

## EVALUATION OF QUALITY OF LIFE IN BREAST CANCER PATIENTS TREATED IN TERTIARY CARE HOSPITAL OF KARACHI, PAKISTAN

### Abstract

**Introduction:** Breast cancer is the leading health concern in both developed and under developing countries with every 1 out of 9 females in Pakistan being diagnosed with breast cancer. Increased awareness, screening tools, advancement in oncological treatment has increased the breast cancer survival rates, on the other side modified medical and surgical treatment is associated with increased side effects and health concerns. Therefore, beside the assessment of treatment for breast cancer, quality of life needs to be monitored in order to improve physical and psychological outcomes in treated breast cancer patients.

**Material and methods:** This is the cross-sectional prospective study conducted in department of general surgery, Liaquat national hospital Karachi over a period of January-December 2023. All the patients who had completed their medical and surgical treatment for breast cancer within last 5 years were included in the study. Quality of life was assessed in patients using FACT B questionnaire and effects of socio demographic factors on quality of life were recorded.

**Results:** Total 80 patients were included in study with equal number of patients having history of mastectomy and breast conservation surgery. Assessment of quality of life was done using FACT B questionnaire. Highest scores were noted for social/family wellbeing and functional wellbeing and least scores were noted in physical wellbeing with majority of patients having moderate quality of life in both mastectomy and BCS subgroups. No statistically significant association of socio demographic factors with quality of life were noted however quality of life was noted to better in terms of age, education, profession, residence and without hormonal treatment.

**Conclusion:** moderate quality of life was noted in majority of patients with positive impact of younger age, higher education, professional women, and presence of urban residence and without intake of hormonal therapy.

**Keywords:** QUALITY OF LIFE , BREAST CANCER PATIENTS, hormonal therapy, professional women

### INTRODUCTION

Breast cancer is the most common cancer in females with increasing incidence among young females. Data suggests every 9<sup>th</sup> woman to be diagnosed with breast cancer in Pakistan (4). Increase in awareness, wide spread screening programs, early detection, advanced medical treatment and variety of surgical procedures have led to increase frequency of breast cancer survivors (8, 14). Various modalities of breast cancer treatment has increased survival rates but are associated with severe side effects (22) and exert significant impact on patients quality of life (15). Cancer treatment is not only associated with early side effects (17) but can cause significant long term complications causing adverse effects on different aspects of life physically and psychologically (25).

Quality of life is defined as an individual's perception of their position in life in context of culture and value system in which they live and in relation to their goals, expectations, standards and concerns (1). It is the individual's

Ability to carry out daily activities without undue fatigue or physical stress, capable of sharing, developing, sustaining meaningful relationships with others, ability to produce positive emotions, thoughts and feelings and adapt when confronted with adversity and stressful situations and ability to perform tasks of daily living and to carry out social roles. Assessment of quality of life is an important factor in health care system especially in oncological perspectives. Cancer affects different aspects of quality of life. Among these breast cancer is the leading health concern among women due to high morbidity and mortality. GLOBOCAN 2022 data produced by the IARC (International agency for research on cancer) from 185 countries reported 2.2 million new cases (11.5%) of breast cancer and a mortality rate of 6.8% (7). During last few years, increased advances in breast cancer treatment has increased survival rates both due to early detection and modified treatment modalities (28). Multiple therapies available for breast cancer treatment include surgery, radiation, chemotherapy, immunotherapy depending upon cancer type and stage (10). Surgical modalities extend from breast conserving surgery to mastectomy with and without axillary clearance. These all treatment modalities have increased breast cancer survival rates but has drastic side effects leading to poor quality of life (27).

Prevalence of breast cancer is rapidly increasing in developing countries as Pakistan and more intent is on diagnosis and treatment of patients with active disease which leads to neglect in breast cancer survivors(8). Health related quality of life is a multifaceted idea which is associated with wellbeing of a patient in various domains in terms of physical, social, emotional, functional health. Studies have documented 20-30% patients with breast cancer to suffer from pain, fatigue, depression and anxiety (18). Prolonged treatment for breast malignancy including surgical procedures, chemotherapy and radiation exert not only physical and financial dilemma but also causes emotional withdrawal. To proceed with the prolonged treatment procedure of breast cancer in developing country as Pakistan has been considered abashment which results in delayed presentation, decreased moral and poor quality of life in breast cancer patients. Assessment of quality of life therefore has an importance in order to improve physical, emotional, psychological aspects of breast cancer treated patients. Various tools are available to assess the quality of life in breast cancer patients. In our study we have used FACT-B questionnaire specific for breast cancer patients (20, 29). This is derived from family of FACIT measurement system. FACIT is used to assess quality of life for various chronic diseases (3).

