

# Assessing the Quality of Life in Breast Cancer Women: A Cross Sectional Descriptive Study

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## Abstract

**Background:** To assess the quality of life in Iraqi breast cancer women with regard to different Sociodemographic and medical variables. **Methods:** A cross sectional study was conducted on 150 women diagnosed with breast cancer and being treated in Iraq. The evaluation was done by using European Organization for Research and Treatment of Cancer Quality of Life Questionnaire- Core- 30 (EORTC QLQ-C30) and QOL\_BR23 Questionnaire. All data were conducted directly via hand writing by the patients at the Oncology Teaching Hospital/Medical City complex in Baghdad. When the questionnaire questions were completed by each participant, they were checked up to ensure their suitability for data insertion and then followed by the scoring manual of the EORTC questionnaire. All the data were analyzed by using SPSS. **Results:** Most of the patients undergoing this study were at the age of  $\leq 50$  (52.66%), and when they were diagnosed with breast cancer, they were younger than 50 (58.66%). The global health status was high in the case of working participants compared with those who are unemployed, i.e., ( $p=0.035$ ). However, the emotional status appeared to be significant in the case with the working participants ( $P= 0.027$ ). Also, the global status appeared to be high in the participants receiving radiation, while it showed insignificant values with the other data. The physical functioning, on the other hand, showed significant results in many places, as in the case with the patients present with no health problems, and high results in radiation, herceptin and hormonal therapy. As for the role functioning, it showed significant results in patients without health problems, patients who underwent radiation, and patients who were free of disease for less than five years. **Conclusions:** The results of this study will help identify gaps in all areas in which patients need additional support. Since the negative effects of the disease and related treatments influenced the patient's quality of life, it has become necessary for health care providers to focus on designing social and psychological interventions to support cancer patients throughout their illness and treatment in a way that it leads to a better adaptation to their disease and improve their emotional status.

**Keywords:** Quality of life- breast cancer- EORTC questionnaire

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## Introduction

One of the most common cancer-associated deaths are related to breast cancer (Daher et al., 2017). Randomly, about 50% of the incidence and 60% of deaths occurred in developing countries (GLOBOCAN, 2018). According to the Iraqi International Agency for Research on Cancer, breast cancer ranked first, with 7,515 new cases, 3019 deaths and 20354 five-year prevalence (GLOBOCAN, 2020). There are many risk factors associated with breast cancer: estrogens, early menarche, obese postmenopausal, late menopause, in addition to high level of endogenous estradiol (Key et al., 2001). There are big challenges to prevent such an obstinate disease, although early detection is still the best way to contain it (Sun et al., 2017). Nonetheless, after cancer diagnosis and treatment, many breast cancer survivors still experience negative

consequences, like physical and mental health issues even decades thereafter. After cancer diagnosis, there are multi factorial long-term health effects that comprise chronic diseases such as, hypertension, heart failure, diabetes, dementia and osteoporosis (Maurer et al., 2021). Modern oncology is keen on improving the quality of life (QOL) of cancerous patients (Quinten et al., 2009). Clinical cancer trials considered QOL as the most important goal that might be a prognostic consideration to evaluate the treatment options for cancerous patients. QOL can also be valuable in assessing breast cancer patient's status due to disease incidence (Montazeri et al., 1996). The intense attention of the quality of life that overcame the long-term organ toxicities began through following specific strategies to obtain disease free remission (Rashid and Albasry, 2020). There is limited information about QOL in Iraqi females with breast cancer, the limited

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obtained data cause difficulties for clinicians to introduce new interventions and treatment approaches (Daher et al., 2017). In breast cancer females, QOL has many effects that intertwine with interdependent and complex interactions, such as age, disease stage, socioeconomic status, type of surgery, body image, psychological factors and fear of disease coming back (Carmona-Bayonas et al., 2021). The present study aims at assessing the QOL in breast cancer women with regard to different Sociodemographic and medical variables.

## Materials and Methods

A cross sectional study was conducted on 150 women diagnosed and treated with breast cancer in Iraq in a period from September 2019- April 2021. The study was approved by the ethical committee of Pharmacy College/ Mustansiriyah University /Baghdad /Iraq.

