

Assessment of Quality of Life among Patients Living with Cancer and Undergoing Chemotherapy at the Lagos State University Teaching Hospital (LASUTH), Ikeja, Lagos

Emmanuel Olayemi Tosin¹, Salawu Rasidi Akinade², Ajiboye Racheal Oluwafunmilayo³, Ogundare Temilade Tunrola⁴, Olorunyomi Oluwafunmike Eunice⁵

¹(Nursing Department, Babcock University, Ilishan, Ogun State, Nigeria)

²(Nursing Department, Babcock University, Ilishan, Ogun State, Nigeria)

³(Nursing Department, Lagos State College of Medicine, Ikeja, Nigeria)

⁴(Lagos State College of Nursing, Igando, Lagos State)

⁵(Lagos State College of Nursing, Igando, Lagos State)

Corresponding Author: Emmanuel, Olayemi Tosin

Abstract

Background: Cancer is a public health problem worldwide affecting all ages and it represents a significant disease burden which impact the quality of life of affected individual. Therefore this study aimed at assessing the quality of life of patients living with cancer and undergoing chemotherapy in Lagos State University Teaching Hospital, Lagos State, Nigeria

Methods: This study adopted quantitative research design. 176 respondents were selected using convenience sampling. A modified European Organization of Research and Treatment in Cancer – Quality of Life Questionnaire C-30 (EORTC QLQ C-30) version 3.0 was used for data collection. Data were analyzed electronically using Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics of frequencies and percentages were used for the objectives and hypotheses were tested using chi-square at 0.05 level of significance.

Result: The finding shows the mean age of 48.5 ± 12.987 years with majority of the respondent within the age range of 48-62 years (39.2%). Majority of the respondents indicated that living with cancer and undergoing chemotherapy has not affected their physical functioning, role functioning, emotional functioning, cognitive functioning, social functioning, and not experiencing symptoms of fatigue, nausea and vomiting as well as pains. The findings revealed that majority of patients living with cancer and undergoing chemotherapy had high quality of life (43.8%). There was a statistically significant relationship between demographic variables, socio-economic status and quality of life of patients living with cancer at 0.05 level of significance.

Conclusion: Moderate quality of life was observed among patient living with cancer and undergoing chemotherapy. However, Government should support patients' living with cancer undergoing chemotherapy financially or subsidize the cost of chemotherapy sections to ease the burden on the patients and relatives and also to improve their quality of life

Keywords: Assessment, Cancer, Patient, Chemotherapy, Quality of Life

Date of Submission: 28-05-2022

Date of Acceptance: 08-06-2022

I. Introduction

Cancer is a public health problem worldwide affecting all ages and it represents a significant burden in Nigeria. World Health Organization (WHO) estimates in 2019, reported cancer as the first or second leading cause of death before age 70 years in 112 of 183 Countries, and it ranks third or fourth in a further 23 Countries^{1,2}. Cancer as a group of complex diseases is characterized by uncontrollable growth of abnormal tumour cells which are the basic units that make up the human body³. The menace of cancer in our society today cannot be overemphasized and it has become a chronic disease claiming lots of lives every year to the tune of millions globally and the incidence of this disease keeps on rising from year to year as the cancer death rate follows the same pattern⁴.

Cancer is a major public health concern as the incidence of various types of cancer continues to increase and accounted for 9.5 million deaths (around 13%) of all deaths in 2018⁵. Also, International Agency for Research on Cancer (IARC, 2010) projected a worldwide estimate that, new cases of cancer could increase

to almost 21.4 million in 2030 and 13.2 million people would die from the disease⁶. It occurs world-wide with varying incidence as the highest incidence is in Western Countries like the USA where the incidence is 242 persons per 100,000 populations while Nigeria as a developing country have lower incidence of about 100/100,000 population⁷. More than 70% of all cancer deaths occurred in low and middle-income countries including Nigeria, where resources available for prevention, diagnosis and treatment of cancer are limited or non-existent⁸.

