ORIGINAL RESEARCH

Quality of life of Zambian breast cancer women receiving care at the cancer diseases hospital Lusaka

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ABSTRACT

Background: Breast cancer is the most frequently diagnosed malignancy among women in the world with an estimation of 1.67 million new diagnoses worldwide in 2012 estimated at 25% of all cancers. In Zambia, breast cancer is the second most common cancer affecting women and accounts for 9% of all histologically proven cancers among patients admitted at the country's only Cancer Diseases Hospital Most of the patients receive multiple treatment modalities; Surgery, Chemotherapy, Radiation Therapy and Hormonal Therapy, each with its own long-term side effects with a potential to affect the women's functionality, self-image and sexuality consequently the general quality of life of these women.

Methods: A descriptive cross-sectional study design was used to investigate the Quality of Life (QoL) and factors influencing QoL among women with breast cancer receiving care at Zambia's only Cancer Diseases Hospital. A total of 130 breast cancer patients on treatment who were willing to participate in the study were selected using simple random sampling. Data was collected using the European Organization for Research and Treatment in Cancer Quality of Life Questionnaire (EORTCQLQ–C30) and its breast cancer supplementary measure (QLQ-BR23). The tool assessed QoL across the physical, role, cognitive, emotional, and social functioning and sexual function domains.

Results: Overall, just about half (52.5%) of the 130 respondents had high Quality of Life. QoL which was measured by the EORTCQLQ–C30 under the five domains (Physical, role, emotional, cognitive and sexual functioning) was high in four out of the five which scored above the global mean score of 68. Only the emotional functioning domain scored (65) below the mean. Conversely, the symptom scale scored high on all the eight sub items of fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation and diarrhea which signified high symptom experience among respondents. Similarly using the breast cancer supplementary measure (QLQ-BR23), two out of the four functional subscales (body image and sexual functioning) score high than average while sexual enjoyment and future perspectives score low. On the symptom scale, three out of the four scales scored higher than averages, signifying high symptom experience. Demographic characteristics which had significant association with QoL were age ($p < .023$), level of education ($p < .023$) and financial status ($p < .000$). Other factors that had significant association with QoL were type of treatment being received ($p < .023$), the severity of condition ($p < .000$), access to health care services ($p < .000$) and social support ($p < .000$).

Conclusions: A diagnosis of breast cancer and its subsequent treatment affects several facets of a woman's life ranging from physical, emotional, social and financial aspects consequently affecting the entire QoL. However the QoL varies and is influenced by a number of factors including age at diagnosis of cancer, level of education, financial status, type of treatment received, severity of the condition, access to health care facilities and social support. Therefore any intervention aimed at improving the QoL should be multidimensional.

Key Words: Quality of life, Breast cancer, Cancer treatment

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1. INTRODUCTION

Breast cancer is the most frequently diagnosed malignancy among women in the world with an estimation of 1.67 million new diagnoses worldwide in 2012 representing about 12% of all new cancer cases and 25% of all cancers in women.[1–3] Due to advances in detection and treatment, increasing numbers of women are diagnosed with and surviving breast cancer.[4] In Zambia, breast cancer is the second most common cancer affecting women and accounts for 9% of all histologically proven cancers among patients admitted at the country's own Cancer Diseases Hospital.[5,6] Breast Cancer patients seen at CDH have increased from 3% in 2006 to about 9% of all patients treated at the Hospital by December 2016. A diagnosis of breast cancer is a stressor to both the patient and the family caregivers, implying that if a diagnosis is a stressor then it affects the QoL of both the patient and family caregivers.[7]