A written consent was obtained from all participants after clarifying the purpose of the study. The evaluation was done by using the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire- Core- 30 (EORTC QLQ-C30) and QOL\_ BR23 Questionnaire (Aaronson et al.,1993). All the data were directly given to be hand written by the patients at the Oncology Teaching Hospital/Medical City complex in Baghdad. The participants included females aged 18 years or older who were diagnosed with breast cancer and underwent treatment or follow up.

A self-administered Arabic language questionnaire was utilized in the study, the beginning of the questionnaire contained information of demographic data that contained 17 questions. The second section contained a validated Arabic version of QLQ-C30 that included Global scales, functional scales (physical, role, emotional, cognitive and social functioning) and symptoms scales (fatigue, pain, nausea and vomiting, appetite loss, dyspnea, insomnia, diarrhea, constipation and financial difficulties). The third section contained a validated Arabic version of EORTC QLQ BR-23 that had two domains; functional that included body image, sexual functioning, sexual enjoyment, and future perspectives), while the second domain was associated with symptoms (side effects of systemic therapy, arm symptoms, breast symptoms, upset for hair loss). For both questionnaires, the higher scores for functional scales indicated a higher quality of life, while the high scores for symptoms indicated bad responses. After it was completed by each participant, the questionnaire was checked to ensure its suitability for data insertion then followed by the manual scoring of the EORTC questionnaire.

All the data were analyzed by using SPSS (version 24). Percentages were used to describe the variables of the study, while means and standard deviations (SD) were utilized to describe the differences in scores for both EORTC QLQC30 and QLQ BR-23. A T-test was used to compare the score means between groups; a statistical significance was considered if  $p < 0.05$ .

## Results

The study was conducted on 170 patients. Twenty patients were excluded because they have not filled the questionnaire correctly. Hence, only 150 patients were included in this study. Most of the patients aged  $\leq 50$  (52.66%). Table 1 shows the sociodemographic data that include age, menopausal status, type of treatment and surgery, in addition to the patients' marital status and whether they had children or not. Table 2 shows the comparison between sociodemographic and the medical data and global and functional scales in QLQ-C30. The global health status was only high in the case of working participants compared with the unemployed ones ( $p=0.035$ ), while the emotional status appeared to be only significant with unemployed participants ( $p= 0.027$ ). As for the cognitive functioning, it appeared to be high in patients aged  $\leq 50$  years ( $P=0.009$ ). However, the global status appeared to be high in the radiation- receiving participants. Besides, while the global status showed insignificant values with other data. The physical functioning, on the other hand, showed significant results in many places such as with the patients who suffered no health problems. The physical functioning also showed high

Table 1. Sociodemographic Data

Characteristics		Number	Percentage %
Age now(years)	$\leq 50$	73	47.33
	$> 50$	77	52.66
Material status	Married	104	69.33
	Single	34	22.66
	Divorced	6	4.0
	Widowed	6	4.0
Do you have children	Yes	107	71.33
	No	43	28.66
Are you working	Yes	45	30.0
	No	105	70.0
Health problem	Yes	64	42.7
	No	86	57.3
Menstrual status	Pre-menopausal	18	12.0
	Post- menopausal	132	88.0
Cancer operation	Mastectomy	106	70.7
	Lumpectomy	38	25.33
	No surgery	6	4.0
Radiation	Yes	83	55.33
	No	65	43.3
	No answer	2	1.3
Chemotherapy	Yes	145	96.7
	No	5	3.3
Herceptin	Yes	43	28.66
	No	107	71.33
Hormonal therapy	Yes	85	56.7
	No	65	43.3
If you recover from the disease			
How many years are you free of disease	$< 5$	82	54.7
	$> 5$	5	3.3
	Still have disease	63	42.0

