Original Article

Quality of Life (QoL) of Breast Cancer (BC) Survivors of the Rurban Investor Community in India

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## ABSTRACT

Quality of life is a relative term. The relevance of it changes as per the situation. The present paper tried to capture different aspects of QoL in the case of breast cancer patients of rurban (rural and urban) investor communities in the study area. The study was undertaken to understand the impact quality of life of breast cancer survivors in rurban areas of Odisha, India, to understand whether any difference of opinion exists among different age groups in the rurban areas considered for the study and contributing to the prevailing literature. The entire data were captured under three constructs such as physical health, mental health, and the impact of spirituality on breast cancer patients for improving the survivors' quality of life. The results found that most respondents opined that fatigue, sleeping problem, anxiety, body pain, fear of uncertainty, and weakness were the most common issues faced by the BC survivors. It was also observed that the medical support is more for urban BC patients than rural ones. At the same time, there is a more positive mindset for the rural patients compared to the urban respondents in the study areas.

GRAPHICAL ABSTRACT
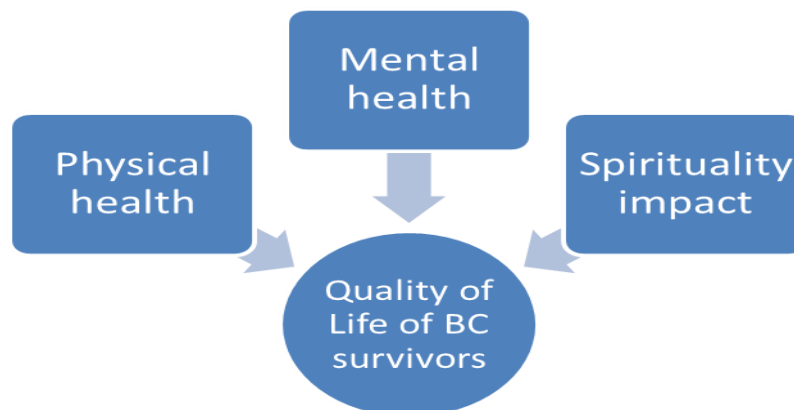
Introduction

There are 522,000 cases of breast cancer each year worldwide, making it the fifth leading cause of death among females [1]. There are 198,000 deaths per year due to this disease in developed countries after lung cancer [2]. 20 to 24.5% of cancer deaths among women in developing countries are caused by breast cancer [3]. Although breast cancer mortality rates are proportional to factors including age, diagnosis stage, treatment efficiency, etc., they are highly variable [4]. Developmentally disadvantaged women have different tumor behaviors, treatment responses, prognoses, and clinical manifestations. The lack of knowledge about breast cancer's etiology is the reason for this [5]. The age at which breast cancer is first detected in developed countries is generally 60. Cancers of the lung and colon are typically diagnosed at 70 and 68, respectively, much earlier than lung and colorectal cancer. Breast cancer is diagnosed in 19% of women between the ages of 30 and 49. Additionally, they are detected in all women over 65 years of age. Surgery or mastectomy is the primary treatment for women under 40 with breast cancer. many older women also do not prefer radiation therapy due to fears of recurrence or fear of radiation [6, 7].

Stages I, II, and III of breast cancer are the most common diagnoses for breast surgery, while stage IV patients must undergo hormone therapy. Improved diagnosis and treatment procedures have increased breast cancer survival rates in the USA from 78% to 89%. Several physiological changes have been observed in breast cancer survivors, including reduced feeling, tightness in the arms, shoulders, and chest wall, fatigue, and cognitive impairment [8-10]. Infertility, osteoporosis, and even neuropathy may result from chemotherapy treatment [11, 12]. Atrophic virginities and dyspareunia can be reduced with hormonal treatment [13, 14].

Researchers have linked physical activity to improved health in breast cancer survivors. Physically active survivors have been shown to live longer and healthier lives than those who were not. Exercise has been shown to increase the chances of a breast cancer patient maintaining a healthy life over a long period [15]. Furthermore, studies have demonstrated that lifestyle preferences associated with cancer are negatively correlated with anxiety and overall well-being. As they associate breast cancer with lifestyle troubles, women realize that lifestyle choices could have contributed to its spread [16-18]. Spirituality allows us to interact with the world and unite with it. Human life is made meaningful and valuable by interaction and assimilation. Individuals are given policies and spiritual practices through moral/spiritual gathering therapy, which help them attain a nonmaterial understanding of themselves, the world, events, and appearances, thus enhancing their sense of fulfillment and well-being [19]. To deal with cancer's physical and psychological consequences, patients should rely on spirituality [20]. Psychological adjustment and endurance may be negatively affected by insufficient social channels and understandings [21-24]. There is a correlation between the death rate of breast cancer and social connections, social maintenance, and general well-being [25-27]. Few studies in Indian literature examine the factors that cause breast cancer, particularly in the study area. In the Indian context, factors of life quality studied previously regarding BC survivors do not apply due to living styles, family status, social and cultural values, healthcare facilities, *etc*. [28].

Review of earlier studies

As a result of BC diagnosis, patients and their families suffer significant physical, mental, and economic consequences. People's lifestyles and even their families' dynamics must change due to these consequences [29].

Besides physical and psychological well-being, QoL also includes social well-being. A person's quality of life has been defined in many ways; however, according to the WHO, it is their perception and satisfaction with life and their general assessment of how well they are functioning [30].

Despite an increase in cases each year, breast cancer (BC) remains one of the most prevalent malignant tumors among women worldwide, with the highest mortality rate. According to the latest

data on cancer worldwide for 2020, there will be 2.26 million newly diagnosed cases of BC, surpassing lung cancer (11.7%) [31].

As a result of their treatment experiences and associated symptoms, BC patients' mental health is also negatively impacted. Even years after an acute phase or successful treatment, BC patients report high anxiety, depression, and distress levels [32].

