

Assessment of Quality of Life in Breast Cancer Patients

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Abstract

Background: Breast cancer (BC) is the most commonly diagnosed cancer in women. It is also the leading cause of cancer death in women and occurs most frequently in post-menopausal women over the age of 50.

Aim of Study: To evaluate the quality of life (QOL) in breast cancer patients after mastectomy.

Material and Methods: Two hundred adult females with breast cancer and had mastectomy were participated in this study, selected from polyclinics. Quality of life was evaluated by using the Arabic version of EORTC QLQ-C30 and EORTC-BR23 questionnaires.

Design of the Study: The study was designed as an observational cross-sectional study. The research related to human use has been complied with all the relevant national regulations and institutional policies, has followed the tenets of the Declaration of Helsinki, and has been approved by the Research Ethics Committee of the Faculty of Physical Therapy, Cairo University (No: P.T.REC/012/002856).

Results: In the QLQ-C30, the highest functional score was for 'role functioning' and the lowest one was for cognitive functioning. In symptom scale insomnia and pain were the highest symptoms. The lowest symptoms were nausea and vomiting. While in the QLQ-BR23, the highest functional score was for sexual functioning and the lowest one was for future perceptive score. The highest symptoms score was measured for upset by hair loss and the lowest symptom score was for systemic therapy side effects. Overall health percentage score equal 57.35 which is low by referring to the reference value manual of EORTC QLO-C30.

Conclusion: Egyptian breast cancer survivors reported lower overall global QOL. Breast cancer affects all the domains of the quality of life.

Key Words: Breast cancer – Mastectomy – Women health – Quality of life – EORTC.

Introduction

BREAST cancer is the most prevalent cancer diagnosed in women (24.2 percent). It is also the main cause of cancer death in women (15.0%) [1].

The severity of cancer is determined by a number of independent factors, including growing age, family history, white race, and unknown causes. Breast cancer patients' survival rates have improved as a result of improved treatment options and early disease detection in women [2].

Breast cancer treatment consists of surgical removal of the tumor and adjuvant therapies such as local irradiation and systemic therapies such as biological agents, hormone therapies, and chemotherapy. Each of these treatments has the potential to have acute and long-term effects on mobility, function, and quality of life [3].

Patients' quality of life has been assessed using a variety of methods. The Core-30 and Breast-23 (QLQ-C30 and QLQ-BR23) Quality of Life Questionnaires from the European Organization for Research and Treatment of Cancer (EORTC) are effective and reliable measures for assessing QOL in breast cancer survivors [4].

Material and Methods

Subjects:

The current study was conducted at polyclinics of breast cancer care in Giza, with the aim of assessment of quality of life for breast cancer patients, we gathered data for fifteen months (September 2020 to December 2021).

Two hundred breast cancer survivors volunteered their services. They were chosen from different medical organizations. Post-mastectomy patients were the only ones eligible to participate

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in the trial. Their ages ranged from 25 to 45 years and their BMI was between 25kg/m² and 35kg/m². Detailed instructions were given to all patients so that they would be willing to participate in the study and provide high-quality data. After presenting the study protocol's nature, goal, and benefits to each lady, we were able to acquire her informed permission.

Assessment procedures:

- 1- Personal data: A full history was taken from each woman before starting this study.
- 2- Weight and height measurements: The body weight and height were measured for each woman at the beginning of the study. The weight-height scale was calibrated. Weight and height were recorded to calculate BMI according to the following equation:

$$\text{BMI} = \text{Weight} / \text{Height squared (kg/m}^2\text{)} [5].$$
- 3- Quality of life assessment: The quality of life of each patient was assessed by using The European Organization for Research and Treatment of Cancer (EORTC) questionnaires and module BR-23. These questionnaires are available in Arabic version translated by The European Organization for Research and Treatment of Cancer (EORTC).

Assessment method:

According to EORTC guidelines the scale scores of both QLQ-C30 and BR23 questionnaires were calculated and transformed linearly. The range in score of all scales was from zero to one hundred. A high functional scale score signifies a high/healthy level of functioning while a high score for either symptom scale or item scale signifies a high level of symptomatology or problems [6].