Cancer diagnosis affects every aspect of a patient's life causing emotional and psychological trauma to him or her and adversely impacting the quality of life⁹. The individual's "psychological" and behavioural coping responses following cancer diagnosis is crucial in enhancing patients' quality of life all through the chemotherapy treatment cycle(s)¹⁰. Distresses experienced by most patients living with cancer are attributable to unpleasant symptoms accompanying cancer treatment (chemotherapy), such as pain, nausea, vomiting, and fatigue with the huge financial implication¹¹. Other complicating situation is the fear of living or dying, which is usually a part of cancer treatment and management in developing Countries, family worries, social stigma and loss of job¹¹.

Cancer treatment especially chemotherapy has a significant role in influencing the quality of life of patients living with cancer¹². According to ¹³Cancer and its treatment result in the loss of economic resources and opportunities for patients, families, employers and society at large. These losses include financial loss, morbidity, reduced quality of life and premature death and a negative body image which can affect desire for intimacy and social interaction¹³. Many people with cancer feel sad, feel a sense of loss of their health and the life they had before the diagnosis even after treatment they still feel sad as this condition affects family and friends, not just the person with the disease. Chemotherapy treatment among patients living with cancer has many challenges like troubles with memory and concentration (chemo brain)¹⁴. It can make food less appealing, causes nausea and vomiting to the individual. More, so, cancer diagnosis affects the emotional health of patients, families and caregivers and common feelings during this life-changing experience include anxiety, distress and depression¹⁵.

After cancer diagnosis, individuals may experience sadness, anxiety, anger or even hopelessness. Family members often face many role changes at the time of the cancer diagnosis¹⁶. There could be denial or blaming of others for the diagnosis and experience of vulnerability with the realization that it could happen to them among close family member¹⁶. Disruptions in schedules and taking on new roles of care giving, meal preparation, and other family duties may put a strain on some family members. The financial costs of cancer are high for both the person with cancer and for society as a whole¹⁶. Therefore, it has become imperative to assess quality of life of cancer patients as this influence the treatment modality and line of management provided by the caregiver especially nurses who are in continuous interaction with the patients.

II. Material and Methods

The study utilized a quantitative research design which adopted a descriptive non-experimental study to assess the coping mechanisms and quality of life among patients' living with cancer and undergoing chemotherapy at the Oncology clinic of Lagos State University Teaching Hospital, Ikeja. A total number 176 patients living with cancer and undergoing chemotherapy were recruited for the study.,

Study Design: Quantitative descriptive research design

Study Location: The study was conducted in Lagos State University Teaching Hospital (LASUTH), Ikeja., Lagos State

Study Duration: August 2021 to October, 2021

Sample size: One hundred and seventy-six (176) patients living with cancer and undergoing chemotherapy.

Sample size calculation: Sample size for this study was obtained through sample size calculation using Cochran Formula at 95% level of confidence (1.96) and 5% margin of error which was calculated as 160 and 10% attrition rate was added to make 176.

Subjects & selection method: Convenience Sampling Technique was used to select patients living with cancer and undergoing chemotherapy at the Oncology clinic of Lagos State University Teaching Hospital, Ikeja

Inclusion criteria:

1. Two or more sections of chemotherapy and
2. Willingness to participate in the study.

Exclusion criteria:

1. Patients living with cancer and undergoing radiotherapy or other forms of cancer therapy apart from chemotherapy

Instrumentation

The instrument used for the study is a modified European Organization of Research and Treatment in Cancer – Quality of Life Questionnaire C-30 (EORTC QLQ C-30) adapted from European Organization of Research and

Treatment version 3.0 with twenty-five items to assess quality of life among patients' living with cancer and undergoing chemotherapy based on nine multifunctional scales: five functional scale (physical, role function, cognitive, emotional and social); three signs (fatigue, pain and nausea and vomiting). The items were rated on a 4-point Likert scale from 1 (Not at all) to 4 (Very much). The maximum possible score is 100 while the minimum possible score is 1. Higher scores indicate poor quality of life while the lower scores indicate good quality of life. Therefore, the scores between 1-33 is considered good quality of life, scores between 34-66 is considered moderate quality if life while the score between 66-100 indicate poor quality of life.