Table 2. Means Score of QLQ-C30 and QLQ-BR23

Data	Mean	SD	Median
QLQ-C30 Questionnaire			
Global health status	53.0	17.9	50.0
Functional scales			
Physical functioning	76.0	20.6	80.0
Role functioning	71.9	30.3	83.3
Emotional Functioning	54.6	35.8	58.3
Cognitive functioning	55.9	35.1	50.0
Social functioning	56.1	38.1	66.6
Symptom scale			
Fatigue	27.2	24.3	22.2
Nausea and vomiting	14.5	24.6	0.0
Diarrhoea	12.4	24.8	0.0
Financial difficulties	46.4	39.1	33.3
Pain	24.5	26.6	16.6
Dyspnea	7.7	17.8	0.0
Insomnia	29.7	36.6	0.0
Appetite loss	21.9	32.4	0.0
Constipation	22.4	27.9	0.0
QLQ-BR24 Questionnaire			
Functional scales			
Body image	71.3	37.8	100.0
Sexual functioning	29.4	38.9	0.0
Future perspective	48.4	38.1	49.9
Sexual enjoyment	29.0	38.8	0.0
Symptom scales			
Systemic therapy side effects	45.8	21.2	42.8
Breast symptoms	13.2	24.7	0.0
Arm symptoms	22.9	28.2	11.1
Upset by hair loss	88.4	29.1	100.0

results with radiation, herceptin and hormonal therapy. Role functioning showed significant results in patients who suffered no health problems ( $P=0.001$ ) and patients who underwent radiation. In table 3, the comparison is made between the sociodemographic and medical data and symptomatic scale in QLQ-C30 in which there were insignificant changes in parameters except for fatigue which appeared to be higher in divorced women; diarrhea was present in higher rates in patients aged  $\leq 50$  years, patients who had no children, as well as patients who had jobs. Significant changes were shown for patients with health problems in regard to symptoms like fatigue, pain and constipation. Diarrhea was mostly present in patients with present cycle. Pain and fatigue were mostly present in patients who did not undergo any surgeries. Most significant readings were high for symptoms in association with radiation in comparison with other treatments. Table 4 compares the variables of participants with BR 23 scales in which the functional scale for body image was higher for patients who aged  $> 50$ , premenopausal women and patients with health problems. Both the sexual functioning and sexual enjoyment appeared to be higher in females who had no health problems and who were married. Future

perspectives were higher in women aged  $> 50$  years; those who had no health problems or those who underwent no surgeries. It has been recognized that the systemic therapy side effects were higher in the case of women who had no health problems, present cycle, radiotherapy, and hormonal therapy. Breast symptoms were significant only for women with hormonal therapy, while arm symptoms were higher in females with present cycle and hormonal therapy. Upset by hair loss was significant for women aged  $\leq 50$  and in those with hormonal therapy.

## Discussion

Determining the factors that deal with the QOL of women suffering from breast cancer can suggest many directions related to the activities that provide adequate rest for sick women.

This study shows high score for physical and role functioning scales with moderate global functioning. The emotional functioning was the lowest among the functional scales. Most symptomatic scales were low or moderate with higher readings related to financial difficulties, fatigue, and insomnia. While the lower distressing symptoms were associated with dyspnea and diarrhea. All these findings were similar to the Malaysian study that came up with a lower value for the emotional functioning and higher scores for financial difficulties, fatigue, and insomnia respectively (Ganesh et al., 2016). It is worth saying that the results reached by our study were similar to those reached by an Indian study regarding the emotional functioning being present with lower scales than the other functional scales (Safaei et al., 2008).

According to the results this study has shown, it was found that the financial status has played an important role in determining the patients' quality of life, taking into account that suffering from chronic diseases, such as cancer, requires additional expenses that may affect the individuals' income (Safaei et al., 2008; Pandey et al., 2005; Almutairi et al., 2016).

The functional scales for QLQ-BR23 questionnaire showed a better scale for body image and future perspectives, whereas the sexual enjoyment and sexual functioning have scored lower readings that cope with those reached by a Saudi (Imran et al., 2019) and a Bahraini study (Jassim and Whitford, 2013). Suggested causes of disturbed sexual function may include low self-esteem, sudden menopause, hair loss, vaginal dryness, and difficulty to understand the changes that take place in the patients' bodies by their partners (Fobair et al., 2006; Mols et al., 2005). Better scores for sexual functioning and enjoyment were associated with married women (Jassim and Whitford, 2013). Most of the sampled unmarried women felt embarrassed to answer the questions about their sexual function due to the fact that our society adheres to conservative traditions of being an Islamic society.

