FACTORS AFFECTING THE QUALITY OF LIFE OF PATIENT DIAGNOSIS WITH BREAST CANCER PATIENTS: A CROSS-SECTIONAL STUDY.

Amir Sultan[1], Zobia Perveen[2], Saleem Ullah[3], Syed Aamer Hussain[4], Noshaba faiz[5] Shamaila Ayub[6], Samina Rani[5]

ABSTRACT
BACKGROUND: The objective of the study was to identify the quality of life and associated factors. **METHODOLOGY:** The study was conducted in the two tertiary care hospitals of Khyber pukhtankhwa Pakistan from April to July 2024 using analytical cross-sectional study design, and the study participants were the patient diagnosed with breast cancer and completed treatment of chemotherapy or surgery and continuous their followup in out-patient department. The sample size of the study was 170, while sampling technique was convenient. The data was collected through valid and reliable questionnaire. The data was analyzed through SPSS 24 as descriptive and inferential statistics. **RESULTS:** The overall quality of life of the study participants was average having means score of 2.4 ± 0.19. In domains high mean score belong to physical P-WB 2.9 ± 0.36, then emotional E-WB 2.8 ± 0.41, and social S-WB was 2.5 ± 0.26, while the minimum mean score belongs to F-WB F-WB 1.38 ± 0.37. Age group 50 and above mean score, married, no education, housewives, diabetic mellitus, stage 3 cancer, low monthly income, and patient having surgery well-being of the majority of the domains were perform better than their comparing categories. **CONCLUSION:** The study concluded that the QOL of patient diagnosed with BC is affected, but moreover the F-WB of the patient is more affected more. The socio-demographic characteristics such as age, marital status, stages of cancer and treatment is closely linked and associated with QOL.
KEYWORDS: breast cancer, quality of life, oncology, nursing practice

1. Associated professor and Head of nursing department, Times Institute Multan, Pakistan
2. Nursing officer, Bahawal Victoria hospital Bahawalpur, Pakistan
3. Director, City Institute of Health Sciences, Karachi
4. Senior registrar, general surgery department, Ayub teaching hospital Abbottabad
5. Charge nurse, THQ hospital tehsil khanpur, Rahim yar khan
6. Assistant professor, General surgery unit, united medical and dental college Lahore

Corresponding author: Amir Sultan, Associate professor and head of nursing department, Times Institute Multan, Pakistan Email address: amirsultan204@gmail.com, nursingwithamir@gmail.com

INTRODUCTION

Worldwide, breast cancer BC is the second most, while in females the most frequent cancer diagnosed. In 2018, 2.1 millions cases were diagnosed for BC, while it was reported that 0.62 million fatalities were caused as a result of BC that ranked at 6th among diagnoses that causes deaths, moreover every year 1.1 million new cases were reported and diagnosed as a result of BC [1, 2]. This disease ranks as the fifth leading cause of death worldwide, contributing to 685,000 fatalities in 2020 [3]. The incidence rates for cancer are reported as 1 in 4 for all cases and 1 in 6 for cancer-related deaths, making it the leading cause of incidence in both developed and developing countries across the world [4]. Recently, advancements in treatment and healthcare services have contributed to an increase in the number of breast cancer survivors, alongside a decline in mortality rates. Consequently, there is an emerging focus on comprehensively understanding and addressing the aftereffects of cancer and its treatments, which encompass both the emotional and physical needs of survivors [5.]

The dimension of Quality of Life QoL includes the P-WB of patients across multiple dimensions, such as P-WB, E-WB, F-WB, and S-WB. Numerous studies have established a consistent relationship between the level of distress or symptoms experienced by individuals and their QoL, particularly among cancer patients [6.] The QOL for breast cancer patients is significantly impacted by cancer symptoms and the side effects of treatments. Specifically, aspects such as P-WB and psychosocial functioning, family dynamics, relationships, and work capabilities play a crucial role in determining the QoL for this group 3. Although there has been an increase in research aimed at identifying the needs of breast cancer survivors across various stages, there remains a lack of evidence-based, effective, and adaptable care interventions. Women play a crucial role within the household [7]. The diagnosis of breast cancer in a woman has repercussions for her family, influencing them both directly and indirectly. Therefore, enhancing and restoring the quality of life for women with breast cancer can greatly benefit both individual and societal well-being [8].

