ORIGINAL ARTICLE

AL-ANBAR MEDICAL JOURNAL
Anb. Med. J. 20(2): 192–199, 2024

Quality of Life for Women with Breast Cancer and Socio-Demographic Variables

Nabaa Sadiq Idan[1, *] and Naji Yasser Saadoon[2]
[1] *Department of Family and Community Health Nursing,*
College of Nursing, University of Babylon, Babil, Iraq.
[2] *Department of Family and Community Health Nursing,*
Collage of Science, Mustansiriyah University, Baghdad, Iraq.

(Received : 12 May 2024; Accepted : 31 July 2024; First published online: 21 August 2024)

ABSTRACT

Background: Quality of life assessment is an important parameter in assessing how survivors cope with the impact of the disease and its treatment.
Objectives: To assess the quality of life for breast cancer women and to determine socio-demographic factors affecting it.
Materials and methods: A descriptive-analytic cross-sectional study design was used. Data regarding socio-demographic characteristics were collected from a purposive sample consisting of 250 breast cancer women in Baghdad City for the period from June 20^{th} 2023 to November 31^{th} 2023. We used the European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC-C30 and QLQ-BR-23) for the assessment of the patients.
Results: The average age of the women was 46.83 ± 12.32 years. The worst quality of life results was recorded in the domain of financial impact, with a mean score of 2.36 ± 0.79. In symptom scales: Pain, fatigue, and hair loss were the highest symptoms, followed by appetite loss and arm symptoms, which had a moderate effect. The mean scores for physical and role function of quality of life had a low and moderate assessment in all items. Regarding the psychological domain, anxiety and depression, had the highest score of 2.35, followed by thinking and body image, which had a moderate score of 2.01 and 2.03 respectively. While the memory and concentration scale had a lower score (1.58). The mean score for the sexual activity scale had a relatively moderate score in all items. There are high statistically significant differences between all socio-demographic variables and quality of life domains for breast cancer women ($P\text{-value} < 0.05$).
Conclusion: Breast cancer and its treatment affect all domains of the quality of life of breast cancer women. The age, education, marital status, occupational status, and monthly income of breast cancer women might be affected by their quality of life.
Keywords: Quality of life; Breast cancer in women; Breast cancer.

DOI: 10.33091/amj.2024.149755.1715

INTRODUCTION

Breast cancer (BC) is the most common cancer for females globally, surpassing even lung cancer. According to the GLOBOCAN statistics for 2022, BC ranked second, with an estimated 2.3 million new cases (representing 11.6% of all cancer cases), 666.103 deaths, and 8178394 five-year prevalence [1, 2]. In Iraq, the latest Iraqi Cancer Registry for 2022 showed that BC is the most common cancer among Iraqi women. There were 8,184 new cases among female (representing 39.2 for every 100,000 population) of all cancer cases diagnosed among females. In the females, the highest crude mortality rate of cancer was BC (23.6%, 6.4 for every 100,000 population) `https://storage.moh.gov.iq/2024/03/31/2024_03_31_11983087032_3940351786864953.pdf`.

The Quality of life (QOL) refers to "global well-being," which is manifested in elements such as physical, emotional, mental, social, and behavioral components. Therefore, QOL is considered an important prognostic factor in improving BC

---

[*] Corresponding author: E-mail: idannabaa@gmail.com

treatment and an important endpoint in clinical trials [3]. In addition, QOL can be defined as a subjective concept assessed from the patient's perspective. Thus, QOL assessment in patients with BC is an important outcome in assessing how survivors cope with the impact of the disease and its treatment.

BC is one of the oncological diseases in which the influence of QOL has been most studied. Its adverse effects significantly and negatively impact women's lives and lead to psychological stress resulting from the costs of surgery, chemotherapy, and radiation therapy. Alterations in body image and feelings of abnormality may cause women to experience stigma and embarrassment and limit their social interactions [4, 5].

Diagnosis of BC causes significant physical, mental, and economic consequences for women and their families. As women are the most important members of the family, their QOL can not only impact their survival but also the cohesion of their family's structure [6].

