ORIGINAL ARTICLE

EVALUATION OF QUALITY OF LIFE OF ADULT CANCER PATIENTS ATTENDING TIKUR ANBESSA SPECIALIZED REFERRAL HOSPITAL, ADDIS ABABA ETHIOPIA

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ABSTRACT

BACKGROUND: Little is known about the quality of life of cancer patients in the Ethiopian context. This study evaluated quality of life of cancer patients in Ethiopia.
METHODS: A cross-sectional study was conducted in Addis Ababa University Tikur Anbessa Specialized Referral Hospital Addis Ababa, Ethiopia (TASRH) from March to May 2013. A total of 388 cancer patients were included. Translated in to Amharic, the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QOL C-30) was used to measure Quality of life (QoL). The data was analyzed with SPSS Version 17.0.
RESULTS: Among the participants, 251(64.7%) were men and 138(35.6%) were below the age of 40 years. Large proportion of patients were diagnosed with breast cancer, 114(29.4%), and cervical cancer, 102(26.3%), and the clinical stages during the beginning of therapy were at stage II a 133(34.3%). The mean of global health status/QoL was 57.28 (SD= 25.28). Quality of life was found to be associated with some functional scales as role functioning, P≤0.001, social function, P=0.00, and symptom scales as pain, P=0.00, loss of appetite, P=0.004, and financial impact, P=0.02, but no associations were noted in relation to socio demographic characteristics.
CONCLUSION: Quality of life assessments should be included in patient treatment protocols to improve their quality of life since being a cancer patient may be associated with a high level of impairment in different aspects of life.
KEYWORDS: Cancer, Quality of life, Ethiopia

INTRODUCTION

Cancer is predicted to be an increasingly important cause of morbidity and mortality in the next few decades, in all regions of the world (1). Within the forecasted changes in population demographics in the next two decades, even if current global cancer rates remain unchanged, the estimated incidence of 12.7 million new cancer cases in 2008 (1) will rise to 21.4 million by 2030(2).

While cancer diagnosis has become more prevalent, it is no longer considered to be a death sentence, but rather a disease that patients must manage and live with. Numerous studies have shown that depression, anxiety, stress and poor quality of life are often psychological consequences of living with cancer, and cancer patients face the double challenge of learning to manage the physical as well as psychological effects of cancer. Moreover, previous studies suggest that depression and poor quality of life have been associated with 5 year survival rates as well as increased mortality due to cancer (3).

Cancer is known to reduce quality of life, and it has been evident that decreased QoL has a negative effect not only on physiological symptoms but also on the psychological functioning

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of the individual (3, 4). It has also been suggested that determining QoL in cancer patients could contribute to improved treatment and could be as prognostic as medical factors (3) and as the survival benefit that a pharmacological treatment may provide (5). In addition, QoL in cancer patients is an important outcome and is now considered a significant end-point in cancer clinical trials, as proposed by the World Health Organization (WHO) (3).

One study (6) put forward that patients with lower coping capacity reported a higher prevalence of cancer symptoms, experienced higher levels of distress and experience encountered worse perceived health, which in turn decreased the quality of their life. Another study (7) found out that, as survival rates for cancer have improved, quality of life issues have increased in importance. The researchers examined how patient perceptions of the side effects of chemotherapy changed from predominantly physical concerns to psychosocial concerns. Patients undergoing chemotherapy were asked to select side effects from physical and non-physical symptoms, and rank them according to how 'troublesome' they were. Despite an extensive list of physical side effects, four of the top six were non-physical (affects my family or partner, loss of hair, constant tiredness, affects my work and/or home duties, affects my social activities, loss of sexual feeling in order of severity) (7).