Developing countries like Pakistan seem to focus heavily on the challenges of diagnosing and screening individuals who have been identified as needing active treatment, often at the expense of cancer survivors, who receive less attention. The incidence of breast cancer is rapidly increasing in Pakistan, adversely affecting the quality of life for patients [9]. In a lower-middle-income nation such as Pakistan, breast cancer represents the most commonly diagnosed cancer and the leading cause of cancer-related fatalities among women. In 2017, it was estimated that there were between 34,038 and 90,000 new cases, along with 16,232 deaths, highlighting a concerning public health issue. Consequently, new and innovative treatment approaches are being developed with the main objective of enhancing the quality of life and ensuring patient satisfaction regarding cosmetic results after breast surgery 10. Health-related quality of life pertains to an individual's overall well-being and their ability to engage in daily activities, which can be significantly impacted by illness or health conditions. This concept is complex, encompassing P-WB, social, psychological, and functional aspects of well-being, all of which are primarily affected by cancer diagnosis and treatment [11].

The quality of life for women with breast cancer is significantly affected by various socio-demographic and clinical factors. Numerous global studies have been undertaken to assess the quality of life of women diagnosed with breast cancer, utilizing the European Organization for Research and Treatment of Cancer EORTC Quality of Life Questionnaire

Core 30 QLQ C30 and the Breast Cancer Specific Quality of Life Questionnaire QLQ BR 23 [12]. A systematic review has highlighted several key factors that impact quality of life, including age, education level, employment status, type and stage of cancer treatment, ethnicity, and religion [13]. Recent research conducted in India has identified illiteracy, younger age, treatment type, marital status, and income level as contributing factors to a diminished quality of life 14. Additionally, various studies have examined the influence of specific treatment modalities on health-related quality of life. In countries like Pakistan it is dearth of literature regarding quality of life and associated factors. Therefore the aim of the study was to determine the level of quality of life and its factors that influence it.

METHODOLOGY

The present study design was descriptive observational study, that was conducted in two tertiary care hospital of Pakistan. The study was conducted from July to nonmember 2024. The study participants were the breast cancer patients that was diagnosed, receiving treatment and having in follow-up status in out-patient department. The sample size of the study was 172, using 95% confidence level and 5% margin of error, while due to missing of data of the two participants the final sample size was 170 while convenient sampling technique was used for the study. The inclusion criteria for the study was patients who were diagnosed for breast cancer having treatment of chemotherapy or surgery and coming to the outpatient department for the follow-up while patients who are mentally unstable, unconscious were not be the part of the study.

The data were collected through in two sections:

The demographic data contain such as age, education, employment status, type of treatment, stages of cancer, co-morbid and marital status, step 2 was use of quality of life data was collected through reliable and valid questionnaire of EORTC QLQ-C45. The checklist contains four domains and 27 items having 0-not at all to 4-very much Likert scale 15. The Cronbach alpha of the checklist was 0.72-0.95 16. The data were analyzed through SPSS 24 as descriptive and inferential statistics. The study was approved by Ethical Review Committee and the goals and objectives of the study were explained to patients and after informed consent the data were collected through questionnaire. It was assured to all the patients that their data will be used only for data analysis and will be kept confidential.

RESULTS

3.1 Demographic data

The mean age of the study participants were 38.3 ± 10.4, while the total respondents in the current study was 170. The maximum number of patients 34.5% belong to the age group 21-30 years, followed by age group 31-40 years 26.9%. The number of married patients were higher 71.3% than single 28.7%, and patient having education of primary school was higher in number 44.4%, followed by secondary education 28.1%. Majority of the study respondents were housewife 88.9%, while working women were only 11.1%.