Procedure methodology

Ethical approval was collected from Babcock University Health Research Ethics Committee with reference number BUHREC 108/21 on April 6th , 2021. The researcher had obligation to the subjects by getting their informed consent consistent with the principle of individual autonomy. Their voluntary participation, anonymity, privacy and confidentiality when collecting the data was guaranteed. Their right to participate and not to participate was also respected. Data was collected over a period of 8 weeks.

Statistical analysis:

The data collected was checked for completeness. The data was coded and analyzed using Statistical Package for Social Sciences (SPSS) version 25. The data were summarized, using descriptive statistics of frequencies, percentages, table, mean score and standard deviation and stated hypotheses were tested using t-test at 0.05 level of significance.

III. Result

Table 1 Socio-demographic data of the respondents n=176

S/N	VARIABLES	FREQUENCIES	PERCENTAGES (%)
1.	Gender		
	Male	51	29
	Female	125	71
	Total	176	100
2.	Age (Years)		
	18-32	19	10.8
	33-47	63	35.8
	48-62	69	39.2
	62 and above	25	14.2
	Total	176	100.0
	Mean age	48.5 ± 12.987	
3.	Marital status		
	Single	14	8.0
	Married	145	82.4
	Widow	14	8.0
	Widower	1	0.6
	Divorce	2	1.1
	Total	176	100.0
4.	Religion		
	Christianity	127	72.2
	Islam	49	27.8
	Total	176	100.0
5.	Educational status		
	No formal education	4	2.3
	Primary education	18	10.2
	Secondary education	64	36.4
	Tertiary education	90	51.1
	Total	176	100.0
6.	Income per annum		
	Below 50,000	46	26.1
	50,000-500,000	92	52.3
	501,000-1,000,000	25	14.2
	Above 1,000,000	13	7.4
	Total	176	100.0

Source: Field survey 2021

Table no 1 shows the socio-demographic characteristics of the respondents. Majority 125 (71%) of the respondents were females, 69 (39.2%) are within the age range with mean age of 48.5 years. Majority 145(82.4%) of the respondents are married, 127(72.2%) are Christians with tertiary level of education 90 (51.1). More than half 92(52.3%) of the respondents' earned 50,000-500,000 per annum.

Table 2: Quality of life of patients living with cancer and undergoing chemotherapy