A previous study by Israa et al. in Nineveh revealed that there is a low QOL in the aspects of energy and emotional well-being among BC women. Besides, it demonstrates that women aged ≥ 60 years had worse QOL than younger women (< 60 years) [7]. Furthermore, another previous study conducted in Riyadh revealed that there is a relationship between the QOL of BC women and most of the socio-demographic variables including age, education, marital status, and monthly income, but had no significant association with occupation [8]. Moreover, a previous investigation conducted in Poland indicated a low QOL for BC women. Besides, the study demonstrated there are positive correlation between women's age and image of their own body and social functioning. On the other hand, married women had higher scores on functional scales and lower severity of symptoms. The study also stated that women with higher education levels and high monthly incomes had good physical, emotional, social, and cognitive functioning [9].

In Iraq, only a few studies were conducted to assess QOL for BC women. Moreover, these studies were limited to a specific category of patients in a limited hospital and on a specific governorate scope and didn't address all domains of QOL. Thus, the aim of the current study was to assess all the aspects of the QOL for BC women on wide scope and to determine socio-demographic variables affecting it.

MATERIALS AND METHODS

Study Design

A descriptive (analytic cross-sectional) study was used.

Study Sample and Sampling

A non-probability random sampling technique was used for the selection of the patients. Data were collected from a purposive sample consisting of 250 BC women in Baghdad city, for the period from June 20^{th} 2023 through November 31, 2023.

Setting

The current study was conducted in Baghdad, Iraq, at the Al-Amal National Hospital for Cancer Management, Oncology Teaching Hospital, Al-Yarmouk Hospital-Oncology Center, and AL-Imam AL-Jawad Center for Oncology).

Ethical Consideration

The protocol of the study was approved by the ethical approval committee of the Collage of Nursing/Babylon University (Document no. 77, on May 25,2023). Informed consent was obtained from every participant.

Inclusion Criteria

Women aged ≥ 20 years, women diagnosed with BC clinically and confirmed histopathologically, and women who had undergone BC treatment were enrolled in the present study.

Exclusion Criteria

Women with acute physical, cognitive or psychiatric health problems, and who didn't meet inclusion criteria or had a mental illness that impairs comprehension ability were excluded. Besides, patients who didn't give consent to participate were excluded too.

Study Instrument

The questionnaire form consists of three parts; the first one is socio-demographic characteristics, the second part includes clinical data, and the third part assesses the QOL for women with BC by using the European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire and (EORTC QLQ-C30 version 3.0) and (QLQ-BR-23) [10, 11].

Validate the Questionnaire

A panel of 19 experts, who work in different fields determined the questionnaire's content validity and its internal consistency reliability was calculated by using the split-half method and Cronbach's alpha correlation coefficient of r = 0.721.

Data Collection

Using a researcher-designed questionnaire, the required data were collected through face-to-face interviews with the BC patients while they were undergoing treatment or follow-up. The questionnaire form and the QOL scale instrument were filled out by the researcher and the time consumed to fill out all the data from 25-30 minutes.

Sample size

The sample size was calculated using the G-Power software (version 3.1.9) [12] the calculations were based on a power of 0.95, a medium effect size of 0.25, and an alpha of 0.05, we conducted an ANOVA test for each of the socio-demographic characteristics. A total sample of 250 patients was needed.

Rating and Scoring

The QOL was assessed using a Likert scale of 3-levels. Responses were ranked as (3) always, (2) sometimes, (1) never. The mean of the score for assess QOL varied from (1 to 3) which was determined according to the mean of items scores, with the mild effect (1-1.66), moderate (1.67-2.33), high (2.34-3), and higher mean of scores denoted low assessment of QOL.

Statistical Analysis

The data was entered and analyzed using Statistical Package for Social Sciences (SPSS version 22.0: IBM Inc., IL, USA) software. Descriptive statistical analysis, frequency, percentage, mean score, and standard deviation were used to describe the research sample and items of the questionnaire. Inferential statistical Spearmen's correlation coefficient

http://doi.org/10.33091/amj.2024.149755.1715

was used to determine the relation among variables and the ANOVA test was used test for data analysis. A P-value of < 0.05 was the criterion of statistically significant difference.