Ethiopia has a population of more than 84 million people, and is expected to become the ninth most populous country in the world by 2050(8). The growing population coupled with lifestyle changes will mean an increasing burden of cancer. However, oncology services are wholly inadequate; no cancer registry exists, and only one cancer centre, with a handful of doctors and nurses, struggles to serve the entire country (8). In Ethiopian, although few researches have conducted to evaluate QoL in some diseases (9), no research has been conducted to evaluate QoL in cancer patients. Considering the increasing prevalence of cancer and its destructive effects on QoL and low local reports pertaining to QoL of cancer patients, this study aimed to evaluate QoL of adult cancer patients. Results of this investigation are believed to provide a foundation for interventions to improve QoL among patients with cancer.

METHODS

The study setting and samples: The study was conducted at TASRH from March to May 2013.TASRH was chosen since it is currently the only hospital which provides cancer therapy. Sample size was determined using single population proportion formula. During the study, those patients who have been diagnosed with any type of cancer, 18 years and older, had at least 6 months duration of cancer diagnosis, able to understand Amharic and had no other serious debilitating co-morbidity were included by random selection.

Data collection instrument: Data on QoL was collected by trained nurses through face-to-face interview using the Amharic version of EORTC QLQ-C30 (10).The EORTC QLQ-C30 is a 30-item questionnaire composed of 5 multi-item functional subscales: physical, role, emotional, social and cognitive functioning; three multi-item symptom scales measuring fatigue, pain, and emesis; a global health status subscale; and six single items to assess financial impact and symptoms such as dyspnea, sleep disturbance, appetite, diarrhea, and constipation. Variables related to socio-demography and clinical information as cancer type, time since diagnosis, type of therapy and number of chemotherapy sessions were extracted from charts in the oncology unit.

Data management and analysis: Data were cleaned, coded, and entered into Microsoft Office Excel 2007, Epi-info version 3.5.1 software and then exported to SPSS Version 17.0 for analysis. Domain scores in EORTC QLQ-C30 which measures a functional scale and global health status were recorded so that higher scores reflected better QoL and a high score for a symptom scale represented a high level problem. The raw scores were transformed to scores ranging from 0 to 100. The use of these transformed scores has several advantages (10). Transformed scores may be difficult to interpret; however, there are a number of ways to ease the interpretation of QLQ-C30 results. It is possible to

report the raw scores in addition to the transformed scores. For example, it may be clinically relevant to know the proportion of patients that are 'Quite a bit' or 'Very much' constipated, but this study presents transformed results to comply with the word limit of this journal.

Linear transformation to 0-100 to obtain the score S, has been done by using the following formula (10).

Raw score- $RS = (I_1 + I_2 + \ldots I_n)/n$

Linear transformation-Apply the linear transformation to 0-100 to obtain the score S,

Functional scales: $S = \left\{ 1 - \frac{(RS - 1)}{range} \right\} \times 100$

Symptom scales / items: $S = \left\{ (RS - 1)/range \right\} \times 100$

Global health status / QoL: $S = \left\{ (RS - 1)/range \right\} \times 100$

There are no existing data for the EORTC QLQ-C30 scales to indicate the threshold scores that are likely to mean significant impairment. Therefore, in this study, after transformation of each domain was dichotomized into "Affected at any degree" and "Not affected at all" in which a score below 75 for functional and global health (QoL) scales are used as affected and scores above 25 have been used as affected for symptom scales.

Bivariate analysis was performed to assess the predictors of QoL. Multivariable logistic regression analysis was also performed to assess the association between the dependent variables and various explanatory variables. P-value less than or equal to 0.05 was taken as cut of value to be significant. Odds ratio and 95% confidence intervals were also constructed.

Ethical considerations: Ethical clearance was obtained from the Ethical Committee of Addis Ababa University. Permission letters were received from EORTC research group to use questionnaire and TASRH to collect data and use clinical records.

Study participants were informed about the objective of the study before data collection and asked for consent.

Quality assurance of the study: The English version of the questionnaire was translated into Amharic and back translated into English to check its consistency. The data collectors as well as the supervisor were oriented on the overall data collection procedure. Five percent of the questionnaire was pre-tested to check acceptability and consistency two weeks before the actual data collection.