The QLQ-C30 is composed of both multi-item scales and single-item measures. These include five functional scales, three symptom scales, a global health status / QoL scale, 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 [7].

The Breast Cancer module QLQ-BR23 is a supplementary questionnaire module to be employed in conjunction with the QLQ-C30. The QLQ-BR23 incorporates five multi-item scales to assess body image, sexual functioning, systemic therapy side effects, breast symptoms, and arm symptoms. In addition, single items assess sexual enjoyment, future perspective and being upset by hair loss. 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 [8].

Interpretation: All of the scales and single-item measures range in score from 0 to 100. A high score for the functional scales represents a high/healthy level of functioning, whilst a high score for the symptom scales represents a high level of symptomatology or problems.

Statistical analysis:

Microsoft excel 2013 was used for data entry and the statistical package for social science (SPSS) version 21 (SPSS, Armonk, New York: International Business Machines Corporation) was used for data analysis.

- Simple descriptive statistics (arithmetic mean and standard deviation) used for summary of quantitative data and frequencies used for qualitative data.
- Preliminary assumption checking revealed that data was normally distributed as assessed by Shapiro-Wilk test (p -value >0.05).
- The sample was examined at with the alpha level 0.05.

Results

In this study we found in the QLQ-C30, the highest functional score was found for 'role functioning. In the QLQ-C30, the lowest functional score was cognitive functioning. In symptom scale of QLQ-C30, insomnia and pain were the highest symptoms. In symptom scale of QLQ-C30, the lowest symptoms were nausea and vomiting. In the QLQ-BR23, the highest functional score was found for sexual functioning. In the QLQ-BR23, the lowest functional score was found for future perceptive score. In the QLQ-BR23, the highest symptoms score was measured for upset by hair loss. In the QLQ-BR23, the lowest symptom score was assessed for 'systemic therapy side effects. Global health score of participants had a mean score equal 57.35 with standard deviation equal 26.27 which is low by referring to the reference value manual of EROTIC QLO-C30.

Subject characteristics:

Table (1): Showed the subject characteristics and duration after mastectomy.

	Mean	Median	Minimum	Maximum	Standard Deviation
Duration after mastectomy in years	3	2	1	5	3
Age	41	42	25	45	4
Weight	76	75	60	103	9
Height	162	162	150	173	6
BMI	29.06	28.58	25.00	35.20	2.86

Treatment received after surgery:

Table (2): Treatment received after surgery.

	Count	Percentage
<i>TTT after surgery:</i>		
Hormonal	137	69.0
Chemotherapy	29	13.0
Chemotherapy & hormonal	34	17.9
Total	200	100.0

Domains of EORTC QLQ-C30:

1- Functional scale:

Table (3): Mean, median and standard deviation values of Functional Scale of (EORTC QLQ-C30).

	Mean	Median	Minimum	Maximum	Standard Deviation
Functional Scale (Physical)	58.26	60.00	.00	100.00	22.22
Functional Scale (Role)	66.50	66.67	.00	100.00	27.20
Functional Scale (Cognitive)	52.46	50.00	.00	100.00	30.61
Functional Scale (Emotional)	43.23	50.00	.00	100.00	29.61
Functional Scale (Social)	58.05	66.67	.00	100.00	32.13

2- Symptoms scale:

Table (4): Mean, median and standard deviation values of Symptom scale of (EORTC QLQ-C30).

	Mean	Median	Minimum	Maximum	Standard Deviation
Symptom scale (Dyspnea)	40.92	33.33	.00	100.00	33.38
Symptom scale (pain)	60.51	66.67	.00	100.00	28.85
Symptom scale (Fatigue)	54.24	55.56	11.11	100.00	22.97
Symptom scale (Insomnia)	66.50	66.67	.00	100.00	34.64
Symptom scale (appetite Loss)	38.45	33.33	.00	100.00	32.60
Symptom scale (Nausea and vomiting)	34.56	33.33	.00	100.00	25.74
Symptom scale (Constipation)	37.20	33.33	.00	100.00	32.59
Symptom scale (Diarrhea)	19.97	.00	.00	100.00	24.04
Symptom scale (Financial difficulties)	51.67	33.33	.00	100.00	38.07

3- Global Health Status and QoL:

Table (5): Mean median and standard deviation values of Global Health Status and QoL.