RESULTS

The age of our patients ranged from 20 to 67 years, with a mean age of 46.83 ± 12.32 years. More than a third of women with BC are within the age group of 40–49 years; 62.0% are married; 34.0% hold a bachelor's degree; 56.0% identified as housewives; 91.6% life in urban areas; 56% are housewives, and 54% reported a moderate of family monthly income(Table 1).

The majority of the cases (59.2%) are in the third stage; 88.2% had undergone total mastectomy; and 61.2% received chemotherapy, radiation, hormonal, and biological treatment (Table 2).

The lowest QOL was recorded in the domain of financial impact, with a mean score of 2.36. On the symptoms scale, fatigue, pain, and hair loss are the most symptoms, followed by appetite loss and arm symptoms, which had a moderate effect at 1.82 and 1.74, respectively. The mean scores for the physical and role function in QOL had a low and moderate assessment in all items. Anxiety and depression had higher scores (2.35), followed by thinking and body image with moderate scores of 2.01, and 2.03 respectively. While the memory and concentration scale had a lower score (1.58). The mean score for the sexual activity scale had a relatively moderate assessment across all items (Table 3).

Table 1. Participant's socio-demographic characteristics (n = 250).

Variable	Number	Percent
Age(Years), Mean(SD)=46.83 ± 12.32		
20–29	19	7.6
30–39	44	17.9
40–49	87	34.8
50–59	67	26.8
60–69	24	9.6
≥70	9	3.6
Marital Status		
Married	155	62.0
Single	53	21.2
Widower	21	8.4
Divorced	6	2.4
Separated	15	6.0
Level of education		
Elementary School	57	22.8
Middle School	23	9.2
High School	40	16.0
Diploma Degree	33	13.2
Bachelor's degree	85	34.0
Master's degree	9	3.6
Doctoral degree	3	1.2
Occupation		
Employee	89	35.6
Freelancer	6	2.4
Retired	15	6.0
Housewife	140	56.0
Residence		
Urban	229	91.6
Rural	21	8.4
Family monthly income (Iraqi dinars)		
Low (< 500,000)	63	25.2
Moderate (500,000–1,000,000)	135	54.0
High (> 1,000,000)	52	20.8

Table 2. Clinical and treatment-related characteristics of 250 patients with breast cancer.

Variable	Number	Percent
Disease stage		
I	21	8.4
II	31	12.4
III	148	59.2
IV	50	20
Surgery Type		
No surgery	28	11.2
Tumor resection only	3	1.4
Lumpectomy	8	3.6
Total mastectomy	196	88.2
Total mastectomy with sub-axillary lymph nodes	12	5.4
Bilateral mastectomy	3	1.4
Treatment Type		
Chemotherapy	32	12.8
Chemotherapy+Radiation	15	6.0
Chemotherapy+Radiation+Hormonal+ Biological	153	61.2
Chemotherapy+Radiation+Biological	38	15.2
Radiation+Hormonal+Biological	12	4

There are statistically significant positive correlations between increasing women's age and each of physical and role function, symptoms scales, and concentration (r = .714 at P-value = 0.01; r = .711 at P-value = 0.01; r = .662 at P-value = 0.01, respectively). While there is a statistically significant inverse correlation between increasing women's age and sleep, anxiety and depression, thinking, body image, social, and family relationships (r = -.212 at P-value = 0.01, r = -.614 at P-value = 0.01, r = -.287 at P-value = 0.01, r = -.387 at P-value = 0.01, r = -.415 at P-value = 0.01, r = -.287 at P-value = 0.01, respectively) as seen in Table 4.

There are statistically significant differences in physical and role function, sleep, physical symptoms, thinking, concentration, body image, social aspect, family relationships, financial impact, sexual activity, and QOL among women's level of education groups (P-values = 0.001, 0.001, 0.001, 0.002, 0.001, 0.001, 0.033, 0.001, 0.013, 0.001, 0.001, respectively) as indicated in Table 5.

There are statistically significant differences in physical and role function, physical symptoms, anxiety and depression, thinking, concentration, body image, social aspect, family relationships, financial impact of sexual activity, and QOL among women's marital status groups (P-values = 0.001, 0.001, 0.001, 0.004, 0.001, 0.001, 0.001, 0.001, 0.001, 0.001, 0.001, respectively) as shown in Table 6.