The aim of the study was to assess quality of life in various aspects in treated breast cancer patients presenting in tertiary care hospital of Karachi and to assess effects of socio demographic factors on quality of life in both mastectomy and breast conserving surgery patients and to assess the factors which increases or decreases quality of life in order to improve the factors which exerts negative effects in breast cancer survivors life.

## **Materials and methods**

This is the prospective cross sectional study of patients who had been diagnosed with breast cancer in last 5 years and had completed their treatment including surgical and medical management. The study was conducted at department of general surgery, Liaquat national hospital Karachi over a period of January 2023 to December 2023 after the approval of ethical research committee. By using previously available literature (11) reporting mean  $\pm$  standard deviation of FACT B total score of 107.69  $\pm$  0.22 using margin of error (d) 5%, the total calculated sample size is 80 patients undergoing assessment for quality of life using FACT B scoring scale with the help of WHO software for sample size calculation using 95% confidence interval. Non probability consecutive sampling technique was used.

All the female patients above 18 years of age treated for breast cancer and had completed their treatment within last 5 years from 2019-2022, with no other history of malignancy were included in study. All male patients, female less than 18 years of age, any other history of malignancy, patients undergoing treatment for breast cancer, patients unable to understand and evaluate questionnaire were excluded. Verbal and written informed consent was taken and confidentiality was preserved. Data was recorded by the principal investigator on a predesigned Performa and by using FACT B questionnaire after getting license for using FACT B in both English and Urdu

languages. Questions were explained to the patients who were unable to read and answers were selected as the participant choice. Biasness and confounder were controlled by strictly following inclusion and exclusion criteria.

All the demographic data, age, comorbid, residence, marital status, education, stage and type of breast cancer, year of surgery, type of medical treatment (chemotherapy, radiation, and hormonal therapy), and status of axillary dissection were recorded. Quality of life in different aspects as per FACT B questionnaire and positive and negative effects of demographic features on quality of life were assessed. Difference among quality of life in breast conserving and mastectomy patients were also noted.

FACT B is the breast cancer specific instrument derived from the FACIT system for evaluation of quality of life (10). It contains 37 items divided into 5 subscales with each item rated on a five pointlikert scale from 0-4. The five subscales include physical, social, emotional, functional wellbeing along with additional concerns for breast cancer. Total score is calculated by adding the score of each scale which in turn is achieved by sum up of score of each question (total score ranging from 0-148). The higher the score, higher is the quality of life of patient (21).

Data analysis was done by IBM SPSS Statistics v27. Mean and standard deviation were reported for quantitative variables whereas frequency and percentages were reported for qualitative variables. Chi-square/fisher exact test was applied to determine association between qualitative variables. P-value less than 0.05 were considered as significant.

## Results

In this study total 80 female patients above 18 years of age were included who had completed their treatment for breast cancer in last 5 years from 2019-2022 and currently had presented for follow up in breast clinic of general surgery department at Liaquat national hospital Karachi. Descriptive details are explained in **table 1**.

The age of the patients ranged from 24 to 88 years with mean age of 52.5 years. Majority of the patients 53 (66.25%) belonged to age group of >45 years with 27 (33.7%) patients less than 45 years of age. 77 (96.2%) patients were married, 2 (2.5%) were single and 1 (1.25%) was divorced. 62 (77.5%) belonged to urban areas and 18 (22.5%) had rural residence. Majority of the women 52 (65%) were housewives, 26 (32.5%) were working women and 2 (2.5%) were students. Assessment of education showed that majority of women 34 (42.5%) were graduate, 19 (23.8%) were post graduate, 8 (10%) were undergraduate and 19 (23.8%) were illiterate.

In accordance with the treatment taken, 40 (50%) underwent breast conserving surgery and 40 (50%) had mastectomy done. 30 (37.5%) had axillary clearance and 50 (62.5%) had axillary preservation. Majority of patients had completed their treatment in 2022 accounting for 22 (27.5%) patients. Majority of the patients 48 (60%) had T2 disease at the time of presentation for treatment. 69 (86.3%) had taken chemotherapy, 57 (71.3%) underwent radiotherapy and 60 (75%) were on hormonal therapy.