	Mean	Median	Minimum	Maximum	Standard Deviation
Overall health of the patient during the past week	4.2	4.0	1.0	7.0	1.7
Overall health in percent score	57.35	57.14	.00	100.00	26.27
Overall quality of life of the patient during the past week	4.2	4.0	1.0	7.0	1.6

B- EORTC QLQ-BR23:

There are 2 domains:

1- Symptom scale:

Table (6): Mean median and Standard Deviation values of Symptom scale of (EORTC QLQ-BR23).

	Mean	Median	Min-imum	Max-imum	Standard Deviation
Systemic therapy side effects -Symptom scale	50.25	47.62	.00	95.24	21.51
Upset by hair loss-Symptom scale	60.43	66.67	.00	100.00	35.46
Arm Symptoms-Symptom scale	57.55	55.56	.00	100.00	27.53

2- Functional scale:

Table (7): Mean median and Standard Deviation values of functional scale of (EORTC QLQ-BR23).

	Mean	Median	Min-imum	Max-imum	Standard Deviation
Body image Functional scale	52.30	50.00	.00	100.00	31.48
Future perspective Functional scale	33.33	33.33	.00	100.00	35.53
Sexual functioning Functional scale	78.31	83.33	16.67	100.00	22.78
Sexual enjoyment Functional scale	67.49	66.67	.00	100.00	33.60

Discussion

According to the reference value manual of EROTIC QLO-C30 compared to our study, the results of our study showed a lower overall quality of life (57.35 versus 61.8), worse functioning scales; physical, role, emotional and cognitive (58.26 versus 76.4), and worse symptoms scales. (40.92 vs 18.1), pain (60.51), exhaustion (54.44), sleeplessness (66.50), appetite loss (38.5), nausea vomiting (34.56 vs 7.7), constipation (47.51), diarrhea (19.97) and financial troubles. (51.67 versus 18.3).

The reference value manual of EROTIC QLO-30.

Constructed scales	Mean	(SD)	Median	(IQR)
Global health status/QoL	QL	61.8	(24.6)	66.7 (50-83.3)
Physical functioning	PF	78.4	(21.3)	86.7 (66.7-93.3)
Role functioning	RF	70.9	(29.9)	83.3 (50-100)
Emotional functioning	EF	68.6	(23.8)	75 (50-83.3)
Cognitive functioning	CF	81.5	(21.8)	83.3 (66.7-100)
Social functioning	SF	77.0	(27.1)	83.3 (66.7-100)
Fatigue	FA	33.3	(26.2)	33.3 (11.1-44.4)
Nausea and vomiting	NV	7.7	(17.3)	0 (0-0)
Pain	PA	28.7	(28.7)	16.7 (0-50)
Dyspnoea	DY	18.1	(26.8)	0 (0-33.3)
Insomnia	SL	29.8	(31.6)	33.3 (0-33.3)
Appetite loss	AP	18.5	(28.9)	0 (0-33.3)
Constipation	CO	17.4	(27.2)	0 (0-33.3)
Diarrhoea	DI	5.9	(15.4)	0 (0-0)
Financial difficulties	FI	18.3	(27.8)	0 (0-33.3)

The results of this study, In EROTIC QLQ -C30 scores for global QOL, functioning, and symptoms come in accordance with those of Hassen et al., [9] who examined the quality of life and associated factors among Ethiopian breast cancer patients undergoing chemotherapy.

According to the findings of this study, pain, fatigue, and insomnia had higher mean scores than those found by Tahani et al., [10] and Imran et al., [11], but financial difficulties were more prevalent in our sample than those found by those researchers, who looked at the impact of breast cancer on QOL in Saudi Arabian patients.