There are statistically significant differences in physical and role function, sleep, physical symptoms, anxiety and depression, thinking, concentration, social aspect, financial impact, sexual activity, and QOL among women's occupations (P-values = 0.001, 0.005, 0.001, 0.001, 0.001, 0.001, 0.001, 0.007,

http://doi.org/10.33091/amj.2024.149755.1715

Table 3. Assessment of quality of life (QOL) of women with breast cancer.*

Item	MS	Assess level
Physical and role function	1.55	L
Sleep disturbance	1.76	M
Symptoms scales		
Pain	2.35	H
Fatigue	2.37	H
Nauseas	1.38	L
Vomiting	1.01	L
Loss of appetite	1.82	M
Constipation	1.42	L
Arm symptoms	1.74	M
Upset by hair loss	2.34	H
Psychological domains		
Anxiety and depression	2.35	H
Thinking	2.03	M
Memory and concentration	1.58	L
Body image	2.01	M
Social functioning	1.60	L
Family relationship	1.84	M
Sexual activity	1.76	M
Financial impact	2.36	H
Total QOL	1.85	M

* M.S: Mean of score, L: Low (1-1.66), M: Moderate (1.67-2.33), and H: High (2.34-3).

Table 4. Correlation among age and quality of life (QOL) domains.*

QOL Domains	Age	
	r	P-value
Physical and role function	.714**	0.01
Sleep	-.212**	0.01
Symptoms scales	.711**	0.01
Anxiety and depression	-.614**	0.01
Thinking	-.287**	0.01
Memory and concentration	.662**	0.01
Body image	-.387**	0.01
Social relationship	-.415**	0.01
Family relationships	-.287**	0.01
Sexual activity	.109	0.08
Overall QOL	-.034	0.59

* Correlation is significant at the 0.05 level(2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

0.001, 0.001, respectively) as seen in Table 7.

There are statistically significant differences in physical and role function, sleep, anxiety and depression, thinking, body image, social aspects, family relationships, sexual activity, financial impact, and QOL among families monthly income groups (P-value A = 0.028, 0.001, 0.004, 0.034, 0.030, 0.001, 0.001, 0.001, 0.045, 0.001, respectively) as illustrated in Table 8.

There are statistically significant differences in physical and role function, symptoms scales, concentration, social relationship and QOL among residency groups (P-values = 0.001, 0.021, 0.001, 0.021, 0.002 respectively) as appeared in Table 9.

DISCUSSION

BC has a significant health burden in Iraq in terms of morbidity, mortality rates, and early detection. The resulting impairment in the patients' QOL affects their health, symptoms, and well-being in terms of physical, social, psychological, and sexual functioning. There is limited information about QOL in Iraqi females with BC, and the limited obtained data causes difficulties for healthcare providers to introduce new interventions and treatment approaches. Thus, highlighting the significance of women's QOL following a BC diagnosis is necessary. The strength of the current study is that the investigation included BC women from different Iraqi provinces, besides, it highlighted vulnerable groups and domains where women need additional support.

There are statistically significant correlations among age groups and QOL domains. Patients > 50 years old had a low assessment for QOL in the field of each physical and role function, symptom scales, and increased rates of poorer memory and concentration. With age, the occurrence of symptoms associated with the disease, such as fatigue, pain and arm symptoms on the operation side were increased. In turn, older BC patients had a higher assessment for QOL in the aspects of sleep, psychological domains, and family and social relationships, and they assessed the body image more highly compared with the women younger than 50 years old. This is since that external appearance is more important for young women than for older ones, and the alteration that occurs as a result of hair loss or surgical interventions can negatively affect them and make them feel frustrated and reluctant to participate in social activities. This result is consistent with Magdalena et al., who stated that younger patients, had a low assessment of their body image and low assessment of the domain of social functioning [9]. Besides, the study comes in line with Blair et al., who stated that older patients, had higher QOL compared with younger women [13]. Moreover, the current study showed that younger women had high levels of depression, anxiety, tension, and lowest QOL compared to women who were diagnosed during middle age. This might be due to women were fearfulness of the recurrence of cancer or cancer becoming metastatic. In addition, BC women were anxious about their daughters experiencing their disease. This result is consistent with studies conducted in Germany by Breidenbach et al., and in Australia by Beatty et al., who indicated that younger patients at diagnosis (< 50 years) show higher levels of anxiety and depression. While older patients are often less affected [14, 15]. Additionally, it comes in line with Hubbeling et al., who stated that younger patients had increased rates of depression and the lowest QOL compared with older women [16].