Quality of Life is a subjective concept, defined as "an individual's perception of their position in life in the context of culture and value system in which they live and in relation to their goals, expectations, standards and concerns".[8] According to Ibrahim et al.,[9] QoL encompasses perceptions of the positive and negative aspects of physical, emotional, social, economic and cognitive functioning as well as the negative aspects of somatic discomfort and other symptoms produced by the disease or its treatment. QoL is reported to be compromised in patients with chronic illness such as breast cancer on treatment, and alterations on QoL have been seen among breast cancer patients in both developed and developing countries.[3,10–12] Domains like physical functioning, emotional and social[13] and material well-being have been reported in the literature to predict the QoL of patients.[14] The other factors that influence QoL are stage of disease,[10,11,15] treatment modality, access to hospital materials, financial status, knowledge[9] about the condition and treatment received,[16] emotional support, community and social support,[7] support from health care providers and severity of illness.[1]

In general, patients with breast cancer have a better outcome and longer survival after cancer diagnosis compared to women with other types of cancer. On the other hand, through early detection programs and more effective treatments, more women with breast cancer are surviving longer.[11,16] However, breast cancer affects women's self-image, and therefore, studies focusing on the quality of life are vital in women who are undergoing chemotherapy and have their breasts surgically removed.[7,16]

As indicated earlier, advances in detection and treatment have led to increasing numbers of women diagnosed with and surviving breast cancer respectively.[4] In developing countries, survival rates remains around 50%-60% and patients are living longer. Therefore studying QoL has become important and is increasing becoming a focal point of cancer research and clinical interest.[4] This study therefore aimed at assessing the QoL and factors influence quality of life among women with breast cancer receiving care at the CDH.

2. METHODS

The study was conducted at the Cancer Diseases Hospital (CDH) a modern specialized tertiary hospital offering radiation therapy, chemotherapy and hormonal cancer treatments. The hospital serves as a national referral centre for all cancers nationwide; the catchment population comprises all 107 districts and 10 provinces of Zambia. A descriptive cross-sectional study design was used and 130 breast cancer patients on treatment who were willing to participate in the study were selected using simple random sampling. A descriptive cross sectional study design was selected for this study because it can suggest the presence of relationships among variables at a single point in time just like theory suggests.[17] The study population consisted of all breast cancer patients aged 18 years and above who had been visiting CDH for treatment, at the time of data collection. All women with breast cancer stages I to IV, who underwent surgery, chemotherapy and radiotherapy treatment and gave consent were included in the study. Data was collected using the European Organization for Research and Treatment in Cancer Quality of Life Questionnaire (EORTCQLQ–C30) and its breast cancer supplementary measure (QLQ-BR23). The EORTC QLQ-C30 is a well-known instrument for measuring quality of life in cancer patients and contains 30 items that measures five functional scales, global quality of life and several cancer related symptoms.[18] The QLQ-BR23 is a specific questionnaire containing 23 items measuring functioning and symptoms related to breast cancer.[18] The data collection tool had 3 sections, (a) demographic data and (b) EORTC QLQ-C30 and (c) QLQ-BR23. The EORTC QLQ-C30 is a well-known instrument for measuring quality of life in cancer patients and contains 30 items that measures five functional scales (physical, role, cognitive, emotional, and social functioning), three symptom scales (fatigue, pain, and nausea and vomiting), a global health status/QoL scale, and a number of single items assessing additional symptoms commonly reported by cancer patients (dyspnea, loss of appetite, insomnia, constipation and diarrhea) and perceived financial impact of the disease. On the other hand, the QLQ-BR23 is a specific questionnaire containing 23 items measuring disease symptoms, side effects of treatment (surgery, chemotherapy, radiotherapy and hormonal treatment) body image, sexual functioning and future perspective) related to breast cancer.[18] In addition, a structured socio-demographic questionnaire was used and it collected the following data: age, gender, level of education, occupation, place of residence, marital status, employment status, way of access to the hospital, medical characteristics (date of diagnosis, disease stage at the time of diagnosis and current treatments), and information on their disease. Data was analysed using Statistical Package of Social Science (SPSS) version 20.0. Frequencies and proportions were computed for demographic and other variables. A Chi-Square was used to test for statistical significance of the factors affecting the QoL of breast cancer patients. A p-value of 0.05 was set as an upper limit for determining significance of association. Statistical significance was calculated using the chi square test.

