QUALITY OF LIFE AMONG BREAST CANCER PATIENTS AT KENYATTA NATIONAL HOSPITAL, KENYA

M. Kung'u, R. Barasa, H. Mitheu, J karuga

School of Nursing, Catholic University of Eastern Africa, Nairobi, Kenya

Correspondence:

Mary Kung'u

Catholic university of Eastern Africa
School of Nursing
P.O box 62157-00200
Nairobi, Kenya.
mkungu@cuea.edu/kmarymugure@gmail.com
+254727321614.

Abstract

Background: Breast cancer is the most prevalent type of cancer affecting women worldwide. In 2018, it was estimated that over 2 million cases occurred globally and approximately 627,000 deaths were reported which account for 15% of total cancer deaths among women. In Kenya, breast cancer accounts for 23.3% of all cases of female cancers. Breast cancer diagnosis and treatment has been noted to have both physical and emotional impact on the patients. Adjustment of the patients to the disease may results to them having poor quality of life. The aim of this study was to determine the quality of life of breast cancer patients at Kenyatta National Hospital, Nairobi, Kenya.

Methodology: Cross-sectional descriptive hospital-based study design was used. The data was collected using the WHO-BREF QOL questionnaires. The sample frame targeted 161 breast cancer patients of 18 years and above. SPSS software version 25 was used to analyse the data. Mean, mode, median, standard deviation and proportions were used to describe socio demographic, clinical and psychological factors. Chi square test was used to measure association between clinical, psychological and socio-demographic factors and quality of life of breast cancer patients.

Results: A total of 154 patients were studied (127 female and 27 male). The mean score of the overall quality of life was 65.5 with a standard deviation of 19.9. Being of a younger age, marriage, high average household income and high level of education were associated with a good quality of life. Later stages of breast cancer and patients on chemotherapy were found to have a poor quality of life. Patients who had feelings of anxiety, depression and blue mood were also found to have a poor quality of life.

Conclusion: The overall QOL of the breast cancer patients was good. This may be contributed by early diagnosis of the patients as well as good social support. However, patients had poor scores in the psychological domain; hence the need for psychological assessments among the patients.

Keywords: breast cancer, oncology, Cancer treatment, Supportive care, quality of life

1.1 Introduction

Cancer disease affects any person not dependent on the race, gender, age or social status. Cancer is the second cause of death globally accounting for more than six million deaths each year. The incidence rate has also increased with a prediction of a 50% increase from 18.1 million as of 2018.The burden of cancer is likely to be over 85% in sub-Saharan Africa (Bray *et al.,*2022). In Kenya, it accounts for seven percent of all deaths annually and approximately 39,000 new cases. Most Kenyans diagnosed of the disease are younger than 70 years old (Bray et al., 2018).

Breast cancer remain to be the most prevalent cancer among women with around 2.1 million breast cancer cases being diagnosed. It also contributes to 15% of all cancer related deaths among women worldwide (Arnold *et al.,* 2022). In Kenya, breast cancer accounts for 23.3% of all female cancer cases with most of the cases being discovered in the late stages of the disease hence resulting to high mortality rates (Korir *et al.,* 2015).

The WHO defines QOL as a person experience of their life and culture which involve an individual goals, standards, expectations and concerns (WHO, 1995). It revolves around the four domains including the physical, social, psychological and spiritual wellbeing of an individual (WHO, 1995). It is recognized as a measure of cancer management and practice among patients as it reflects their impression during diagnosis and treatment (Kung'u *et al.,* 2022).

Breast cancer management options including surgery, chemotherapy, hormone-therapy and radiotherapy mostly results in physical symptoms, psychological reactions, financial difficulties and existential concerns of the patients. These eventually affects their QOL (Fanakidou *et al.*, 2018). In the past 10 years in Kenya, much of the efforts have focused on treatment of breast cancer, improvement of screening services and creating awareness on breast cancer in order to reduce mortality rates and very few studies have focused on QOL of the breast cancer patients (Yucel et al., 2014). The study aimed to determinee the QOL of the breast cancer patients focusing on the relationship between the patients QOL and their psychological, clinical and socio-demographic factors.