The present study revealed that there were statistically significant differences among QOL domains and educational levels for BC women. Patients with lower education were more influenced by the following dimensions of QOL in each of physical and role functions, sleep, symptoms scales, thinking, concentration, body image, social functioning, family relationships, and sexual activity. This may be due to that patients with low education levels had little or no knowledge related to the disease process and how to cope with chemotherapy side effects for enhancing their QOL in comparison with patients with higher levels of education. These results are consistent with other studies by Ondium et al. and Ogoncho

Table 5. Differences in quality of life (QOL) domains among women's level of education.*

QOL Domains	Level of Education								
	Elementary School Mean	Middle School Mean	High School Mean	Diploma degree Mean	Bachelor's degree Mean	Master's degree Mean	Doctoral degree Mean	P-value < 0.05	Sig.
Physical and Role function	*15.58	*13.17	12.62	11.76	10.52	9.33	9.00	0.001	H.S
Sleep	*8.15	*7.80	7.28	6.61	6.09	4.33	4.00	0.001	H.S
Symptoms Scales	*17.13	*17.07	16.15	16.00	12.95	12.00	10.00	0.001	H.S
Anxiety and Depression	11.37	10.87	11.85	12.63	12.42	14.00	12.00	0.671	N.S
Thinking	*7.36	*6.10	6.00	5.77	5.73	5.41	4.00	0.002	H.S
Memory and Concentration	*5.63	*5.47	4.82	4.27	4.18	3.00	3.00	0.001	H.S
Body Image and Appearance	*14.70	*14.64	14.00	11.178	10.88	10.65	7.00	0.001	H.S
Social Relationship	*7.60	*6.79	6.67	6.62	6.60	5.55	4.00	0.033	H.S
Family Relationships	*12.90	*10.28	8.87	8.26	8.27	6.67	6.00	0.001	H.S
Financial impact	*1.94	*1.91	1.93	1.88	1.48	1.67	1.00	0.013	H.S
Sexual Activity	*8.93	*8.30	6.00	5.49	5.51	2.78	1.00	0.001	H.S
Overall QOL	*102.88	*100.98	94.67	86.7391	82.40	72.00	69.00	0.001	H.S

* Differences are significant; Sig: Significance, H.S: High significant, N.S: Not significant.

Table 6. Differences in quality of life (QOL) domains among women's marital status.*

QOL Domains	Marital Status						
	Married Mean	Single Mean	Widower Mean	Divorced Mean	Separated Mean	P-value < 0.05	Sig.
Physical and Role function	12.10	10.46	*19.00	*14.50	11.60	0.001	H.S
Sleep	7.01	6.78	6.29	9.00	8.40	0.119	N.S
Symptoms Scales	15.28	12.74	*18.29	*16.20	16.00	0.001	H.S
Anxiety and Depression	*13.35	*15.06	9.43	11.35	10.00	0.001	H.S
Thinking	4.43	5.30	*6.19	*7.50	5.60	0.004	H.S
Memory and Concentration	3.00	3.79	*7.43	*4.84	4.00	0.001	H.S
Body Image and Appearance	*12.42	*14.01	8.00	10.50	8.40	0.001	H.S
Social Relationship	*6.17	*8.60	4.00	6.00	4.80	0.001	H.S
Family Relationships	*10.16	*9.30	6.00	3.00	5.40	0.001	H.S
Financial impact	*1.74	*2.057	1.71	.50	1.20	0.001	H.S
Sexual Activity	*9.30	.9811	.00	.0000	.0000	0.001	H.S
Overall QOL	*94.82	*87.02	82.86	81.50	76.400	0.001	H.S

* Differences are significant; Sig: Significance, H.S: High Significant, N.S: Not significant.

et al., in Kenya who stated that patients with higher education had higher assessments for QOL in the following dimensions; physical, social, psychological and total QOL [17, 18]. Besides, it comes in line with a study conducted by Lachowicz and Etowska, who mentioned that the higher the level of education for women diagnosed with BC, the better QOL is assessed [19].

