Research Article

Quality of Life in Sudanese Women with Breast Cancer in Khartoum Oncology Hospital, 2017

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Abstract

Background: Breast cancer is the most common cancer among women in Sudan and over the world. The concerning mainly was on clinical management but health-related quality of life now is thought to be an important endpoint in clinical trials. Assessing the quality of life in cancer patients contribute to increase the value of treatment and could play a role as prognostic factor within medical parameters. This research presents the outcome of quality of life in Sudanese women with breast cancer depending on international and regional result.

Objective: The purpose of this study was to assess the quality of life of Sudanese women with breast cancer who came to Khartoum Oncology Hospital.

Methods: The study was a hospital based cross-sectional research conducted on 114 breast cancer patients from November 2017 to December 2017. Standardized questionnaire of European organization for research and treatment of cancer QoL questionnaires QLQ-C30 (Quality of Life Questionnaire-Cancer 30) and QLQ-BR23 (Quality of Life Questionnaire-Breast Cancer 23) was used after little modification according to the researcher's participant's acceptance. The data collection was piloted to assess the questionnaire acceptance, clarity and completion time and no modification were made. The data and analysis were made by using SPSS version 19, most of the scales have excellent internal consistency except for social functioning item has low internal consistency, Analysis of Variance (ANOVAs) was performed to examine the relationship between independent variables and functional and symptom scales of both questionnaires.

Results: The participants mean age was (Mean=48.2 SD=12.199) years (Mean ± SD). Sudanese patients with breast cancer have high Functional score and lower symptom score in both EORTC QLQ-C30 and the EORTC BR- 23 scores. For Functional scale Most Scores are high above 80%, ranging from (Mean=83.7 SD=23.6) which for Social functioning to the least score was for Physical functioning (Mean=67 SD=29). Emotional functioning (Mean=73.97 SD=31). The Global health scale has moderate score (Mean=67 SD=18.85). Within the Symptom scales / items all scales scored below 30 which mean they have no more symptoms except for financial difficulty item scored 45%. Most of the socio-demographic variables, except the Age of participants, did not show significant association with QoL of the participants. Concerning the modality of treatment Surgery had association with QoL.

Conclusion: The quality of life among Sudanese women with breast cancer is good in compared to many countries. But measures should be taken to improve their financial support.

Keywords: Quality of life; Breast cancer; Functional scales; Symptomatic scale

Introduction

Background

Breast cancer is the most common cancer among females in Sudan [1] and worldwide [2-4] but in developed countries it is the second cause of death after lung cancer [5] and is still a leading cause of high morbidity and mortality a cross the world. According to a recent report from the national cancer registry, Breast cancer had an incidence rate of 25.1 per 100.000, more than twice the incidence rate of the second commonest cancer [1].

In developing countries, it is the first leading cause of death among women with 324,000 deaths which represented 14.3% of all deaths. Moreover, this rate varied from 6 to 20 per 100,000 in East Asia and West Africa as a whole [6].

In study done in 2008, in developed countries, survival from breast cancer has slowly increased to the rate of 85%, following improvements in screening practices and treatments. But, the survival rate in developing countries remains around 50% - 60% [7] but recent study done on 2017 the survival rate is on the order of 73% in developed countries and 57% in developing countries.

The concerning mainly was on clinical management but Health-related quality of life now is thought to be an important endpoint in clinical trials. Assessing the quality of life in cancer patients contribute to increase the value of treatment and could play a role as prognostic factor within medical parameters. The research presents the outcome of quality of life in Sudanese women with breast cancer depending on international and regional result [6,8].

Patients with breast cancer experience symptoms that adversely affect their Functional life and their QoL. A clear universal definition of quality of life is not available due to the personal nature of quality of life [2]. However, as defined by the National Cancer Institute, Quality of Life (QOL) is the overall enjoyment of life and an individual's sense of wellbeing it is important to understand that quality of life is a subjective opinion of life experiences that is continuously being conceptualized [9,10].

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"The WHO definition of QOL as individuals' perception of life in the context of the culture and value. System in which they live and in relation to their goals, expectations, standards and concerns".

Generally, HRQoL covers the subjective perceptions of the positive and negative aspects of cancer patients' symptoms, including physical, emotional, social, and cognitive functions and, importantly, disease symptoms and side effects of treatment Quality of life is regarded as a subjective report of the patients' experience of disease and treatment [4,7].

QoL consist of physical, functional, psychological well-being and social support domains. Disease and treatment can affect in these domains, for example chemotherapy can cause physical and psychological Problems that negatively affect the patient QoL. And the disease itself can cause anger, suffering and pain [9].

Problem statement

More women are diagnosed with breast cancer, and it has long journey in compared to other types of cancers. Long-term quality of life prediction in cancer patients is essential. Patients pass through many hands during treatment and aftercare and many clinicians may never witness the long-term consequences experienced by the patient [11].

The increasing number of breast cancer patients due to early detection and treatment of breast cancer has led to longer survival of these patients.

Objectives

General objective is to assess subjective quality of life in Sudanese women with breast cancer.

The Specific objectives are:

1. To study the socio demographic background of the participants.

2. To determine the extent of their Functional impact.

3. To determine the degree of their social impact.

4. To determine the effect of socio demographic characteristics and treatment on their QoL.

Justification

Measuring quality of life in breast cancer patients is of importance in assessing treatment outcomes [12]. In addition, breast cancer affects women's identities and therefore studying quality of life in women who lose their breasts is vital. Also, women play an important role in family. When a woman develops breast cancer all family members may develop some Difficulties [13].

The issue of 'survivorship' now has become an important topic in breast cancer care that demands the investigation of long-term effects of breast cancer and its treatments [12]. This study examined the impact of breast cancer and its treatment on quality of life of Sudanese women with breast cancer.

Methods

Study design

Descriptive cross-sectional study Institutional based conducted from November to December 2017.

Study settings

Khartoum oncology hospital Khartoum state, it is the main

oncology Center in Sudan. The hospital contain seven units: Chemotherapy for adult and another for pediatrics, pediatrics ward, transferred Clinics, Special Western Suite, Diagnostic Center in addition to injection room and nurse room. The total numbers of beds are 345. And the data specifically was collected from patients came to AL-Amal Tower for referral clinics.

Study population

The study conducted in the patients who come to Al Amal Tower for Referral clinics.

Sampling

Sample size was 164 calculated using the equation

$$n = z^2 \times (p) \times (1 - p) \div d^2$$

And in the best of my knowledge this is a Gray area in Sudan.

Incidence = 0.31 According to Sudan Health Observatory\5-year prevalence = 45.5 according to Globocan 2012 z = 1.96 d = 0.05 the sample size will be very large so the researcher will take it 0.07.

Sample technique was: Consecutive sampling technique.