In addition to their survival, women's quality of life can affect the cohesion of their families as they are the most significant members of the family. Consequently, psychosocial problems are associated with twofold increased severity of physical symptoms. Upon diagnosis, patients often experience devastating and intolerable treatment symptoms [33].

Family caregivers of cancer patients may experience physical, mental, and spiritual difficulties, which, if neglected, may have serious consequences for the entire family. Caregivers' physical and mental health will substantially decline if they are left without appropriate treatment and intervention-they will become "hidden patients." According to the findings, family caregivers were less likely to suffer depression, anxiety, and stress after the cognitive behavioral intervention [34].

In addition to being implicated in the cell cycle, apoptosis, and proliferation, the growth arrest-specific 2 (GAS2) gene may also promote cancer progression. Nevertheless, it is unknown whether GAS2 contributes to the progression or prognosis of colorectal cancer. As a result, this study examined the association between GAS2 expression in tumors and the progression and prognosis of CRC [35].

A transition occurs when a state, condition, or place changes. It is common for chronic disease patients to experience transitions, for example, patients with end-stage renal disease. Through effective factors such as the development of management strategies, hemodialysis patients will receive more specialized care. Nursing interventions will be more appropriate, and training programs will be more effective in preparing patients and their families for the transition to hemodialysis [36].

Research objectives

To study the impact quality of life of breast cancer survivors in rurban (rural and urban) areas of Odisha, India.

To understand whether any difference of opinion exists among different age groups in the urban (rural and urban) areas considered for the study.

To contribute to the existing literature

Scope of the study

This study was conducted in Odisha, India. The study was restricted to rurban (rural and urban) areas of Cuttack district and Khordha district. A total of 8 blocks constitute the Cuttack district, including Baranga, Cuttack Sadar, Kantapada, Mahanga, Niali, Nischintakoili, Salepur, and Tangi-Choudwar. Similarly, in the Khordha district, Tangi, Khordasadara, Banapur, Begunia, Bolgarh, and Chilika were considered in addition to respondents from Cuttack and Bhubaneswar cities included. Only those participants of the investor community in the study areas who had breast cancer were included. Those who were open to the survey considered it includes all the female age groups from 20-60 years of age.

With reference to Table 1 Under breast feeding 77.98% participants were breast feeding and rest were not feeding. For the family history 31.19% having don't have family history and rest were having family history. In case of age group majority participants from 31-50, followed by 20-30 and rest were above 50. Similarly, 3 or more abortion 37.15%, 29.81% having 2 times, 19.67% for one time and rest were no abortions. In case of 76 respondents having 3 or more children, 51 respondents having 2 children, 66 respondents having single child and 25 respondents having no child. In case of 61 respondents having more than 5 pregnancies, 54 were 3-4 pregnancy, 73 having 1-2 pregnancy and 30 were no pregnancy. Majority of participants were upper class, followed by middle class and rest were lower class. Similarly, majority were married, followed by unmarried and divorce.

Table 1: Socio-demographic variables

Details	Urban	Rural	Total
Breastfeeding			
Having breastfeeding	97	73	170
Having no breastfeeding	36	12	48
Total	133	85	218
Family history			
Having a family history of BC	76	74	150
No having family history of BC	57	11	68
Total	133	85	218
Age group			
20-30 years	36	24	60
31-50 years	68	39	107
51years and above	29	22	51
Total	133	85	218
Abortions			
3 times and above	42	39	81
2 times	38	27	65
1 time	28	14	42
No abortion	25	5	30
Total	133	85	218
Number of children			
More than 3 children	35	41	76
2 children	28	23	51
Single child	53	13	66
No child	17	8	25
Total	133	85	218
Pregnancy			
No pregnancy	19	11	30
1-2 pregnancy	64	9	73
3-4 pregnancy	32	22	54
5 and more	18	43	61
Total	133	85	218
Category			
Lower class	13	23	36
Middle class	52	28	80
Upper class	68	34	102
Total	133	85	218
Marital status			
Married	86	61	147
Unmarried	29	13	42
Divorcee	18	11	29
Total	133	85	218

Source: Primary data

Methodology of the study

The current research is based on secondary as well as primary data. The data were collected by visiting various libraries and online mode by visiting various websites. For collecting primary data initially, 29 variables were identified from the review of the literature and 5 core group discussions consisting of 6 members each. The same questionnaire was used for conducting the pilot study among the rurban population by taking 53 respondents from the initial variables; however, after the pilot study, 22 variables were

retained. Five-point Likert-type scale method was used for the computation of data along with an Anova test, and this purpose score of 5 for completely agree (CA), score 4 for agreeing (A), score 3 for neutral (N), score 2 for disagreeing (DA) and score 1 for completely disagree (CDA). Forthe collection of desired data, 412 questionnaires were distributed; of that 239 responses were received which was 58%. However, 218 responses were received in proper form. The total period of study was 4 months, i.e.,

May 2022 to August 2022. The sample for the current research was collected through non-probabilities sampling, precisely through the convenient sampling technique. With reference to Table 2, first 4 weeks concentrated for the conceptualisation and outline of research work. Next one month was for extensive literature review, following next one month was focused on gap analysis and data collection phase and last one month was data analysis and conclusion of the paper work done.

Table 2: Schedule of research work

Advancement of the study	Month-1 Weeks				Month-2 Weeks				Month-3 Weeks				Month-4 Weeks			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
"Conceptualizing and outline the research work"	■	■	■	■												
"Extensive literature review"					■	■	■	■								
"Gap analysis and finalization of the research questions"									■	■						
"Data collection phase"											■	■	■	■		
"Data analysis"															■	■
"Conclusion and finalization of the research paperwork"															■	■

The sample size for the unknown population

This study will calculate the sample size as a ratio between 1:4 and 1:10 (Rummel, 1970; Schwab, 1980). In the above method, the minimum sample size is four times the items, and the maximum sample size is ten times the items. In the present case, 22 core variables are included; accordingly, the sample size should be 88 to 220. This indicates that the present 218 responses were within the desired sample size.

