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Quality of life assessment of breast cancer patients in Saudi Arabia

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Abstract:

BACKGROUND: To assess the quality of life (QOL) of females with breast cancer in Saudi Arabia and its association with patients' demographic, social, and clinical data.

MATERIALS AND METHODS: This analytical cross-sectional study was conducted among breast cancer patients attending King Abdullah Medical City, Makkah. Participants were asked to complete a self-administered structured questionnaire. We utilized the validated Arabic version of the European Organization for Research and Treatment of Cancer QOL-C30 (EORTC-QOL-C30) and breast cancer module QLQ-BR23 (EORTC-QOL-BR-23). Data were analysed using SPSS; mean and standard deviation computed for continuous variables, and percentages for categorical variables. Student's t-test performed to compare mean scores for various groups.

RESULTS: Eighty-eight women participated in the study. The participants had a mean global health score of 64.0, standard deviation (SD) = 27.7. Of the functional scales, role functioning scored the highest (mean 71.2, SD = 31), while social and emotional functioning scored the lowest, (mean 57 SD = 35.8) and (mean 59.5 SD = 32), respectively. On the symptom scales, the most troubling symptoms were fatigue and insomnia, (mean 48.86 SD = 29.4) and (mean = 48, SD = 35), respectively. On the disease-specific tool (QLQ-BR23), body image and future perspective scored the lowest with a mean of 60.2 SD = 35 and 42.0 SD = 39.6, respectively. The most distressing symptom was hair loss (mean 61.56 SD = 41).

CONCLUSIONS: Our population showed an acceptable overall global health score. However, they scored low on the important functional and symptoms domains. This study implies that patient age, social, and physical factors were possible determinants of global health and QOL scores. The healthcare system of Saudi Arabia should, therefore, address all these different aspects of QOL of breast cancer survivors.

Keywords:

Breast cancer, quality of life, Saudi females

Introduction

Breast cancer is the most common female cancer worldwide.^[1,2] In Saudi Arabia, it accounts for 29% of all female cancers.^[3] In 2012, the incidence of breast cancer in Saudi Arabia had increased by >30% from 2008.^[4]

Early age and an advanced stage at diagnosis are significant problems with breast cancer in Saudi Arabia.^[4-6] In the last two decades, advances in breast cancer diagnostic and treatment modalities have resulted in a reduction in mortality and improved

survival rates. Breast cancer survivors frequently present with emotional or physical long-term impairment, caused either by the disease or treatment, which compromises their quality of life (QOL).^[7,8]

The World Health Organization defines QOL as "The condition of life resulting from the combination of the effects of a complete range of factors such as those that determine health, happiness, including comfort in the physical environment and a satisfying occupation, education, social and intellectual attainments, freedom of action, justice, and expression. The concept of the QOL of cancer patients is multidimensional, comprising physical, emotional, social, and

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cognitive functions in addition to some of the adverse symptoms that are either related to the disease itself or the treatments.^[9,10] Several factors such as age, presence of other comorbidities, stage of disease at presentation, performance status, the combinations of modalities of treatments and disease status are factors that may affect QOL in breast cancer patients. Studies showed that assessing QOL of cancer patients has an important role in the improvement of treatment outcome, and may be utilized as a prognostic factor.^[11-13]

For QOL assessment, The European Organization for Research and Treatment of Cancer (EORTC) has designed a QOL Questionnaire (EORTC QLQ-C30) and a breast-cancer-specific one (QLQ-BR23), which measures different dimensions of QOL, based on the patient's self-rating and evaluation.^[14] The (EORTC QLQ-C30) and (QLQ-BR23) questionnaires are useful assessment tools applicable in different cultures.^[13,15-17] Several studies have reported on the validity and reliability of the Arabic version of EORTC QLQ-C30 and QLQ-BR-23 in the Arab world.^[18-21]

Lack of research on QOL of breast cancer survivors, younger age of patients at diagnosis, and the special cultural setting in Saudi Arabia suggest that more attention to QOL is required by healthcare providers and the health-care system.