Data collection

The data collected from the patients/caregivers it was interview based. The questionnaire containing socio-demographic characteristics and type of it was a check list contained standard questions which prepared from The EORTC QLQ_C30(+3) and breast cancer module QLQ_BR23 (European Organization for Research and Treatment of Cancer/QLQ Quality of Life Questionnaire) and modified according to the researcher's participants acceptance, The data collection was piloted to assess the questionnaire acceptance, clarity and completion time and no modification were made. (The modification made by deletion some questions from both questionnaires. In EROTC QLQ-30 we omitted one question from physical domain, two questions from breast symptoms domain, cognitive domains and the symptom scale\item domain. In EROTC BR_23 omitted one question from sexual function domain, sexual enjoyment, future perspective upset by Hair loss domains after consulting oncologist.

The EORTC the European Organization for Research and Treatment of Cancer (EORTC) was founded in 1962, as an international organization. It is Quality of Life Questionnaire (QLQ) and it is an integrated system for assessing the health- related Quality of Life (QoL) of cancer patients participating in international clinical trials, the core questionnaire, the QLQ-C30.

Data analysis

The data analysis was made by using SPSS version 19; the raw score was measured firstly then transformed these measures into percentile scales that allowed doing a complicated statistical analysis. The age described as by mean and standard deviation and the other socio demographic as frequency then Analysis of Variance (ANOVAs) was performed to examine the relationship between independent variables and functional and symptom scales of both questionnaires. Missing values were treated based on scoring manual that allows up to 50% missing item per score. That means the patient must at least answer half of the items on the scale. Also, the single-item measures were transformed into the same percentile scale. The internal consistency was tested for scales of more than one item, by calculating the Cranach's alpha coefficient. (α>0.7)=reliable internal consistency, (α<0.7) = questionable internal consistency. Most of the scales have

excellent internal consistency except for social functioning item has low internal consistency.

Ethical consideration

The community medicine department Khartoum University approval was taken along with the hospital permission.

Results

The results of the research were based on 114 participants of the study who successfully completed the interview.

Socio-demographic characteristics\Chronic illnesses and modality of treatment (Figure 1)

The participants mean age was (Mean=48.28 SD=12.199) years. Most of the participants were married 77 (67.5%) followed by Widow 19 (16.7%). Most of the participants were below the university level 89% (28.9% illiterate, 34.2 primary school, 26.3% secondary school, 9.6% university level. 9% post graduates majority of them have monthly income below 2000 (78%) followed by 2000 to 3000 (27.2%) the highest monthly income group has lowest percent 4.4%. Related to chronic illnesses 17.5% have diabetes and 21.9 have hypertension (Figure 2).

Modality of treatment (Figure 3)

Surgery alone 12.3%, surgery and 3 radiation 1.8%, surgery and hormonal therapy 14.9%, Chemotherapy 10.5%, surgery and chemotherapy 18.4%, chemotherapy and radiation 3.5%, surgery. Chemotherapy and radiation 15.8%, surgery. Chemotherapy and hormonal therapy 7%, surgery chemotherapy radiation and hormonal therapy 15.8%.

The internal consistency (Table 1) of scales of more than one item was tested, by calculating the Cronbach's alpha coefficient. (($\alpha > 0.7$) = reliable internal consistency, ($\alpha < 0.7$) = questionable internal consistency). Most of the scales have excellent internal consistency except for social functioning item has low internal consistency.

Mean differences among quality of life domains in both EORTC QLQ-30 and EORTC BR-23 (Table 2)

Functional scales: Highest Score in EROTC QLQ-C30 was for SF (Mean=83.7 SD=8.6) and EF (Mean=73.9 SD=31) followed by PF (Mean=67.2 SD=29.3). In EORTC BR-23 the two functional scales BRBI score (Mean=80.9 SD=25.2) and BRSEE (Mean=83.1 SD=29.3).

Global health status/QoL: The participants scored a global health status/QOL scale with a (Mean=67 SD=17.8).

Symptom scales/items: Intense level of symptom experience was hair loss. For scales the worst one was Systemic therapy side effect score (Mean=29 SD=20.7) which is above the IQR of EROTC BR-23 followed by BRSY (Mean=20 SD=26.3). The best score is for BRRT (Mean=15.4 SD=27).

Furthermore, the Financial difficulty item scale high score (Mean=45 SD=38.9) IQR = {0-33.3}.

Differences in mean between the different groups of socio demographic data (Table 3)

Age: In Global health status / QoL the best score for the age of (60-81) the lowest for (20-40) social functioning the best for the age of (61-80) the lowest for (20-40). Emotional functioning the best fore age (61-80) the lowest for (20-40.) Physical functioning the best fore age (61-80) the lowest for (41-60). Body image the best for age (61-80) the lowest for (20-40). Sexual functioning best for age (20-40) lowest for (61-80). Arm symptoms best score for age 61-80, highest worst for (41-60). Breast symptoms the best score for (20-41) the worst for more than 81. No significant differences in systemic therapy side effect scale and financial difficulty (Table 3A).

Marital Status: No significant differences regarding.

Educational level (Table 3B): No obvious differences in most

Figure 1: Socio demographic data;
Figure 1A: Age; **Figure 1B:** Marital Status.; **Figure 1C:** Education level.; **Figure 1D:** Income level.
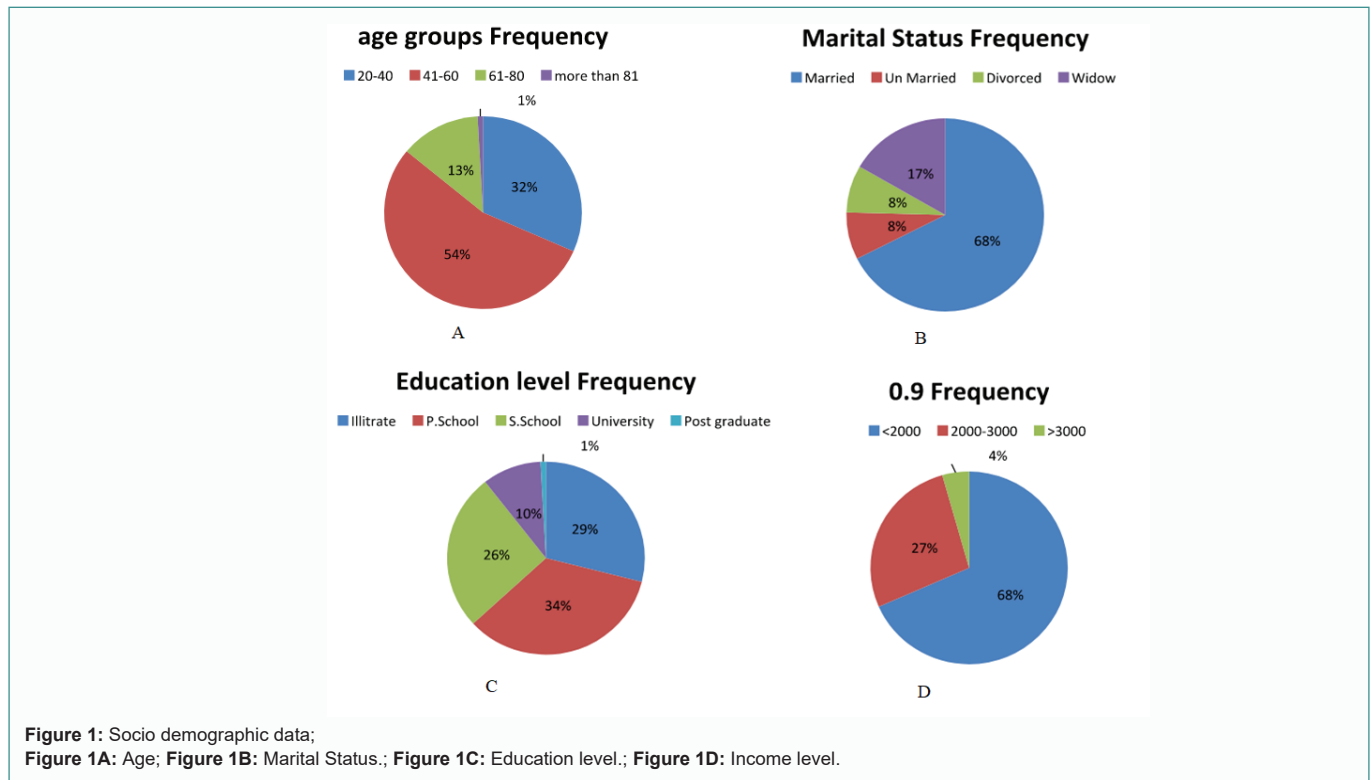
Figure 2: Chronic illness;
Figure 2A: Diabetes; **Figure 2B:** Hypertension.