Table 1: Demographic data of the participants		
	Frequency n-170	**%**
Age	Mean 38.3 ± 10.4	
20-29 years	59	34.5
30-39 years	46	26.9
40-49 years	38	22.2
50 and above	28	16.4
Marital status		
Single	49	28.7
Married	122	71.3
Education		
Ilitrate	10	5.8
Primary	76	44.4
Matriculation	19	11.1
Intermediate	48	28.1

Undergraduate	18	10.5
Master and above	0	0
Occupation		
House wife	152	88.9
Jobian	19	11.1
Co-morbid		
No co-morbid	142	83.0
HTN	10	5.8
DM	19	11.1
Other	0	0
Stages of cancer		
1st stage	49	28.7
2nd stage	47	27.5
3rd stage	75	43.9
Monthly income		
10,000 - 50,000	19	11.1
51,000 – 100,000	116	67.8
10,0001 – 130,000	36	21.1
130,001 – above	0	0
Treatment		
No treatment	0	0
Chemotherapy	124	72.5
Surgery	47	27.5

3.2 Quality of life of the participants

In the domains of QOL the highest mean score belong to P-WB well-being 2.91 ± 0.36, followed by E-WB domain 2.86 ± 0.41, and social domain score was 2.53 ± 0.26. The lowest score was report in functional domain 1.38 ± 0.37. The overall quality of life means score was 2.42 ± 0.19 that was average. See table 2.

Table 2: Quality of life of the participants			
	Mean	**SD**	**Median**
Physical well-being P-WB	2.91	0.36	2.85
Social well-being S-WB	2.53	0.26	2.57
Emotional well-being E-WB	2.86	0.41	2.83
Functional well-being F-WB	1.38	0.37	1.42
Overall quality of life	2.42	0.19	2.45

3.3 Comparing quality of life in relation with demographic variables

By applying independent t-test and ANNOVA to identify differences within the groups. The P-WB of age group 51 and above was 3.23 ± 0.69, married 2.99 ± 0.23, patient with no-education 3.28 ± 0.0, house wife 2.92 ± 0.39, co-morbid of diabetic mellitus 3.08 ± 0.22, stage 3 3.07 ± 0.23, income 10000-30000 3.15 ± 0.14, and having surgical treatment 2.80 ± 0.37 score were higher than their other categories. Moreover there were significant difference between the group of age 0.000, marital status 0.000, education 0.002, employment 0.000, co-morbid 0.031, stages of cancer 0.000, monthly income 0.011, and treatment 0.000 regarding P-WB.

The S-WB of age group 31-40 years 2.70 ± 0.15, married 2.63 ± 0.23, bachelor education 2.78 ± 0.07, housewife 2.53 ± 0.25, co-morbid of diabetic mellitus 2.65 ± 0.22, stage 3 cancer 2.69 ± 0.16, Monthly income 10000-30000 2.92 ± 0.07, and surgical treatment 2.74 ± 0.16 mean score were higher than their other categories. Furthermore there were significant difference between the groups of age 0.000, education 0.000, employment status 0.000, Stages of cancer 0.000, income 0.000, and treatment 0.000, regarding S-WB while there were no significant difference between the groups of marital status 0.141, and co-morbid 0.062.

The E-WB of 51 and above 3.38 ± 0.16, married 3.00 ± 0.35, no education 3.16 ± 0.0, housewife 2.91 ± 0.40, co-morbid of diabetic mellitus 3.16 ± 0.0 and hypertension 3.16 ± 0.0, stage 3 cancer 3.12 ± 0.26, Monthly income 10000-30000 3.16 ± 0.0, and surgical treatment 3.30 ± 0.16 mean score were higher than their

other categories regarding E-WB. Moreover, there were significant difference between the groups age 0.000, education 0.000, co-morbid 0.000 Stages of cancer 0.000, income 0.002, and treatment 0.000, regarding E-WB while there were no significant difference between the groups of marital status 0.571, and employment status 0.740.