2. Material and methods

Design and Data Collection Methods

Cross-sectional descriptive hospital-based research design was used. The data was collected using the WHO-BREF QOL questionnaires which was adopted and edited to fit the study. WHOQOL-BREF questionnaire was used which is a 26-item questionnaire containing the assessments of physical health, psychological health, social relation, environmental domain and the overall QOL of patients.

Inclusion and exclusion Criteria

Stable patients above 18 years with breast cancer diagnosis who consented to the study and could express themselves in either English or Kiswahili were recruited to participate in the study. Patients below 18years with other comorbidities' and those who did not consent to the study were excluded.

Data collection procedure

Convenience sampling method was utilised to pick the respondents. Participants eligible for the study were identified, explained all about the study and provided an informed consent for recruitment in the study. The stage of the cancer, pathological diagnosis of the cancer, history of the cancer, specific treatment and the current management of the cancer was confirmed from the patient file.

Data Analysis

Data was analyzed using SPSS version 25.0 statistical tool. Frequency, percentages and mean were used to analyse descriptive data. Chi- square correlation utilized to identify relation between the patients' characteristics and their QOL. The participants were provided with information on purpose of the study and obtained informed written consent.

3.0 Results

Sociodemographic Factors

Majority, 127(82.5%) of the participants were females while 27(17.5%) were males. The mean age of the participants was 44 years, the median age and the modal age was 42 and 31 years respectively with a standard deviation of 11.6. Among the respondents, 37.1% had tertiary education with only 5.2% not attending any formal education. Most 92 (59.7%) of the respondents were married, reported an average household income of below ksh. 20,000 (54.5%) and had a health insurance (83.8%) (Table 1).

Table 1: Socio Demographic Factors (N=154)

VARIABLE		**n (%)**
Gender	Female	127(82.5%)
	Male	27(17.5%)
Age	21-40 years	91(59.1%)
	41-60 years	42(27.2%)
	Above 60 years	21(13.7%)
Marital status	Married	92(59.7%)
	Single	42(27.2%)
	Divorced	5(3.4%)
	Separated	3(1.9%)
	Widowed	12(7.8%)
Average household income	Below ksh. 20,000	84(54.5%)
	Ksh. 20,000-40,000	47(30.5%)
	Above ksh. 40,000	23(15.0%)
Health insurance	Insurance	129(83.8%)
	Cash	25(16.2%)
Educational level	Tertiary	57(37.0%)
	Secondary	55(35.7%)
	Primary	34(22.1%)
	None	8(5.2%)

KEY: N-frequency, %-percentage

Clinical factors

The study respondents were diagnosed with breast cancer in the year range 2014-2021, with majority being diagnosed in 2020.Majority of the respondents had stage II breast cancer 58(37.7%), on chemotherapy 127(82.5%) and on curative purpose 79 (51.3%) (Table 2).

Table 2 clinical factors

VARIABLE		N (%)
Cancer staging on diagnosis	Stage I	38(24.7%)
	Stage II	58(37.7%)
	Stage III	38(24.7%)
	Stage IV	20(12.9%)
Current stage of cancer	Stage I	24(15.6%)
	Stage II	55(35.7%)
	Stage III	34(22.1%)
	Stage IV	41(26.6%)
Current treatment	Chemotherapy	127(82.5%)
	Radiotherapy	8(5.2%)
	Hormone therapy	4(2.6%)
	Chemotherapy and radiotherapy	15(9.7%)
Intention of the therapy	Curative	79(51.3%)
	Palliative	75(48.7%)

KEY: N-frequency, %-percentage

Domains of QOL

The overall quality of life score was 70.3 with a standard deviation of 12.4. 54.55% of the respondents had a good QOL while 44.45% had a poor QOL.