Figure 3: For arm symptoms, breast symptoms, systemic therapy side effect, financial difficulty higher score=worst symptoms. For Functional domains higher scores= higher level of function.

scores except for EF post graduate the same has the lowest score followed by university level. In PF and arm symptoms the post graduate has the poorest scores.

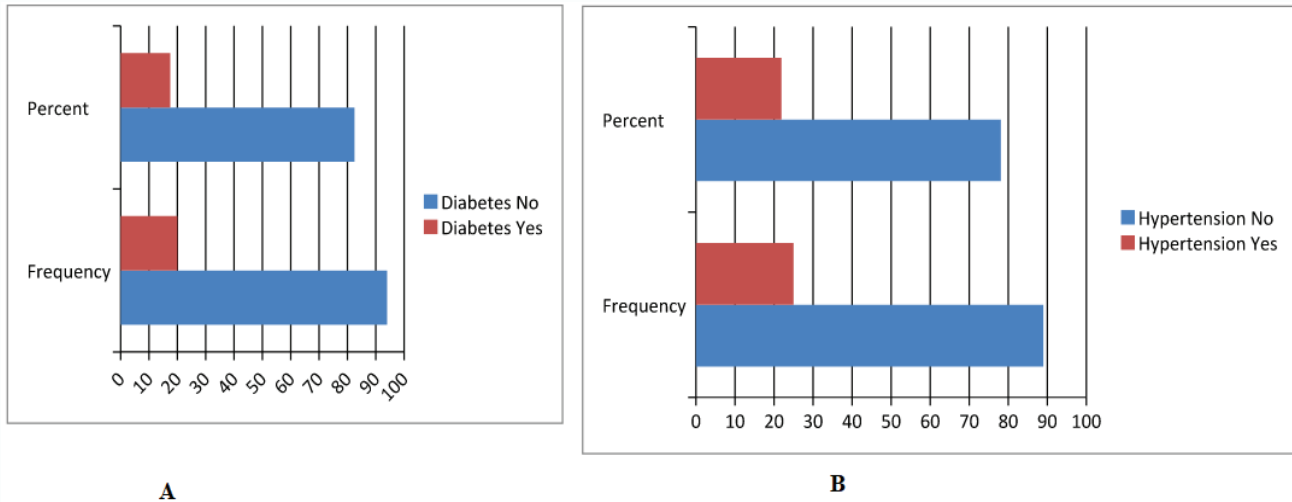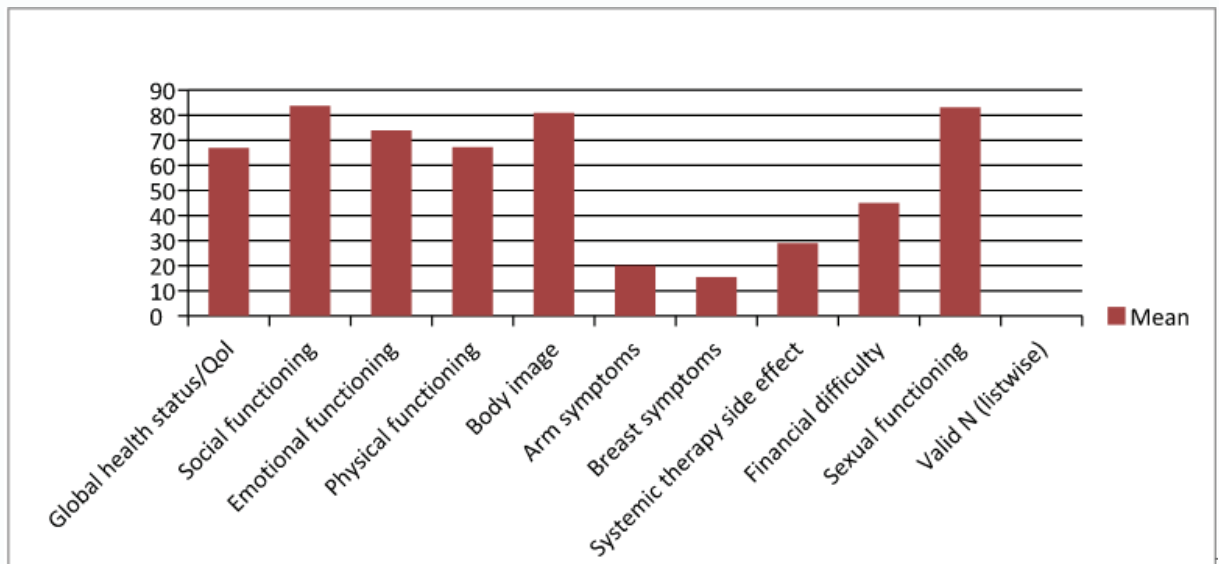**Income level (Table 3C):** No significant differences in functional scales apart of EF the lowest score for those having more than 3000 income level. PF the lower score for those having <2000 monthly income, BRSY worst score was for those having >3000 monthly income. Within the financial difficulty all groups have more (33.3).

Diabetes\Hypertension: For diabetes no significant differences across means of the score except in Arm symptoms in those found to be diabetic express much arm symptoms (P value=0.06) but regarding HTN No significant differences between means differences among different.

