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Health-Related Quality of Life of Patients Receiving Cancer Treatment in Nepal: A Hospital-based Cross-sectional Study

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ABSTRACT

Background: Information on health-related quality of life of the patients enables healthcare providers to understand patients' concerns and guides to introduce appropriate treatment care. This study assessed the health-related quality of life of the cancer patients attending a tertiary hospital in Nepal.

Methods: A cross-sectional study was conducted among 294 cancer patients receiving treatment service from Bhaktapur Cancer Hospital between November 2016 and February 2017. We used the European Organization for Research and Treatment of Cancer, Quality of Life Questionnaire-Core 30 to record the scores in different domains of health-related quality of life. The scores were compared across different socio-economic characteristics using non-parametric tests.

Results: Majority of the participants were female (57.5%), of age 50 years and above (64.7%) and had either lung or breast or cervical cancer (49.32%). Participants' median scores of the global health status (overall health) and quality of life, functionality, and symptoms were 83.3, 52.7 and 31.9 respectively. Among functionality, lower mean scores were of role (45.40) and social (53.17) functioning. Among symptoms and single items, higher mean scores were of appetite loss (49.88), fatigue (46.67), insomnia (43.99), and financial difficulty (68.02). The overall health and quality of life varied significantly with different characteristics of the participants.

Conclusions: Participants reported a higher score of overall health and quality of life that reflects subjective satisfactory condition. Improving respective functionality and relieving symptoms and difficulty could enhance health-related quality of life in respective domains.

Keywords: Cancer; EORTC QLQ-C30; health-related quality of life

INTRODUCTION

There were 18.1 million new cases and 9.6 million cancer deaths in 2018 worldwide.[1,2] Cancer was responsible for 9% of all deaths in 2016 in Nepal.[3] Health-related quality of life (HRQoL) is a subjective measure on the impact of disease or treatment of different dimensions of patient's life such as physical, psychological and social.[4] The goal of health services is to improve quality of life by providing appropriate patient-centered healthcare service.[5,6] Regular assessment of HRQoL is essential component of healthcare service management an it helps understand patients' concern and to plan treatment strategy so as to improve their health and well-being.[5,7,8] But the agenda of quality of life of cancer patients seems to be neglected in countries like Nepal.[9] This study was carried out to assess HRQoL of people with cancer who were receiving healthcare services from a tertiary cancer hospital in Nepal.

METHODS

This was a descriptive cross-sectional study. This was conducted in Bhaktapur Cancer Hospital which is one of the referral cancer hospitals in Kathmandu valley, run by a collaboration between government and not-for-profit organizations. The data collection started in November 2016 and ended in February 2017.

The study population was all the diagnosed cancer patients utilizing service in the hospital at the time of study. The participants had started their treatment but not completed the treatment at the time of study. The sample size was 294, calculated at 95 percent confidence interval, when the standard deviation of 24.2 of global

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health status and quality of life (taken from international reference values), and allowable error value of 2.904.[10] Study participants were selected consecutively until the desire sample size was achieved.

A structured questionnaire was applied to collect information related to socio-economic and clinical characteristics. HRQoL was assessed by using a standardized tool EORTC QLQ-C30 (European Organization for Research and Treatment of Cancer, Quality of Life Questionnaire, Core-30), which is the most commonly used cancer specific tool. The questionnaire has been found to possess the required standards such as validity, reliability and sensitivity.[11] Nepalese version of the tool was used to report the experiences of participants. There are all together 30 questions (items) that are included to reflect different aspects of HRQoL. These can be further summarized into three major domains: (1) Global Health Status/Quality of Life (GH/QoL, overall health and quality of life), (2) Functionality, and (3) Symptoms and Single Items. Twenty eight items are rated on a response scale of "not at all (1)" to "very much (4)". The response options range from "very poor (1)" to "excellent (7)" for the 29th (overall general health) and 30th item (overall quality of life). Raw scores of rating scales were calculated and transformed into score ranging from zero to hundred. Higher GH/QoL and functional scores, and lower symptoms and single items represent better health and well-being as reported by the patients. The HRQoL scores can also be used to compare before and after treatment or among different treatment groups.[12]

Data were entered in EpiData version 3.1, and analyzed in Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics such as percentage, mean, standard deviation (SD), median and IQR (interquartile range) are presented in tables. To compare the distribution of the scores of HRQoL across different layers of socio-economic characteristics, the Mann-Whitney U Test and Kruskal-Wallis Tests were used at 95% confidence level (p-value < .05).

This study obtained ethical approval from the Institutional Review Board (IRB) of the Institute of Medicine (IOM), Tribhuvan University, Kathmandu, Nepal. We obtained written permission from Bhaktapur Cancer Hospital and informed consent from the participants before study commencement.