Table 3 Domains of QOL

Variable	Mean score (SD)
Physical wellbeing	63.4(12.3)
Psychological wellbeing	53.9(9.6)
Environmental domain	61.4(15.6)
Social relationship	70.6(19.9)

Overall QOL	70.3(12.4)

Relationship between Socio-demographic Factors and QOL

A chi- square test done established an association between the quality of life and the age of the participants. (p=0.000), marital status (p=0.05), the average household income (p value= 0.001) and the level of education of respondents (p= 0.043). Gender of the respondents and their QOL had no statistically significant relationship. (Table 3)

Table 3 Relationship between Socio-demographic Factors and QOL

Variable		Good	Poor	Total	Chi	Df	P value
Gender	Male	64 (50%)	63(50%)	127(100%)	0.540	1	0.908
	Female	14(52%)	13(48%)	27(100%)			
Age	21-40	70(77%)	21(23%)	91(100%)	0.064	1	0.000
	41-60	12(31%)	29(69%)	42(100%)			
	60-80	2(10%)	20(90%)	21(100%)			
Marital status	Married	81(88%)	11(12%)	92(100%)	0.064	4	0.05
	Single	6(14%)	36(86%)	42(100%)			
	Divorced	0(0%)	5(100%)	5(100%)			
	Separated	0(0%)	3(100%)	3(100%)			
	Widowed	2(17%)	10(83%)	12(100%)			
Average household income	<ksh. 20,000	12(14%)	72(86%)	84(100%)	0.01	2	0.001
	Ksh. 20,000-40,000	36(77%)	12(23%)	47(100%)			
	>ksh. 40,000	21(91%)	2(9%)	23(100%)			
Educational level	Tertiary	51(89%)	6(11%)	57(100%)	0.024	3	0.043
	Secondary	50(91%)	5(9%)	55(100%)			
	Primary	7(21%)	27(79%)	34(100%)			
	None	0	8(100%)	8(100%)			

KEY: n- frequency, %-percentage, DF –degree of freedom, Sig p < .05 while CI 95%.

Relationship between Psychological Factors and QOL

The study findings revealed a statistically significant association of QoL in relation to patients feeling of anxiety, despair, blue mood and depression. Participants who often experience the anxiety, despair and depression had a poor QOL compared to those who had never experienced. (p= 0.036)

Table 3 Relationship between Psychological Factors and QOL

Variable		Poor	Good	Total	Chi square	Df	P value
Feelings of anxiety, despair, blue mood and depression	Very often	36(92%)	3(8%)	39(100%)	0.535	1	0.036
	Quite often	18(35%)	34(65%)	52(100%)			
	Seldom	15(38%)	40(62%)	55(100%)			
	Never	1(13%)	7(87%)	8(100%)			
	Total	70(45%)	85(55%)	154(100)			

KEY: n- frequency, %-percentage, DF –degree of freedom, Sig p < .05 while CI 95%.

Relationship between Clinical Factors and QOL

The stage of breast cancer (p=0.049) and the current treatment regimen (p=0.041) was significantly related to QOL while Intention of the treatment (P=0.892) and QOL had no significant association.

Table 3 Relationship between Clinical Factors and QOL

Variable		**Good**	**Poor**	**Total**	**Chi square**	**Df**	**P value**
Staging of the cancer	Stage I	19(79%)	5(21%)	24(100%)	0.072	3	0.049
	Stage II	46(84%)	9(16%)	55(100%)			
	Stage III	6(18%)	28(82%)	34(100%)			
	Stage IV	2(5%)	39(95%)	41(100%)			
	Total	73(47%)	81(53%)	154(100%)			
Current treatment	Chemotherapy	8(6%)	119(94%)	127(100%)	0.024	3	0.041
	Radiotherapy	6(75%)	2(25%)	8(100%)			
	Hormone therapy	2(50%)	2(50%)	4(100%)			
	Chemotherapy and radiotherapy	70(47%)	8(53%)	15(100%)			
	Total	23(15%)	131(85%)	154(100%)			
Intention of the treatment	Curative	49(65%)	26(35%)	75(100%)	0.540	1	0.892
	Palliative	35(44%)	44(56%)	79(100%)			
	Total	84(55%)	70(45%)	154(100%)			