S/N	Items	Not at All	A Little	Quite A Bit	Very Much	Total
	Physical Functioning					
1.	Do you have any trouble doing strenuous activities?	60(34.1%)	39(22.2%)	26(14.8%)	51(29%)	176(100%)
2.	Do you have trouble taking a long walk?	53(30.1%)	56(31.8%)	26(14.8%)	41(23.3%)	176(100%)
3.	Do you have any trouble taking a short walk outside the house	111(63.1%)	34(19.3%)	11(6.3%)	20(11.4%)	176(100%)
4.	Do you need help with eating, dressing, washing yourself or using the toilet?	135(76.7%)	13(7.4%)	6(3.4%)	22(12.5%)	176(100%)
	Role Functioning					
5.	Are you limited in doing either your work or your daily activities?	71(40.3%)	47(26.7%)	25(14.2%)	33(18.8%)	176(100%)
6.	Are you limited in pursuing your hobbies or other leisure time activities?	58(33%)	50(28.4%)	25(14.2%)	33(18.8%)	176(100%)
	Emotional Functioning					
7.	Do you feel tense?	78(44.3%)	49(27.8%)	30(17%)	19(10.8%)	176(100%)
8.	Do you worry?	68(38.6%)	56(31.8%)	25(14.2%)	27(15.3%)	176(100%)
9.	Do you feel irritable?	82(46.6%)	36(20.5%)	33(18.8%)	25(14.2%)	176(100%)
10.	Do you feel depressed?	98(55.7)	40(22.7%)	21(11.9%)	17(9.7%)	176(100%)
	Cognitive Functioning					
11.	Have you had difficulty in concentrating on things like reading a newspaper or watching television?	104(59.1%)	35(19.9%)	10(5.7%)	27(15.3%)	176(100%)
12.	Have you had difficulty remembering things?	104(59.1%)	32(18.2%)	13(7.4%)	27(15.3%)	176(100%)
	Social Functioning					
13.	Has your physical condition or medical treatment interfered with your social activities?	63(35.8%)	33(18.8%)	32(18.2%)	48(27.3%)	176(100%)
14.	Has your physical condition or medical treatment interfered with your family life?	113(64.2%)	32(18.2%)	18(10.2%)	13(7.4%)	176(100%)
15.	Do you feel very lonely or remote from other people?	110(62.5%)	41(23.3%)	8(4.5%)	17(9.7%)	176(100%)
16.	Do you feel happy attending social functions?	78(44.3%)	32(18.2%)	17(9.7%)	49(27.8%)	176(100%)
	Fatigue					
17.	Have you been feeling tired?	44(25%)	81(46%)	29(16.5%)	22(12.5%)	176(100%)
18.	Have you felt weak?	49(27.8%)	61(34.7%)	35(19.9%)	31(17.6%)	176(100%)
19.	Do you need to rest?	29(16.5%)	37(21%)	27(15.3%)	83(47.2%)	176(100%)
20.	Have you had trouble sleep?	96(54.5%)	38(21.6%)	19(10.8%)	23(13.1%)	176(100%)
	Nausea and Vomiting					
21.	Have you felt nauseated?	67(38.1%)	58(33%)	28(15.9%)	23(13.1%)	176(100%)
22.	Have you vomited?	97(55.1%)	40(22.7%)	14(8%)	25(14.2%)	176(100%)
23.	Have you lacked appetite?	78(44.3%)	43(24.4%)	18(10.2%)	37(21%)	176(100%)
	Pain					
24.	Have you had pain?	39(22.2%)	42(23.9%)	31(17.6%)	64(36.4%)	176(100%)
25.	Do pains interfere with your daily activities?	46(26.1%)	37(21%)	27(15.3%)	66(37.5%)	176(100%)
	Weighted Average	77(43.8%)	65(36.9)	34(19.3%)	176(100)	

Table no 2 shows that majority 77(43.8%) of the respondents indicated that living with cancer and undergoing chemotherapy has not affected their physical functioning, role functioning, emotional functioning, cognitive functioning, social functioning, and not experiencing symptoms of fatigue, nausea and vomiting as well as pains.

Summary of Quality of Life of Patients living with cancer and undergoing chemotherapy