RESULTS

Table 1 showed the scores of different domains of health-related quality of life (HRQoL) of the participants. There were 294 participants. Mean (SD) and median (IQR) of scores of overall health and quality of life (Global Health and Quality of Life, GH/QoL) were 81.57 (SD 17.70) and 83.33 (16.67), of functionality were 58.69 (SD 29.63) and 52.67 (51.59), and of symptoms and single items were 34.83 (SD 27.56) and 31.94 (35.42).

Table 1. Health-Related Quality of Life (HRQoL) scores on various domains (n = 294).

Domain of HRQoL	Transformed Score	
	Mean (SD)	Median (IQR)
Global Health Status / Quality of Life (GH/QoL)	81.57 (17.70)	83.33 (16.67)
Physical functioning (PF)	64.76 (27.41)	80.00 (35.00)
Role functioning (RF)	45.40 (35.62)	33.33 (50.00)
Emotional functioning (EF)	66.63 (32.93)	66.67 (66.67)
Social functioning (SF)	53.17 (37.90)	66.67 (37.50)
Cognitive functioning (CF)	63.49 (32.45)	50.0 (66.66)
Functionality Scales	58.69 (29.63)	52.67 (51.59)
Fatigue (FA)	46.67 (34.78)	33.33 (66.67)
Nausea and vomiting (NV)	21.08 (27.80)	00.00 (33.33)
Pain (PA)	39.34 (30.47)	33.33 (50.00)
Dyspnea (DY)	35.60 (36.15)	33.33 (66.67)
Insomnia (IN)	43.99 (31.63)	33.33 (33.34)
Appetite loss (AP)	49.88 (36.40)	33.33 (66.67)
Constipation (CO)	22.10 (31.74)	00.00 (33.33)
Diarrhea (DI)	19.95 (32.62)	00.00 (33.33)
Symptom Scales	34.83 (27.56)	31.94 (35.42)
Financial difficulties (FI)	68.02 (33.81)	66.67 (66.67)

The score of overall health and quality of life (GH/QoL) was higher, scores of role and social functioning were lower among functionality, and scores of insomnia, fatigue, loss of appetite and financial difficulty were higher among symptoms and single items.

Among the functionality, mean (SD) and median (IQR) scores of physical functioning were 64.76 (SD 27.41) and 80.00 (35.00), of role functioning were 45.40 (SD 35.62) and 33.33 (50.00), of emotional functioning were 66.63 (SD 32.93) and 66.67 (66.67), of social functioning were 53.17 (SD 37.90) and 66.67 (37.50), and of cognitive functioning were 63.49 (SD 32.45) and 50.0 (66.66) (Figure 1 (a)).

Among symptoms and single items, mean (SD) and median (IQR) score of appetite loss were 49.88 (SD

36.40) and 33.33 (66.67), of fatigue were 46.67 (SD 34.78) and 33.33 (66.67), of insomnia were 43.99 (SD 31.63) and 33.33 (33.34), of pain were 39.34 (SD 30.47) and 33.33 (50.00), of dyspnea were 35.60 (SD 36.15) and 33.33 (66.67), of constipation were 22.10 (SD 31.47) and 00.00 (33.33), of nausea and vomiting were 21.08 (SD 27.80) and 00.00 (33.33), and diarrhea were 19.95 (SD 32.62) and 00.00 (33.33), and of financial hardship were 68.02 (SD 33.81) and 66.67 (66.67) (Figure 1 (b)).

There were 169 (57.5%) female and 125 (42.5%) male participants. Most of them belonged to age group 50-59 years (n = 99; 33.7%). Mean age of the participants was 54 years (SD 12.97). Most of the participants had informal occupation (48%) (Table 2). Regarding diagnosis (cancer site), 57 (19.4%) had lung cancer, 46 (15.6%) had breast cancer, 42 (14.3%) had cervical cancer, and 149 (50.68%) had other cancers. The number of participants whose diagnosis was made before six months was 123 (41.8%). Median duration of diagnosis was 6.5 months. Regarding present treatment, 163 (55.5%) were receiving chemotherapy, 28 (9.5%) radiation therapy, 12 (4.1%) surgery, 6 (2%) palliative care, and 85 (28.9%) were on other treatments at the time of study in the hospital (Table 3).

The overall health and quality of life (GH/QoL) of the participants varied significantly with age, sex, type of residence, education, occupation, economic status, diagnosis (type of cancer), stage, and treatment (p-value <0.05). Participants with blood or lymph related cancers had higher GH/QoL (89.47) followed by breast cancer (86.41), ENT/Head/Neck (84.00), lung cancer (80.55), cancer of cervix (79.56), others (78.26) and gastrointestinal cancer (77.97). Participants with duration of diagnosis less than six months had higher GH/QoL (82.11) than those with six months above (81.18) (Table 2,3).