The higher score of the symptomatic scale in QLQ-BR23 questionnaire was related to upset by hair loss that may represent the most distressing effect on body image. These scores were similar to the results obtained from Lemieux et al study (Lemieux, 2008). Many studies

Table 3. Comparison of Sociodemographic and Medical Data of Participants to Global Health and Functional Scales in QLQ-C30

Variables	Global health Mean (SD)	Physical functioning Mean (SD)	Role functioning Mean (SD)	Emotional functioning Mean (SD)	Cognitive functioning Mean (SD)	Social functioning Mean (SD)
<b>Age</b>						
≤ 50 (74)	54.701±17.7729	77.989±20.5264	76.551±26.0283	57.4531±37.22516	63.496±33.1868	53.126±39.1810
> 50 (76)	51.392±18.1210	74.100±20.6551	67.517±33.5510	51.9491±34.42006	48.514±35.6557	59.112±37.0916
p-value	0.261	0.249	0.068	0.348	0.009	0.338
<b>Material status</b>						
Single (34)	49.968± 19.2389	72.718± 22.9334	65.165± 34.1826	46.3088± 34.58903	49.000± 33.3224	54.379± 36.3129
Married (104)	54.377± 16.8221	78.181± 19.2305	74.975± 28.4560	57.9362± 35.54613	59.970± 35.8121	57.453± 38.1044
Divorced (6)	41.633±17.4865	64.400±22.9796	63.867±40.0241	45.8167±40.39665	36.067±28.6964	47.200±42.7231
Widowed (6)	58.300± 27.3983	68.867± 25.5407	66.650± 27.8966	54.1500± 43.37307	44.417± 31.0257	52.767± 52.0954
p-value	0.213	0.2	0.344	0.382	0.154	0.905
<b>Having children</b>						
Yes (107)	54.333± 17.6331	76.547± 20.3270	74.431± 29.1777	57.2464± 35.93758	56.730± 35.7733	58.335± 38.0810
No (43)	49.770± 18.5810	74.705± 21.5031	65.860± 32.5304	48.2395± 35.10532	53.853± 33.8974	50.744± 38.1440
P-value	0.16	0.622	0.118	0.164	0.652	0.272
<b>Working</b>						
Yes (45)	57.749± 19.6556	79.822± 20.9653	77.007± 25.7160	44.8029± 38.32193	56.653± 37.3390	47.744± 36.3447
No (105)	51.000± 16.8886	74.389± 20.3461	69.817± 31.9577	58.8908± 34.00786	55.585± 34.3600	59.765± 38.4709
P-value	0.035	0.14	0.184	0.027	0.865	0.077
<b>Health problems</b>						
Yes (65)	50.753±19.7986	68.617±19.5785	62.470±32.2643	50.7572±37.19628	37.306±32.8530	61.692±37.5360
No (85)	54.715±16.3874	81.527±19.7210	79.047±26.8496	57.5721±34.68849	69.747±30.2056	52.041±38.2578
P-value	0.183	0.000	0.001	0.250	0.000	0.126
<b>Menstrual cycle</b>						
Present (18)	56.461±19.0780	70.706±19.1536	77.744±20.6322	47.2128±42.69010	55.544±36.1578	48.128±43.1165
Discontinued (132)	52.556±17.8348	76.743±20.7692	71.187±31.3832	55.6805±34.84218	55.955±35.1590	57.254±37.4442
P-value	0.389	0.245	0.391	0.348	0.963	0.342
<b>Cancer surgery</b>						
Mastectomy (106)	53.979±18.5510	74.500±20.4499	72.617±30.8003	58.0770±36.50352	51.237±35.6899	59.042±38.3833
Lumpectomy (38)	50.405±17.1011	81.208±20.4385	74.534±27.0686	49.8316±32.50901	68.984±30.3196	49.089±35.5137
No operation (6)	52.750±12.5271	69.983±22.2201	44.400±32.7606	24.9833±30.73906	55.550±38.9720	49.983±49.4458
P-value	0.578	0.175	0.070	0.055	0.027	0.358
<b>Types of treatment</b>						
Radiation (83)	56.690±18.4674	82.625±19.3988	81.304±26.3506	59.2160±33.86460	59.889±35.1405	57.400±37.3886
P-value	0.017	0.000	0.000	0.130	0.188	0.899
Chemotherapy (145)	52.786±18.1655	75.606±20.4817	71.468±30.5607	54.0790±35.73397	54.960±35.1636	55.452±38.2058
P-value	0.382	0.188	0.273	0.283	0.076	0.223
Herceptin (43)	55.784±18.1400	81.837±16.2915	78.656±24.7684	59.6651±34.69364	63.293±33.0740	55.016±39.6003
P-value	0.234	0.028	0.087	0.280	0.103	0.817
Hormonal therapy(85)	54.965±18.2342	79.112±21.6532	75.272±29.1753	57.3309±34.91894	52.594±37.8751	58.602±39.5654
P-value	0.131	0.035	0.128	0.299	0.188	0.371