**Table 1 Results of descriptive statistics**

Descriptive statistics			
Social and clinical profile	Minimum	maximum	Mean +- standard deviation
Age	24	88	52.5 +- 12.09666
	Frequency		Percentage
Age group			
<45 years	27		33.7
>45 years	53		66.25
Family history of breast cancer			
Yes	11		13.8
No	69		86.3

Profession		
Student	2	2.5
Housewife	52	65
Working women	26	32.5
Residence		
Urban	62	77.5
Rural	18	22.5
Marital status		
Single	2	2.5
Married	77	96.6
Divorced	1	1.25
Education		
No formal education	19	23.8
Primary	2	2.5
Matric	3	3.8
Intermediate	3	3.8
Graduate	34	42.5
Postgraduate	19	23
Type of surgery		
Breast conserving surgery	40	50
Mastectomy	40	50
Axillary clearance		
Yes	30	37.5
No	50	62.5
Neoadjuvant chemotherapy		
Yes	33	41.2
No	36	45%
Adjuvant chemotherapy		
Yes	36	45%
No	33	41.2
Radiation		
Yes	57	71.3
No	23	28.7
Hormonal therapy		
Yes	60	75
No	20	25
Year of surgery		
2019	19	23.8
2010	18	22.5
2021	21	26.3
2022	22	27.5

## FACT B assessment

FACT B score is categorized among 3 sub-groups. <50% indicating poor quality of life, 50-70% indicating moderate quality of life and > 70% indicating good quality of life. The results showed majority of patients 40 (50%) had moderate quality of life. **(Table 2)**

**Table 2 Results of FACT B assessment**

Grading	frequency	Percentage
Poor <50%	7	8.8
Moderate 50-70%	40	50
Good >70%	33	41.3
Total	80	100.0

Assessment of subscales of FACT B questionnaire showed highest score of social wellbeing mean of 19.4 and SD of 5.54 followed by functional wellbeing with mean of 18.6 and SD of 5.4. Least score was noted to be in physical wellbeing subscale with mean of 6 and SD of 5.7 (**Table 3**). Assessment of FACT B subscale scores in mastectomy and breast conserving surgery subgroups showed highest scores in social and functional wellbeing with least satisfaction noted among physical wellbeing. Comparison of FACT B subscales between mastectomy and breast conserving surgery showed statistically significant difference in physical wellbeing (p-value 0.01) (**Table 4**). Descriptive details of all questions of FACT B subscales are given in **Table 5**.

**Table 3 Data statistics**

Score	N	Minimum	Maximum	Mean	Standard deviation
Physical wellbeing	80	.00	22.00	6.03	5.78615
Social wellbeing	80	5.00	28.00	19.47	5.54607
Emotional wellbeing	80	.00	16.00	7.73	3.44851
Functional wellbeing	80	5.00	28.00	18.62	5.42469
Additional concerns	80	4.00	24.00	14.40	4.26822
FACT B score	80	40.00	90.00	66.27	10.60210

**Table 4. Results of Independent t-test**

	Mean± standard deviation		p-value
	Mastectomy	Breast conservative surgery	
Physical wellbeing score	7.71±6.61	4.43±4.38	0.011*
Social wellbeing score	19.82±5.33	19.14±5.78	0.590
Emotional wellbeing score	8.2±3.27	7.29±3.58	0.239
Functional wellbeing score	18.12±5.42	19.09±5.45	0.428
Additional concerns score	14.05±3.73	14.73±4.74	0.480
FACT B score	67.92±8.68	64.7±12.04	0.174

Independent t-test was applied. P-value<0.05 considered as significant.

\*Significant at 0.05 level.