Treatment modalities of treatment

For Social functioning and Sexual functioning no differences. For

Global health status lowest score in those treated by chemotherapy and radiation therapy followed by those treated by Surgery, chemotherapy, Radiation and Hormonal therapy. Related to EF those treated by the four modalities have the lowest score followed by those treated by surgery alone. PF the lowest score for the four modalities then Surgery chemotherapy and hormonal. Body image score; lowest scores related to those treated by all modalities. Related to Symptom scales /items; no significant differences between scales their selves, for the Arm symptom; Chemotherapy and radiotherapy worst score. Breast symptom; the best was for surgery and hormonal. Systemic therapy side effect Chemotherapy alone has the worst score followed by those treated by surgery, chemotherapy and hormonal together. Least score for financial difficulty was seen in those treat by all the modalities (Table 4).

Demographic data and modality of treatment with quality of life domains (Table 4A and 4B). Most of the socio-demographic variables

Table 1: The test for internal consistency for scales that have more than one item by using Cronbach" s Alpha.

Reliability Statistics for BRST	
Cronbach" s Alpha	N of Items
0.767	6
Reliability Statistics for PF	
Cronbach" s Alpha	N of Items
0.92	4
Reliability Statistics for BRBI	
Cronbach" s Alpha	N of Items
0.983	4
Reliability Statistics for EF	
Cronbach" s Alpha	N of Items
0.991	3
Reliability Statistics for SF	
Cronbach" s Alpha	N of Items
0.583	2
Reliability Statistics for BRAS	
Cronbach" s Alpha	N of Items
0.982	2
Reliability Statistics for BRBS	
Cronbach" s Alpha	N of Items
0.839	5

Table 2: Mean differences among quality of life domains.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Global health status/QoL	114	16.67	100	67.0322	18.85978
Social functioning	114	0	100	83.7719	23.61821
Emotional functioning	114	0	100	73.9766	31.00096
Physical functioning	114	0	100	67.2515	29.30528
Body image	114	0	100	80.9028	25.46416
Arm symptoms	114	0	100	20.078	26.355
Breast symptoms	114	0	100	15.4971	27.04009
Systemic therapy side effect	86	0	83.33	29.0698	20.79876
Financial difficulty	114	0	100	45.0292	38.90903
Sexual functioning	89	0	133.33	83.1461	29.35485
Valid N (list wise)	68				

did not show significant association with QoL of, except the Age of participants, with Global health status (P value = 0.014). Concerning the modality of treatment Surgery and chemotherapy were both have association with QoL.

Surgery show little association with body image those who underwent surgery SCORE (Mean=79.1 SD=26) (P value = 0.97). Arm symptoms those do not underwent had higher score mean worst symptoms (Mean=33 SD 18) but those who underwent surgery had lower score mean better symptoms (Mean=17.4 SD=25.6) (P value= .014), and sexual symptoms those underwent surgery show lower score (Mean=80.7 SD=30.6) and those do not score 100% (P value=0.041).

Discussion

Regarding the functional scales, highest Score in EROTC QLQ_C30 was for SF (Mean=83.7 SD=8.6) and EF (Mean=73.9 SD=31) followed by PF (Mean=67.2 SD=29.3). These are high scores-

according to the IQR of the EROTC QLQ-30 and EROTC BR-23-reference values reflect the adequate social and emotional support from Sudanese families and the community in general. Furthermore, their Islamic religion plays a good role in making them to take a positive religious coping strategy. Many studies supported these findings; Hebert et al. indicated that positive religious coping methods predict better mental health and life satisfaction in women with breast cancer (Figure 3) [14].miIn EORTC BR-23 the two functional scales BRBI score (Mean=80.9 SD=25.2) and BRSEE (Mean=83.1 SD=29.3).

The latter may not reflect the objective result because of Sudanese culture about their acceptance to these types questions, if we compared this with previous study found that many women treated for Breast Cancer suffered from sexual disturbances before hormonal treatment while some regained sexual activity during hormonal treatment, demographic data show negative correlation between sexual function and age but positive correlation between BRSEE and educational level as well as between BRSEE and the patient length of marriage [15].

Global health status/QoL, the participants scored a global health status/QOL scale with a (Mean=67 SD=17.8) which is lower than functional mean scores but in the acceptable range according to the reference value.

Within the Symptom scales/items, intense level of symptom experience was hair loss meaning that it was annoying enough to be expressed. For scales the worst one was systemic therapy side effect score (Mean=29 SD=20.7) which is above the IQR of EORTC BR-23 followed by BRSY (Mean=20 SD=26.3) the best score is for BRRT (Mean=15.4 SD=27).

Furthermore, the financial difficulty item scale high score (Mean=45 SD=38.9) IQR= {0-33.3} this was the area that took the more attention of patients.

The age group 61-80 has the best scores of QOL SF, EF, PF and Body image in counteraction the age group 20-40 has the lowest of QOL SF, EF, Body image.

This area is argument to several studies of those studies on China found that young breast cancer survivors suffered from worse body image when compared with older women and younger patients reported to have poorer outcomes. In the long run, an improvement in quality of life among breast cancer survivors over time was noted. Another study finds that increased age was associated with lower HRQoL among breast cancer patients. Also, many previous studies concluded the same findings. One of them, a study from Malaysia, QoL in breast cancer strongly varies by age as an important component of general health status. Younger patients reported significantly better HRQoL compression with older, possibly due to that older patients age, as the disease progresses, they will experience a poor social life with an increased rate of depression and physical inactivity, which could lead to high pain and fatigue level and thus lower QoL scores [16].

In Marital status most patients were married this was not social or professional risk factor but rather could be due to highly dominant classes in Sudanese society [17]. PF the lowest score for those having <2000 monthly income, BRSY worst score was for those having >3000 monthly income. Within the financial difficulty all groups have more (33.3) and again this is a problem for the patients. The expression of symptoms seems to be had no relation to income so further research should take housekeeper, supporters into considerations.

Table 3: Mean differences between different socio demographic data;
Table 3A: Age.