3. RESULTS

Table 1 shows the demographic characteristics of the respondents, the respondents were on surgery, chemotherapy and radiotherapy treatments, clients two weeks and one year into treatment were included in the study. About one third (36.2%) were aged between 31 and 40 years, more than half (52.3%) were married and majority (97.7%) were Christians. In terms of education, 34.62% attained senior secondary level of education, 30.77% attained tertiary education. The economic status was mainly poor with 35.4% of respondents having a monthly income of less than K1000.00 (less than 100.00 US Dollar per month, and only 10% had an income of more than K5,000.00 (more than 500.00 US Dollar) per month.

Table 2 outlines factors that that were assumed to influence QoL of breast cancer patients. The factors ranged from prior knowledge about breast cancer, treatment received, duration of treatment and access to health services. Others were; stage of cancer, severity of disease symptoms, support from family and support from health personnel. Two thirds of the respondents either had little knowledge (46.2%) or no knowledge (21.5%) about breast cancer prior to diagnosis. Majority of the respondents (66.9%) received chemotherapy, while 22 (16.9%) received radiotherapy and 21 (16.2%) had surgery performed. Half the number of respondents (50.0%) had received treatment for a period of between one and six months, while 25.4% had received for less than one month and 24.6% for more than six months. most of the respondents 65.4% reported receiving free health services paid for by the government, while the rest either were paying from personal resource or private insurance As regards to stage of cancer, majority of the respondents (67.1%) had stage III and IV (those with advanced stage experience worse symptoms), while 29.9% had stage I and II. Majority (67.1%) of the respondents scored high in the symptom scale domain implying that they had worse symptoms.

Table 1. Demographic characteristics of the participants (n = 130)

Variable	Frequency	Percentage (%)
Age		
20-30	31	23.8
31-40	47	36.2
41-50	29	22.3
50 and above	23	17.7
Total	130	100
Marital status		
Single	16	12.3
Married	68	52.3
Divorced	21	16.2
Widowed	25	19.2
Total	130	100
Religion		
Christian	127	97.7
Muslim	3	2.3
Total	130	100
Education status		
Non	1	0.7
Primary	44	33.8
Secondary	45	34.6
Tertiary	40	30.7
Total	130	100
Monthly income		
Less than K1000	46	35.4
K1000-K3500	43	33.1
K3501-K5000	28	21.5
K5001 and above	13	10.0
Total	130	100
Total	130	100.

Table 3 shows the QoL scores across the domains among the 130 respondents. More than half (52.3%) of the respondents scored high on overall QoL. With 47.7% who scored low/poor on overall QoL. Similarly, high/good scores were obtained for all the five domains of QoL ranging from physical, role, emotional, cognitive and sexual functioning.

Table 4 shows the associations between the demographic characteristics and QoL. Majority of those married (26.9%) experiences good QoL and those with high income (52.3%) experience good QoL. Clients with tertiary education experienced poor QoL (18.5%).

Table 5 shows that social support, type of treatment received, access to health care, and severity condition were all associated with quality of life. For example all the 44 respondents who reported to have had inadequate social support scored low/poor [44(33.8%)] in QoL. On the other hand, two third [86(66.1%)] of those who reported to have had adequate social support scored high on QoL. Similarly, all the 45 respondents who reported that they have inadequate access to health service, had a poor QoL [45(33.6%)] with a *p* value .000. As regards to the severity of condition, all the 40 (30%) respondents who had mild symptoms had high QOL, while majority (68 out of 90) of those with worse symptoms [68(52.3)] had low QoL.