The aim of the study is to describe the QOL of women with breast cancer treated in Saudi Arabia and identify other factors related to patients' demographics, clinical, or treatment that may affect their QOL.

Materials and Methods

This was a cross-sectional study on 88 females treated for breast cancer in Saudi Arabia, conducted in June 2016 with the approval of the Institutional Review Board of King Abdullah Medical City. Informed written consent was obtained from all participants who were informed of the purpose of the study and voluntarily chose to participate by completing an anonymous structured questionnaire.

A convenient sampling method was used in this study; therefore, all prospective participants were sent an invitation to participate in the study via social media. In addition, we approached patients during routine follow-up visits in oncology clinics at King Abdullah Medical City. Participants were eligible to take part in the study if they were female, 18 years or older with a diagnosis of breast cancer, had received any form of cancer treatment, and resided in Saudi Arabia. The invitations and questionnaire were sent either in electronic or hard copy format.

The study utilized a self-administered Arabic language structured questionnaire. Consisting of four sections. The first section was the description of the purpose of the study with an invitation to take part in the study, as well as the contact information of the principal investigator for any further questions.

The second section comprised 24 items to collect the sociodemographic and clinical data of the patient, including, childbirth, past medical history, employment, marital status, modalities of treatments, and time of completion of each treatment modality. The third section was the 30 items of the validated Arabic version of (EORTC QLQC30). The EORTC QLQ-C30 is composed of both multi-item scales and single-item measures which measured five functional domains, including physical, role, cognitive, emotional, and social) and nine symptoms domains including fatigue, nausea and vomiting, pain, asthma, insomnia, loss of appetite, constipation, diarrhea, and financial problems, and one final item for global health status of QOL. The fourth section had 23 items of the validated Arabic version of EORTC QLQ BR-23, which scored nine domains: 4 functional (body image, sexual functioning, sexual enjoyment, and future perspective) and four symptoms (systemic therapy side effects, arm symptoms, breast symptoms, distress about hair loss). Each of the multi-item scales included a different set of items with none of the items occurring more than once. All of the scale and single-item measures ranged in score from 0 to 100. A high scale score represented a higher response level. This high score for a functional scale represented a high healthy level of functioning but a high score for a symptom scale item represented a high level of symptomatology and more problems.

All completed responses were included in the analysis. After cleaning and checking the accuracy of the data, the collected data were coded, transferred and analyzed by using SPSS (version 18). We followed the EORTC QLQC30 and QLQ BR-23 scoring manual for the analysis. On this scoring system, a higher score is a better level for functioning but a worse level for symptoms.

Frequencies were used to describe the variables of the study population, and other descriptive statistics including means and standard deviation (SD) were used to describe the different score items for EORTC QLQC30 and QLQ BR-23.

A *t*-test was used for the comparison between score means of groups, a $P < 0.05$ was considered statistically significant.

Results

Eighty-eight women, breast cancer survivors who were 18 years of age or older, participated in the study. Of

this population, 59.1% were ≤ 50 years of age, 72.2% were ≤ 50 years of age at diagnosis, 69.3% were married, 77.3% had children, 93.2% lived with family, 58% were working, 70.5% were free from co-existing health issues, 52.3% were postmenopausal, 58% were treated with conservative breast surgery, 79% did not have any plastic or reconstructive surgery after treatment, 65.9% were required to have postoperative radiotherapy, 76.1% had chemotherapy, 71.6% did not have targeted therapy, and a majority, 56.8%, were required to be on hormonal therapy [Table 1].

The participants had a mean global health score of (mean = 64.0, SD = 27.7).

Among functional scales, role functioning scored the highest (mean 71.2, SD = 31), whereas social functioning and emotional functioning scored the lowest, (mean 57 SD = 35.8) and (mean 59.5 SD = 32), respectively [Table 2].