	Age	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Global health status/QoL	20-40	36	64.8148	19.01452	3.16909	33.33	100
	41-60	62	67.2043	18.53411	2.35383	16.67	100
	61-80	15	75	14.43376	3.72678	50	100
	more than 81	1	16.6667	.	.	16.67	16.67
	Total	114	67.0322	18.85978	1.76638	16.67	100
Social functioning	20-40	36	77.3148	28.49472	4.74912	0	100
	41-60	62	85.2151	21.14759	2.68575	0	100
	61-80	15	93.3333	17.59329	4.54257	50	100
	more than 81	1	83.3333	.	.	83.33	83.33
	Total	114	83.7719	23.61821	2.21205	0	100
Emotional functioning	20-40	36	68.5185	33.33333	5.55556	0	100
	41-60	62	74.0143	30.77252	3.90811	0	100
	61-80	15	85.1852	24.36736	6.29163	33.33	100
	more than 81	1	100	.	.	100	100
	Total	114	73.9766	31.00096	2.90351	0	100
Physical functioning	20-40	36	71.9907	29.0834	4.84723	0	100
	41-60	62	63.5753	29.2294	3.71214	0	100
	61-80	15	72.7778	29.95808	7.73514	0	100
	more than 81	1	41.6667	.	.	41.67	41.67
	Total	114	67.2515	29.30528	2.74469	0	100
Body image	20-40	36	78.588	23.14342	3.85724	33.33	100
	41-60	62	80.2083	27.93239	3.54742	0	100
	61-80	15	88.0556	19.95883	5.15335	33.33	100
	more than 81	1	100	.	.	100	100
	Total	114	80.9028	25.46416	2.38494	0	100
Arm symptoms	20-40	36	14.1975	21.5143	3.58572	0	88.89
	41-60	62	25.448	29.18214	3.70614	0	100
	61-80	15	13.3333	21.08185	5.44331	0	66.67
	more than 81	1	0	.	.	0	0
	Total	114	20.078	26.355	2.46837	0	100
Breast symptoms	20-40	36	10.1852	20.03084	3.33847	0	100
	41-60	62	18.5484	30.34484	3.8538	0	100
	61-80	15	12.2222	23.95984	6.1864	0	66.67
	more than 81	1	66.6667	.	.	66.67	66.67
	Total	114	15.4971	27.04009	2.53254	0	100
Systemic therapy side effect	20-40	30	31.6667	21.8917	3.99686	0	77.78
	41-60	48	29.0509	20.08779	2.89942	0	83.33
	61-80	7	22.2222	20.53803	7.76265	0	50
	more than 81	1	0	.	.	0	0
	Total	86	29.0698	20.79876	2.24279	0	83.33
Financial difficulty	20-40	36	39.8148	36.35752	6.05959	0	100
	41-60	62	44.086	39.47478	5.0133	0	100
	61-80	15	57.7778	40.75998	10.52418	0	100
	more than 81	1	100	.	.	100	100
	Total	114	45.0292	38.90903	3.64416	0	100
Sexual functioning	20-40	30	86.6667	25.67107	4.68687	0	100
	41-60	52	82.0513	29.85917	4.14072	0	133.33
	61-80	7	76.1905	41.78554	15.79345	0	100
	more than 81	0	.	.	.	.	.
	Total	89	83.1461	29.35485	3.11161	0	133.33

Concerning the modality of treatment Surgery and chemotherapy were both have association with QoL. Surgery show little association with body image those who underwent surgery score (Mean=79.1 SD=26) (P value = .097). Arm symptoms those do not underwent had higher score mean worst symptoms (Mean=33 SD=18) but those who underwent surgery had lower score mean better symptoms (Mean=17.4 SD=25.6) (Pvalue.014), and sexual symptoms those underwent surgery show lower score(Mean=80.7 SD=30.6) and those do not score 100% (P value = .041) (Table 5).

The associations between surgery and quality of life may be supported by that patients who underwent mastectomy indicated lower body image and sexual functioning than those who did not [16].

A Study from Turkey, the mean score for global health status/ QOL was 64.43 which is a little pit lower than those in our study. In study of Turkey took the stages of the disease into considerations: Those in the advanced stages of breast cancer had lower physical, social and sexual functioning than those in the early stages. Patients who were currently receiving chemotherapy had lower global health/QOL, significantly different from those receiving only hormone therapy, similarly Sudanese patients who receiving chemotherapy and radiotherapy had the lowest score [7]. But if we compared to which done in Portugal According to the first questionnaire, the emotional function was the most affected. The treatment causes financial difficulties for most patients (Mean=41.83) similarly to that found in Sudanese patients (Mean=45) According to the Quality of Life Questionnaire - Breast

Table 3B: Education Level.

		N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Global health status/QoL	Illiterates	33	63.8889	18.94192	3.29736	16.67	100
	P...School	39	63.0342	17.81103	2.85205	16.67	100
	S. School	30	74.4444	18.94403	3.45869	33.33	100
	University	11	70.4545	18.76893	5.65905	50	100
	Post graduate	1	66.6667	.	.	66.67	66.67
	Total	114	67.0322	18.85978	1.76638	16.67	100
Social functioning	Illiterates	33	88.3838	15.8579	2.76051	50	100
	P...School	39	79.0598	26.4127	4.22942	0	100
	S...School	30	83.3333	26.26129	4.79463	0	100
	University	11	86.3636	25.62354	7.72579	16.67	100
	Post graduate	1	100	.	.	100	100
	Total	114	83.7719	23.61821	2.21205	0	100
Emotional functioning	Illiterates	33	71.7172	32.52384	5.66167	0	100
	P...School	39	73.2194	29.47647	4.72001	0	100
	S...School	30	81.1111	32.51224	5.9359	0	100
	University	11	68.6869	25.24848	7.6127	22.22	100
	Post graduate	1	22.2222	.	.	22.22	22.22
	Total	114	73.9766	31.00096	2.90351	0	100
Physical functioning	Illiterates	33	60.101	30.95399	5.3884	0	100
	P...School	39	63.6752	31.09169	4.97865	0	100
	S...School	30	75.8333	26.83407	4.89921	0	100
	University	11	79.5455	15.52938	4.68228	58.33	100
	Post graduate	1	50	.	.	50	50
	Total	114	67.2515	29.30528	2.74469	0	100
Body image	Illiterates	33	73.9268	31.22882	5.43624	0	100
	P...School	39	83.3333	21.33176	3.41581	33.33	100
	S...School	30	84.8611	21.67781	3.95781	33.33	100
	University	11	80.6818	29.10844	8.77652	33.33	100
	Post graduate	1	100	.	.	100	100
	Total	114	80.9028	25.46416	2.38494	0	100
Arm symptoms	Illiterates	33	20.202	26.27234	4.57343	0	88.89
	P...School	39	22.5071	29.78013	4.76864	0	100
	S...School	30	16.2963	20.9874	3.83176	0	66.67
	University	11	19.1919	29.43539	8.8751	0	100
	Post graduate	1	44.4444	.	.	44.44	44.44
	Total	114	20.078	26.355	2.46837	0	100
Breast symptoms	Illiterates	33	22.7273	30.28172	5.27137	0	100
	P...School	39	17.5214	31.97878	5.1207	0	100
	S...School	30	7.7778	17.36102	3.16967	0	66.67
	University	11	9.0909	11.45919	3.45508	0	33.33
	Post graduate	1	0	.	.	0	0
	Total	114	15.4971	27.04009	2.53254	0	100
Systemic therapy side effect	Illiterates	25	30.2222	24.79753	4.95951	0	83.33
	P...School	31	28.1362	18.36616	3.29866	0	66.67
	S...School	24	32.6389	20.28464	4.14059	0	77.78
	University	6	14.8148	12.98939	5.3029	0	33.33
	Post graduate	0	.	.	.	.	.
	Total	86	29.0698	20.79876	2.24279	0	83.33
Financial difficulty	Illiterates	33	42.4242	39.32833	6.84618	0	100
	P...School	39	47.8632	39.58474	6.33863	0	100
	S...School	30	44.4444	39.4729	7.20673	0	100
	University	11	48.4848	37.60507	11.33836	0	100
	Post graduate	1	0	.	.	0	0
	Total	114	45.0292	38.90903	3.64416	0	100
Sexual functioning	Illiterates	24	79.1667	29.1796	5.95626	33.33	100
	P...School	31	78.4946	35.01152	6.28825	0	133.33
	S...School	24	90.2778	18.33443	3.7425	33.33	100
	University	9	88.8889	33.33333	11.11111	0	100
	Post graduate	1	100	.	.	100	100
	Total	89	83.1461	29.35485	3.11161	0	133.33