KEY: n- frequency, %-percentage, Confidence interval- 95%, Df –degree of freedom, Probability value (p value) ≤ 0.05 was considered statistically significant

Discussion

The overall QOL of the patients was 70.3 with standard deviation of 12.4. According to WHO, mean international values for breast cancer patients is 61.8 and a standard deviation of 24.6 (Bray *et al.*, 2022). A study done in Sweden by Fransson *et al.*, (2009) showed a score of 65 while Hassen et al., (2019) in Ethiopia found a score of 52.98. The results of the study are concur to those done in European countries as respondents in both studies had similar characteristics and at different stages of the disease. A study done in Kuwait showed a mean score of 45.3 which is too low compared to that of the study (Alawadi *et al.,* 2015). The low scores could be as a result of the patients' having single treatment therapy instead of mixed treatment.

The study was done in a developing country with poor infrastructure with most patients in advanced stages of the disease hence the QOL score was expected to be low. The high score of QOL obtained could perhaps be due to factors such as social support among the population. The social domain had a mean score of 75 which is a better score compared to breast cancer patients in other studies (Akel et al.,2017, Konieczny et al.,2020).

There was significant relationship between Marital status and patients QOL where married respondents showed to have good quality of life as compared to those who were single, divorced or separated. These findings were concurrent to a study done in China by Croft *et al.,* (2014) on assessment of marital status and quality of life among breast cancer patients which showed that the married respondents had significantly good quality of life than their counterparts. This might be due to a good social support in the married respondents compared to those who are single, divorced, or widowed.

In this study, respondents with a higher household income were had good quality of life compared to those without. These findings matched with a study in Kuwait in which majority of patients with low income portrayed poor quality of life (Alawadi *et al.,* 2015). In contrast, in Sweden where health care is mainly supported by the government, lower household income was as well associated with a good quality of life (Chen *et al.,* 2018).

The study also found a statistically significant relationship between education and QOL where respondents with higher education portrayed good quality of life. A study by Khisa (2012) among cancer patients in Kenya revealed that respondents with primary level education were 9 times likely to have an improved QOL score compared to those who had no education. This could be due to the accessibility of economic resources by the educated as well as their high level of ensuring maintenance of better wellbeing.

In relation to age, respondents aged 18-35years were found to have a good QOL compared to any other age group. Similar findings were established by Bantemma *et al.,* (2016) who found out that the elder patients aged 45-65 years had poor quality of life outcomes. This was due to increased pain, insomnia, loss of appetite and intensified shoulder alignments. This was contrary to findings established by Sharma *et al.*, (2017) who did a study on the factors affecting the QOL among breast cancer patients where younger patients had poor QOL compared to those above 45 years due to social constraints.

The findings of the study indicated that respondents who presented with late-stage disease (stage III and IV) had a poor quality of life as compared to participants who presented when the disease was at its initial stages (stage I and II). These results matched with a prospective study in Asia that assessed the quality of life in patients diagnosed with breast cancer before and after diagnosis and found out that in late-stage disease, the patients had worse symptoms, poor sexual functioning and their body image got worse. These patients had reasons which included delay in seeking health care, low socioeconomic status, lack of education on screening and treatment of breast cancer (Montazeri *et al.,* 2008). Higher stages of the disease would cause more symptoms due to spread of the disease resulting to poor quality of life.

Among the different modalities of treatment in the study, patients undergoing chemotherapy has a poor quality of life as compared to patients on radiotherapy, hormone therapy, and targeted therapy. The results of the study concur to those of Alawadi *et al.,* (2015) study among breast cancer patients. This might be due to side effects of the chemotherapeutic drugs which have negative side effects such as nausea, vomiting and bone marrow suppression. Alopecia is one of the major side effects of chemotherapy. In the modern world, alopecia is greatly distressing due to value of body image and the fact that hair is considered as a component of their sexual life hence leading to a poor quality of life.