suggested insignificant relationship between age and emotional and physical functioning among patients with breast cancer, while other studies suggested insignificant changes between age and global functioning (Avis et al., 2005; Lu et al., 2007; Gokgos et al., 2011). This study also found insignificant relationship between age and global and functional scales except for the cognitive functioning that showed a significant relationship with women aged ≤ 50 years. For instance, Iraqi younger women enjoy better ability to understand and deal with the disease than older

women who have restricted information about cancer and treatment.

Perception of body image was lower in females aged > 50 years and upset by hair loss was higher in comparison with younger females, this is due to the fact that the external appearance is more important for young women than for older ones, and that the change that occurs as a result of hair loss or surgical interventions can negatively affect them and makes them feel frustrated and reluctant to participate in social activities.

Table 4. Comparison of Sociodemographic and Medical Data of Participants to Symptomatic Scales in QLQ-C30

Characteristics	Fatigue	Nausea & vomiting	Pain	Dyspnea	Insomnia	Appetite loss	Constipation	Diarrhea	Financial
Age									
≤ 50	25.501±23.2973	16.803±24.6470	24.304±27.6123	6.300±17.1450	34.215±38.5980	23.857±32.8659	18.450±25.3437	16.657±29.3154	46.376±39.7119
> 50	28.937±25.3988	12.271±24.5401	24.757±25.8765	9.201±18.5197	25.422±34.3557	20.163±32.2269	26.338±29.9176	8.325±18.9352	46.468±38.8972
p-value	0.391	0.261	0.918	0.321	0.142	0.488	0.084	0.04	0.988
Marital status									
single	32.326±26.2784	20.085±29.5165	27.924±34.4991	8.815±18.8887	38.215±39.4571	30.371±36.0954	23.609±30.0964	18.612±28.6323	55.859±39.1138
married	23.871±22.2134	12.275±22.3022	22.252±23.4022	7.364±17.3353	26.905±34.4555	19.217±30.3345	21.134±26.2757	10.570±23.3385	41.965±38.2940
divorced	48.100±23.9787	27.750±32.7403	38.867±22.7580	.000±.0000	33.333±51.6398	22.217±40.3668	16.650±27.8608	22.200±34.3921	49.983±45.9444
widowed	35.167±36.7939	8.333±20.4124	30.533±32.3408	16.650±27.8608	27.767±44.2936	22.217±40.3668	44.417±40.3558	.000±.0000	66.650±42.1690
P-value	0.035	0.194	0.343	0.428	0.476	0.392	0.236	0.164	0.174
Having children									
Yes	25.028±23.7278	13.021±23.3739	23.341±24.0967	7.469±17.8966	28.332±35.9820	19.924±30.9929	23.654±28.2053	8.717±21.6298	57.344±40.0571
No	32.660±25.3083	18.202±27.4063	27.500±32.2954	8.519±17.9370	33.314±38.4763	27.114±35.8078	19.442±27.3773	21.688±29.8710	42.034±38.1180
P-value	0.083	0.245	0.389	0.746	0.453	0.221	0.406	0.004	0.03
Working									
Yes	25.902±24.6005	16.656±23.5611	24.796±28.5636	6.660±16.8007	37.016±37.7428	25.909±35.4379	19.318±28.7958	19.249±32.1588	43.682±39.4477
No	27.806±24.3472	13.586±25.1073	24.421±25.9404	8.246±18.3446	26.650±35.9106	20.304±31.1649	23.788±27.6024	9.515±20.5080	47.597±39.1798
P-value	0.663	0.486	0.937	0.62	0.113	0.335	0.371	0.028	0.577
Health problems									
Yes	32.511±24.9067	14.833±25.8998	33.048±26.9644	9.886±19.3896	34.359±40.2583	26.023±34.3419	31.223±30.7690	13.011±25.6111	47.375±40.6263
No	23.363±23.3375	14.264±23.7659	18.197±24.7304	6.195±16.5609	26.337±33.5561	18.980±30.8957	15.915±23.7902	12.007±24.4632	45.714±38.2739
P-value	0.023	0.889	0.001	0.212	0.186	0.190	0.001	0.808	0.798
Menstrual cycle									
present	27.133±22.9140	24.044±19.9775	29.606±25.2865	9.250±19.1313	38.872±41.6106	24.050±25.0384	18.500±28.4910	24.056±31.9247	46.278±39.8343
Discontinued	27.244±24.6316	13.206±24.9635	23.842±26.8569	7.568±17.7408	28.517±35.9224	21.704±33.4427	22.985±27.9357	10.851±23.4668	46.442±39.2314
P-value	0.986	0.080	0.391	0.709	0.262	0.775	0.525	0.034	0.987
Cancer surgery									
Mastectomy	26.749±24.6600	12.881±22.9079	23.247±24.8383	7.540±17.9667	30.173±38.0714	19.483±30.4546	22.935±27.7191	12.570±25.7877	46.204±38.9135
Lumpectomy	24.392±20.9490	16.950±28.4375	23.226±28.8698	8.763±18.4584	31.555±34.5941	26.300±35.6342	19.366±23.9617	13.147±23.9221	43.837±38.0433
No operation	53.650±27.5644	27.750±27.2016	55.533±29.1954	5.550±13.5947	11.100±17.1960	38.867±44.2886	33.333±51.6398	5.550±13.5947	66.667±51.6398
P-value	0.021	0.278	0.014	0.894	0.439	0.234	0.498	0.784	0.415