Hypotheses

Based on Physical well being

H_0: There is a significant difference of opinion between Breast Cancer survivors based on the positive impact of quality of life and physical well-being.
H_1: There is no significant difference between Breast Cancer survivors based onthe positive impact of quality of life and physical well-being.

Based on mental health assessment

H_0: There is a significant difference of opinion between Breast Cancer survivors based onthe positive impact of mental health assessment.
H_1: There is no significant difference of opinion between the Breast Cancer survivors based on the positive impact of mental health assessment.

Based on spiritualism

H_0: There is a significant difference of opinion between Breast Cancer survivors based onthe positive impact of spirituality.
H_1: There is no significant difference of opinion between Breast Cancer survivors based on the positive impact of spirituality.

A. Based on physical well being

H_0: There is a significant difference of opinion exists between Breast Cancer survivors based on the positive impact of quality of life and physical well-being.
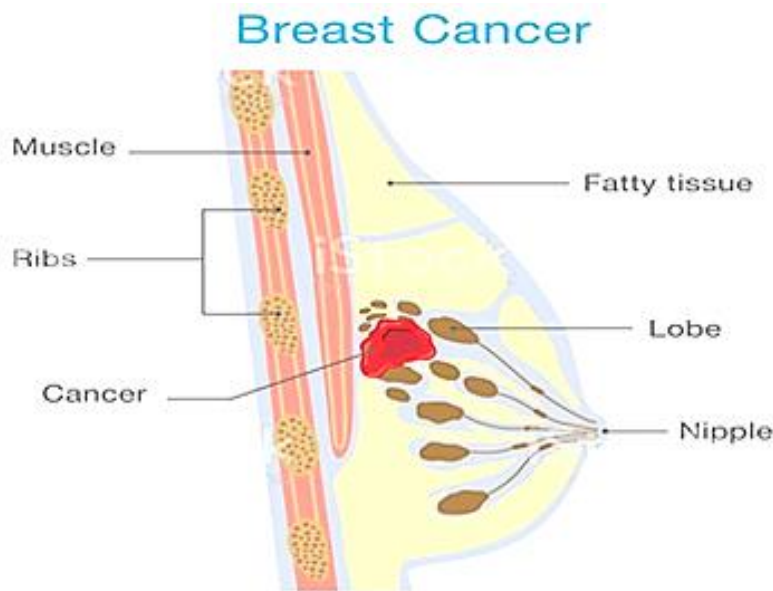
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Figure 1: Breast cancer stages and symptoms

Table 3: Computation of maximum possible weight and least possible weight (Supporting data)

Category	QoL and Physical health	QoL and Mental health	QoL and Spirituality impact
The urban respondent's age group of (20-30)			
Maximum possible weight	10X36X5=1800	6X36X5=1080	6X36X5=1080
Least possible weight	10X36X1= 360	6X36X1= 216	6X36X1=216
The urban respondent's age group of (31-50)			
Maximum possible weight	10X68X5=3400	6X68X5=2040	6X68X5=2040
Least possible weight	10X68X1= 680	6X68X1=408	6X68X1=408
Urban respondent's age group above 50 years			
Maximum possible weight	10X29X5= 1450	6X29X5= 870	6X29X5=870
Least possible weight	10X29X1=290	6X29X1= 174	6X29X1=174
The rural respondent's age group of (20-30)			
Maximum possible weight	10X24X5=1200	6X24X5=720	6X24X5=720
Least possible weight	10x24x1=240	6x24x1=144	6x24x1=144
The rural respondent's age group of (31-50)			
Maximum possible weight	10x39x5=1950	6x39x5=1170	6x39x5=1170
Least possible weight	10x39x1= 390	6x39x1=234	6x39x1=234
Rural respondent's age group above 50 years			
Maximum possible weight	10x22x5=1100	6x22x5=660	6x22x5=660
Least possible weight	10x22x1=220	6x22x1=132	6x22x1=132

Source: Authors' compilation

Table 4: Analysis of data

Variables	Ur-(20-30)	Ur-(31-50)	Ur-(above 50)	Ru-(20-30)	Ru-(31-50)	Ru-(above 50)
BC Survivors' quality of life and physical health						
Overall health issues	138	288	132	109	178	104
Feeling week	143	286	126	104	166	96
Sleeping problem	148	281	121	114	160	107
Weight gain	141	281	134	103	171	97
Changes in appetite	142	271	131	108	168	97
Need help in eating etc.	137	282	125	110	176	101
Problem during the long walk	145	292	135	116	173	103
Problem during the short walk	140	296	127	114	167	105
Pain and aches	141	289	135	116	164	107
Fatigue problems	149	288	135	113	181	109
Total weight	1424	2854	1301	1107	1704	1026
Maximum possible weight	1800	3400	1450	1200	1950	1100
Least weight	360	680	290	240	390	220
% of total weight to maximum possible weight	79.11	83.94	89.72	92.25	87.38	93.27
Average weight	87.61					
QoL and mental health assessment among BC survivors						
Depression	149	301	134	114	180	101
Anger	138	305	135	111	185	100
Loneliness	152	332	139	106	185	107
Personality disorder	136	316	126	111	183	103
Do not want to live	154	323	142	117	191	109
Feeling uncertainty about future	147	309	137	118	181	105
Total weight	876	1886	813	677	1105	625
Maximum possible weight	1080	2040	870	720	1170	660
Least weight	216	408	174	144	234	132
% of total weight to maximum possible weight	81.11	92.45	93.45	94.03	94.44	94.70
Average weight	91.70					
QoL and spiritualityof BC Survivors						
This leads to rational decision making	148	292	134	106	180	95
Improves life's satisfaction	141	298	131	117	180	105
Helps in better human being	145	307	137	112	170	108
Contributes to reducing day-to-day problems	144	303	126	117	179	104
Provides positive mental health	144	318	136	109	186	104
This leads to psychological stability	143	326	133	115	181	110
Total weight	865	1844	797	676	1076	626
Maximum possible weight	1080	2040	870	720	1170	660
Least weight	216	408	174	144	234	132
% of total weight to maximum possible weight	80.09	90.39	91.61	93.89	91.97	94.85
Average weight	90.47					