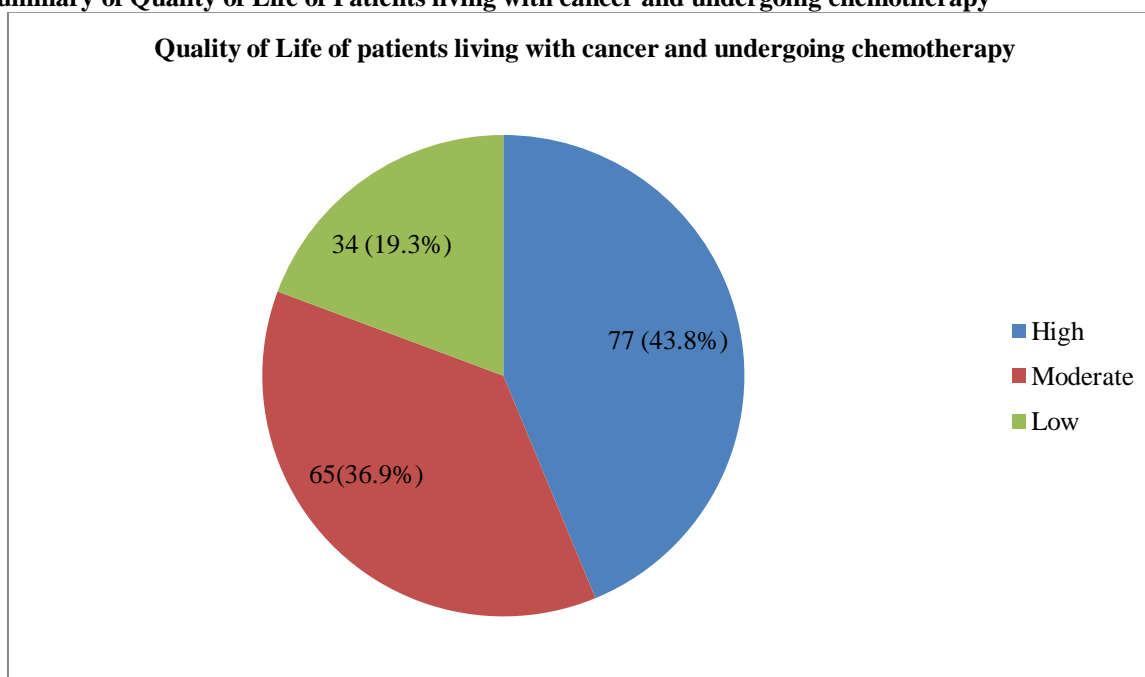


Figure 1: Overall quality of life of patients living with cancer and undergoing chemotherapy

Figure no 1 shows the overall quality of life of cancer patients undergoing chemotherapy. Majority 77(43.8%) of the respondents demonstrated high quality of life, 65 (36.9%) had moderate quality of life while 34 (19.3%) had low quality of life

Table 3: Showing relationship between demographic characteristics and Quality of Life among Patients living with cancer and undergoing chemotherapy

Variables	Quality of Life			Total	Chi-square	df	p-value
	High	moderate	Low				
Age							
18-32	10 (52.6%)	2(10.5%)	7(36.8%)	19(10.8%)			
33-47	48(76.1%)	5(7.9%)	10(15.9%)	63(35.8%)			
48-62	10(14.5%)	49(71.0%)	10(14.5%)	69(39.2%)			
63 and above	9(36.0%)	9(36.0%)	7(28.0%)	25(14.2%)			
Total	77(43.8%)	65(36.9%)	34(19.3%)	176(100%)	74.192	6	0.000
Gender							
Male	34(66.7%)	7(13.7%)	10(19.6%)	51(29%)			
Female	43(34.4%)	58(46.4%)	24(23.2%)	125(21%)			
Total	77(43.8%)	65(36.9%)	34(19.3%)	176(100%)	19.094	2	0.000
Marital status							
Single	10(71.4%)	3(21.4%)	1(0.7%)	14(8.0%)			
Married	65(44.8%)	59(40.7%)	21(14.5%)	145(82.4%)			
Widow	2(14.3%)	3(21.4%)	9(64.3%)	14(8.0%)			
Widower	0(0%)	0(0%)	1(100%)	1(0.6%)			
Divorce	0(0%)	0(0%)	2(100%)	2(1.1%)	41.159	10	0.000
Total	77(43.8%)	65(36.9%)	34(19.3%)	176(100%)			
Religion							
Christianity	67(52.8%)	50(39.4%)	10(7.9%)	127			
Islam	10(20.4)	15(0.6%)	24(49.0%)	49			
Total	77(43.8%)	65(36.9%)	34(19.3%)	176(100%)	40.1168	2	0.000

Table no 3 shows a statistically significant relationship between demographic characteristics of age ($\chi^2 = 74.192$; $df = 6$; $p\text{-value} = 0.000$); gender ($\chi^2 = 19.094$; $df = 2$; $p\text{-value} = 0.000$); marital status $\chi^2 = 41.159$; $df = 10$; $p\text{-value} = 0.000$); religion ($\chi^2 = 40.116$; $df = 2$; $p\text{-value} = 0.000$) and quality of life of the respondents at 0.05 level of significance. More, so majority (52.6%) of the respondents 18-32 years had high quality of life while 71% of the respondents aged 48-62 had moderate quality of life. High quality of life was reported by male gender (66.7%), single (71.4%) and Christianity religion (52.8%).