There are statistically significant differences between QOL domains and the marital status of BC women. Married and single women, had high levels of anxiety, depression and financial impact, in addition, to lower assess to QOL in the field of body image when compared with other marital statuses. This result may be linked to the fact that women are often anxious about losing fertility and their fear about the effect of the disease on their work and family expenses or impact on their chances of getting married. In turn, divorced and widowed women had low assess to QOL regarding physical and role function, symptoms scales, thinking and concentration domain in comparison with single and married women. This result is inconsistent with a study conducted in Iran by Mitra et al., who mentioned that married participants had significantly higher QOL compared with their single women [20].

The present study found that women with BC who were employed had higher assess to QOL in the field of physical and role functions, sleep, symptoms scales, anxiety and depression, memory and concentration, social functioning, financial impact and sexual activity than unemployed women. Therefore, work can be considered as an important effect for people to meet their needs due to the better financial situation of employed women and therefore, meeting their needs without difficulty will make them feel better, thus, increasing their QOL. This result comes in line with Ganesh et. Al (Malaysia) and Kübra and Yilmaz (Turkey) that illustrated there were a significant relationship between working status and QOL [21, 22].

Table 7. Differences in quality of life (QOL) domains among women's occupation.*

QOL Domains	Occupation					
	Employee Mean	Freelancer Mean	Retired Mean	Housewife Mean	P-value < 0.05	Sig.
Physical and Role function	*10.21	10.50	14.00	13.62	0.001	H.S
Sleep	*5.60	9.00	6.44	7.48	0.005	H.S
Symptoms Scales	*12.55	15.50	20.00	16.12	0.001	H.S
Anxiety and Depression	*6.00	12.00	12.94	12.09	0.001	H.S
Thinking	*3.00	7.00	5.87	6.09	0.001	H.S
Memory and Concentration	*3.84	7.00	7.60	4.91	0.001	H.S
Body Image and Appearance	*12.04	17.50	9.80	12.15	0.078	N.S
Social Relationship	*4.00	10.00	5.66	7.00	0.001	H.S
Family Relationships	*8.87	9.00	9.80	9.31	0.850	N.S
Financial impact	*1.49	2.00	2.00	1.86	0.007	H.S
Sexual Activity	*5.33	8.00	11.60	5.70	0.001	H.S
Overall QOL	*83.75	105.50	91.40	94.47	0.001	H.S

* Differences are significant; Sig: Significance, H.S: High Significant, N.S: Not significant.

Table 8. Differences in quality of life (QOL) domains among family's monthly income groups. *

QOL Domains	Family monthly income				
	Low income Mean	Mild income Mean	High income Mean	P-value < 0.05	Sig.
Physical and Role function	*13.87	*12.48	11.60	0.028	H.S
Sleep	*8.22	*7.37	6.35	0.001	H.S
Symptoms Scales	15.67	14.71	15.27	0.111	N.S
Anxiety and Depression	*13.71	*12.96	10.77	0.004	H.S
Thinking	*6.60	*6.06	5.47	0.034	H.S
Memory and Concentration	5.19	4.63	4.48	0.324	N.S
Body Image and Appearance	*13.44	*11.67	11.58	0.030	H.S
Social Relationship	*8.19	*6.77	5.45	0.001	H.S
Family Relationships	*10.63	*9.75	8.27	0.001	H.S
Financial impact	*2.43	*1.83	1.39	0.001	H.S
Sexual Activity	*4.90	*6.03	7.13	0.045	H.S
Overall QOL	*99.89	*94.19	85.13	0.001	H.S

* Differences are significant; Sig: Significance, H.S: High Significant, N.S: Not significant.