Table 2. Patients related factors influencing quality of life (n = 130)

Variable	Frequency	Percentage (%)
Prior knowledge about breast cancer		
No knowledge	28	21.5
Little knowledge	60	46.2
Had knowledge	42	32
Total	130	100
Treatment received		
Surgery	21	16.2
Chemotherapy	87	66.9
Radiotherapy	22	16.9
Total	130	100
Duration of treatment		
Less than one month	33	25.4
Between one and six months	65	50
More than six months	32	24.6
Total	130	100
Access to health care services		
Self-pay	43	33.1
Private insurance	2	1.5
Government	85	65.4
Total	130	100
Stage of cancer		
Stage I and II =mild symptoms	40	29.9
Stage III and IV =worse symptoms	90	67.1
Total	130	100
Severity of disease symptoms		
51-100 = high/worse symptoms	90	67.1
1-50 = low/mild symptoms	40	29.9
Total	130	100
Support from Family		
Worse than before	3	2.3
Still the same	16	12.3
Better	111	85.4
Total	130	100
Support from Health professional		
Poor	5	3.8
Fair	34	26.2
Good	91	70

Table 6 shows the Global Health Status/QoL mean score of 68. Four out of five domains of functional status (Physical, role, cognitive and sexual functioning scored higher than the average global mean score of 68, while the emotional functioning domain scored (65) below the mean. Conversely, the symptom scale scored high on all the eight sub items of fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation and diarrhea which signified high symptom experience among respondents. Similarly using the breast cancer supplementary measure (QLQ-BR23), two out of the four functional subscales (body image and sexual functioning) score high than average while sexual enjoyment and future perspectives scored low. On the symptom scale, three (systemic side effects, breast symptoms and arm symptoms) scored higher than averages, signifying high symptom experience. Only the subscale of "upset by symptoms" had a significantly lower score of 18, indicating that this subsystem was almost not affected for most respondents.

Table 3. Quality of life across the domains (n = 130)

Variable	Category	Frequencies	Percentage (%)
Quality of life	low/poor	62	47.7
	High	68	52.3
	Total	130	100
Physical Functioning	51-100 = high/good	104	77.6
	1-50 = low/poor	26	19.4
	Missing value	4	3.0
	Total	130	100
Role functioning	51-100 = high/good	94	70.1
	1-50 = low/poor	36	26.9
	Total	130	100
Emotional functioning	51-100 = high/good	85	63.4
	1-50 = low/poor	45	33.6
	Total	130	100
Cognitive functioning	51-100 = high/good	114	85.1
	1-50 = low/poor	16	11.9
	Total	130	100
Sexual functioning	51-100 = high/good	106	81.5
	1-50 = low/poor	24	18.5
	Total	130	100

4. DISCUSSION

The study provided data on QoL of 130 breast cancer patients on treatment in Zambia using the EORTC QLQ-C30 and QLQ-BR23. Overall, only 52.3% of respondents had high QoL. QoL was high in four out of the five domains which scored above the global mean score of 68. The present study demonstrates that age, advanced disease, chemotherapy, social support, income, marital status and treatment for breast cancer have significant impact on quality of life of Zambian women with breast cancer. The results of the present study in a Zambian population is consistent with those in Western and Chinese populations which support a universal effect of age, income, marital status, social support, and chemotherapy on the long-term quality of life of breast cancer patients.[19, 20]

Table 4. Association between socio-demographic characteristics of the respondents with their Quality of Life

QoL	**Age**				**Total**	***p*-Value**
	20-30yrs	**31-40yrs**	**41-50yrs**	**51 and above**		
Low/poor	23 (17.69%)	24 (18.46%)	14 (10.7%)	1 (0.76%)	62 (47.69%)	
High/good	8 (6.15%)	23 (17.69%)	15 (11.3%)	22 (16.92%)	68 (52.31%)	.023
Total	31 (23.84)	47 (31.15%)	29 (22.3%)	23 (17.69%)	130 (100%)	