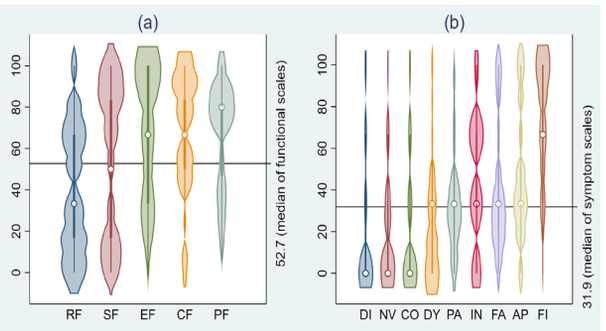

Figure 1. Scores of different items of (a) functionality and (b) symptoms and single items. *Median scores of (a) functionality and (b) symptoms were 52.7 and 31.9 respectively.*

Table 2. Global Health Status / Quality of Life (GH/QoL) scores according to socio-economic characteristics of the participants (n = 294).

	GH/QoL Score		
Characteristics (%)	Mean (SD)	Median (IQR)	p-value
Age group			
≤ 29 years (4.8)	89.88 (3.55)	91.67 (2.09)	0.004
30-49 (30.6)	79.99 (19.14)	83.33 (16.67)	
50-59 (33.7)	85.77 (13.63)	83.33 (25.00)	
60+ (31.0)	77.28 (20.07)	83.33 (25.00)	
Sex			
Female (57.5)	80.27 (17.48)	83.33 (16.67)	0.019
Male (42.5)	83.33 (17.92)	83.33 (16.67)	
Residence			
Rural (61.9)	79.76 (18.12)	83.33 (16.67)	0.006
Urban (38.1)	84.52 (16.66)	83.33 (16.67)	
Education			
Up to primary (63.6) [§]	77.09 (19.54)	83.33 (16.67)	<0.001
Above primary (36.4)	89.40 (9.95)	91.67 (16.67)	
Occupation			
Informal (48.0) [¥]	78.72 (19.29)	83.33 (16.67)	<0.001
Formal (21.1) [†]	91.53 (9.48)	91.67 (16.67)	
Student/ Unemployed (31.0)	79.21 (17.14)	83.33 (16.67)	
Economic status (self-reported)			
Enough (56.5)	82.58 (19.90)	83.33 (25.00)	0.002
Not Enough (33.7)	78.53 (14.92)	83.33 (8.33)	
Extra saving (9.9)	86.20 (10.27)	83.33 (8.34)	

[§]*Formal schooling up class five*, [¥]*Household works, small scale agriculture and livestock farming, small shop keeping, labor, etc.*, [†]*Formally registered employment or business*

Table 3. Global Health Status / Quality of Life (GH/QoL) scores according to clinical characteristics of the participants (n = 294)

GH/QoL Score

Characteristics (%)	Mean (SD)	Median (IQR)	p-value
Site of cancer			
Lungs (19.4)	80.55 (14.63)	83.33 (20.84)	0.032
Breast (15.6)	86.41 (14.73)	83.33 (16.67)	
Cervix (14.3)	79.56 (17.76)	83.33 (16.67)	
Gastrointestinal (14.3)	77.97 (26.40)	91.67 (27.08)	
ENT / Head / Neck (12.6)	84.00 (13.23)	83.33 (25.00)	
Blood/Lymph (6.5)	89.47 (3.77)	91.67 (8.34)	
Others (17.3) ‡	78.26 (19.08)	83.33 (16.67)	
Stage of cancer			
I (4.8)	86.30 (9.59)	83.33 (18.75)	<0.001
I (7.1)	73.80 (14.97)	75.00 (4.17)	
III (5.8)	70.09 (15.32)	75.00 (20.84)	
IV (4.4)	79.48 (9.38)	83.33 (8.33)	
Not mentioned (77.9)	82.96 (18.38)	83.33 (25.00)	
Duration of diagnosis			
< 6 months (41.8)	82.11 (18.92)	83.33 (16.67)	0.167
6 months or above (58.2)	81.18 (16.82)	83.33 (16.67)	
Present treatment			
Surgery (4.1)	48.61 (28.60)	66.67 (56.25)	<0.001
Radiation Therapy (9.5)	82.14 (18.52)	87.50 (25.00)	
Chemo Therapy (55.4)	79.39 (15.25)	83.33 (16.67)	
Palliative Therapy (2.0)	70.83 (16.45)	66.67 (18.75)	
Other medications (28.9)	90.98 (12.21)	91.67 (16.67)	

‡ *Cancer of bone, muscle, penile, prostate, UB, ovary etc.*

DISCUSSION

In this study participants had relatively higher overall health and quality of life (GH/QoL, Global Health Status / Quality of Life) score [mean 81.57 (SD 17.7) and median 83.33 (IQR 16.67)] that reflects subjective satisfactory status. They also had relatively lower scores of role and social functioning of functionality, and higher scores on appetite loss, fatigue, insomnia and financial difficulty of symptoms and single items.