Respondents who experienced feeling of anxiety, despair, blue mood and depression were most likely to have a poor quality of life as compared to their counterparts. Similar findings were established by Niedzwiedz *et al.,* (2019) study and Smith *et al.,* (2015). Tsaras et al., (2018) study also found out that persistent depression in breast cancer patients may be a risk factor to poor quality of life. Unfortunately, majority of breast cancer population goes without being diagnosed with depression and anxiety throughout their treatment yet this study showed that these patients had higher level of psychological disturbances.

Conclusion

The quality of life of the breast cancer patients was found to be improved similar to that of patients in developed countries regardless of limited resources available in the country. This might be due to the fact that majority of patients presented with early-stage disease. Among the parameters of quality of life tested, Scores for social support domain were high and this might be another contributing factor. There was however significant psychological well-being impairment reported by the participants.

Recommendation

Unmarried patients as well as patients in the advanced stages of the disease should be provided with support such as peer counselling with the aim of enhancing the social support. Psychological assessments should also be done to each of these patients by the health care workers.

Health care advocates should focus on the patient as a whole rather than focusing on the curative management aspect only. Interventional studies involving various supports should be carried out as a measure of improving QOL.

Funding

The research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

None.

REFERENCES

Akel, R., El Darsa, H., Anouti, B., Mukherji, D., Temraz, S., Raslan, R., Tfayli, A., & Assi, H. (2017). Anxiety, Depression and Quality of Life in Breast Cancer Patients in the Levant. Asian Pacific journal of cancer prevention: APJCP, 18(10), 2809–2816. https://doi.org/10.22034/APJCP.2017.18.10.2809

Alawadi, S. A., & Ohaeri, J. U. (2015). Health – related quality of life of kuwaiti women with breast cancer: A comparative study using the EORTC quality of life questionnaire. *BMC Cancer, 9(1).* https://doi.org/10.1186/1471-2407-9-222

Arnold, M., Morgan, E., Rumgay, H., Mafra, A., Singh, D., Laversanne, M., Vignat, J., Gralow, J. R., Cardoso, F., Siesling, S., & Soerjomataram, I. (2022). Current and future burden of breast cancer: Global statistics for 2020 and 2040. Breast (Edinburgh, Scotland), 66, 15–23. https://doi.org/10.1016/j.breast.2022.08.010

Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R. L., Torre, L. A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: a cancer journal for clinicians, 68(6), 394–424. https://doi.org/10.3322/caac.21492

Bray, F., Parkin, D. M., & African Cancer Registry Network (2022). Cancer in sub-Saharan Africa in 2020: a review of current estimates of the national burden, data gaps, and future needs. The Lancet. Oncology, 23(6), 719–728. https://doi.org/10.1016/S1470-2045(22)00270-4

Chen, Q., Li, S., Wang, M., Liu, L., & Chen, G. (2018). Health-Related Quality of Life among Women Breast Cancer Patients in Eastern China. BioMed research international, 2018, 1452635. https://doi.org/10.1155/2018/1452635

Croft, L., Sorkin, J., & Gallicchio, L. (2014). Marital status and optimism score among breast cancer survivors. Supportive care in cancer: official journal of the Multinational Association of Supportive Care in Cancer, 22(11), 3027–3034. https://doi.org/10.1007/s00520-014-2308-y

Fanakidou, I., Zyga, S., Alikari, V., Tsironi, M., Stathoulis, J., & Theofilou, P. (2018). Mental health, loneliness, and illness perception outcomes in quality of life among young breast cancer patients after mastectomy: the role of breast reconstruction. Quality of life research: an international journal of quality-of-life aspects of treatment, care and rehabilitation, 27(2), 539–543. https://doi.org/10.1007/s11136-017-1735-x