QoL	**Marital status**				**Total**	***p*-value**
	Married	**Single**	**Divorced**	**Widowed**		
Poor	33 (25.4%)	9 (6.9%)	9 (6.9%)	11 (8.5%)	62 (47.7%)	
Good	35 (26.9%)	7 (5.4%)	12 (9.2%)	14 (10.77%)	68 (52.3%)	.460
Total	68 (52.3%)	16 (12.3%)	21 (16.2%)	25 (19.2%)	130 (100%)	

QoL	**Level of education**				**Total**	***p*-value**
	Primary	**Secondary**	**Tertiary**	**None**		
Poor	14 (10.8%)	21 (16.2%)	24 (18.5%)	0 (0%)	62 (47.7%)	
Good	30 (23.1%)	24 (18.5%)	16 (12.3%)	1 (0.8%)	68 (52.3%)	.023
Total	44 (33.8%)	45 (34.6%)	40 (30.8%)	1 (0.8%)	130 (100%)	

QoL	**Financial status**			***p*-value**
	Salary K3,600 and above = high	**Salary Below K3,600 = low**	**Total**	
Poor	54 (41.5%)	8 (6.1%)	62 (47.7%)	
High	68 (52.3%)	0 (0%)	68 (52.3%)	.000
Total	122 (93.8%)	8 (6.1%)	130 (100)	

Table 5. Association between social, professional support and clinical characteristics of the respondents with their quality of life

QoL	**Social support**		**Total**	***p*-Value**
	1-50 = inadequate	**51-100 = adequate**		
Low/poor	44 (33.8%)	18 (13.8%)	62 (47.7%)	
High	0 (0%)	68 (52.3%)	68 (52.3%)	.000
Total	44 (33.8%)	86 (66.1%)	130 (100%)	

QoL	**Support from health care professionals**			**Total**	***p*-Value**
	Poor	**Fair**	**Good**		
Low/poor	2 (1.5%)	20 (15.4%)	40 (30.0%)	62 (47.7%)	
High	3 (2.3%)	14 (10.8%)	51 (39.2%)	68 (52.3%)	.345
Total	5 (3.8%)	34 (26.2%)	91 (70.0%)	130 (100%)	

QoL	**Treatment received**			**Total**	***p*-Value**
	Chemotherapy	**Radiotherapy**	**Surgery**		
Low/poor	56 (43.1%)	2 (1.5%)	4 (3.1%)	62 (47.7%)	
High	31 (23.8%)	20 (15.4%)	17 (13.1%)	68 (52.3%)	.023
Total	87 (66.9%)	22 (16.9%)	21 (16.2%)	130 (100%)	

QoL	**Access to health services**			***p*-Value**
	Below 40 = inadequate	**40-100 = adequate**	**Total**	
Low/poor	45 (33.6%)	17 (13.1%)	62 (47.7%)	
High	0 (0%)	68 (52.3%)	68 (52.3%)	.000
Total	45 (33.6%)	85 (63.4%)	130 (100%)	

QoL	**Severity of the condition**		**Total**	***p*-Value**
	Below 40 = mild symptoms	**40-100 = worse symptoms**		
Low/poor	0 (0%)	68 (52.3%)	68 (52.3%)	
High	40 (30.0%)	22 (16.9%)	62 (47.7%)	.000
Total	40 (30.0%)	90 (67.1%)	130 (100%)	

Table 6. Breast cancer patients' functioning and global quality Of life scores as measured by the EORTCQLQ-C30*