Table 4: Showing relationship between Socio-economic status and Quality of Life among Patients living with cancer

Variables	Quality of Life			Total	Chi-square	df	p-value
	High	moderate	Low				
Educational Status							
No formal education	2(50%)	1(25%)	1(25%)	4(2.3%)			
Primary education	15(83.3%)	2(11.1%)	1(11.1%)	18(10.2%)			
Secondary education	45(70.3%)	9(14.1%)	10(15.6%)	64(36.4%)			
Tertiary education	15(16.7%)	53(58.9%)	22(24.4%)	90(51.1%)			
Total	77(43.8%)	65(36.9%)	34(19.3%)	176(100%)	59.616	6	0.000
Income per annum							
Below 50,000 naira	42(91.3%)	2(34.3%)	2(4.3%)	46(26.1%)			
50,000-500,000 naira	21(22.8%)	58(63.0)	13(14.1%)	92(52.3%)			
501,000-1,000,000 naira	10(40%)	4(16.0%)	11(44.0%)	25(14.2%)			
Above 1,000,000 naira	4(30.8%)	1(7.6%)	8(61.5%)	13(7.4%)			
Total	77(43.8%)	65(36.9%)	34(19.3%)	176(100%)	96.246	6	0.000

Table no 3 shows a statistically significant relationship between socio-economic status of level of education ($\chi^2 = 59.616$; $df = 6$; $p\text{-value} = 0.000$); income per annum ($\chi^2 = 96.246$; $df = 6$; $p\text{-value} = 0.000$) at 0.005 level of significance. More so, majority of the respondents with secondary level of education (70.3%) and primary level of education (83.3%) had high quality of life while more than half of the respondents with tertiary level of education demonstrated moderate quality of life (58.9%). Almost all the respondents that earned below 50,000 naira demonstrated high quality of life, 63% of the respondents that earned between 50,000-500,000 naira demonstrated moderate quality of life while majority of the respondents that earned above 1,000,000 naira had poor quality of life.

IV. Discussion

Finding from the study showed that majority of the respondents were age 48-62 years with mean age of 48.5 ± 12.987 years, females, married and of Christianity religion. The findings correspond with the result of ¹⁷ on Quality-of-Life Assessment in Cancer Patients of Regional Centre of Hyderabad City, Telangana, India but contrary to the results of ¹⁸ conducted in Ekiti south-west Nigeria.. majority of the respondents had tertiary level of education and earned between 50,000 and 500,000. This showed that majority of the respondents fall between low and Middle socio-economic status. This findings is contrary to the result of ¹⁹ where the respondents had their education until primary school and the monthly income was between Rs. 2501 and 5000 for 394 (51.3%).

The finding from the study showed quality of life of patients in eight different domains, physical functioning, role functioning, emotional functioning, cognitive functioning, social functioning, experience of fatigue, nausea and vomiting and pains. Majority of the respondents indicated that living with cancer and undergoing chemotherapy has not affected their physical functioning, role functioning, emotional functioning, cognitive functioning, social functioning, and not experiencing symptoms of fatigue, nausea and vomiting as well as pains. In support of the study, ²⁰ reported that the highest functional status of patient living with cancer were emotional and cognitive functioning whereas the role functioning were highly affected. This findings is also supported by ²¹. The result revealed that the overall quality of life of patients living with cancer was very high. This finding contradicts the result of ²² where very few respondents had high QOL score. ¹⁷ Also reported poor quality of life among patients living with cancer. However, ²³ in their study reported better quality of life among patient living with cancer which is in contrast with the result of ²⁰ that revealed low quality of life among patients living with cancer.

The findings from this study further showed a statistically significant relationship between demographic, socio-economic status and quality of life of patient living with cancer and undergoing chemotherapy. Majority of the respondents aged 48-62 years, had moderate quality of life and high quality of life was demonstrated among male respondents, single and of Christianity religion. Also, high quality of life was demonstrated among respondents with secondary level of education and earned below 50,000 naira. These findings contradict the result ²⁴ that showed no statistical significant relationship between age, gender, marital status employment status and quality of life of patients living with cancer. Contrary to the finding, ²² reported that income was statistically associated with quality of life of patients living with cancer and undergoing chemotherapy as the patients' conditions are more likely to improve with incomes and independent of demographic variables of age and educational status. ²⁵ revealed that education, occupation were negatively associated with overall quality of life of patients living with cancer.