In our population, the mean global QOL of patients with no children was significantly lower than those who had children (60.2 vs. 64.8, $P = 0.043$).

On the emotional scale, it was found that patients diagnosed at age 50 plus versus younger than or equal to 50 years of age, patients living alone versus living with family, and patients with co-existing health problems reported worse mean emotional functioning scores, (mean 53.8 vs. 61.8 $P = 0.042$), (mean 50 vs. 60.3 $P = 0.005$), and (mean 49.3 vs. 63.9 $P = 0.003$), respectively.

The most upsetting symptoms on the symptom scales were fatigue (mean 48.86 SD = 29.4) and insomnia (mean = 48, SD = 35) [Table 2].

We found that fatigue was a worsening symptom in patients currently on or receiving (monoclonal antibody treatment) than in patients who had never had that treatment (mean 52.4 vs. 47.4 $P = 0.033$).

We found that insomnia was a worsening symptom in patients who attended rehabilitation sessions and who attended support groups than in patients who did not, (mean 72.7 vs. 44.5 $P = 0.04$) and (mean 60.6 vs. 46.0 $P = 0.01$), respectively.

On the disease-specific tool (QLQ-BR23), it was found that body image and future perspective scored the lowest, (mean 60.2 SD = 35 and 42.0 SD = 39.6), respectively. On the symptom scale, the most distressing symptom was hair loss (mean 61.56 SD = 41) [Table 3].

We found that participants who were on monoclonal antibody therapy had a significantly lower mean score on body image compared to those who did not receive that therapy (52.6 vs. 63.2 $P = 0.015$).

Table 1: Characteristics of the study population (n=88)

Characteristics	N (%)
Current age	
≤ 50	52 (59.1)
>50	36 (40.9)
Age at diagnosis	
≤ 50	64 (72.7)
>50	24 (27.3)
Marital status	
Single	27 (30.7)
Married	61 (69.3)
Have children	
Yes	68 (77.3)
No	20 (22.7)
Living alone or with someone	
Alone	6 (6.8)
With family	82 (93.2)
Working	
Yes	37 (42.0)
No	51 (58.0)
Have co-existing health problems	
Yes	26 (29.5)
No	62 (70.5)
Menopausal status	
Premenopausal	42 (47.7)
Postmenopausal	46 (52.3)
Type of surgery	
Mastectomy	37 (42.0)
Breast conservative surgery	51 (58.0)
Had plastic surgery	
Yes	18 (20.5)
No	70 (79.5)
Received radiotherapy	
Yes	58 (65.9)
No	29 (34.0)
Not answered	1 (1.1)
Received chemotherapy	
Yes	67 (76.1)
No	21 (23.9)
Received receive herceptin (monoclonal antibody)	
Yes	25 (28.4)
No	63 (71.6)
Received hormonal therapy	
Yes	50 (56.8)
No	38 (43.2)
If breast cancer survivor, how long have been free of disease (year)	
<1	26 (43.3)
1-5	21 (35.0)
>5	13 (21.7)
Total	60 (100)
Received any rehabilitation therapy	
Yes	11 (12.5)
No	77 (87.5)
Joined breast cancer support group	
Yes	11 (12.5)
No	76 (86.4)
Not answered	1 (1.1)

Table 2: Mean scores of all items in quality of life questionnaire-C30 (n=88)

Scales	Number of items	Mean	SD
Global health status/QoL	2	64.01	27.78
Functional scales			
Physical functioning	5	68.63	22.21
Role functioning	2	71.21	31.12
Emotional functioning	4	59.65	32.65
Cognitive functioning	2	67.42	26.49
Social functioning	2	57.00	35.89
Symptom scales			
Fatigue	3	48.86	29.39
Nausea and vomiting	2	28.21	33.55
Pain	2	43.37	31.61
Dyspnea	1	31.81	32.71
Sleep disturbance	1	48.10	35.32
Appetite loss	1	35.22	37.26
Constipation	1	40.53	37.63
Diarrhea	1	13.63	24.04
Financial difficulties	1	25.37	33.52