The F-WB of 20-30 years 1.59 ± 0.35, single 1.71 ± 0.24, secondary education 1.52 ± 0.51, working women 1.93 ± 0.07, Co-morbid of hypertension 1.85 ± 0.0, stage 1 & 2 cancer 1.51 ± 0.32, monthly income of 31000-50000 1.43 ± 0.41, and chemotherapy treatment 1.49 ± 0.34 regarding F-WB. There were significant difference between age 0.000, marital status 0.030 employment status 0.000, co-morbid 0.000, stages of cancer 0.000, income 0.037, and treatment 0.000, regarding F-WB while there were no significant difference between education 0.213.

Table 3: Difference between the groups regarding quality of life

	P-WB	*F p-Value*	Social	*F p-Value*	Emotional	*F p-Value*	Functional	*F p-Value*
Age								
20-29 years	2.80 ± 0.51	12.1 0.000	2.25 ± 0.17	70.0 0.000	2.58 ± 0.36	63.0 0.000	1.59 ± 0.35	31.6 0.000
30-39 years	2.82 ± 0.19		2.70 ± 0.15		2.71 ± 0.34		1.52 ± 0.32	
40-49 years	2.96 ± 0.21		2.63 ± 0.24		3.12 ± 0.07		1.18 ± 0.15	
50 and above	3.23 ± 0.69		2.67 ± 0.13		3.38 ± 0.16		1.01 ± 0.31	
Marital status								
Single	2.73 ± 0.54	35.0 0.000	2.27 ± 0.18	2.18 0.141	2.53 ± 0.37	0.32 0.571	1.71 ± 0.24	4.79 0.030
Married	2.99 ± 0.23		2.63 ± 0.23		3.00 ± 0.35		1.25 ± 0.34	
Education								
No education	3.28 ± 0.0	4.59 0.002	2.71 ± 0.0	9.91 0.000	3.16 ± 0.0	5.82 0.000	1.42 ± 0.0	1.47 0.213
Primary	2.88 ± 0.48		2.52 ± 0.26		2.86 ± 0.54		1.33 ± 0.36	
Secondary	2.92 ± 0.07		2.54 ± 0.44		2.99 ± 0.54		1.52 ± 0.51	
Fa/Fsc	2.96 ± 0.07		2.39 ± 0.14		2.90 ± 0.17		1.37 ± 0.37	
Bachelor	2.71 ± 0.14		2.78 ± 0.07		2.50 ± 0.34		1.50 ± 0.37	
Employment								
Housewife	2.92 ± 0.39	20.0 0.000	2.53 ± 0.25	19.20 0.000	2.91 ± 0.40	0.111 0.740	1.32 ± 0.34	29.4 0.000
Working women	2.85 ± 0.0		2.48 ± 0.37		2.51 ± 0.34		1.93 ± 0.07	
Co-morbid								
No co-morbid	2.90 ±		2.52 ±		2.80 ±		1.36 ± 0.39	

Variable	Value 1	Test 1	Value 2	Test 2	Value 3	Test 3	Value 4	Test 4
	0.38	3.55 0.031	0.27	2.83 0.062	0.43	9.85 0.000		9.26 0.000
HTN	2.71 ± 0.0		2.42 ± 0.0		3.16 ± 0.0		1.85 ± 0.0	
DM	3.08 ± 0.22		2.65 ± 0.22		3.16 ± 0.0		1.29 ± 0.14	
Stages of cancer								
Stage 1	2.80 ± 0.57	14.0 0.000	2.22 ± 0.17	105.5 0.000	2.53 ± 0.37	46.24 0.000	1.51 ± 0.32	13.48 0.000
Stage 2	2.80 ± 0.07		2.60 ± 0.21		2.81 ± 0.40		1.51 ± 0.32	
Stage 3	3.07 ± 0.23		2.69 ± 0.16		3.12 ± 0.26		1.23 ± 0.38	
Stage 4	0		0		0		0	
Income								
10,000 - 50,000	3.15 ± 0.14	4.62 0.011	2.92 ± 0.07	59.4 0.000	3.16 ± 0.0	6.75 0.002	1.22 ± 0.22	3.37 0.037
51,000 – 100,000	2.90 ± 0.41		2.42 ± 0.23		2.85 ± 0.44		1.43 ± 0.41	
10,0001 – 130,000	2.85 ± 0.20		2.67 ± 0.15		2.75 ± 0.37		1.32 ± 0.31	
Treatment								
Chemotherapy	2.80 ± 0.37	50.44 0.000	2.45 ± 0.25	52.88 0.000	2.70 ± 0.36	111.8 0.000	1.49 ± 0.34	48.2 0.000
Surgery	3.20 ± 0.11		2.74 ± 0.16		3.30 ± 0.16		1.10 ± 0.29	