RESULTS

Socio demographic characteristics and their association with QoL: Of 422 eligible respondents, 34(8.05%) refused to participate, and were excluded from the study (response rate = 91.95 %). Among the participants, 251(64.7%) were women and 138(35.6%) were below the age of 40 years with 172(44.3%) of respondents earning <300 Birr per month. The majority of the respondents attended some level of formal education 239(61.6 %), 256(66.0 %) were Orthodox Christians and 254(65.5%) were married followed by 16.8% singles.

For all socio-demographic variables after adjustment, no associations were noted. Table 1 shows associations between socio- demographic variables and QoL.

Table 1: Associations between Socio-demographic variables and quality of life of cancer patients at TASRH, Addis Ababa Ethiopia, March -May 2013

Variable		Quality of Life		Adjusted	
		Affected N (%)	Not-affected N(%)	OR(95% CI)	P
Age n=388	<40	120(34.5)	18(45.0)		
	40-49	79(22.7)	7(17.5)		
	50-59	82(23.6)	9(22.5)		
	60-69	53(15.2)	6(15)		
	70+	14(4.0)	0		
Sex	Male	117(33.6)	20(50)	1.90(0.69,5.24)	0.22
	Female	231(66.4)	20(50)	1.00	
Average monthly Income in Birr(Ethiopian currency) n=388	<300	160(46.0)	12(30.0)	0.90(0.09,9.38)	0.93
	300-600	22(6.3)	5(12.5)	1.76(0.12,25.6)	0.68
	601-1200	84(24.1)	7(17.5)	2.05(0.20,20.4)	0.54
	1201-2000	36(10.3)	8(20.0)	2.83(0.27,29.6)	0.39
	2001-3200	19(5.5)	6(15.0)	6.80(0.57,80.8)	0.13
	>3200	27(7.8)	2(5.0)		
Occupation	Housewife	110(31.6)	9(22.5)		
	Government employee	18(5.2)	4(10.0)		
	Private	63(18.1)	13(32.5)		
	Farmer	54(15.5)	8(20.0)		
	Jobless	57(16.4)	3(7.5)		
	Student	34(9.8)	1(2.5)		
	Pension	12(3.4)	2(5.0)		
Educational status n=388	Formal Education	120(34.5)	6(15.0)		
	Illiterate	207(59.5)	32(80.0)		
	Informal Education	21(6.0)	2(5.0)		
Marital status n=388	Married	54(15.5)	11(27.5)		
	Single	231(66.4)	23(57.50		
	Widowed	13(3.7)	2(5.0)		
	Divorced	50(14.4)	4(10)		
	Orthodox	226(64.9)	30(75.0)		
Religion n=388	Muslim	41(11.8)	7(17.5)		
	Protestant	4(1.1)	0		
	Catholic	68(19.5)	3(7.5)		
	Others *	9(2.6)	0		

* Wake feta, Adventist and Jehovah Witness

Clinical characteristics and their association with QoL: The most prevalent types of cancer were Breast cancer 114(29.4%) and Cervical cancer 102(26.3%), and the clinical stages during therapy were at stage IIa 133(34.3%) with 4(1.0%) of unknown status at the time of diagnosis. Only few of the respondents, 66(17.0%), complain co-morbidities like Diabetes, Hypertension, HIV and Kidney problems.

In relation to clinical information, those in the second cycle of chemotherapy (P=0.04) showed significant association with QoL, but no associations were noted with type of therapy, time since diagnosis, stage at diagnosis and presence of other co-morbidities. Table 2 shows associations between clinical variables and QoL.