**Table 5: Association of social factors and cancer treatment with quality of life**

FACT B questionnaire descriptive statistics		
	N	%
Physical wellbeing		
<b>I have lack of energy</b>		
Not at all	35	43.8
A little bit	20	25
Some what	17	21.3
Quite a bit	5	6.3
Very much	3	3.8
<b>I have nausea</b>		
Not at all	66	82.5
A little bit	10	12.5
Some what	4	5
Quite a bit	10	12.5
Very much	10	12.5
<b>Because of my physical condition, I have trouble in meeting needs of my family</b>		
Not at all	41	51.2
A little bit	22	27.5
Some what	10	12.5
Quite a bit	1	1.3
Very much	6	7.5
<b>I have pain</b>		
Not at all	43	53.8
A little bit	18	22.5
Some what	12	15
Quite a bit	5	6.3
Very much	2	2.5
<b>I am bothered by side effects of treatment</b>		
Not at all	22	27.5
A little bit	14	17.5
Some what	23	28.7
Quite a bit	12	15
Very much	9	11.3
<b>I feel ill</b>		
Not at all	42	52.5
A little bit	22	27.5
Some what	7	8.8
Quite a bit	5	6.3
Very much	4	5
<b>I am forced to spend time in bed</b>		
Not at all	55	68.8
A little bit	11	13.8
Some what	6	7.5
Quite a bit	4	5
Very much	4	5
Social/family wellbeing		
<b>I feel close to my friends</b>		
Not at all	6	7.5
A little bit	12	15
Some what	20	25
Quite a bit	28	35
Very much	14	17.5
<b>I get emotional support from my family</b>		
Not at all	0	0

A little bit	2	2.5
Some what	17	21.3
Quite a bit	30	37.5
Very much	31	38.8
<b>I get support from my friends</b>		
Not at all	2	2.5
A little bit	19	23.8
Some what	21	26.3
Quite a bit	25	31.3
Very much	13	16.3
<b>My family had accepted my illness</b>		
Not at all	0	0
A little bit	2	2.5
Some what	14	17.5
Quite a bit	30	37.5
Very much	34	42.5
<b>I am satisfied with family communication regarding my illness</b>		
Not at all	0	0
A little bit	4	5
Some what	20	25
Quite a bit	28	35
Very much	28	35
<b>I feel close to my partner</b>		
Not at all	3	3.8
A little bit	3	3.8
Some what	23	28.7
Quite a bit	29	36.3
Very much	22	27.5
<b>I am satisfied with my sex life</b>		
Not at all	5	6.3
A little bit	6	7.5
Some what	24	30
Quite a bit	26	32.5
Very much	19	23.8
<b>Emotional wellbeing</b>		
<b>I feel sad</b>		
Not at all	13	16.3
A little bit	33	41.3
Some what	28	35
Quite a bit	5	6.3
Very much	1	1.3
<b>I am satisfied with how I am coping with my illness</b>		
Not at all	4	5
A little bit	15	18.8
Some what	19	23.8
Quite a bit	27	33.8
Very much	15	18.8
<b>I am losing hope in the fight against my illness</b>		
Not at all	48	60
A little bit	19	23.8

Some what	10	12.5
Quite a bit	3	3.8
Very much	0	0
<b>I feel nervous</b>		
Not at all	31	38.8
A little bit	23	28.7
Some what	19	23.8
Quite a bit	6	7.5
Very much	1	1.3
<b>I worry about dying</b>		
Not at all	27	33.8
A little bit	26	32.5
Some what	20	25
Quite a bit	6	7.5
Very much	1	1.3
<b>I worry that my condition will get worse</b>		
Not at all	23	28.7
A little bit	28	35
Some what	19	23.8
Quite a bit	8	10
Very much	2	2.5
<b>Functional wellbeing</b>		
<b>I am able to work</b>		
Not at all	4	5
A little bit	4	5
Some what	19	23.8
Quite a bit	34	42.5
Very much	19	23.8
<b>My work is fulfilling</b>		
Not at all	1	1.3
A little bit	5	6.3
Some what	34	42.5
Quite a bit	25	31.3
Very much	15	18.8
<b>I am able to enjoy life</b>		
Not at all	2	2.5
A little bit	7	8.8
Some what	28	35
Quite a bit	30	37.5
Very much	13	16.3
<b>I have accepted my illness</b>		
Not at all	0	0
A little bit	5	6.3
Some what	20	25
Quite a bit	34	42.5
Very much	21	26.3
<b>I am sleeping well</b>		
Not at all	0	0
A little bit	7	8.8
Some what	26	32.5