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	Constant	1.871	.117		15.963	.000
	Age_cat	-.053	.027	-.293	-1.949	.053
	M.S	.075	.039	.172	1.925	.056
	Education	.000	.012	-.004	-.052	.958
	Employment	.191	.040	.306	4.755	.000
	co_morbid	.075	.021	.250	3.674	.000
	stage	.137	.021	.587	6.466	.000
	Income	-.081	.030	-.232	-2.697	.008
	Treatment	.088	.066	.201	1.341	.182
a. Dependent Variable: quality of life						

The quality of life was positive moderate associated with age, marital status, stages of cancer and treatment, while weak positive associated with employment, co-morbid, and negative weak associated with education, and income.

Table 4: Association of quality of life with selected variables									
	1	2	3	4	5	6	7	8	9
1: Age	-	.703**	-.292**	-.238**	.398**	.698**	-.226**	.788**	.476**
2: M.S		-	-.027	-.187*	.273**	.563**	.113	.390**	.360**
3: Education			-	.307**	-.066	-.156*	.421**	-.499**	-.135
4: Employment				-	-.152*	-.286**	.237**	-.218**	.038
5: co_morbid					-	.136	-.109	.137	.267**
6: stage						-	-.045	.623**	.562**
7: Income							-	-.555**	-.240**
8: Treatment								-	.501**
9: Quality of life								*	-
**. Correlation is significant at the 0.01 level 2-tailed.									
*. Correlation is significant at the 0.05 level 2-tailed.									

DISCUSSION

The current study was conducted with the aim to determine the quality of life of breast cancer patient and factors that affect quality of life. The QOL assesses how the diagnosis, progression, and treatment of breast cancer have affected the patients' social and private lives in addition to how effectively their rehabilitation has worked. P-WB, PS-WB, S-WB and cognitive functioning F-WB, the impact of sickness, and therapy based on the patient's life experiences are all components of the complex concept of quality of life. Health encompasses social and physical functioning in addition to the absence or presence of illness [17].

In the current study the overall quality of life of the study participants were 2.42 ± 0.19 that is average quality of life of the patients. Among the four domains of the quality of life, the P-WB mean score were higher 2.91 ± 0.36, followed by E-WB 2.86 ± 0.41, then S-WB mean score 2.53 ± 0.26, while the F-WB mean score were lower among all the four domains 1.38 ± 0.37. The findings revealed that their were lower physical, emotional, social and F-

WB of the study respondents, and it was due to numerous P-WB adverse effects, such as exhaustion, nausea, discomfort, hair loss, and skin changes, may result from these therapy. Some persons may experience long-lasting impacts that affect their everyday activities and general well-being. Fear, worry, and depression are common reactions to a cancer diagnosis. E-WB can be significantly impacted by uncertainty about the future, the possibility of a cancer recurrence, or the cost of treatment. Because of the emotional toll of the disease or the physical restrictions of therapy, cancer sufferers may feel cut off from friends, family, or coworkers. Walking, climbing stairs, and carrying groceries can all be impacted by chemotherapy and other therapies that weaken bones and muscles. Our findings that breast cancer patients had low levels of P-WB function, mental health, emotional role, and vitality are supported by a Greek study 18. Our study's findings are consistent with another study carried out in Saudi Arabia, which found that the highest mean score is associated with P-WB 7.65 ± 0.71, followed by spiritual well-being 7.19 ± 0.66, and psychological well-being 7.09 ± 0.30 19. Physical well-being scored high 18.34 ± 5.92, followed by F-WB 17.13 ± 3.73, S-WB 16.33 ± 6.3, and E-WB 13.6 ± 3.55, according to another survey done in Pakistan [20].