Financial situation seems to be an important causal factor significantly affecting the QOL assessment. The current study showed that there were statistically significant differences between family monthly income and QOL domains. These findings showed lower assess for QOL in the field of physical function, psychological domains, social, family relationship, sexual activity, and financial impact in patients who belong to low and middle family's monthly income compared with the patients who had high monthly income. This might be due to the fact that a family's financial situation can be impacted significantly by the costs associated with treatment and long-lasting therapy, ultimately impacting socioeconomic conditions. This finding was in agreement with Moodi et al., who reported that women with medium monthly income had lower QOL than those women with high monthly income [20]. As well as it comes in line with Ondium et al., who stated in their study that patients who have high-income earnings had higher physical, social, psychological, and total QOL scores than those with less income [17].

BC patients who lived in rural areas had lower assess to QOL in the field of physical and role function, symptom scales, memory and concentration. This may be due to the fact that women in urban areas have better living conditions about those in rural areas. These results disagree with Gupta et al., who stated that women living in rural areas had higher assess to QOL compared with those residing in urban regions [23].

There were three limitations to the present study. First, the difficulty in introducing some sex-related questions to women participants because of the conservative nature of an Islamic community, and some participants consider it a private issue and isn't openly discussed in public. Second, there are biases regarding any survey such as non-response bias and recall bias. The design of the cross-sectional nature could be a third limitation to the study where the temporal relationship cannot be proved.

CONCLUSION

BC and its treatment have an impact on all domains of QOL. Age, educational level, marital status, occupation, and family's monthly income were five significant predictors that affected QOL assessments for BC women. Healthcare

Table 9. Differences in quality of life (QOL) domains among residency groups.*

QOL Domains	Residency groups			
	Urban Mean	Rural Mean	P-value < 0.05	Sig.
Physical and Role function	11.7860	*18.5714	0.001	H.S
Sleep	7.0349	7.0000	0.960	N.S
Symptoms Scales	14.8646	*17.2857	0.021	H.S
Anxiety and Depression	12.0306	12.0000	0.980	N.S
Thinking	5.8472	5.8571	0.986	N.S
Memory and Concentration	4.5328	*7.0000	0.001	H.S
Body Image and Appearance	12.0175	13.0000	0.483	N.S
Social Relationship	6.2707	*8.0000	0.021	H.S
Family Relationships	9.1747	9.1429	0.976	N.S
Financial impact	1.7467	1.7143	0.870	N.S
Sexual Activity	6.0524	5.1429	0.508	N.S
Overall QOL	89.6114	*103.0000	0.002	H.S

* Differences are significant; Sig: Significance, H.S: High Significant, N.S: Not significant.

providers should pay special attention to the most vulnerable groups, such as older women in the areas of physical health, role function, memory, and concentration. Younger women should focus on their psychological, social functioning, and body image scales. On the other hand, women with BC should receive professional care that enhances their functioning in all aspects of life, particularly those with low levels of education, low family monthly income, and unemployment.

ETHICAL DECLARATIONS

Acknowledgments

We thank all the women who participated in this study.

Ethics Approval and Consent to Participate

The study protocol was reviewed and approved by the ethical committee of the College of Nursing/Babylon University on 25-5-2023. Informed consent was obtained from every participant.

Consent for Publication

Not applicable (This publication contains no data that could reveal the identity of the participating patients).

Availability of Data and Material

Data are available upon reasonable request from the corresponding author.

Competing Interests

The authors declare that there is no conflict of interest.

Funding

No funding.

Authors' Contributions

Idan NS was responsible for the design and implementation of the study, patients' selection, data collection and analysis, and writing of the manuscript. Saadoon NY was responsible for the design and implementation of the study, supervision of the work, and writing the manuscript. Both authors read and approved the final version of the manuscript.

REFERENCES

[1] F. Bray *et al.* Global cancer statistics 2022: Globocan estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*, 74(3):229–263, 2024.

[2] M. R. Mohammed, R. Abduljabbar, A. Raziq, and D. Musa. Categorization of the nottingham prognostic index in breast carcinoma: A retrospective study of 473 female patients. *Al-Anbar Medical Journal*, 19(2):110–115, 2023.

[3] R. A. Al-Naggar, M. T. Osman, and N. Al-Baghdadi. Study of quality of life and characteristic factors in women with breast cancer undergoing different types of therapy. *Journal of Applied Pharmaceutical Science*, 6(9):147–152, 2016.