V. Conclusion

The findings from the study showed that majority of the respondents indicated that living with cancer and undergoing chemotherapy has not affected their physical functioning, role functioning, emotional

functioning, cognitive functioning, social functioning, and not experiencing symptoms of fatigue, nausea and vomiting as well as pains. This suggested that patients living with cancer had high quality of life and there was a statistically significant relationship between demographic characteristics, socio-economic status and quality of life demonstrated by the patients living with cancer. This shows that the age, gender, marital status, religion, educational status, income per annum have influence on quality of life of patients living with cancer.

VI. Recommendations

Based on the result from this study, it is therefore recommended that;

- Government should support patients' living with cancer undergoing chemotherapy financially or subsidize the cost of chemotherapy sections to ease the burden on the patients and relatives and also to improve their quality of life.
- Patients' living with cancer should be counseled and encouraged to maintain a healthy lifestyle by the health professionals especially nurses to improve their energy level for example; taking of adequate diet consisting of a variety food, adequate rest to manage stress, fatigue of cancer and its treatment(chemotherapy).
- Patients' relative and the community should be educated on cancer condition and encouraged to support people living with cancer and not to stigmatize them as dead person.

Compliance with ethical standard

Conflict of interest: (Nil)

Financial disclosure: (No Financial support)

Funding/support: (No financial support)

References

- [1]. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*. 2021 May;71(3):209-49.
- [2]. Ngatali CF, Liboko AB, Mabiala Y, Moukassa D, Nkoua-Mbon JB. Epidemiological Clinical and Histological Aspects of Gynecological and Breast Cancer in Pointe Noire (Congo Brazzaville). *Advances in Breast Cancer Research*. 2022 Feb 17;11(2):89-100.
- [3]. D'Arcy MS. Cell death: a review of the major forms of apoptosis, necrosis and autophagy. *Cell biology international*. 2019 Jun;43(6):582-92.
- [4]. Morounke SG, Ayorinde JB, Benedict AO, Adedayo FF, Adewale FO, Oluwadamilare I, Sokunle SS, Benjamin A. Epidemiology and incidence of common cancers in Nigeria. *Population*. 2017;84(82,231,000):166-629.
- [5]. Chen W, Sun K, Zheng R, Zeng H, Zhang S, Xia C, Yang Z, Li H, Zou X, He J. Cancer incidence and mortality in China, 2014. *Chinese journal of cancer research*. 2018 Feb;30(1):1.
- [6]. Ntekim AO, Asuzu CC, Osiki JO, Ntekim AI, Zhong X. Selected Personal Factors as Predictors of Quality of Life of Cancer Patients in Southwestern Nigeria. *Journal of Cancer Treatment and Research*. 2020 Mar 31;8(2):29.
- [7]. Azubuike SO, Muirhead C, Hayes L, McNally R. Rising global burden of breast cancer: the case of sub-Saharan Africa (with emphasis on Nigeria) and implications for regional development: a review. *World journal of surgical oncology*. 2018 Dec;16(1):1-3.
- [8]. Fapohunda A, Fakolade A, Omiye J, Afolaranmi O, Arowojolu O, Oyebamiji T, Nwogu C, Olawaiye A, Mutiu J. Cancer presentation patterns in Lagos, Nigeria: Experience from a private cancer center. *Journal of public health in Africa*. 2020 Dec 31;11(2).
- [9]. Polanski J, Jankowska-Polanska B, Rosinczuk J, Chabowski M, Szymanska-Chabowska A. Quality of life of patients with lung cancer. *OncoTargets and therapy*. 2016;9:1023.
- [10]. Omari M, Zarrouq B, Amaadour L, Benbrahim Z, El Asri A, Mellas N, El Rhazi K, Ragala ME, Halim K. Psychological Distress, Coping Strategies, and Quality of Life in Breast Cancer Patients Under Neoadjuvant Therapy: Protocol of a Systematic Review. *Cancer Control*. 2022 Feb 16;29:10732748221074735.
- [11]. Yeh YC. Symptom distress, stress, and quality of life in the first year of gynaecological cancers: A longitudinal study of women in Taiwan. *European Journal of Oncology Nursing*. 2021 Aug 1;53:101984.
- [12]. Mayer S, Iborra S, Grimm D, Steinsiek L, Mahner S, Bossart M, Woelber L, Voss PJ, Gitsch G, Hasenburg A. Sexual activity and quality of life in patients after treatment for breast and ovarian cancer. *Archives of Gynecology and Obstetrics*. 2019 Jan;299(1):191-201.
- [13]. Cardoso F, Spence D, Mertz S, Corneliussen-James D, Sabelko K, Gralow J, Cardoso MJ, Peccatori F, Paonessa D, Benares A, Sakurai N. Global analysis of advanced/metastatic breast cancer: decade report (2005–2015). *The Breast*. 2018 Jun 1;39:131-8.
- [14]. Jenkins V, Thwaites R, Cercignani M, Sacre S, Harrison N, Whiteley-Jones H, Mullen L, Chamberlain G, Davies K, Zammit C, Matthews L. A feasibility study exploring the role of pre-operative assessment when examining the mechanism of 'chemo-brain' in breast cancer patients. *Springerplus*. 2016 Dec;5(1):1-1.
- [15]. Tang CC, Draucker C, Tejani M, Von Ah D. Symptom experiences in patients with advanced pancreatic cancer as reported during healthcare encounters. *European Journal of Cancer Care*. 2018 May;27(3):e12838.
- [16]. Lewandowska A, Rudzki G, Lewandowski T, Rudzki S. The problems and needs of patients diagnosed with cancer and their caregivers. *International Journal of Environmental Research and Public Health*. 2021 Jan;18(1):87.
- [17]. Sunanda VN, Priyanka M, Archith J, Shravan M, Rao AS, Hadi MA. Quality of life assessment in cancer patients of regional centre of Hyderabad city. *J. Appl. Pharmaceut. Sci*. 2018 Jan.
- [18]. Esan DT, Musah KT, Olaiya FM, Adedeji OA, Olowolafe EO. Perceived quality of life and life style modification of cancer patients undergoing varied treatments in a tertiary health institution, Ekiti State, Nigeria. *The Pan African Medical Journal*. 2021;40.
- [19]. Hassen AM, Taye G, Gizaw M, Hussien FM. Quality of life and associated factors among patients with breast cancer under chemotherapy at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia. *PLoS one*. 2019 Sep 20;14(9):e0222629.