Table 2: Associations between clinical variables and quality of life of cancer patients at TASRH, Addis Ababa Ethiopia, March-May 2013

Variable		Quality of Life		Adjusted	
		Affected (%)	Not affected (%)	OR(95% CI)	P
Time since Diagnosis n=388	6 month- 1 year	160(46.0)	23(57.5)		
	1- 2 year	72(20.7)	7(17.5)		
	2-3 year	42(12.1)	3(7.5)		
	3- 4 year	26(7.5)	3(7.5)		
	4- 5 year	16(4.6)	0		
	5- 10 year	20(5.7)	2(5.0)		
	10- 15 year	2(0.6)	1(2.5)		
	> 15 year	10(2.9)	1(2.5)		
Stage of disease during diagnosis n=388	Stage I	36(10.3)	8(20.0)		
	Stage II a	119(34.2)	14(35.0)		
	Stage II b	18(5.2)	0		
	Stage III	77(22.1)	8(20.0)		
	Stage IV	53(15.2)	5(12.5)		
	Recurrent	41(11.8)	5(12.5)		
	Not known	4(1.1)	0		
Type of therapy n=388	Surgery	25(7.2)	3(7.5)		
	Chemotherapy	46(13.2)	6(15.0)		
	Radiation therapy	79(22.7)	7(17.5)		
	Surgery and Chemotherapy	79(22.7)	12(30.0)		
	Surgery and Radiation therapy	25(7.2)	5(12.2)		
	Chemotherapy and Radiation therapy	25(7.2)	2(5.0)		
	Surgery, Chemotherapy and Radiation therapy	51(14.7)	3(7.5)		
	Not started	18(5.2)	2(5.0)		
Number of CT sessions for those on Chemotherapy n=225	First	55(27.1)	5(22.7)	0.13(0.01,1.32)	0.08
	Second	33(16.3)	2(9.1)	0.07(0.01,0.88)	0.04*
	Third	19(9.4)	0	0.00	0.10
	Fourth	17(8.4)	1(4.5)	0.13(0.01,2.30)	0.16
	Fifth	10(4.9)	5(22.7)	0.68(0.07,7.06)	0.75
	Sixth	65(32.0)	7(31.8)	0.17(0.02,1.67)	0.13
	Seventh	1(0.5)	0	0.00	1.00
	Eighth	3(1.5)	2(9.1)	1.00	
Co morbidity n=388	Yes	63(18.1)	3(7.5)		
	No	285(81.9)	37(92.5)		

*Significant Association

Quality of life and functional scales: Significant association was noted between role functioning (P=0.01, AOR=0.38(0.19,0.76 95%CI))like limited in doing work or other daily activities and pursuing hobbies or other leisure time activities.

Association was also noted with social functioning (P≤0.001,AOR=0.26 (0.15-0.45 95% CI) in which physical conditions or medical treatment interfered with family life and social activities but no associations were observed between physical, emotional and cognitive functioning.

Table 3: Associations between functional scales and quality of life of cancer patients at TASRH, Addis Ababa Ethiopia, March-May 2013

Variables		Quality of Life		Adjusted OR	
		Not affected (%)	Affected (%)	AOR(95% CI)	P
Physical Functioning	Not affected	55(63.2)	106(35.2)	0.72(0.36,1.44)	0.34
	Affected	32(36.8)	195(64.8)	1.00	
Role Functioning	Not affected	59(67.8)	101(33.6)	0.49(0.23,1.0)	≤0.01*
	Affected	28(32.2)	200(66.4)	1.00	
Emotional Functioning	Not affected	34(39.1)	53(60.9)		
	Affected	101(33.6)	200(66.4)		
Cognitive functioning	Not affected	66(75.9)	21(24.1)		
	Affected	198(65.8)	103(34.2)		
Social functioning	Not affected	41(47.1)	46(52.9)	0.26(0.14,0.45)	≤0.001*
	Affected	46(15.3)	255(84.7)	1.00	

*Significant association

Quality of life and symptom scales Symptom scales like dyspnea and diarrhea showed no association at all, but pain (P≤0.001), appetite loss (P=0.004) and financial difficulties (P=0.02) were shown to be associated with QoL. Symptom scales like fatigue, nausea and vomiting, sleep disturbance and constipation showed no association with QoL (Table 4).