The studies done by Schleife et al., [12] Harbeck et al., [13] and others undertaken in Europe and China had better findings Zeng et al., [6]. High functional and low symptom scores were recorded among Arab women with breast cancer in the United Arab Emirates (UAE), Tunisia (TN), Bahrain (BH), Jordan (J) and Bahrain (B). One explanation for the disparity in QOL ratings among Arab women is that different definitions of QOL are used, as well as a bias in the sampling process Rahou et al., [14].

Sexual functioning and enjoyment (mean 67.49 & 78.3) was the functional category with the highest score on the EROTIC QLQ-BR23, followed by body image (mean 33.33). (mean 52.30).

In terms of EROTIC QLQ-symptom BR23's scale, upset by hair loss had the highest mean score of all symptoms (60.43). The second was a mean-scored set of arm symptoms (57.55). The symptoms scale gave the lowest mean score (50.25) to systemic therapy side effect.

Breast cancer patients from Arab countries, including Kuwaiti, Bahraini and Jordanian nationals, had the lowest quality of life scores when it came to their perceptions of their bodies, their outlook on the future and their feelings about their hair loss [14].

Aside from these findings, German women's EORTC BR-23 results showed that they had the worst scores for body image (73.7), sexual enjoyment (69.2), future outlooks (45.8), and the worst symptom was hair loss (55.3) [15]. Cancer survivors' quality of life (QOL) and work productivity are negatively correlated with a number of factors. Among them include socio-demographics (e.g., old age, low education, low income), the medical state (e.g., tumor site, tumor stage, forms of treatment) and work-related features (e.g., job stress, physical labor demands) [6].

In QLQ-functional BR23's scale of QLQ-BR23 showed high body image and poor future view scores like the results of Imran et al., [11] but low scores for sexual functioning.

Also, Hair loss, systemic medication side effects, and arm symptoms all had high QLQ-BR23 symptom scores in our study, which was in line with Imran et al., [11] findings.

Arab countries have unique religious and cultural considerations when it comes to breast cancer. In the last decade, the quality of life of these patients has improved mainly due to an increase in Arab breast cancer research publications. Egyptian publications accounted for 35.1% (582), with Cairo University accounting for the lion's share (8.9%, 149) of the total [16].

Conclusion:

It could be concluded that Egyptian breast cancer survivors reported lower overall global QOL. Breast cancer affects all the domains of the quality of life.

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تقييم جودة حياة مرضى سرطان الثدي

الغرض من هذه الدراسة تقييم جودة حياة مرضى سرطان الثدي بعد استئصال الثدي كما أنها توفر لاختصاصيين العلاج الطبيعي المعرفة العلمية الحديثة.

شاركت في هذه الدراسة مئتي سيدة خضعن لعملية استئصال الثدي بعد تشخيصهن بسرطان الثدي، تراوحت أعمارهن بين ٢٥-٤٥ سنة، وتراوح مؤشر كتلة الجسم من ٢٥ إلى ٣٥ وقد تم اختبارهن من عيادات عدة بالجيزة من الفترة بين أكتوبر ٢٠٢٠ إلى ديسمبر ٢٠٢١. تم استخدام استبيان جودة الحياة الاوربي (الإصدار الثالث) وهو حالياً الإصدار القياسى الذى أثبتت صلاحيته ومصداقيته فى دراسات عدة لمرضى يعانون من سرطان الثدي فى أوروبا والولايات المتحدة فضلاً عن بلدان أخرى. إلا أننا استخدمنا النسخة العربية المترجمة. وذلك بناء على رسالة مكتوبة من خلال البريد الإلكتروني مع المنظمة الأوروبية للبحوث وعلاج السرطان (يورتك) وأعطتنا إذن ممنوح لاستخدامها.

تم إعطاء الاستبيانات للمرضى عن طريق المقابلة. تم شرح شكل ونوع الأسئلة والردود أولاً لهم. تمت مقابلة المرضى من خلال قراءة الأسئلة مباشرة دون تغيير فى صياغة الترجمة العربية، وتجنب أى تدخل شخصى أو اقتراحات. أوضحت نتيجة الدراسة أن مرضى سرطان الثدي يعانون من انخفاض معدا جودة الحياة العالمى الخاص بسرطان الثدي وان سرطان الثدي يؤثر على جميع مجالات جودة الحياة.