Table 3C: Income level.

		N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Global health status/QoL	<2000	78	66.2393	18.36073	2.07894	16.67	100
	2000-3000	31	69.086	20.77141	3.73066	33.33	100
	>3000	5	66.6667	16.66667	7.45356	50	83.33
	Total	114	67.0322	18.85978	1.76638	16.67	100
Social functioning	<2000	78	85.6838	23.528	2.66402	0	100
	2000-3000	31	79.0323	21.50269	3.862	16.67	100
	>3000	5	83.3333	37.2678	16.66667	16.67	100
	Total	114	83.7719	23.61821	2.21205	0	100
Emotional functioning	<2000	78	75.641	30.33973	3.4353	0	100
	2000-3000	31	72.4014	30.47916	5.47422	0	100
	>3000	5	57.7778	45.40626	20.3063	0	100
	Total	114	73.9766	31.00096	2.90351	0	100
Physical functioning	<2000	78	64.9573	31.16193	3.52839	0	100
	2000-3000	31	72.5806	25.47635	4.57569	0	100
	>3000	5	70	19.18477	8.57969	50	100
	Total	114	67.2515	29.30528	2.74469	0	100
Body image	<2000	78	81.6506	24.58635	2.78386	0	100
	2000-3000	31	80.6452	27.55042	4.9482	0	100
	>3000	5	70.8333	29.16667	13.04373	33.33	100
	Total	114	80.9028	25.46416	2.38494	0	100
Arm symptoms	<2000	78	19.3732	26.82707	3.03757	0	100
	2000-3000	31	18.9964	22.62479	4.06353	0	88.89
	>3000	5	37.7778	38.96817	17.4271	0	100
	Total	114	20.078	26.355	2.46837	0	100
Breast symptoms	<2000	78	16.453	28.74147	3.25433	0	100
	2000-3000	31	15.5914	24.31867	4.36776	0	100
	>3000	5	0	0	0	0	0
	Total	114	15.4971	27.04009	2.53254	0	100
Systemic therapy side effect	<2000	64	28.6458	18.78691	2.34836	0	66.67
	2000-3000	21	28.0423	24.62535	5.37369	0	83.33
	>3000	1	77.7778	.	.	77.78	77.78
	Total	86	29.0698	20.79876	2.24279	0	83.33
Financial difficulty	<2000	78	43.5897	39.22323	4.44116	0	100
	2000-3000	31	46.2366	38.17835	6.85703	0	100
	>3000	5	60	43.46135	19.43651	0	100
	Total	114	45.0292	38.90903	3.64416	0	100
Sexual functioning	<2000	59	80.226	31.02257	4.0388	0	133.33
	2000-3000	27	87.6543	26.38983	5.07872	0	100
	>3000	3	100	0	0	100	100
	Total	89	83.1461	29.35485	3.11161	0	133.33

Table 4: Treatment modalities.

	Frequency	Percent	Valid Percent	Cumulative Percent
Surgery	14	12.3	12.3	12.3
Surgery and Radiation	2	1.8	1.8	14
Surgery and Hormonal Therapy	17	14.9	14.9	28.9
Chemotherapy	12	10.5	10.5	39.5
Surgery and Chemotherapy	21	18.4	18.4	57.9
Chemotherapy And Radiation	4	3.5	3.5	61.4
SURGERY, CHEMOTHERAPY AND RADIATION	18	15.8	15.8	77.2
Surgery, Chemotherapy and Hormonal Therapy	8	7	7	84.2
Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	15.8	15.8	100
Total	114	100	100	

cancer 23, the mean score for side effects was 50. Meaning that many women experience side effects of chemotherapy, and impaired sexual satisfaction these two latter unlike that found on our study participants ;the former domain Sudanese participants perform better but is still not so good but the latter one scored very high score (Mean=83.1) this mean that Sudanese women have no sexual dysfunction [18].

In Nepal the score of global health status/quality of life (GHS/G QoL) was marginally above average (Mean=52.8). This is lower than that of Sudanese patients. The worst performed scales in C-30 were emotional and social function while best performed scales were physical and role function that is opposite to which the our study found in Sudanese patients In BR-23, most of the patients fell into the problematic group regarding sexual function and enjoyment unlike Sudanese this is not a problem. Almost 90% had financial difficulties which is also a problem for most of the Sudanese patients. Symptom scales did not demonstrate many problems, the same result in the Sudanese participants [19].

Table 5: Treatment modalities and Means of QoL scores.