Source: Table 3, 8, 9, 10, 11, 12 and 13

Maximum possible score= responses X Variables X maximum score

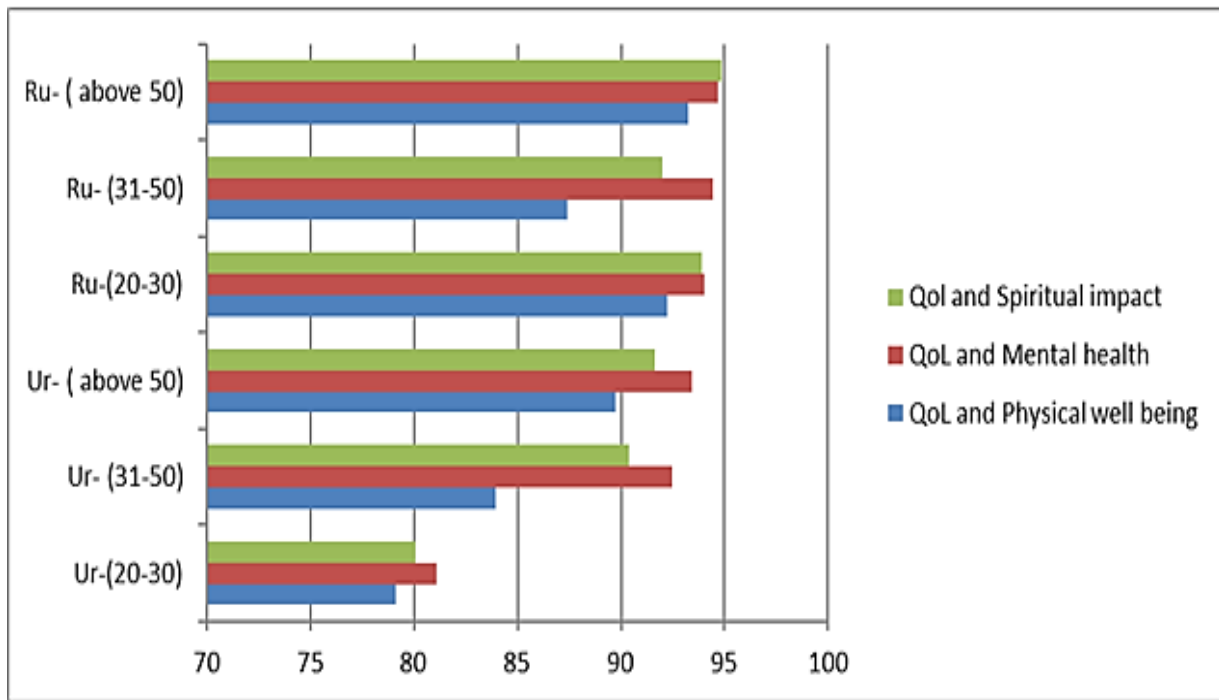*Least possible score = responses X Variables X least score*

Figure 2: Percentage of total weight to maximum possible weight for different parameters (Source: Table 4*)*

H₁: There is no significant difference exists between Breast Cancer survivors based on the positive impact of quality of life and physical well-being.

The p-value in Table 5 is less than 0.05, as well as the F-calculated value of 44.73312, which is higher than the F-critical value of 3.4668. It follows that the hypothesis that breast cancer survivors have significantly divergent opinions on the quality of life and physical well-being is rejected. As a result, both qualities of life and physical well-being are positively impacted regardless of age.

B. Based on mental health assessment

H₀: There is a significant difference of opinion exists between Breast Cancer survivors based on the positive impact of mental health assessment.

H₁: There is no significant difference of opinion exists between the Breast Cancer survivors based on the positive impact of mental health assessment.

The p-value in Table 6 is less than the threshold of 0.05, and the F-calculated value is 812.35, which is higher than the F-critical value of 2.53. In light of the positive impact mental health assessments have on cancer survivors, a significant difference in opinion does not exist. So, mental health assessment, irrespective of age, has a positive impact.

Table 5: opinion on the positive impact of quality of life and physical well-being among BC survivors

ATTRIBUTES	N	F-VALUE	P-VALUE	F-CRITICAL VALUE
Ur-(20-30)	10			
Ur- (31-50)	10			
Ur- (above 50)	10			
Ru-(20-30)	10	44.73312	0.00	3.4668
Ru- (31-50)	10			
Ru- (above 50)	10			

Source: Authors calculation

Table 6: Opinion on the positive impact of quality of life and mental health assessment among BC survivors

ATTRIBUTES	N	F-VALUE	P-VALUE	F-CRITICAL VALUE
Ur-(20-30)	6			
Ur- (31-50)	6			
Ur- (above 50)	6	812.3568	0.00	2.533555
Ru-(20-30)	6			
Ru- (31-50)	6			
Ru- (above 50)	6			

Source: Authors calculation

Based on spirituality

H$_0$: There is a significant difference of opinion between Breast Cancer survivors based on the positive impact of spirituality.

H$_1$: There is no significant difference of opinion between Breast Cancer survivors based on the positive impact of spirituality.

Table 7 shows that the p-value is less than 0.05 level, as well as the F-calculated value of 797.61, which is higher than the F-critical value of 2.53. Therefore, the hypothesis that a significant difference of opinion exists considering the positive impact of spirituality on breast cancer survivors is rejected. So, spirituality, irrespective of different ages, has a positive impact.

