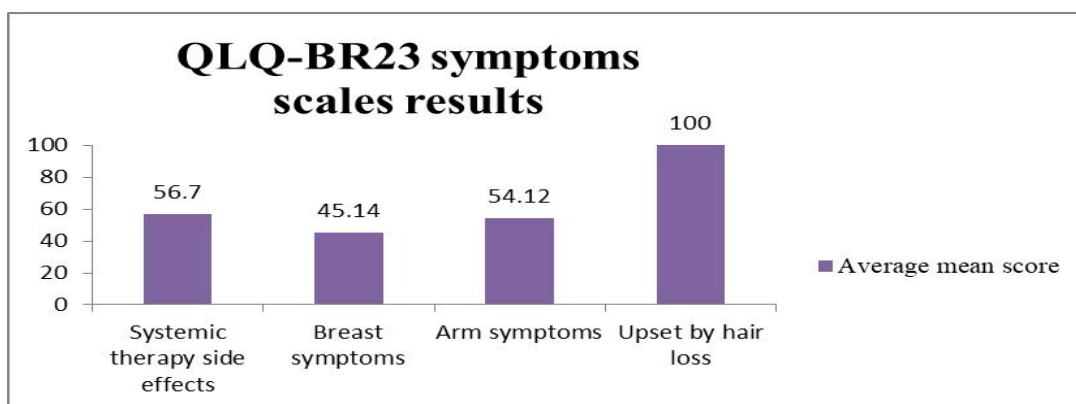


Figure (3): Average mean score of symptoms scales for studied patients using QLQ-BR23.

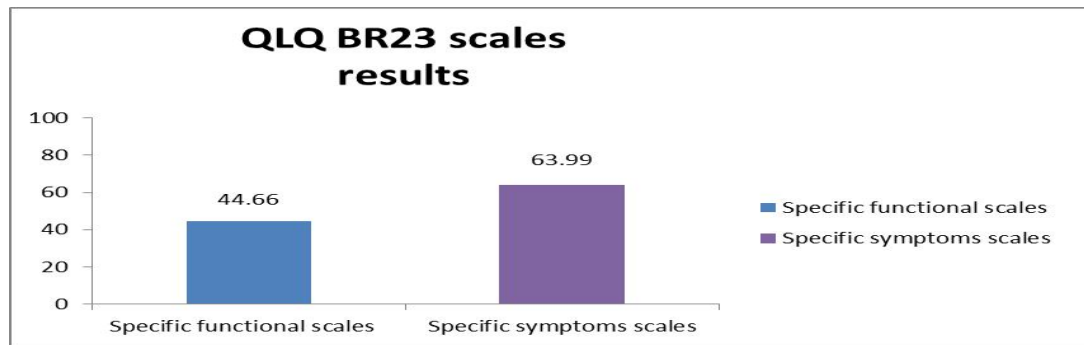


Figure (4): Average mean score of studied patients using QLQ BR23 scales.

Table (4): Relation between demographic characteristics of the studied patients and EROTC QLQ C-30 total global health.(n=100)

Demographic characteristics		EROTC QLQ C-30 total global health					Chi-square	
		N	%	low	moderate	high	X ²	P-value
Age	19-<30	10	10	3	7	0	29.33	.000*
	30-<45	25	25	0	25	0		
	45-<65	65	65	0	62	3		
Marital status	Single	12	12	3	7	2	10.95	0.09
	Married	63	63	6	54	3		
	Widow	7	7	0	5	2		
	Divorced	18	18	4	13	1		
Education level	Illiterate	13	13	1	11	1	5.325	.503
	Read & write	8	8	1	6	1		
	Moderate	42	42	7	27	8		
Residence	High	37	37	9	19	9	5.986	0.05*
	Urban	56	56	8	34	14		
	Rural	44	44	14	17	13		
Type of housing	Home ownership	51	51	14	29	8	5.621	.229
	Tenancy	36	36	8	27	1		
	With the family	13	13	2	10	1		
Previous job (before illness)	Employee	48	48	6	38	4	16.685	.002*
	Housewife	32	32	14	15	3		
	Handcrafts	20	20	11	7	2		
Monthly income	Sufficient	46	46	17	24	5	.423	0.81
	Insufficient	54	54	22	28	4		
Smoking	Positive	12	12	4	5	3	11.39	.02*
	Negative	35	35	13	19	3		
	Non-smoker	53	53	30	20	3		

Discussion:

The finding of the current study revealed that, about two thirds of the studied patients age ranged between (45-65) years, with a mean age of 52 ± 7.1 . May be that because women after menopause are at high risk for breast cancer than others. This finding was near to the results of **Hammam, El-Shafei, Abdelsalam, and Balata (2018)**, in the study entitled “quality of life and work limitation among survivors of breast cancer at Zagazig university hospitals”, which showed mean age of the studied group at 48.32 ± 8.68 . This finding was also in accordance with results of **Hinz, Singer, and Brähler (2014)**, in the study entitled “european reference values for the quality of life questionnaire EORTC QLQ-C30: results of a german investigation and a summarizing analysis of six european general population normative studies”, who reported more than two third of subjects of the study aged between 40-60 years old.

According to studied patients EORTC QLQ-C30 functional scales, the present study showed that the average mean score of functional scales of studied patients represented a moderate level of functioning. This result may be due to that the studied patients were selected during three months post starting of chemotherapy treatment. This result was higher than result of the study given by **Giesinger et al. (2016)**.

According to EORTC QLQ-C30 symptoms scales, the present study showed that the average mean score of EORTC QLQ-C30 symptoms scales of studied patients was 38.64 that represented a moderate level of symptomatology. This may be due to that the studied patients were having chemotherapy treatment while data were gathered, also may be due to lack of knowledge about disease and its progress in Egypt. This result was higher than result of the study given by **Giesinger et al. (2016)**.

According to EORTC BR23, functional scales were subdivided into four scales which were body image, sexual functioning, sexual enjoyment and future perspective. Each scale was studied and the results were as following; according to studied

patients body image, the present study showed that the average mean score of body image of studied patients represented a moderate level of functioning. This result may be due to self acceptance of body image changes and the presence of strong support system of family. This result was lower than result of the study given by **Zeng, Huang, Cheng, Zhou & So (2014)**.

The present study showed that the average mean score of EORTC BR23 symptoms scales of studied patients represented a moderate level of symptomatology. This result may be due to the effect of disease and chemotherapy side effects. This result was higher than result of the study given by **Zhang et al. (2017)**.

There was statistically significant relation between EORTC QLQ C-30 total global health of life of studied patients and age, residence, previous job (before illness) and smoking at ($P < 0.01$). Moreover, there was statistically insignificant relation between EORTC QLQ C-30 total global health of life of studied patients and marital status, education level, type of dwelling and monthly income at ($p > 0.05$).

Conclusions:

The mean age of patients was 52 ± 7.1 years. The highest mean score of functional scales of EORTC QLQ C-30 for studied patients was related to social functioning. The average highest two mean score of symptoms scales of EORTC QLQ C-30 for studied patients were related to constipation and fatigue. The average highest mean score of functional scales of QLQ-BR23 for studied patients was related to body image. The average highest mean score of symptoms scales of QLQ-BR23 for studied patients was related to upset by hair loss.

Recommendations

- Improving patients quality of life should be the main objective for nurses during their care of patients with breast cancer

- Using specific instrument for evaluating quality of life for patients at disease terminal stages and during disease stages.

- Extend field of study to assess quality of life for patients at disease terminal stages, also treated with treatments other than chemotherapy and including men too.

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