		N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
QL	Surgery	14	72.619	16.80347	4.49092	50	100
	Surgery and Radiation	2	79.1667	5.89256	4.16667	75	83.33
	Surgery and Hormonal Therapy	17	71.0784	19.56951	4.7463	33.33	100
	Chemotherapy	12	65.2778	18.06041	5.21359	33.33	100
	Surgery and Chemotherapy	21	70.6349	18.93319	4.13156	33.33	100
	Chemotherapy and Radiation	4	50	23.57023	11.78511	16.67	66.67
	Surgery, Chemotherapy and Radiation	18	67.5926	16.63941	3.92195	33.33	100
	Surgery, Chemotherapy and Hormonal Therapy	8	63.5417	25.17301	8.9	16.67	100
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	59.2593	17.36029	4.09186	33.33	100
	Total	114	67.0322	18.85978	1.76638	16.67	100
SF	Surgery	14	79.7619	32.14455	8.59099	0	100
	Surgery and Radiation	2	91.6667	11.7851 1	8.33333	83.33	100
	Surgery and Hormonal Therapy	17	88.2353	18.41337	4.4659	50	100
	Chemotherapy	12	79.1667	27.63854	7.97856	16.67	100
	Surgery and Chemotherapy	21	80.9524	20.6059	4.49658	50	100
	Chemotherapy and Radiation	4	91.6667	9.6225	4.81125	83.33	100
	Surgery, Chemotherapy and Radiation	18	89.8148	15.27406	3.60013	50	100
	Surgery, Chemotherapy and Hormonal Therapy	8	83.3333	34.50328	12.19875	0	100
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	80.5556	26.96524	6.35577	16.67	100
	Total	114	83.7719	23.61821	2.21205	0	100
EF	Surgery	14	69.0476	42.29382	11.3035	0	100
	Surgery and Radiation	2	94.4444	7.85674	5.55556	88.89	100
	Surgery and Hormonal Therapy	17	73.8562	31.16592	7.55885	22.22	100
	Chemotherapy	12	65.7407	34.64048	9.99984	0	100
	Surgery and Chemotherapy	21	75.6614	25.4876	5.56185	33.33	100
	Chemotherapy and Radiation	4	80.5556	22.90614	11.45307	55.56	100
	Surgery, Chemotherapy and Radiation	18	85.1852	17.04367	4.01723	66.67	100
	Surgery, Chemotherapy and Hormonal Therapy	8	83.3333	35.63483	12.59882	0	100
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	62.3457	34.74963	8.19057	0	100
	Total	114	73.9766	31.00096	2.90351	0	100
PF	Surgery	14	67.8571	37.81663	10.10692	0	100
	Surgery and Radiation	2	91.6667	11.78511	8.33333	83.33	100
	Surgery and Hormonal Therapy	17	74.5098	21.74477	5.27388	33.33	100
	Chemotherapy	12	65.2778	26.5512	7.66467	0	100
	Surgery and Chemotherapy	21	78.5714	23.65426	5.16178	0	100
	Chemotherapy and Radiation	4	54.1667	41.66667	20.83333	0	100
	Surgery, Chemotherapy and Radiation	18	75.9259	23.02473	5.42698	0	100
	Surgery, Chemotherapy and Hormonal Therapy	8	56.25	29.46278	10.41667	0	91.67
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	44.4444	29.00868	6.83741	0	91.67
	Total	114	67.2515	29.30528	2.74469	0	100

BRBI	Surgery	14	79.3155	30.44875	8.13777	0	100
	Surgery and Radiation	2	100	0	0	100	100
	Surgery and Hormonal Therapy	17	83.5784	20.10285	4.87566	33.33	100
	Chemotherapy	12	90.625	22.34126	6.44937	33.33	100
	Surgery and Chemotherapy	21	82.2421	24.3903	5.3224	33.33	100
	Chemotherapy and Radiation	4	83.3333	19.24501	9.6225	66.67	100
	Surgery, Chemotherapy and Radiation	18	84.4907	22.02733	5.19189	33.33	100
	Surgery, Chemotherapy and Hormonal Therapy	8	80.4688	28.45513	10.06041	33.33	100
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	65.5093	30.44488	7.17593	0	100
	Total	114	80.9028	25.46416	2.38494	0	100
BRSY	Surgery	14	26.1905	35.30014	9.43436	0	100
	Surgery and Radiation	2	0	0	0	0	0
	Surgery and Hormonal Therapy	17	22.2222	31.67154	7.68148	0	100
	Chemotherapy	12	37.037	24.31247	7.01841	0	77.78
	Surgery and Chemotherapy	21	11.1111	16.85083	3.67715	0	66.67
	Chemotherapy and Radiation	4	41.6667	29.22173	14.61086	0	66.67
	Surgery, Chemotherapy and Radiation	18	9.2593	12.20141	2.8759	0	33.33
	Surgery, Chemotherapy and Hormonal Therapy	8	9.7222	15.06892	5.32767	0	33.33
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	25.3086	30.20279	7.11887	0	100
	Total	114	20.078	26.355	2.46837	0	100
BRST	Surgery	14	14.2857	26.8401	7.17332	0	100
	Surgery and Radiation	2	0	0	0	0	0
	Surgery and Hormonal Therapy	17	9.8039	20.46238	4.96286	0	66.67
	Chemotherapy	12	25	30.56703	8.82394	0	100
	Surgery and Chemotherapy	21	11.9048	18.36577	4.00774	0	66.67
	Chemotherapy and Radiation	4	25	50	25	0	100
	Surgery, Chemotherapy and Radiation	18	0.9259	3.92837	0.92593	0	16.67
	Surgery, Chemotherapy and Hormonal Therapy	8	27.0833	26.63316	9.41625	0	66.67
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	28.7037	39.11002	9.21832	0	100
	Total	114	15.4971	27.04009	2.53254	0	100
BRCT	Surgery	3	22.2222	20.03084	11.56481	0	38.89
	Surgery and Radiation	2	8.3333	11.78511	8.33333	0	16.67
	Surgery and Hormonal Therapy	2	5.5556	7.85674	5.55556	0	11.11
	Chemotherapy	12	33.7963	20.57784	5.94031	5.56	77.78
	Surgery and Chemotherapy	21	27.2487	19.79094	4.31874	0	72.22
	Chemotherapy and Radiation	4	34.7222	13.12727	6.56363	16.67	44.44
	Surgery, Chemotherapy and Radiation	18	29.321	12.61196	2.97267	16.67	55.56
	Surgery, Chemotherapy and Hormonal Therapy	8	15.2778	24.44264	8.64178	0	66.67
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	16	39.9306	25.67755	6.41939	0	83.33
	Total	86	29.0698	20.79876	2.24279	0	83.33

FI	Surgery	14	59.5238	39.61044	10.58633	0	100
	Surgery and Radiation	2	50	70.71068	50	0	100
	Surgery and Hormonal Therapy	17	58.8235	44.92186	10.89515	0	100
	Chemotherapy	12	27.7778	27.82824	8.03332	0	100
	Surgery and Chemotherapy	21	44.4444	33.88433	7.39417	0	100
	Chemotherapy and Radiation	4	33.3333	47.14045	23.57023	0	100
	Surgery, Chemotherapy and Radiation	18	44.4444	36.15508	8.52183	0	100
	Surgery, Chemotherapy and Hormonal Therapy	8	45.8333	46.92953	16.5921	0	100
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	18	35.1852	38.72515	9.1276	0	100
	Total	114	45.0292	38.90903	3.64416	0	100
BRSEF	Surgery	10	80	35.83226	11.33115	0	100
	Surgery and Radiation	2	100	0	0	100	100
	Surgery and Hormonal Therapy	12	83.3333	33.33333	9.6225	0	100
	Chemotherapy	10	100	0	0	100	100
	Surgery and Chemotherapy,	17	74.5098	27.71234	6.72123	33.33	100
	Chemotherapy and Radiation	1	100	.	.	100	100
	Surgery, Chemotherapy, and Radiation	17	80.3922	35.47069	8.60291	0	133.33
	Surgery, Chemotherapy, and Hormonal Therapy	6	100	0	0	100	100
	Surgery, Chemotherapy, Radiation and Hormonal Therapy	14	76.1905	30.46245	8.14143	0	100
	Total	89	83.1461	29.35485	3.11161	0	133.33

Table 6A: Association between Age and different domains of QoL.