Figure 1 presents the various stages and symptoms. This includes fatty tissue, lobe, nipple, muscle and leads to breast cancer.

Results and Discussion

With reference to Table 4, On the questions about the quality of life and physical well-being of survivors of breast cancer, actual weighted scores to maximum possible scores for urban females aged 20-30, urban females aged 31-50 and over 50 years were respectively 79.11%, 83.94%, and 89.72%, and for rural respondents of similar ages were 92.25%, 87.38%, and 93.27%. It suggests that the various variables considered for the study positively affected the BC survivors irrespective of the age group of urban and rural people.

As regards the QoL and mental assessment among BC survivors, it is noted that the actual weighted score to the maximum possible score for the rural female age groups of 20-30 years, 31-50 years, and over 50 years was 94.03%, 94.44%, and 94.70% whereas the same for the urban female age groups was 81.11%, 92.45%, and 93.45% respectively. This concludes that both rural and urban women believe that all the attributes included under this parameter are relevant for the BC survivors.

Joining the query related to the quality of life and spiritual impact on BC survivors, it was found that the actual weighted score to the maximum possible score for the urban age group of 50 and above, between 31-50 and 20-30, was 91.61%, 90.39%, and 980.09%. The rural participants' figures were 94.85%, 91.97%, and 93.89%, respectively. The quality of life of survivors does appear to be greatly impacted by spirituality (Tables 7-13).

Table 7: Opinion on the positive impact on quality of life and spirituality among BC survivors

ATTRIBUTES	N	F-VALUE	P-VALUE	F-CRITICAL VALUE
Ur-(20-30)	6			
Ur- (31-50)	6			
Ur- (above 50)	6	797.6195	0.00	2.533555
Ru-(20-30)	6			
Ru- (31-50)	6			
Ru- (above 50)	6			

Source: Authors calculation

Table 8: Urban respondents in the age group of 20-30 years (Ur-20-30)- 36 respondents

Urban respondents in the age group of 20-30 years (Ur-20-30)- 36 respondents						
Variables	CA	A	N	DA	CDA	Weight
	5	4	3	2	1	
QoL and physical well-being among BC survivors						
Overall health issues	20	4	3	4	5	138
Feeling week	22	3	2	6	3	143
Sleeping problem	24	3	2	3	4	148
Weight gain	19	5	4	6	2	141
Changes in appetite	22	3	1	7	3	142
Need help in eating etc.	19	5	2	6	4	137
Problem during the long walk	23	3	2	4	4	145
Problem during the short walk	20	4	3	6	3	140
Pain and aches	23	2	2	3	6	141
Fatigue problems	24	3	1	6	2	149
QoL and mental health assessment among BC survivors						
Depression	24	3	2	4	3	149
Anger	21	2	3	6	4	138
Loneliness	24	5	1	3	3	152
Personality disorder	20	3	2	7	4	136
Do not want to live	26	2	2	4	2	154
Feeling uncertainty about future	25	1	2	4	4	147
QoL and spiritual impact of BC Survivors						
This leads to rational decision making	24	3	2	3	4	148
Improves life's satisfaction	22	3	2	4	5	141
Helps in better human being	22	4	3	3	4	145
Contributes to reducing day-to-day problems	21	5	2	5	3	144
Provides positive mental health	23	2	2	6	3	144
This leads to psychological stability	24	1	2	4	5	143

Source: Primary data

Table 9: Urban respondents in the age group of 31-50 years (Ur- 31-50)- 68 respondents

Urban respondents in the age group of 31-50 years (Ur- 31-50)- 68 respondents						
Variables	CA	A	N	DA	CDA	Weight
	5	4	3	2	1	
QoL and physical well-being among BC survivors						
Overall health issues	43	12	4	4	5	288
Feeling week	44	10	3	6	5	286
Sleeping problem	41	11	5	6	5	281
Weight gain	40	9	10	6	3	281
Changes in appetite	39	8	9	5	7	271
Need help in eating etc.	42	6	11	6	3	282
Problem during the long walk	44	8	8	6	1	292
Problem during the short walk	46	7	8	7	0	296
Pain and aches	48	6	3	5	6	289
Fatigue problems	43	8	10	4	3	288
QoL and mental health assessment among BC survivors						
Depression	50	8	3	3	4	301
Anger	49	7	8	4	0	305

Loneliness	54	6	2	6	0	332
Personality disorder	51	10	5	2	0	316
Do not want to live	56	9	1	2	0	323
Feeling uncertainty about future	53	5	4	6	0	309
QoL and spiritual impact of BC Survivors						
This leads to rational decision making	47	8	4	4	5	292
Improves life's satisfaction	51	3	8	3	3	298
Helps in better human being	52	4	7	5	0	307
Contributes to reducing day-to-day problems	48	7	9	4	0	303
Provides positive mental health	57	3	5	3	0	318
This leads to psychological stability	59	4	5	0	0	326

Source: Primary data

Table 10: Urban respondents in the age group of above 50 years (Ur- above 50)- 29 respondents

Urban respondents in the age group of above 50 years (Ur- above 50)- 29 respondents						
Variables	CA	A	N	DA	CDA	Weight
	5	4	3	2	1	
QoL and physical well-being among BC survivors						
Overall health issues	20	5	4	0	0	132
Feeling week	18	7	2	2	0	126
Sleeping problem	17	4	4	4	0	121
Weight gain	21	6	1	1	0	134
Changes in appetite	22	2	3	2	0	131
Need help in eating etc.	19	3	4	3	0	125
Problem during the long walk	22	4	3	0	0	135
Problem during the short walk	21	2	4	0	2	127
Pain and aches	23	3	2	1	0	135
Fatigue problems	24	2	1	2	0	135
QoL and mental health assessment among BC survivors						
Depression	24	2	0	3	0	134
Anger	23	3	2	1	0	135
Loneliness	25	2	2	0	0	139
Personality disorder	19	4	3	3	0	126
Do not want to live	26	3	0	0	0	142
Feeling uncertainty about future	24	2	3	0	0	137
QoL and spiritual impact of BC Survivors						
This leads to rational decision making	22	3	4	0	0	134
Improves life's satisfaction	21	4	2	2	0	131
Helps in better human being	24	2	3	0	0	137
Contributes to reducing day-to-day problems	20	3	4	2	0	126
Provides positive mental health	24	2	2	1	0	136
This leads to psychological stability	23	3	0	3	0	133