Table 4: Associations between symptom scales and quality of life of cancer patients TASRH, Addis Ababa Ethiopia, March-May 2013

Variables		Quality of Life		Adjusted OR	
		Not affected (%)	Affected (%)	AOR(95% CI)	P
Fatigue	No	29(33.3)	58(66.7)	0.86(0.44,1.67)	0.66
	Yes	43(14.3)	258(85.7)		
Nausea & vomiting	No	62(71.3)	25(28.7)	0.97(0.52,1.78)	0.92
	Yes	154(51.2)	147(48.8)		
Pain	No	55(63.2)	32(36.8)	0.28(0.15,0.49)	0.00*
	Yes	75(24.9)	226(75.1)		
Dyspnea	No	59(67.8)	28(32.2)		
	Yes	176(58.5)	125(41.5)		
Insomnia	No	52(59.8)	35(40.2)	1.17(0.65,2.11)	0.60
	Yes	136(45.2)	165(54.8)		
Appetite loss	No	51(58.6)	36(41.4)	0.42(0.24,0.76)	0.004*
	Yes	85(28.2)	216(71.8)		
Constipation	No	62(71.3)	25(28.7)	0.61(0.34,1.09)	0.06
	Yes	146(48.5)	155(51.5)		
Diarrhea	No	75(86.2)	12(13.8)		
	Yes	232(77.1)	69(22.9)		
Financial Impact	No	11(12.6)	76(87.4)	0.26(0.09,0.77)	0.02*
	Yes	9(3.0)	292(97.0)		

*Significant association

DISCUSSION

There has been little quantitative and qualitative assessment of QoL of cancer patients in African context including Ethiopia. Assessing QoL dimensions in which cancer patients are lacking is of a remarkable impact in cancer care. This study has tried to address this issue. It has analyzed self-reported QoL of cancer patients in relation to different clinical and socio demographic factors and functional and symptom scales using EORTC-C30 core questionnaire.

The EORTC QLQ-C30 is an integrated system for assessing the QoL of cancer patients participating in clinical trials and other types of research in which patient-reported outcomes are collected. The EORTC QLQ-C30 is designed for use with a wide range of cancer patient populations. The psychometric properties of the questionnaire were tested, and it was found to possess the required standards such as validity, reliability and sensitivity (11). The questionnaire was initially tested in a population of lung cancer patients and subsequently in a variety of cancer patient groups. The Amharic translation was used after repeated forward and backward translations of the questionnaire.

This study like a study done in Iran Tehran hospital (5) showed no correlation between the QoL and variables such as age, sex, marital status, duration of disease, economic conditions, occupational function and patients' educational

level (literate or illiterate) (5). Similarly a study done in Athens Hospital, Greece (12) showed gender, marital status, and educational level had no influence on the subjective health condition of the patients. Similarly another study in Iran showed none of the demographic variables (age, education, marital status, income) were significantly related to QoL(13).

As opposed to these studies, different studies (14, 15, 16, 17) showed associations with socio-demographic differences like gender, educational level, and marital status with QoL. A study conducted at the outpatient and inpatient Oncology Clinics of the Lütfi Kirdar Teaching and Research Hospital in Istanbul, Turkey (14) showed that socio-demographic factors rather than cancer-related factors could contribute to poorer QoL in which age and educational level were associated with particular domains of QoL. Elderly subjects reported lower QoL in all sub-dimensions (14).Significant differences existed in subscales of QoL and total QoL among the patients who had different educational level. This difference may be related with use of different assessment tools in which some use Multidimensional Quality of Life Scale-Cancer 2 (MQOLS-CA2)(14) and Euro Quality of life five individual-level dimensions (EQ-5D)(15,16,17), maybe due to difference in patient population or type of cancer.