Quite a bit	37	46.3
Very much	10	12.5
<b>I am enjoying the things I usually do for fun</b>		
Not at all	1	1.3
A little bit	9	11.3
Some what	28	35
Quite a bit	31	38.8
Very much	11	13.8
<b>I am content with the quality of my life right now</b>		
Not at all	0	0
A little bit	6	7.5
Some what	26	32.5
Quite a bit	36	45
Very much	12	15
Additional concerns		
<b>I have been short of breath</b>		
Not at all	53	66.3
A little bit	19	23.8
Some what	5	6.3
Quite a bit	3	3.8
Very much	0	0
<b>I am self-conscious about the way I dress</b>		
Not at all	35	43.8
A little bit	19	23.8
Some what	13	16.3
Quite a bit	8	10
Very much	5	6.3
<b>One or both of my arms are swollen</b>		
Not at all	49	61.3
A little bit	21	26.3
Some what	7	8.8
Quite a bit	2	2.5
Very much	1	1.3
<b>I feel sexually attractive</b>		
Not at all	12	15
A little bit	9	11.3
Some what	34	42.5
Quite a bit	16	20
Very much	9	11.3
<b>I am bothered by hair loss</b>		
Not at all	2	2.5
A little bit	9	11.3
Some what	30	37.5
Quite a bit	20	25
Very much	19	23.8
<b>I am worried that other members of my family might get someday same illness I have</b>		
Not at all	14	17.5
A little bit	21	26.3
Some what	34	42.5
Quite a bit	8	10

Very much	3	3.8
<b>I worry about the effect of stress on my illness</b>		
Not at all	20	25
A little bit	28	35
Some what	22	27.5
Quite a bit	9	11.3
Very much	1	1.3
<b>I am bothered by change in weight</b>		
Not at all	36	45
A little bit	29	36.3
Some what	14	17.5
Quite a bit	1	1.3
Very much	0	0
<b>I am able to feel like woman</b>		
Not at all	1	1.3
A little bit	5	6.3
Some what	13	16.3
Quite a bit	28	35
Very much	33	41.3
<b>I have certain parts of my body where I experience pain</b>		
Not at all	35	43.8
A little bit	24	30
Some what	11	13.8
Quite a bit	7	8.8
Very much	3	3.8
TOTAL	80	100

Descriptive details of association of various social factors and different modalities of breast cancer treatment with quality of life in generalized study sample as well as in mastectomy and breast conserving surgery subgroups are explained in **table 6**.

**Age:** Age was divided in 2 groups, < 45 years and > 45 years. Among subgroup <45 years, majority of patients 14 (42.4%) had good quality of life and in subgroup >45 years majority of patients 31 (77.5%) had moderate quality of life. No statistically significant difference noted between 2 groups (p- value 0.06).

**Residence:** majority of patients in urban 31 (77.5%) as well as in rural areas 9 (22.5%) had moderate quality of life. No statistically significant difference noted between 2 groups (p- value 1).

**Education:** majority of graduate patients 17 (51.5%) had good quality of life followed by postgraduate 11 (27.5%) and illiterate patients 11 (27.5%) who had moderate quality of life. No statistically significant difference was noted among subgroups with different level of education.

**Profession:** majority of working women 13 (39.4%) had good quality of life where as majority of non-working women 29 (72.5) had moderate quality of life. No statistically significant difference noted (p-value 0.1).

**Family history:** 7 (17.5%) of the patients with positive family history of breast cancer has moderate quality of life similar to the subgroup of patients with no family history of breast cancer where 33 patients had moderate quality of life. No statistically significant difference noted (p-value 0.1).

**Type of surgery:** 19 (47.5%) patients had moderate quality of life in breast conserving surgery group similar to majority of patients with mastectomy where 21 (52.5%) patients had moderate quality of life. No statistically significant difference noted among two subgroups. (P-value 0.1).