Fransson, P., Lund, J. A., Damber, J. E., Klepp, O., Wiklund, F., Fosså, S., Widmark, A., Scandinavian Prostate Cancer Group Study 7, & Swedish Association for Urological Oncology 3 (2009). Quality of life in patients with locally advanced prostate cancer given endocrine treatment with or without radiotherapy: 4-year follow-up of SPCG-7/SFUO-3, an open-label, randomized, phase III trial. The Lancet. Oncology, 10(4), 370–380. https://doi.org/10.1016/S1470-2045(09)70027-0

Hassen AM, Taye G, Gizaw M, Hussien FM (2019) Quality of life and associated factors among patients with breast cancer under chemotherapy at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia. PLOS ONE 14(9): e0222629. https://doi.org/10.1371/journal.pone.0222629

Khisa, N. (2012). *Health related quality of life of breast cancer patients at Kenyatta National Hospital*. University of Nairobi Research Archive. http://erepository.uonbi.ac.ke/handle/11295/8291

Konieczny, M., Cipora, E., Sygit, K., & Fal, A. (2020). Quality of Life of Women with Breast Cancer and Socio-Demographic Factors. Asian Pacific journal of cancer prevention: APJCP, 21(1), 185–193. https://doi.org/10.31557/APJCP.2020.21.1.185

Korir, A., Okerosi, N., Ronoh, V., Mutuma, G., & Parkin, M. (2015). *Incidence of cancer in Nairobi, Kenya (2004-2008). International Journal of Cancer*, *137*(9), 2053-2059. https://doi.org/10.1002/ijc.29674

Kung'u, M., Onsongo, L., & Ogutu, J. O. (2022). Factors influencing quality of life among cancer survivors in Kenya. African health sciences, 22(4), 87–95. https://doi.org/10.4314/ahs.v22i4.12

Montazeri, A., Vahdaninia, M., Harirchi, I., Ebrahimi, M., Khaleghi, F., & Jarvandi, S. (2008). Quality of life in patients with breast cancer before and after diagnosis: an eighteen months follow-up study. BMC cancer, 8, 330. https://doi.org/10.1186/1471-2407-8-330

Niedzwiedz, C.L., Knifton, L., Robb, K.A. et al., (2019) *Depression and anxiety among people living with and beyond cancer: a growing clinical and research priority*. BMC Cancer **19**, 943 https://doi.org/10.1186/s12885-019-6181-4

Sharma, N., & Purkayastha, A. (2017). Factors Affecting Quality of Life in Breast Cancer Patients: A Descriptive and Cross-sectional Study with Review of Literature. Journal of mid-life health, 8(2), 75–83. https://doi.org/10.4103/jmh.JMH_15_17

Smith H. R. (2015). Depression in cancer patients: Pathogenesis, implications and treatment (Review). Oncology letters, 9(4), 1509–1514. https://doi.org/10.3892/ol.2015.2944

The World Health Organization Quality of Life assessment (WHOQOL): position paper from the World Health Organization. (1995). Social science & medicine (1982), 41(10), 1403–1409. https://doi.org/10.1016/0277-9536(95)00112-k

Tsaras, K., Papathanasiou, I. V., Mitsi, D., Veneti, A., Kelesi, M., Zyga, S., & Fradelos, E. C. (2018). Assessment of Depression and Anxiety in Breast Cancer Patients: Prevalence and Associated Factors. Asian Pacific journal of cancer prevention: APJCP, 19(6), 1661–1669. https://doi.org/10.22034/APJCP.2018.19.6.1661

Yucel, B., Akkaş, E. A., Okur, Y., Eren, A. A., Eren, M. F., Karapinar, H., Babacan, N. A., & Kiliçkap, S. (2014). The impact of radiotherapy on quality of life for cancer patients: a longitudinal study. Supportive care in cancer: official journal of the Multinational Association of Supportive Care in Cancer, 22(9), 2479–2487. https://doi.org/10.1007/s00520-014-2235-y