QoL=Quality of life, SD=Standard deviation

Table 3: Mean scores of all items in quality of life questionnaire-BR 23 (n=88)

Scales	Number of items	Mean	SD
Functional scales			
Body image	4	60.22	36.19
Sexual functioning	2	75.81	26.85
Sexual enjoyment	1	70.66	29.07
Future perspective	1	42.04	39.63
Symptom scales			
Systemic therapy side effects	7	39.12	26.63
Breast symptoms	4	44.60	32.82
Arm symptoms	3	40.15	30.53
Upset by hair loss (n=72)	1	61.57	41.36

SD=Standard deviation

We found that participants who had had chemotherapy had a significantly higher mean score on distress about hair loss than patients who did not have chemotherapy (60.5 vs. 25.6 $P = 0.002$).

In summary, almost 60% of our population were younger than 50 years of age, the majority were married with children, and >70% were free from other health issues. The majority of participants were treated with conservative breast surgery and received multimodalities postoperative therapy. The participants mean global health score was above 60%, social factors such as having children or not, contributed the most to the difference in global health score. The role functioning scored the highest, whereas social functioning and emotional functioning scored the lowest. Age, social factors and the presence or absence of co-existing health problems were the most common contributors to these functional scores. On the symptom scales, fatigue and insomnia

were the most disturbing symptoms. Of the disease specific scores, body image and future perspective scores were the lowest and hair loss was the most distressing symptom with being on systemic therapy the most contributory factor.

Discussion

The patient's perception of QOL is a subjective issue that varies among individuals and cultures. Therefore, different cultures perceive cancer and cancer therapy differently, and many factors contribute to these differences. These include beliefs, socioeconomic factors, resources available, and level of education.

In a cross-cultural comparison of the QOL of breast cancer patients in the Netherlands and Japan, utilizing EORTC QLQ-C30, it was found that treatment modalities and disease perceptions both appear to influence the differences of QOL in their populations.^[22]

The results of our study showed that most participants were below the age of fifty at the time of diagnosis and at the time of completion of the questionnaire.

The study showed significant positive relationship between global QOL score and having family and children. It can be suggested that patients with family support and children were less prone to global QOL problems.

Social and emotional functioning scored the lowest in our population on the functioning scale. We found that older women, those who lived alone, and those with coexisting chronic health problems were prone to more issues with emotional functioning. This might suggest that aging and preexisting health problems were contributory factors that affected these domains of QOL.

We found that fatigue and insomnia had the highest mean scores of symptoms on the general QOL questionnaire, and distress about hair loss had the highest mean score of symptoms on the breast cancer-specific symptoms. This worsening of symptoms was significantly related to women who were still receiving cancer therapy or on long-term therapy like monoclonal antibody therapy. Despite the small number of women attending rehabilitation programs, we found from our population that the patients who had more symptoms were those seeking rehabilitation and support sessions.

A comparison of our population results with comparable populations from Bahrain, showed almost the same mean global health score (64.0 vs. 63.9). On functional scales, emotional function was the lower of the two

populations; on the symptoms scales, fatigue and distress about hair loss were the most worsening symptoms.^[17]

Some other researchers have found that for many patients, disease and treatment modalities-related variables such as age, education status, performance status, stage and status of disease, and interval from treatment are factors that significantly affect QOL scores in breast cancer patients.^[17,23,24]

Conclusions

According to the results of our study, breast cancer and breast cancer treatments affect women's QOL in multiple physical and psychological domains. Therefore, different measures and strategies are required to improve the QOL of breast cancer survivors. The limitation of our study is its small sample size consequently, these findings cannot be generalized to cover all Saudi women with breast cancer.

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Conflicts of interest

There are no conflicts of interest.

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