Source: Primary data

Table 11: Rural respondents in the age group of 20-30 years (Ru- 20-30)- 24 respondents

Rural respondents in the age group of 20-30 years (Ru- 20-30)- 24 respondents						
Variables	CA	A	N	DA	CDA	Weight
	5	4	3	2	1	
QoL and physical well-being among BC survivors						
Overall health issues	18	3	1	2	0	109
Feeling week	17	2	2	2	1	104
Sleeping problem	19	4	1	0	0	114
Weight gain	16	2	3	3	0	103
Changes in appetite	17	3	3	1	0	108
Need help in eating etc.	18	2	4	0	0	110
Problem during the long walk	21	2	1	0	0	116
Problem during the short walk	20	3	0	1	0	114
Pain and aches	19	2	2	1	0	116
Fatigue problems	20	1	3	0	0	113
QoL and mental health assessment among BC survivors						
Depression	21	1	1	1	0	114
Anger	20	2	2	0	0	111
Loneliness	21	2	1	0	0	106
Personality disorder	19	1	4	0	0	111
Do not want to live	22	1	1	0	0	117
Feeling uncertainty about future	23	0	1	0	0	118
QoL and spiritual impact of BC Survivors						
This leads to rational decision making	21	2	1	0	0	106
Improves life's satisfaction	22	1	0	1	0	117
Helps in better human being	19	2	3	0	0	112
Contributes to reducing day-to-day problems	22	1	1	0	0	117
Provides positive mental health	19	2	0	3	0	109
This leads to psychological stability	21	1	2	0	0	115

Source: Primary data

Table 12: Rural respondents in the age group of 31-50 years (Ru- 31-50)- 39 respondents

Rural respondents in the age group of 31-50 years (Ru- 31-50)- 39 respondents						
Variables	CA	A	N	DA	CDA	Weight
	5	4	3	2	1	
QoL and physical well-being among BC survivors						
Overall health issues	28	5	6	0	0	178
Feeling week	27	3	3	4	2	166
Sleeping problem	26	2	4	3	4	160
Weight gain	27	4	4	4	0	171
Changes in appetite	26	3	6	4	0	168
Need help in eating etc.	28	5	4	2	0	176
Problem during the long walk	27	6	2	4	0	173
Problem during the short walk	26	3	5	5	0	167
Pain and aches	24	5	4	6	0	164
Fatigue problems	29	6	4	0	0	181
QoL and mental health assessment among BC survivors						
Depression	31	3	3	2	0	180
Anger	33	2	4	0	0	185

Loneliness	32	4	3	0	0	185
Personality disorder	33	2	2	2	0	183
Do not want to live	36	2	1	0	0	191
Feeling uncertainty about future	31	3	4	1	0	181
QoL and spiritual impact of BC Survivors						
This leads to rational decision making	31	3	3	2	0	180
Improves life's satisfaction	32	2	2	3	0	180
Helps in better human being	30	3	2	4	0	170
Contributes to reducing day-to-day problems	29	4	6	0	0	179
Provides positive mental health	34	2	2	1	0	186
This leads to psychological stability	32	3	2	1	1	181

Source: Primary data

Table 13: Rural respondents in the age group of above 50 years (Ru- above 50)- 22 respondents

Rural respondents in the age group of above 50 years (Ru- above 50)- 22 respondents						
Variables	CA	A	N	DA	CDA	Weight
	5	4	3	2	1	
QoL and physical well-being among BC survivors						
Overall health issues	18	2	2	0	0	104
Feeling week	17	1	1	1	2	96
Sleeping problem	20	1	1	0	0	107
Weight gain	18	2	2	0	0	97
Changes in appetite	17	1	2	2	0	97
Need help in eating etc.	17	2	2	1	0	101
Problem during the long walk	18	2	1	1	0	103
Problem during the short walk	19	2	0	1	0	105
Pain and aches	20	1	1	0	0	107
Fatigue problems	21	1	0	0	0	109
QoL and mental health assessment among BC survivors						
Depression	19	1	0	2	0	101
Anger	18	2	2	0	0	100
Loneliness	20	1	1	0	0	107
Personality disorder	18	1	3	0	0	103
Do not want to live	21	1	0	0	0	109
Feeling uncertainty about future	19	1	2	0	0	105
QoL and spiritual impact of BC Survivors						
This leads to rational decision making	18	0	0	2	2	95
Improves life's satisfaction	19	2	0	1	0	105
Helps in better human being	21	0	1	0	0	108
Contributes to reducing day-to-day problems	19	1	1	1	0	104
Provides positive mental health	18	2	2	0	0	104
This leads to psychological stability	22	0	0	0	0	110

Source: Primary data

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Conclusion

Quality of leading life is a challenge for the patients and their near and dear ones for breast cancer survivors. The present study addresses the various aspects of health, mental health, and spirituality. These aspects have an impact on improving the quality of life of breast cancer survivors under three parameters. During the study, it was found that urban patients are better placed than rural patients. This is mainly the availability of super specialist hospitals in the urban areas and the same being deprived in the rural areas. In some cases, it was also found that breast cancers survive over 90 years of age in rural areas. This may be due to lifestyles in rural areas and food habits. However, the ground reality is that we need to extend all the possible support to these people so that there will be scope for living longer life as they also deserve to live in society. Family members also suffer a lot if any causality happens to any one of the dear members of the family. The family members of the patients have to lead their whole life without the person they love very much. So, all these can be resolved with social support, creating awareness, and providing affection. We cannot change the destiny but can try to give our best to the patient during her life period.