Scale	Numberof items	Item range	C30-q Item numbers	Mean Score
Global health status/QoL				
Global health status/QoL (n = 130)	2	6	29, 30	68
Functional scales				
Physical functioning (n = 130)	5	3	1 to 5	80
Role functioning (n = 130)	2	3	6, 7	72
Emotional functioning (n = 130)	4	3	21 to 24	65
Cognitive functioning (n = 130)	2	3	20, 25	114
Social functioning (n = 130)	2	3	26, 27	103
Symptom scales/items				
Fatigue (n = 130)	3	3	10, 12, 18	99
Nausea and vomiting (n = 130)	2	3	14, 15	107
Pain (n = 130)	2	3	9, 19	93
Dyspnea (n = 130)	1	3	8	113
Insomnia (n = 130)	1	3	11	102
Appetite loss (n = 130)	1	3	13	103
Constipation (n = 130)	1	3	16	112
Diarrhea (n = 130)	1	3	17	116
Financial difficulties (n = 130)	1	3	28	89
Functional scales			**BR23-q Item numbers**	
Body image (n = 130)	4	3	39-42	90
Sexual functioning (n =130	2	3	44, 45	106
Sexual enjoyment (n = 59)	1	3	46	14
Future perspective (n = 130)	1	3	43	57
Symptom scales/items				
Systemic therapy side effects (n = 130)	7	3	31 – 34, 36, 37, 38	87
Breast symptoms (n = 130)	4	3	50 - 53	108
Arm symptoms (n = 130)	3	3	47 – 49	107
Upset by hair loss (n = 103)	1	3	35	18

*CQ30-q = question number in the core questionnaire; BR23-q = question number in the breast cancer questionnaire; *High Scores under the Functional Scales denotes high QoL; High Scores under Symptoms Scales denotes worse Symptoms/Poor QoL.

Respondents less than 40 years (52%) (p = .023) experiences poor quality of life. Single ladies also experienced poor quality of life and social domain was more impaired. This shows that younger age group felt more social inhibitions when diagnosed with and while undergoing treatment for breast cancer, especially post-mastectomy as compared to older age group. Younger patients were more concerned about their future too. This is similar to a study that was conducted by Sharma and Purkayastha[21] in India that found that the young (30–39 years) breast cancer survivors showed significantly worse QoL outcomes compared with older age groups in relation to physical functioning (p = .0003), social functioning (p = 0.0313), sexual functioning (p = .000), and future perspective (p = .029). Though in a similar study by Bantema-Joppe et al.[22] they found that the development of role, emotional, and cognitive functioning over time of the oldest age group differed from the two younger age groups (role functioning $p < .001$; emotional functioning $p = .010$, and cognitive functioning $p < .001$), with a trend towards better outcomes in the younger group and worse outcomes in the oldest age group.[23]

From the present study, respondents with advanced stage of disease (stage III & IV), 67% experienced severe symptoms and performed worse or had poor QoL as compared to those with early disease. Oates et al.[24] in their study in oropharyngeal cancer patients also found that deterioration in most domains was most frequent for stage III/IV patients. These results are similar to our study, indicating advanced stages of disease lead to worse QoL in cancer patients.[21] The present study shows that high household income is associated with a better QoL of patients with breast cancer in each and every domain measured. Our findings are consistent with those of previous studies.[19, 21, 25]

The present study also revealed other factors that had significant association with QoL. Among these includes;

chemotherapy treatment which was associated with lower score of overall QoL measure (p = .023), possibly related to its toxicity and severe side-effects.[19,21] Another factor was social support, where those who adequate social support had good QoL (p-Value .000), implying that there is an association between QoL and social support.[21,26] Furthermore, accesses to adequate health care were associated with QoL (p-value .000) as those who had adequate social had good QoL.[27]

5. CONCLUSION

In summary, the present study demonstrates that there is a close relationship between clinical and socio-demographic factors and the QoL in patients with breast cancer. High household income, adequate social support and access to health services significantly and independently improve QoL of Zambian women with breast cancer. The study also concludes that problems with sexual, emotional, functional and role functioning are common among breast cancer undergoing chemotherapy and/or surgery (total mastectomy) due to the side effects and impaired body image experienced. Considering that diagnosis of breast cancer and its treatment affects several facets of a woman's life ranging from physical, emotional, social and financial aspects consequently affecting the entire QoL. Therefore any intervention aimed at improving the QoL should be multidimensional.

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CONFLICTS OF INTEREST DISCLOSURE

The authors have not declared no conflict of interests.

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