Yes	6(85.7)	26(65)	25(75.8)	0.49	0(0)	7(33.3)	9(52.9)	0.400	6(100)	19(100)	16(100)	NA
No	1(14.3)	14(35)	8(24.2)		1(100)	14(66.7)	8(47.1)		0(0)	0(0)	0(0)	
Hormonal Therapy												
Yes	4(57.1)	32(80)	24(72.7)	0.40	1(100)	17(81)	14(82.4)	1.000	3(50)	15(78.9)	10(62.5)	0.313
No	3(42.9)	8(20)	9(27.3)		0(0)	4(19)	3(17.6)		3(50)	4(21.1)	6(37.5)	
Family History												
Yes	2(28.6)	7(17.5)	2(6.1)	0.13	0(0)	4(19)	2(11.8)	0.723	2(33.3)	3(15.3)	0(0)	0.083
No	5(71.4)	33(82.5)	31(93.9)		1(100)	17(81)	15(88.2)		4(66.7)	16(84.2)	16(100)	
Residence												
Urban	6(85.7)	31(77.5)	25(75.8)	1.00	0(0)	14(66.7)	13(76.5)	0.333	6(100)	17(89.5)	12(75)	0.410
Rural	1(14.3)	9(22.5)	8(24.2)		1(100)	7(33.3)	4(23.5)		0(0)	2(10.5)	4(25)	
Type of surgery												
Breast conservative surgery	6(85.7)	19(47.5)	16(48.5)	0.19								
Mastectomy	1(14.3)	21(52.5)	17(51.5)									
Year of surgery												
2019	3(42.9)	8(20)	8(24.2)	0.73	0(0)	3(14.3)	7(41.2)	0.261	3(50)	5(26.3)	1(6.3)	0.354
2020	0(0)	9(22.5)	9(27.3)		0(0)	6(28.6)	4(23.5)		0(0)	3(15.8)	5(31.3)	
2021	2(28.6)	12(30)	7(21.2)		1(100)	6(28.6)	2(11.8)		1(16.7)	6(31.6)	5(31.3)	
2022	2(28.6)	11(27.5)	9(27.3)		0(0)	6(28.6)	4(23.5)		2(33.3)	5(26.3)	5(31.3)	

Fisher exact test was applied. P-value<0.05 considered as significant.

## Discussion

In this study FACT B questionnaire was applied to assess different domains of quality of life in treated breast cancer patients in last 5 years and to observe association of various sociodemographic factors and different modalities of breast cancer treatment with quality of life.

Study results showed 50% of patients had moderate quality of life which is consistent with Dehkordi et al (25) which showed 68% of study participants to have moderate levels of quality of life scores. Detailed assessment of the FACT B sub scales showed highest levels of satisfaction related to social and family wellbeing which is coherent with Breuer et al (19) and Michael et al (30) which reports favorable outcomes in patients who had close relationship with spouses and family members. Social/family wellbeing subscale assessment showed highest scores for the questions related to getting emotional support from family and family acceptance regarding the patient's disease. Social wellbeing was followed by functional wellbeing similar to results showed by Matthias et al (16). Functional subscale assessment showed highest scores for questions related to ability to work and satisfaction with quality of life. These are in contrast to the results reported by Kaya T et al (24) which have reported decreased functional subscale scores mainly due to arm morbidity reported up to 74.6%. The high functional subscale scores in our study may be due to decreased arm morbidity related to large percentage of patients undergoing advanced oncological treatment (86.3% chemotherapy and 71.3% radiation) and decreased radical dissection (5). Breast cancer concerned subscale showed that majority of the patients had somewhat concerns towards hair loss while majority of the patients had no complaints towards long term arm swelling, pain or shortness of breath. These results are contradicting to the results by yousaf M et al (5) which showed higher scores for physical symptoms

depicted in breast concerned subscale likely due to ongoing treatment as compared to completed treatment regimen in our study population. Physical and emotional wellbeing were highly effected with least scores having mean  $\pm$  SD of 6  $\pm$  5.7 and 7.7  $\pm$  3.4 respectively. These results were in consistent with results of Yousaf et al (5) where physical wellbeing scores were minimum with mean  $\pm$  SD of 1.96  $\pm$  1.27. Assessment of FACT B subscales in mastectomy and breast conserving surgery subgroups also showed similar results with highest satisfaction rates noted in social and functional wellbeing with decreased scores in physical wellbeing. Comparison of mastectomy and breast conserving surgery subgroups showed statistical significant difference in physical wellbeing only with better satisfaction noted in mastectomy subgroup as compared to breast conserving surgery subgroup. Rest of the subscales of FACT B had similar scores in both sub groups with no statistically significant difference seen. These results are similar to Dahlui M (6) where better physical outcomes were noted in mastectomy subgroup but is in contrast to the results derived by Kovačević P (11) which shows better quality of life with breast preservation leading to improved physical, emotional and psychological outcomes

Assessment of various social factors with quality of life showed no statistically significant results in reference to age, education, profession, residence, family history of breast cancer. Though no statistically significant difference was noted between age group above and below 45 years (p-value 0.06) similar to results published by Dehkordi et al (25) however majority of patients below 45 years of age had good quality of life as compared to a large number of patients having moderate quality of life in age group above 45 years of age. These findings are in consistent with the findings of Lu W et al (26). Despite of having no statistically significant difference noted in our study in terms of association of profession with quality of life, yet results showed good quality of life in majority of working women as compared to moderate quality of life in housewives, results as consistent with the results depicted by Konieczny M (12). Results of Dahlui et al (6) though are in contrast with our study results in terms of education which shows moderate quality of life in illiterate and postgraduate patients as per our study data.