Table 5. Comparison of Variables of Participants to BR24 Scales

variables	*Functional scales in BR23					** symptomatic scales in BR24				
	Body image M(SD)	Sexual functioning M(SD)	Sexual enjoyment M(SD)	Future perspective M(SD)	Systemic therapy side effects M(SD)	Breast symptoms M(SD)	Arm symptoms M(SD)	Upset by hair loss M(SD)		
Age										
≤ 50	64.105±39.1061	34.830±38.8558	31.297±37.8286	37.814±35.0254	47.3914±22.02793	15.8643±27.52921	25.807±30.1566	94.143±22.3176		
< 50	78.387±35.4979	24.404±38.6020	26.894±40.0124	58.747±38.4381	44.2921±20.56845	10.7364±21.67215	20.232±26.1785	82.888±33.7774		
P-value	0.02	0.118	0.517	0.001	0.374	0.206	0.228	0.018		
Age during investigation										
≤ 50	63.988±39.3969	36.257±40.0935	32.960±39.5045	37.205±35.0215	47.7086±21.67912	14.0566±25.73723	24.079±28.6213	93.938±22.1191		
< 50	79.097±34.8165	22.696±36.8145	24.989±38.0192	60.249±37.9478	43.8301±20.82632	12.4325±23.89037	21.825±28.0138	82.642±34.3011		
P-value	0.014	0.041	0.24	0	0.266	0.69	0.627	0.017		
Menstrual status										
Present	74.608±36.2007	28.321±38.7988	28.471±38.6979	48.965±38.0650	44.2111±20.72547	11.9848±24.50416	20.143±25.9553	87.622±29.8208		
Discontinued	47.389±42.2761	37.235±40.1889	33.318±40.8146	44.422±39.5993	57.6278±22.21517	22.6628±25.51832	43.800±35.8387	94.444±23.5702		
P-value	0.004	0.379	0.633	0.637	0.012	0.086	0.001	0.353		