The current study the age is positive moderate correlated with quality of life r-0.47, moreover the mean score of P-WB 3.23 ± 0.69 and E-WB 3.38 ± 0.16 was higher among patient with age group 50 and above, while the S-WB score of 30-39 years were higher 2.70 ± 0.15, and F-WB mean score of younger patient 20-29 years were high 1.59 ± 0.35. Furthermore there were significantly difference within the group of P-WB p=0.000, S-WB p=0.000, E-WB and F-WB p=0.000.It is due to people over 50 frequently have a more comprehensive outlook on life and greater experience coping with stress, loss, and difficulties. Higher levels of emotional resilience may result from this. They may be more equipped to handle the emotional roller-coaster of receiving a cancer diagnosis and treatment since many have experienced significant life transformations such as raising children, taking care of ageing parents, or changing careers. In Indian study, the QOL results of young breast cancer survivors 30–39 years old were considerably lower than those of older age groups in terms of future perspective P = 0.029, social functioning P = 0.0313, and physical functioning P = 0.0003. This indicates that younger patients experienced higher levels of social restriction throughout breast cancer therapy. Younger patients also had greater worries about their future [21]. Bantema-Joppe et al. conducted a similar study and discovered that the older stage group's role, emotional, and cognitive functioning development over time was different from that of the two younger age groups role functioning P < 0.001, emotional functioning P = 0.010, and cognitive functioning P < 0.001, with a tendency for the younger group to have better outcomes and the oldest age group to have worse ones [22]. Another Greek study founded that The influence of several demographic parameters in breast cancer survivors' quality of life was researched earlier and was also investigated in the present study. It was observed that age affected one sub-scale of quality of life, physical role [18].

In this study the cancer of stages were positive moderately correlated with stages of cancer r-0.56. The P-WB 3.07 ± 0.23, S-WB 2.69 ± 0.16, E-WB 3.12 ± 0.26 mean score were higher among stage 3 cancer patients while F-WB mean score were higher 1.51 ± 0.32 among stage 1 &2 cancer patients. There were significant difference between the groups of physical well-being p=0.000, physical well-being p=0.000, S-WB p=0.000, E-WB and F-WB p=0.000. it may be due to patients may redefine what it means to be physically well as they progress through the final phases of their illness. For instance, instead of concentrating on physical performance, a patient may find happiness in little accomplishments like savouring meals, spending time with loved ones, or finishing a basic chore. Even in the face of physical constraints, this reinterpretation of physical health can result in increased life pleasure. A study conducted in India revealed that compared to patients with early-stage disease, those with advanced disease scored worse on the symptom scale and had a lower fatigue score P = 0.0001. All stages' financial effect scores were nearly identical and lacked statistical significance. Since all patients at our centre receive free care, the lack of financial impact can be justified [21]. In their study of patients with oropharyngeal cancer, Oates et al. also discovered that stage III/IV patients had the highest frequency of deterioration in most domains at 3 months both modules, while stage I/II patients had this at 6 months QLQ-C30 and 12 months H and N35. Their findings were consistent with ours, showing that cancer patients' quality of life declines as the disease progresses. [23].

The current study illustrated that The quality of life was positive moderate associated with age r-0.47, marital status r-0.36, stages of cancer r-0.56 and treatment r-0.50, while weak positive associated with

employment r-0.03, co-morbid r-0.26, and negative weak associated with education r=-0.13, and income r=-0.24. Indian study revealed that despite the same course of treatment, a number of characteristics, including age, education level, performance score, disease stage at presentation, and disease status at last follow-up, have a substantial impact on quality of life for patients with breast cancer. More research on the personal quality of life aspects that influence cancer will enable patients to more easily overcome the illness and doctors to provide better personal care strategies [18]. An Ethiopian study demonstrated that Age, tumour stage, educational attainment, comorbidity, and domicile were significant clinical and socio-demographic variables linked to variations in quality of life 24. A study conducted in Greece revealed that demographic traits affected certain aspects of the quality of life for breast cancer survivors; among them, factors that affected quality of life in this study group were age, menopausal status, and therapy type. Physical role, physical discomfort, and vitality were the domains that were impacted [18].