Association of social factors with mastectomy and breast conserving surgery subgroups showed no statistically significant difference. However majority of patients <45 years of age in both subgroup had good quality of life as compared to age > 45 years where majority of patients had moderate quality of life. In terms of profession majority of housewives in both subgroups had moderate quality of life as compared to working women where majority of professional women had good quality of life in breast conserving subgroup as compared to mastectomy subgroup where majority patients had moderate quality of life. Majority of patients in both groups with good quality of life were graduate. Moderate quality of life was noted in majority of patients in both subgroups in terms of urban and rural residence.

Our study depicts no statistically significant difference in quality of life in patients with prior history of chemotherapy, radiation, hormonal therapy which is incoherent with the results as showed by yousaf M (5) which showed improved quality of life in subgroup with no history of chemotherapy. Our results showed good quality of life in majority of patients with no intake of hormonal therapy as compared to moderate quality of life in subgroup on hormonal therapy likely consistent with side effects exerted by the hormonal treatment.. No significant outcomes were noted in quality of life with the increased passage of time since treatment taken. Assessment of mastectomy and breast conserving surgery subgroups showed moderate quality of life in majority of patients in both subgroups with and without axillary lymph node dissection, with and without prior history of chemotherapy and hormonal treatment. Majority of patients with history of radiation had good quality of life in mastectomy subgroup as compared to breast conserving surgery subgroup where moderate quality of life was noted in majority of patients. These results are similar with the results mentioned by Deepa (13) which showed no significant difference between mastectomy and breast conserving surgery groups in terms of association of treatment modalities with quality of life however contradicting to the results of Vohra et al (2) which showed better outcomes in breast conserving surgery group in terms of cosmetic outcomes.

Strengths of the study include its nature of being Prospective study and assessment of FACT B questionnaire in patients who had completed the treatment for breast cancer in order to assess quality of life on long term basis.

Limitations of study include its small sample size as assessment of quality of life in large sample size can result in more accurate results. Other limitations include single center study as multicenter study can help in assessment of quality of life on larger scale as well as can assess the differences between quality of life in patients treated at different institutes which would have been helpful to understand factors causing difference in quality of life on patients treated in different sectors. Data collected at single point in time had helped to assess quality of life in patients who had completely been cured but do not assess the quality of life at the time of ongoing treatment so cannot differentiate in the quality of life during and after treatment and factors making difference in quality of life during and after treatment. Correlation of social factors separately with each sub scale of FACT B questionnaire was not assessed which can further elaborate reasons causing poor or good quality of life. Further patients who had underwent breast reconstruction surgery were not included so outcomes between breast reconstruction and breast conservation surgery groups couldn't be analyzed. In this study only FACT B questionnaire was used for assessment of quality of life and other subscales such as EORTC QLQ-BR23 or the BREAST-Q were not used in order to maintain simplicity of study which could have helped in better assessment of quality of life in breast cancer survivors.

## **Conclusion**

Our study shows moderate quality of life in majority of breast cancer treated patients. Patients were noted to have better outcomes in social/family and functional wellbeing as compared to physical and emotional outcomes. This may be related to strong family infrastructures in Asia especially Pakistan leading to better quality of life. No significant impact of social factors were noted in relation to quality of life but majority of patients below age group of 45 years, working women, higher education and without hormonal treatment were noted to have better outcomes.

## **Recommendations**

Quality of life needs to be addressed on larger study population and both during and after the completion of treatment in order for better understanding of the factors which cause negative impact or difference on quality of life during and after treatment. Further assessment of association of social factors separately on each subscale of quality of life can also result in better understanding of flaws leading to decreased quality of life in breast cancer patients. Further patients with breast reconstruction surgery shall be assessed in order to analyze differences in quality of life in patients who choose breast conservation in comparison to who opt for mastectomy and breast reconstruction surgery.

## **Disclaimer (Artificial intelligence)**

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

## **Consent**

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

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