Authors' contributions

All authors contributed to data analysis, drafting, and revising of the paper and agreed to be responsible for all aspects of this work.

Conflict of Interest

There are no conflicts of interest in this study.

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References

[1]. Shaukat U., Ismail M., Mehmood N., Epidemiology, major risk factors and genetic predisposition for breast cancer in the Pakistani population, *Asian Pacific Journal of Cancer Prevention*, 2013, **14**:5625 [Crossref], [Google Scholar], [Publisher]

[2]. Ly M., Antoine M., Andre F., Callard P., Bernaudin J.F., Diallo D.A., Breast cancer in Sub-Saharan African women: review, *Bulletin du cancer*, 2011, **98**:797 [Crossref], [Google Scholar], [Publisher]

[3]. Qian F., Ogundiran T., Hou N., Ndom P., Gakwaya A., Jombwe J., Morhason-Bello I., Adebamowo C., Ademola A., Ojengbede O., Olopade O.I., Huo D., Alcohol consumption and breast cancer risk among women in three sub-Saharan African countries, *PloS one*, 2014, **9**:e106908 [Crossref], [Google Scholar], [Publisher]

[4]. Majeed W., Aslam B., Javed I., Khaliq T., Muhammad F., Ali A., Raza A., Breast cancer: major risk factors and recent developments in treatment, *Asian Pacific Journal of Cancer Prevention,* 2014, **15**:3353 [Crossref], [Google Scholar], [Publisher]

[5]. Si W., Li Y., Han Y., Zhang F., Wang Y., Linghu R.X., Zhang X., Yang J., Epidemiological and clinicopathological trends of breast cancer in Chinese patients during 1993 to 2013: a retrospective study, *Medicine*, 2015, **94**:e820 [Crossref], [Google Scholar], [Publisher]

[6]. Miller K.D., Siegel R.L., Lin C.C., Mariotto A.B., Kramer J.L., Rowland J.H., Stein K.D., Alteri R., Jemal A., Cancer treatment and survivorship statistics, 2016, *CA: a cancer journal for clinicians*, 2016, **66**:271 [Crossref], [Google Scholar], [Publisher]

[7]. McGuire K.P., Santillan A.A., Kaur P., Meade T., Parbhoo J., Mathias M., Shamehdi C., Davis M., Ramos D., Cox C.E., Are mastectomies on the rise? A 13-year trend analysis of the selection of mastectomy versus breast conservation therapy in 5865 patients, *Annals of surgical oncology*, 2009, **16**:2682 [Crossref], [Google Scholar], [Publisher]

[8]. Freedman R.A., Virgo K.S., Labadie J., He Y., Partridge A.H., Keating N.L., Receipt of locoregional therapy among young women with breast cancer, *Breast cancer research and treatment*, 2012, **135**:893 [Crossref], [Google Scholar], [Publisher]

[9]. Pinto A.C., De Azambuja E., Improving quality of life after breast cancer: dealing with symptoms, *Maturitas*, 2011, **70**:343 [Crossref], [Google Scholar], [Publisher]

[10]. Runowicz C.D., Leach C.R., Henry N.L., Henry K.S., Mackey H.T., Cowens-Alvarado R.L., Cannady R.S., Pratt-Chapman M.L., Edge S.B., Jacobs L.A., Hurria A., Marks L.B., LaMonte S.J., Warner E., Lyman G.H., Ganz P.A., American cancer society/American society of clinical oncology breast cancer survivorship care guideline, *CA: a cancer journal for clinicians*, 2016, **66**:43 [Crossref], [Google Scholar], [Publisher]

[11]. Howard-Anderson J., Ganz P.A., Bower J.E., Stanton A.L., Quality of life, fertility concerns, and behavioral health outcomes in younger breast cancer survivors: a systematic review, *Journal of the National Cancer Institute*, 2012, **104**:386 [Crossref], [Google Scholar], [Publisher]

[12]. Rivera E., Cianfrocca M., Overview of neuropathy associated with taxanes for the treatment of metastatic breast cancer, Cancer chemotherapy and pharmacology, 2015, **75**:659 [Crossref], [Google Scholar], [Publisher]

[13]. Schover L.R., van der Kaaij M., van Dorst E., Creutzberg C., Huyghe E., Kiserud C.E., Sexual dysfunction and infertility as late effects of cancer treatment, *European journal of cancer supplements*, 2014, **12**:41 [Crossref], [Google Scholar], [Publisher]

[14]. Sohail S., Alam S.N., Breast cancer in Pakistan-awareness and early detection, *J. Coll. Phys. Surg. Pakistan*, 2007, **17**:711 [Google Scholar], [Publisher]

[15]. Bottorff J.L., Grewal S.K., Balneaves L.G., Naidu P., Johnson J.L., Sawhney R., Punjabi women's stories of breast cancer symptoms: gulti (lumps), bumps, and darad (pain), *Cancer Nursing*, 2007, **30**:E36 [Crossref], [Google Scholar], [Publisher]

[16]. Banning M., Hafeez H., A two-center study of Muslim women's views of breast cancer and breast health practices in Pakistan and the UK, *Journal of Cancer Education*, 2010, **25**:349 [Crossref], [Google Scholar], [Publisher]

[17]. Bertram L.A.C., Stefanick M.L., Saquib N., Natarajan L., Patterson R.E., Bardwell W., Flatt S.W., Newman V.A., Rock C.L., Thomson C.A., Pierce J.P., Physical activity, additional breast cancer events, and mortality among early-stage breast cancer survivors: findings from the WHEL Study, *Cancer causes & control*, 2011, **22**:427 [Crossref], [Google Scholar], [Publisher]