There are several limitations on this study. The study was carried out in a couple of hospitals in one city, and because of the limited sample size, the findings cannot be applied to the whole Pakistani population. Another drawback of the current study was its cross-sectional design, which prevented us from evaluating the trajectory of quality of life. More precise findings might be obtained via a long-term study conducted in Pakistan in the future. However, the type of chemotherapy regimen, its length, and other significant clinical factors were not examined in this investigation. Nonetheless, the findings offer important insights into the matter at hand and highlight the urgent need for additional longitudinal research to reach trustworthy conclusions.

CONCLUSION

The study concluded that the quality of life of patient diagnosed with breast cancer is affected, the maximum number of patients physical, social, E-WB is critically affect but moreover the F-WB of the patient is more affected among all the domain according to the latest scale of EORTC QLQ-C45. The socio-demographic characteristics such as age, marital status, stages of cancer and treatment is associated with quality of life. To address the demands of this group of cancer patients, both during the course of their battle with the disease and after acute treatment, health care providers and specially nurses must be more cognizant of quality of life issues. In order to identify alternatives to pharmaceutical interventions to improve these patients' quality of life, they should create care plans and take these elements into consideration. Moreover health care provider should assess and identify certain category of patients to help them in the coping in the process of diagnosis, treatment and rehabilitation.

ETHICS APPROVAL: The ERC gave ethical review approval.

CONSENT TO PARTICIPATE: written and verbal consent was taken from subjects and next of kin.

AUTHORS' CONTRIBUTIONS:
All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated in the work to take public responsibility of this manuscript. All authors read and approved the final manuscript.

CONFLICT OF INTEREST: No competing interest declared

REFERENCES

1. World Health Organization. Latest global cancer data: Cancer burden rises to 18.1 million new cases and 9.6 million cancer deaths in 2018. International agency for research on cancer. Geneva: World Health Organization. 2018 Sep 12:1-4.

2. WHO . World fact sheets cancers. In: Globocan 2020, WHO; vol. 419. 2020. p. 1–2. Available at: https://gco.iarc.fr/today/data/factsh eets/populations/900-world-fact-sheets.pdf. Google Scholar.

3. Krigel S, Myers J, Befort C, Krebill H, Klemp J. 'Cancer changes everything!'Exploring the lived experiences of women with metastatic breast cancer. International journal of palliative nursing. 2014 Jul 2;207:334-42.

4. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2021;71.

5. Richardson A, Addington-Hall J, Amir Z, Foster C, Stark D, Armes J, et al. Knowledge, ignorance and priorities for research in key areas of cancer survivorship: Findings from a scoping review. Br J Cancer. 2011;105suppl 1:S82-S94.

6. Ramasubbu SK, Pasricha RK, Nath UK, Rawat VS, Das B. Quality of life and factors affecting it in adult cancer patients undergoing cancer chemotherapy in a tertiary care hospital. Cancer reports. 2021 Apr;42:e1312..

7. Ng HS, Vitry A, Koczwara B, Roder D, McBride ML. Patterns of comorbidities in women with breast cancer: A Canadian population-based study. Cancer Causes Control. 2019;309:931-941.

8. Nayak MG, George A, Shashidhara YN, Nayak BS. Symptom interference and relation between the domains of quality of life among cancer patients of tertiary care hospital. Indian J Palliat Care 2019 254:575–9. doi: 10.4103/IJPC.IJPC_139_19.