		Sum of Squares	do	Mean Square	F	Sig.
Global health status/QoL	Between Groups	3667.816	3	1222.605	3.682	0.014
	Within Groups	36525.289	110	332.048		
	Total	40193.104	113			
Social functioning	Between Groups	3001.617	3	1000.539	1.833	0.145
	Within Groups	60032.009	110	545.746		
	Total	63033.626	113			
Emotional functioning	Between Groups	3634.255	3	1211.418	1.27	0.288
	Within Groups	104965.485	110	954.232		
	Total	108599.74	113			
Physical functioning	Between Groups	2759.164	3	919.721	1.073	0.364
	Within Groups	94285.183	110	857.138		
	Total	97044.347	113			
Body image	Between Groups	1354.938	3	451.646	0.691	0.56
	Within Groups	71916.908	110	653.79		
	Total	73271.846	113			
Arm symptoms	Between Groups	4118.268	3	1372.756	2.03	0.114
	Within Groups	74369.928	110	676.09		
	Total	78488.196	113			
Breast symptoms	Between Groups	4372.231	3	1457.41	2.049	0.111
	Within Groups	78249.602	110	711.36		
	Total	82621.832	113			
Systemic therapy side effect	Between Groups	1375.607	3	458.536	1.062	0.37
	Within Groups	35394.419	82	431.639		
	Total	36770.026	85			
Financial difficulty	Between Groups	6493.67	3	2164.557	1.447	0.233
	Within Groups	164578.455	110	1496.168		
	Total	171072.125	113			
Sexual functioning	Between Groups	772.825	2	386.413	0.443	0.644
	Within Groups	75057.387	86	872.76		
	Total	75830.212	88			

Table 6B: Association between surgery and QoL domains.

		Sum of Squares	Df	Mean Square	F	Sig.
Global health status/QoL	Between Groups	277.981	1	277.981	0.78	0.379
	Within Groups	39915.123	112	356.385		
	Total	40193.104	113			
Social functioning	Between Groups	5.076	1	5.076	0.009	0.925
	Within Groups	63028.549	112	562.755		
	Total	63033.626	113			
Emotional functioning	Between Groups	190.961	1	190.961	0.197	0.658
	Within Groups	108408.779	112	967.936		
	Total	108599.74	113			
Physical functioning	Between Groups	312.817	1	312.817	0.362	0.549
	Within Groups	96731.53	112	863.674		
	Total	97044.347	113			
Body image	Between Groups	1787.034	1	1787.034	2.8	0.097
	Within Groups	71484.812	112	638.257		
	Total	73271.846	113			
Arm symptoms	Between Groups	4113.624	1	4113.624	6.195	0.014
	Within Groups	74374.571	112	664.059		
	Total	78488.196	113			
Breast symptoms	Between Groups	966.74	1	966.74	1.326	0.252
	Within Groups	81655.093	112	729.063		
	Total	82621.832	113			
Systemic therapy side effect	Between Groups	328.381	1	328.381	0.757	0.387
	Within Groups	36441.645	84	433.829		
	Total	36770.026	85			
Financial difficulty	Between Groups	2923.977	1	2923.977	1.948	0.166
	Within Groups	168148.148	112	1501.323		
	Total	171072.125	113			
Sexual functioning	Between Groups	3565.255	1	3565.255	4.292	0.041

If we compared Arab countries to Sudan started from Egypt 38.3% of studied females Had poor global health status/QOL 52.8% had good global health status/QOL which is lower findings than that of our study, in Bahrain Participants had a mean score for global QOL of (63.9) Average to good QOL functioning and low to average symptoms experience Factors associated to lower QOL: marital status, menopausal status, metastases, monthly income and type of surgery [20].

In Kuwait the mean score of global QOL scale (GQOL) was 45.3 The patients had poor to average functioning and intense symptom Experience. Younger women had poorer HRQOL scores [21]. In Tunisia Participants had a mean score for global QOL of (72.5) pre chemo and 68.5 during chemo. A significant deterioration in physical, cognitive, and social functioning, between the pre-treatment and on treatment assessments [22].

Morocco Scores for different scales ranged from 34.0 to 77.8. Body image had the higher score (83.33) systemic therapy side effects scale had the lower score (median 57.14) (which is the highest score + worst score in Sudanese study In Jordon). The mean Global Health score for the QLQ-C30 was (63.7) it seems similar to the author finding Social functioning scored the highest (Mean=78.1) also is the highest one in Sudanese patients (83.7). The worst scores were for Emotional functioning, body image and future perspective (respectively 59.0, 52, 9, 52, 1) [23]. So, over all Sudanese QoL in breast cancer it all most is the best one either in compression to Arab or non-Arab countries.

Study in Ethiopia, Functional scale scores ranged from a mean of 52.6 (SD=42.6) for role functioning to a mean of 74.1 (SD=28.59)

for social functioning which represent the higher score even though the items discriminatory ability was shown to be poor (α = 0.32). Except for pain and appetite loss all symptoms scales received scores above 50 implying most of breast cancer patients were symptomatic, in counter action Sudanese respondents scored the highest mean for social functioning, lower symptoms and the items discriminatory ability was shown to be excellent to accept in almost all scales. Most of the socio-demographic variables, except the level of income and age of participants, did not show significant association with QoL of the participants [21]. But regarding our study most of the socio-demographic variables, except the Age of participants, did not show significant association with QoL of the participants.

Sudanese studies in this field according to literature review was limited and no more published papers but similar studies were found one of is about role of illness representations in coping and health of patients treated for breast cancer but it differ in objective which is limited in cognitive and emotional representation of illness December 2008. Result was that patients differ in the subjective perception of their disease who consider their illness is chronic or uncontrollable were found to report worse physical and mental illness (Tables 6A and B) [24].

Limitations

This study done was cross sectional study so lack the capability of assessing causal effect relationship also mixing patients with different stages in addition to that adjuvant and neo adjuvant therapy should be taken into consideration if conducting further such a research another limitation should also be consider is residence of patients. And hence

the participant was highly socially supported further researches needed to discover if the result is actually as the author found.

Limited previous studies the researcher faced to relay on. Furthermore, the source of information was from either patients or caregivers so further studies the author recommended to standardize the source so as to provide chance for compression.

Conclusion

So in conclusion Sudanese participants of Breast cancer reported good quality of life if compared to other countries except for financial difficulty and attention should be given to solve this problem but also breast cancer patients should be followed up for their quality of life and provided effective therapy for their physical and psychological problems because the result may be affected mostly by the spiritual and religious context characterized by the solidarity and support.

Recommendation

QoL assessments should be included in patient treatment protocols so as to helps in improving the quality of life of breast cancer patients. And effort must be done to assess the patient's socioeconomic status and help who need support. Another study should include type of surgery, duration of illness and duration of treatment that may strengthen the result.

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