A good quality of life said to be present when the hopes of an individual are met by their experience.[13] When compared with international reference of EORTC QLQ-C30, median GH/QoL score in this study was higher (83.33 > 66.7), but the scores of role functioning and cognitive functioning were lower (33.33<83.3 and 50<83.3). Likewise pain score was lower (16.7<33.33), scores of dyspnea and loss of appetite scores were higher (0>33.33), and the financial difficulty score was also higher (66.67>0).[10] As compared with a previous study published in 2014 GH/QoL score of participants with breast cancer was improved in this study, mean 86.41 (SD 14.73) > 52.8 (SD 24.6).[14] This could be due to recent development in cancer awareness and early detection, availability of service, trust to service providers etc.

Since they had higher GH/QoL, it does not necessarily mean that they were free from symptoms or difficulties. Symptoms due to cancer cause poor quality of life. Loss of appetite, insomnia and fatigue were the most commonly reported symptoms in this study. Fatigue is most commonly reported symptom in cancer.[15] A previous study done among breast cancer patients in Nepal showed that some of the top symptoms experienced by the cancer survivors were tiredness, lack of energy, forgetfulness, and feeling of worry. They were also having higher financial difficulty; a previous study also presented a higher score of financial difficulty in Nepalese cancer patients.[16] This could be due to the poor capacity of the people to pay for the higher cost of the cancer care to be paid through out-of-pocket (OOP) mechanism and limited governmental support.[17] The participants in our study reported higher emotional, physical and cognitive functioning scores, as opposed to lower scores of role and social functioning. A previous study in Nepal showed lower social functioning score [mean 39.65 (SD 30.36)].[18] cancer patient's different roles in family and society can be limited due to cancer and treatment. Cancer patients can experience physical, psychological, social and financial problems during cancer treatment.[14,16,18-21] Addressing these issues appropriately can enhance functionality and alleviate problems thereby leads to improved HRQoL of the cancer patients.

GH/QoL was statistically significant with different socio-economic and clinical characteristics of participants. The sub-group of participants belonging to the elderly age group (60+ years), female, rural resident, lower education, and informal occupation had lower GH/QoL score. Likewise, participants with the duration of diagnosis more than six months, gastrointestinal and cervical cancers, and recent surgical treatment showed lower GH/QoL score.

The finding implies that besides having some symptoms and restriction in their roles, cancer patients can be

hopeful about the possible better outcome of care they receive. More needs to be done to enhance their experience of physical, psychological, social and financial wellbeing to improve their overall health as well as the quality of life. Strategies of improving health-related quality of life (HRQoL) of patients can be: prioritizing agenda of quality of life, assessing HRQoL of patients regularly, addressing different issues of quality of life through evidence based cost-effective practices, avoiding low-value service that does not improve overall wellbeing, providing psycho-social support, and improving comfort through communication and relationship with family, friends and physicians.[9, 22-25] Since the burden of cancer is increasing, sound policies and investment for appropriate and affordable essential services are needed to overcome barriers to different levels of prevention and care in low-resource settings so as to create a favorable environment for the health and wellbeing of people.[26-29]

Health-related quality of life can vary with time, circumstances, and different characteristics of individuals.[13] As the data was collected in early 2017, the findings may not truly represent the current status of health-related quality of life among cancer patients in Nepal. Hence conducting a periodic assessment of HRQoL, when relevant with the use of cancer-specific tools related to specific diagnosis, and thereby appropriately addressing the relevant issues of individuals as reflected by the HRQoL assessments will help to assure better wellbeing on different aspects of the life of the cancer patients.[5, 8, 30]

CONCLUSIONS

The overall health and quality of life (GH/QoL) score of the patients undergoing cancer treatment in Bhaktapur Cancer Hospital was higher revealing subjective satisfactory status. However, their role and social functioning scores were lower among the functionality and appetite loss, fatigue, insomnia and financial difficulty were higher among symptoms and single items. GH/QoL varied significantly with different socio-economic and clinical characteristics. Their wellbeing could be further enhanced by appropriately addressing respective issues. Since the health-related quality of life (HRQoL) can vary with time and circumstances, periodic assessment, when relevant using a specific tool, is essential to plan for the overall wellbeing of the patients.

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