9. Fallowfield L. What is quality of life. What is. 2009 2.

10. Vohra LM, Javed SM, Jabeen D, Abidi SS, Tahseen MU. Quality of life of breast cancer survivors: a comparison of breast conserving surgery versus total mastectomy with and without immediate reconstruction: a prospective cohort study. Annals of Medicine and Surgery. 2023 May 1;855:1513-7.

11. Triberti S, Savioni L, Sebri V, Pravettoni G. eHealth for improving quality of life in breast cancer patients: a systematic review. Cancer Treat Rev 2019 74:1–14. doi: 10.1016/j.ctrv.2019.01.003.

12. Biparva AJ, Raoofi S, Rafiei S, Kan FP, Kazerooni M, Bagheribayati F, Masoumi M, Doustmehraban M, Sanaei M, Zarabi F, Raoofi N. Global quality of life in breast cancer: systematic review and meta-analysis. BMJ Supportive & Palliative Care. 2022 Jun 16;13e3:e528-36.

13. Pačarić S, Kristek J, Mirat J, Kondža G, Turk T, Farčić N, Orkić Ž, Nemčić A. The quality of life of Croatian women after mastectomy: a cross-sectional single-center study. BMC Public Health. 2018 Dec;18:1-8.

14. Gupta N, Pandey AK, Dimri K, Jyani G, Goyal A, Prinja S. Health-related quality of life among breast cancer patients in India. Supportive Care in Cancer. 2022 Dec;3012:9983-90.

15. Chen Y, Fang X, Shuai X, Fritzsche K, Leonhart R, Hoschar S, Li L, Ladwig KH, Ma W, Wu H. Psychometric Evaluation of the Major Depression Inventory MDI as a Depression Severity Scale in Chinese Patients With Coronary Artery Disease. Findings From the MEDEA

FAR-EAST Study. Frontiers in Psychiatry. 2019 Jul 18;10:493.

16. Cohen S and Williamson G 1988 Perceived stress in a probability sample of the United States In: Spacapam S and Oskamp S eds *The Social Psychology of Health*. Newbury Park, CA: Sage, 31–67.

17. Mokhatri-Hesari P, Montazeri A. Health-related quality of life in breast cancer patients: review of reviews from 2008 to 2018. Health and quality of life outcomes. 2020 Dec;18:1-25.

18. Lavdaniti M, Owens DA, Liamopoulou P, Marmara K, Zioga E, Mantzanas MS, Evangelidou E, Vlachou E. Factors influencing quality of life in breast cancer patients six months after the completion of chemotherapy. Diseases. 2019 Feb 24;71:26.

19. Al Zahrani AM, Alalawi Y, Yagoub U, Saud N, Siddig K. Quality of life of women with breast cancer undergoing treatment and follow-up at King Salman Armed Forces Hospital in Tabuk, Saudi Arabia. Breast Cancer: Targets and Therapy. 2019 May 27:199-208.

20. Ayub F, Khan TM, Baig MR, Amin MU, Tahir H. Quality of life and wellbeing among breast cancer patients in Lahore, Pakistan. Frontiers in Oncology. 2023 Jun 29;13:1105411.

21. Sharma N, Purkayastha A. Factors affecting quality of life in breast cancer patients: a descriptive and cross-sectional study with review of literature. Journal of mid-life health. 2017 Apr 1;82:75-83.

22. Bantema-Joppe EJ, De Bock GH, Woltman-van Iersel M, Busz DM, Ranchor AV, Langendijk JA, Maduro JH, Van Den Heuvel ER. The impact of age on changes in quality of life among breast cancer survivors treated with breast-conserving surgery and radiotherapy. British journal of cancer. 2015 Feb;1124:636-43.

23. Oates J, Davies S, Roydhouse JK, Fethney J, White K. The effect of cancer stage and treatment modality on quality of life in oropharyngeal cancer. The Laryngoscope. 2014 Jan;1241:151-8.

24. Getu MA, Chen C, Wang P, Kantelhardt EJ, Addissie A. Quality of life and its influencing factors among breast cancer patients at Tikur Anbessa specialised hospital, Addis Ababa, Ethiopia. BMC cancer. 2022 Aug 17;221:897.