In this study, among clinical parameters, only cycle of chemotherapy showed significant association and those in the second cycle of chemotherapy were more likely to have affected QoL, but no association was noted between QoL and time since diagnosis, type of therapy, stage during diagnosis and presence of other co-morbidities. This finding is similar with a study conducted in Shahid Ghazi Tabatabaei University Hospital (18) which showed no significant correlation between QoL and the time of cancer diagnosis. Similarly study done in Iran (14) showed duration of the disease and type of cancer, presence of metastasis, and type of treatment had no effect on QoL which is similar with this study. Cancer patients who started chemotherapy and were in the second cycle of chemotherapy (P=0.04) showed association with affected QoL which has some similarity with other studies that showed significant difference between the level of

QoL in patients with < 2 CT cycles and/or with 3-5 cycles (p< 0.001)(5,13).

Each of the 15 scale scores of the EORTC QLQ-C30 were analyzed and different dimensions of these scores obtained lower scores. These scale scores were calculated by averaging items within scales and transforming average scores linearly. All of the scales ranged in score from 0 to 100. A high score for a functional scale represents a high/healthy level of functioning whereas a high score for a symptom scale or item represents a high level of problems and all interpretations were done based on this assumption.

The QoL results from this study indicate lower role, emotional and social functioning than physical functioning. Role functioning had a mean of 43.36(SD=43.32), emotional functioning had a mean of 45.88 (SD=42.28), social functioning had a mean of 39.69(SD=39.69) and physical functioning had a mean of 62.71 (SD=34.86). The mean of global health status was 57.28 (SD= 25.28) which is relatively similar with EORTC (10), lower than the study in Sweden (6) and better than a study in Tanzania (19) with means of 61.3, 63.69 and 49.5, respectively.

According to the results of this study, all dimensions of functional scales except for cognitive function were shown to be lower than the standard values for comparison (10), and studies done in Sweden (6) and Iran (20). This may be related to the differences in sample size and sample population in which the comparison study (10) had been conducted in a large number of populations (23,553 people) in a wide variety of patients (patients from 49 countries). However, in comparison with a study done in Tanzania (19), most of the findings were found to be closer except for emotional functioning in which Tanzanian patients were affected less (Mean of 71.8 and SD=28.5 vs Mean of 45.88 and SD=42.28) and more affected in cognitive function. In addition, Tanzanian patients (19) were affected more in physical functioning than patients in the present study.

The findings from this study concerning symptom scales were lower in most aspects from other studies (6, 10, 19, 20), except for pain and insomnia in which Tanzanians (19) suffer more pain and sleep problems than the subjects of this study. On the other hand, the Iranians (20)

complained of more nausea and vomiting and diarrhea.

In this study, financial difficulties and fatigue had the highest scores, and diarrhea had the lowest scores. Financial difficulties had a mean of 88.42(SD=21.06), fatigue had a mean of 65.15 (SD =35.23) and the mean of diarrhea was 15.44 (SD =32.90). As opposed to the findings of this study in which financial impact is of the most affected, a study done in Sweden (6) showed financial difficulties as least affected with a mean 6.54 (SD= 17.31). This difference may be related to differences in economic status of Ethiopia and Sweden.

In general, disparities between results of this study and other previous studies (6, 10, 19, 20) can be related to the age of the subjects, the size of the sample, difference in recruited group of patients with different types and stages of cancer, and cultural factors.

Cancer patients in Ethiopia who visited TASRH report different effects related with cancer. Those survey patients report a low level of quality of life, a high level of symptoms, and a large number of unmet needs like emotional support and respected care, financial support and pain relief. Access to the health care specifically to a chemotherapy and radio therapy services was also raised.

Being a cancer patient was associated with a high level of impairment in different aspects of life. Therefore it needs to be considered that QoL assessments should be included in patient treatment protocols.

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