- [20]. Abegaz TM, Ayele AA, Gebresillassie BM. Health related quality of life of cancer patients in Ethiopia. *Journal of oncology*. 2018 Apr 15;2018.
- [21]. Poikonen-Saksela P, Kolokotroni E, Vehmanen L, Mattson J, Stamatakos G, Huovinen R, Kellokumpu-Lehtinen PL, Blomqvist C, Saarto T. A graphical LASSO analysis of global quality of life, sub scales of the EORTC QLQ-C30 instrument and depression in early breast cancer. *Scientific reports*. 2022 Feb 8;12(1):1-2.
- [22]. Nayak MG, George A, Vidyasagar MS, Mathew S, Nayak S, Nayak BS, Shashidhara YN, Kamath A. Quality of life among cancer patients. *Indian journal of palliative care*. 2017 Oct;23(4):445.
- [23]. Bolzani A. *The relationship of breathlessness with psychological distress and quality of life in adults with advanced disease* (Doctoral dissertation, Imu).
- [24]. Ntekim AI, Ibraheem A, Sofoluwe AA, Kotila O, Babalola C, Karrison T, Olopade CO. ARETTA: Assessing response to neoadjuvant taxotere and subcutaneous trastuzumab in Nigerian women with HER2-positive breast cancer: A study protocol. *JCO global oncology*. 2020 Jul;6:983-90.
- [25]. Ramasubbu SK, Pasricha RK, Nath UK, Das B. Frequency, nature, severity and preventability of adverse drug reactions arising from cancer chemotherapy in a teaching hospital. *Journal of Family Medicine and Primary Care*. 2020 Jul;9(7):3349.

Emmanuel Olayemi Tosin, et. al. "Assessment of Quality of Life among Patients Living with Cancer and Undergoing Chemotherapy at the Lagos State University Teaching Hospital (LASUTH), Ikeja, Lagos." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 11(03), 2022, pp. 65-72.