[4] L. Tang *et al.* Emotional distress and dysfunctional illness perception are associated with low mental and physical quality of life in chinese breast cancer patients. *Health and quality of life outcomes*, 15:1–10, 2017.

[5] X. Bu *et al.* Breast cancer stigma scale: a reliable and valid stigma measure for patients with breast cancer. *Frontiers in Psychology*, 13:841280, 2022.

[6] L. Gonzalez *et al.* Health-related quality of life in patients with breast cancer in latin america and the caribbean: a systematic review and meta-analysis. *The oncologist*, 26(5):e794–e806, 2021.

[7] I. J. Mustafa, O. R. Abdullah, N. Al-Saffar, R. F. Ahmed, and M. Fouad. Quality of life assessment in women with breast cancer in nineveh, iraq. *Cureus*, 16(1), 2024.

http://doi.org/10.33091/amj.2024.149755.1715

[8] A. Farouk, A. Monica, R. Almutairi, N. Alanazi, M. Alenizi, and B. Alotaibi. Impact of bio-socio demographic characteristics on the quality of life of breast cancer patients. *EAS J Nurs Midwifery*, 2(4):43–51, 2020.

[9] M. Konieczny, E. Cipora, K. Sygit, and A. Fal. Quality of life of women with breast cancer and socio-demographic factors. *Asian Pacific journal of cancer prevention: APJCP*, 21(1):185, 2020.

[10] N. W. Scott *et al.* Eortc qlq-c30 reference values manual. 2:1–427, 2008.

[11] P. Fayers, N. K. Aaronson, K. Bjordal, M. Grønvold, D. Curran, and A. Bottomley. *EORTC QLQ-C30 scoring manual*. European Organisation for research and treatment of cancer, ISBN. 2-9300-6416-1, 2001.

[12] F. Faul, E. Erdfelder, A. Buchner, and A.-G. Lang. Statistical power analyses using g* power 3.1: Tests for correlation and regression analyses. *Behavior research methods*, 41(4):1149–1160, 2009.

[13] C. K. Blair, K. Robien, M. Inoue-Choi, W. Rahn, and D. Lazovich. Physical inactivity and risk of poor quality of life among elderly cancer survivors compared to women without cancer: the iowa women's health study. *Journal of Cancer Survivorship*, 10:103–112, 2016.

[14] C. Breidenbach *et al.* Prevalence and determinants of anxiety and depression in long-term breast cancer survivors. *BMC psychiatry*, 22(1):101, 2022.

[15] L. Beatty and D. Kissane. Anxiety and depression in women with breast cancer. In *Cancer Forum*, pages 55–61, 2017.

[16] H. G. Hubbeling *et al.* Psychosocial needs of young breast cancer survivors in mexico city, mexico. *PloS one*, 13(5):e0197931, 2018.

[17] O. Orindi. Ad, amimo fa. socio-demographic characteristics associated with quality of life-scores among palliative care cancer patients in kenya. *Journal of Community Medicine & Public Health*, 5(4), 2021.

[18] I. M. Ogoncho, B. O. Omuga, S. Wakasiaka, and M. Muiva. Determinants of quality of life among gynaecological cancer patients on follow up at a referral hospital in kenya. *American Journal of Nursing Science*, 4(3):127–130, 2015.

[19] M. Lachowicz and M. Etowska. Poziom jakości życia kobiet po przebytym zabiegu mastektomii. pages 207–224, 2017.

[20] M. Moodi, M. Mohammadifard, and M. Miri. Quality of life and its contributing factors among patients with breast cancer: A descriptive-analytical study. *Modern Care Journal*, 14(3), 2017.

[21] S. Ganesh, M.-Sann. Lye, and F. Nee. Lau. Quality of life among breast cancer patients in malaysia. *Asian Pacific Journal of Cancer Prevention*, 17(4):1677–1684, 2016.

[22] K. Erturhan Türk and M. Yılmaz. The effect on quality of life and body image of mastectomy among breast cancer survivors. *European journal of breast health*, 14(4):205, 2018.

[23] H. Gupta, G. Kaur Brar, and V. Jalota. Quality of life and its sociodemographic determinants in breast cancer patients. *Industrial Psychiatry Journal*, 31(2):313–317, 2022.