Table 4. Continued

Characteristics	Fatigue	Nausea & vomiting	Pain	Dyspnea	Insomnia	Appetite loss	Constipation	Diarrhea	Financial
Types of treatments									
Radiation	20.931±19.4323	6.223±19.2506	15.243±20.3518	4.814±13.8891	29.298±35.4437	12.843±27.9397	20.502±25.8895	7.623±17.5016	42.147±38.6292
P-value	0.001	0.000	0.000	0.050	0.736	0.000	0.284	0.005	0.332
Chemotherapy	27.637±24.5526	15.007±24.8877	24.805±26.7892	8.038±18.1018	30.327±36.8209	22.743±32.7826	22.991±28.1581	12.864±25.1977	47.564±39.2287
P-value	0.276	0.181	0.504	0.324	0.309	0.124	0.200	0.257	0.054
Herceptin	24.528±24.6639	6.972±20.6423	20.523±28.1208	9.293±19.6678	28.660±35.3018	11.621±27.0917	23.314±30.3850	5.421±12.4390	45.716±41.1559
P-value	0.390	0.017	0.244	0.510	0.817	0.013	0.811	0.028	0.889
Hormonal therapy	24.359±24.3260	9.013±20.9742	21.160±26.8874	5.485±15.2834	30.960±35.9109	17.639±32.7595	26.681±28.0208	8.228±20.4980	45.860±38.4769
P-value	0.097	0.002	0.076	0.073	0.648	0.061	0.033	0.017	0.841

Table 5. Continued

variables	*Functional scales in BR23						** symptomatic scales in BR24					
	Body image M(SD)	Sexual functioning M(SD)	Sexual enjoyment M(SD)	Future perspective M(SD)	Systemic therapy side effects M(SD)	Breast symptoms M(SD)	Arm symptoms M(SD)	Upset by hair loss M(SD)				
Health problem												
yes	82.592±32.2919	15.196±30.7357	15.257±31.5382	59.345±35.8644	51.2625±23.17103	10.2778±19.58889	24.202±30.5981	85.409±30.2190				
No	62.969±39.7001	39.566±41.1069	38.380±40.6734	40.290±37.9533	41.7716±18.90589	15.4901±27.94197	22.074±26.5246	90.697±28.3094				
p-value	0.001	0	0.001	0.002	0.007	0.204	0.65	0.273				
Material status												
single	69.594±38.8166	.000±.0000	.000±.0000	41.153±36.7451	46.5324±24.65808	16.3282±28.87169	27.432±31.5630	89.215±30.3983				
married	72.053±37.8871	38.926±40.2194	38.563±40.2097	50.296±38.8552	44.8371±19.15582	11.5523±21.31317	20.441±25.5551	88.777±27.7246				
divorced	77.767±34.4437	.000±.0000	.000±.0000	33.300±21.0608	59.4667±22.30037	33.3333±51.63978	38.867±41.4133	83.333±40.8248				
widowed	62.483±43.3923	20.000±44.7214	20.000±44.7214	72.200±38.9720	45.2000±34.43092	5.5550±10.09198	25.917±38.2760	83.333±40.8248				
p-value	0.896	0	0	0.191	0.439	0.136	0.304	0.94				
Types of treatment												
Radiation	72.071±35.6530	35.949±40.2732	35.144±40.0109	44.552±36.1626	38.6313±16.39630	9.5307±23.17204	16.518±22.4917	90.358±26.3094				
p-value	0.957	0.021	0.079	0.149	0	0.103	0.005	0.532				
Chemotherapy	71.503±37.7113	28.808±38.3779	28.442±38.2611	48.021±38.0560	46.4170±21.20398	12.8043±24.01571	22.626±28.0104	88.732±28.6634				
p-value	0.78	0.285	0.276	0.493	0.065	0.22	0.408	0.512				
Herceptin	67.816±39.7465	33.320±40.1317	33.317±39.4307	48.040±40.0351	41.3233±16.43044	12.5856±24.61544	23.235±25.1580	94.570±19.1560				
p-value	0.472	0.446	0.404	0.939	0.101	0.832	0.945	0.103				
Hormonal therapy	75.474±35.2721	29.423±38.2169	29.211±38.8586	49.778±36.5918	41.9266±20.05707	7.5104±20.24495	17.175±25.3216	92.939±23.0613				
p-value	0.127	0.999	0.97	0.62	0.01	0.001	0.004	0.03				
Type of surgery												
mastectomy	65.191±40.7921	26.304±37.8561	26.826±38.1092	53.747±37.2494	44.6160±20.89588	13.8233±25.58711	24.405±27.6085	87.417±29.9797				
Lumpectomy	83.974±25.5065	36.824±40.8423	34.219±40.4259	29.805±34.4630	46.6489±21.34648	10.3026±23.83714	17.092±28.7014	92.982±24.7020				
No operation	100.000±.0000	33.325±47.1405	33.325±47.1405	72.200±38.9720	61.8667±24.81900	22.1933±13.59061	35.150±34.6893	77.767±40.3724				
p-value	0.005	0.366	0.61	0.001	0.149	0.506	0.221	0.398				