[18]. Bennett K.K., Compas B.E., Beckjord E., Glinder J.G., Self-blame and distress among women with newly diagnosed breast cancer, *Journal of behavioral medicine*, 2005, **28**:313 [Crossref], [Google Scholar], [Publisher]

[19]. Friedman L.C., Romero C., Elledge R., Chang J., Kalidas M., Dulay M.F., Lynch G.R., Osborne C.K., Attribution of blame, self-forgiving attitude and psychological adjustment in women with breast cancer, *Journal of behavioral medicine*, 2007, **30**:351 [Crossref], [Google Scholar], [Publisher]

[20]. Richards P.S., Bergin A.E., A Spiritual Strategy for Counseling and Psychotherapy, 2ndedn, (American Psychological Association, 2005). [Crossref], [Google Scholar], [Publisher]

[21]. Meraviglia M., Effects of spirituality in breast cancer survivors, *Number 1/January 2006*, 1969, **33**:E1 [Crossref], [Google Scholar], [Publisher]

[22]. Bloom J.R., Stewart S.L., Johnston M., Banks P., Fobair P., Sources of support and the physical and mental well-being of young women with breast cancer, *Social science & medicine*, 2001, **53**:1513 [Crossref], [Google Scholar], [Publisher]

[23]. Reynolds P., Boyd P.T., Blacklow R.S., Jackson J.S., Greenberg R.S., Austin D.F., Chen V.W., Edwards B.K., The relationship between social ties and survival among black and white breast cancer patients. National Cancer Institute Black/White Cancer Survival Study Group, *Cancer*

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epidemiology, biomarkers & prevention: a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology, 1994, **3**:253 [Google Scholar], [Publisher]

[24]. Kroenke C.H., Kubzansky L.D., Schernhammer E.S., Holmes M.D., Kawachi I., Social networks, social support, and survival after breast cancer diagnosis, *Journal of clinical oncology*, 2006, **24**:1105 [Crossref], [Google Scholar], [Publisher]

[25]. Beasley J.M., Newcomb P.A., Trentham-Dietz A., Hampton J.M., Ceballos R.M., Titus-Ernstoff L., Egan K.M., Holmes M.D., Social networks and survival after breast cancer diagnosis, *Journal of Cancer Survivorship*, 2010, **4**:372 [Crossref], [Google Scholar], [Publisher]

[26]. Epplein M., Zheng Y., Zheng W., Chen Z., Gu K., Penson D., Lu W., Shu X.O., Quality of life after breast cancer diagnosis and survival, *Journal of Clinical Oncology*, 2011, **29**:406 [Crossref], [Google Scholar], [Publisher]

[27]. Charalambous A., Kouta C., Cancer related fatigue and quality of life in patients with advanced prostate cancer undergoing chemotherapy, *BioMed research international*, 2016, **2016**:3989286 [Crossref], [Google Scholar], [Publisher]

[28]. Okuyama T., Tanaka K., Akechi T., Kugaya A., Okamura H., Nishiwaki Y., Hosaka T., Uchitomi Y., Fatigue in ambulatory patients with advanced lung cancer: prevalence, correlated factors, and screening, *Journal of Pain and Symptom Management*, 2001, **22**:554 [Crossref], [Google Scholar], [Publisher]

[29]. Gonzalez L., Bardach A., Palacios A., Peckaitis C., Ciapponi A., Pichón-Riviere A., Augustovski F., Health-Related Quality of Life in Patients with Breast Cancer in Latin America and the Caribbean: A Systematic Review and Meta-Analysis, *The oncologist*, 2021, **26**:e794 [Crossref], [Google Scholar], [Publisher]

[30]. Zhu X.Y., Li Z., Chen C., Feng R.L., Cheng B.R., Liu R.Y., Wang R.T., Xu L., Wang Y., Tao X., Zhao P., Physical therapies for psychosomatic symptoms and quality of life induced by aromatase inhibitors in breast cancer patients: a systematic review and meta-analysis, *Frontiers in oncology*, 2021, **11**:745280 [Crossref], [Google Scholar], [Publisher]

[31]. Sung H., Ferlay J., Siegel R.L., Laversanne M., Soerjomataram I., Jemal A., Bray F., Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries, *CA: a cancer journal for clinicians*, 2021, **71**:209 [Crossref], [Google Scholar], [Publisher]

[32]. Mirzaei F., Farshbaf-Khalili A., Nourizadeh R., Zamiri R.E., Quality of life and its predictors in Iranian women with breast cancer undergoing chemotherapy and radiotherapy, *Indian Journal of Cancer*, 2021, **58**:76 [Crossref], [Google Scholar], [Publisher]

[33]. Kshirsagar A.S., Wani S.K., Health-related quality of life in patients with breast cancer surgery and undergoing chemotherapy in Ahmednagar district, *Journal of Cancer Research and Therapeutics*, 2021, **17**:1335 [Crossref], [Google Scholar], [Publisher]

[34]. Borji M., Nourmohammadi H., Otaghi M., Salimi A.H., Tarjoman A., Positive Effects of Cognitive Behavioral Therapy on Depression, Anxiety and Stress of Family Caregivers of Patients with Prostate Cancer: A Randomized Clinical Trial, *Asian Pacific journal of cancer prevention: APJCP*, 2017, **18**:3207 [Crossref], [Google Scholar], [Publisher]

[35]. Izadi-Ajeerlo B., Bastaminejad S., Basati G., Upregulated expression of the growth arrest-specific-2 (gas2) gene in colorectal cancer, and its relation to cancer progression and prognosis, *Journal of Isfahan Medical School*, 2019, **37**:93 [Crossref], [Google Scholar], [Publisher]

[36]. Hassani P., Otaghi M., Zagheri-Tafreshi M., Nikbakht-Nasrabadi A., The process of transition to hemodialysis: a grounded theory research, *Iranian journal of nursing and midwifery research*, 2017, **22**:319 [Crossref], [Google Scholar], [Publisher]