Our findings showed insignificant relationships between the functional scales and the marital status and whether patients had children or not. In regard to the symptomatic scales in QLQ-C30, fatigue was a distressing symptom among divorced women who showed insignificant changes. Many symptoms, such as fatigue and diarrhea, were high in the case of women who did not have children. As for the women with children, they suffered financial burdens that can be explained by their anxiety towards their children and their fear about the effect of the disease on their work and family expenses.

Having children is associated with positive effect on all functional aspects but the change is not significant; such positive result may be related to the fact that women with children may not feel worried about losing fertility. The results obtained according to this scale are similar to the ones reached by an Iranian study that showed significant changes regarding these issues (Kiadaliri et al., 2012).

This study showed that patients with other health problems, such as Hypertension, hyperlipidemia, DM and heart disease, experience lower quality of life, especially in the physical, role, and cognitive functioning. The patients also showed higher symptoms scales with regard to fatigue, pain, and constipation. These results may be similar to some findings reached by a Chinese study, where patients with chronic diseases and diabetes showed significant lower quality of life and higher symptoms than other patients (Tang et al., 2016).

A Dutch study also showed that utility scores were significantly worse for patients with comorbidities versus those without other health problems (Claessens et al., 2020). Regarding the types of treatment, patients treated with radiation showed significant improvement in global, physical, and role functioning, but worse symptoms concerning fatigue, nausea and vomiting, pain, dyspnea, appetite loss, and diarrhoea. Significant improvement was reported by Budischewski et al., (2008) in role functioning from the beginning of radiation to 6 weeks after radiation therapy, but the same study showed insignificant changes with global and physical functioning. A study conducted by Bansal et al., (2004) that evaluated patients with head and neck cancer at three time points, showed improvements in all functional scales after a one month of treatment, except for the role and cognitive functioning that remained high during treatment. Budischewski et al., (2008) and Bansal et al., (2004) have also found that the scores for symptoms scales have increased significantly during the course of treatment. No changes in the quality of life were noted in patients treated with chemotherapy (Adamowicz and Waliszewska.,2020). Also, insignificant changes were obtained in the case of patients who were receiving herceptin and hormonal therapy for functional scales, except for physical functioning. However, this does not mean that these treatments have no effect on the quality of life because different types of treatment cannot be assigned to patients randomly. Besides, sample sizes may be insufficient to draw definitive conclusions to enable the comparison between participants. In addition, there was some overlap between the treatment options (Finck et al.,2018). Regarding the symptoms scales, higher scores have associated with nausea and vomiting, appetite

loss and diarrhoea. Nageeti et al., (2019) showed that worsening symptoms like fatigue and insomnia and upset because of hair loss were significantly related to women who were still receiving cancer therapy or on long-term monoclonal antibody therapy.

This study has faced certain limitations including small sample size and being restrictedly localized in a one region (oncology teaching hospital) due to the COVID-19 outbreak, and the difficulty in introducing some sex-related questions due to the conservative nature of an Islamic community.

In conclusion, healthcare professionals should consider the importance of the quality of life of patients with breast cancer in addition to the treatment provided to them in order to improve their health. The results this study has reached will help ease the obstacles faced in all the areas in which patients need additional support. Since there are many negative effects of the disease and its treatment on the patient's quality of life, it has become necessary for the health care sector providers to focus on designing social and psychological interventions to support cancer patients throughout their illness and treatment. All these life-improving qualities can be realized by providing verbal encouragement, introducing patients to positive models, how to deal with pain, and providing these patients with moral and psychological support.

## Author Contribution Statement

Abeer bdulhadi (idea and writing)- Rawaa Abdulzahraa (Data collection)- Noor Wafaa (statistics).

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### Approval

The research was approved by scientific committee of clinical pharmacy in college of pharmacy.

### Ethical issues

This study was approved by the ethical committee of Pharmacy College/ Mustansiriyah University /Baghdad /Iraq.

### Availability of data

Data were obtained from oncology teaching hospital

### Conflicts of interest

There are no conflicts of interest.

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