RESEARCH ARTICLE

Cross Sectional Assessment of Health Related Quality of Life (HRQoL) among Patients with Cancer in Malaysia

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Abstract

Background: Health Related Quality of Life (HRQoL) is an important aspect in identifying cancer patients' perceptions of being diagnosed with cancer and the assessment of treatment outcomes. The present study aimed to assess the profile and predicators of HRQoL of Malaysian oncology patients. Materials and Methods: A cross sectional study adopting the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) was conducted. All cancer patients attending Penang General Hospital between August–November 2011 were approached. Descriptive statistics were used to assess demographic and disease related characteristics of the patients. All analyses were performed using SPSS v 16.0. Results: Three hundred and ninety three cancer patients met the inclusion criteria and were enrolled in the study. The mean age was 53.9 (SD±13) years. The cohort was dominated by females (n=260, 66.2%). Nearly half (n=190, 48.3%) of the participants were of Malay ethnicity, practicing Islam as their religion (n=194, 49.4%). Two hundred and ninety six (n=296, 75.3%) had beene diagnosed with cancer within six months to 3 years previously. The most common primary cancer site was breast (n=143, 36.4%). The mean Global Health Status (GHS) score was 60.7 (SD=21.3). Females (mean GHS score of 62.3, p=0.035) with Malay ethnicity (mean GHS score of 63.8, p=0.047), practicing Islam as their religion (mean GHS score of 63.0, p=0.011) had better GHS scores. Patients having medical insurance had good scores (mean 65.6, p=0.021). Marital status was significantly associated with GHS scores (p=0.022). Bone cancer patients had the lowest mean GHS score of 49.2 (p=0.044). Patients at very advanced stages of cancer featured a low GHS mean score of 52.2 (p<0.001). Conclusions: The present study identified many demographic and disease related factors which may contribute to the HRQoL of cancer patients, pointing to the necessity for improved management of disease symptoms and provision of psychological and financial support.

Keywords: Health related quality of life - cancer - EORTC QLQ-C30 - Malaysia

Introduction

Quality of Life (QoL) is a tool of state of well being which is defined as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live in relation to their goals, expectations, standards and concerns" (World Health Organization, 1997). On the contrary Health Related Quality of life (HRQoL) usually focused on patients' perspectives regarding their disease and treatment on their functional and physical symptoms (Centers for Disease Control and Prevention, 2012). Therefore HRQoL happen to be more useful tool to identify patients' perceptions towards illness and measurement of the treatment outcome (Nanda and Andresen, 1998).

The increasing incidence of cancer is a major public

health challenge for both developing and developed nations globally. An estimated 7.6 million people died of cancer in the year 2008 (GLOBOCAN, 2008) and this fraction will be augmented to 12 million deaths by the year 2030 (World Health Organization, 2013). Cancer is ranked fourth in the list of diseases causing deaths among Malaysians at government hospitals. Incidence of cancer at advanced and untreatable stages is increasing the burden on palliative care services in an attempt to improve the QoL of cancer patients. On the other hand psychological variables such as fear of death and fear of side effects of conventional cancer treatment affect patients psychologically and emotionally. Financial difficulties due to high cancer treatment cost may also contribute in a poor QoL (Gurm et al., 2008). In Malaysia free health care services are provided to most of the

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cancer patients (Lim, 2006). Palliative care units are set up in most of the hospitals to provide treatment and consultation to patients at advanced stages and to improve the QoL. HRQoL studies are reported to be helpful in identifying predictors which contribute in improving patients suffering from chronic diseases including cancer. Several studies have attempted to evaluate the HRQoL of Malaysian cancer patients; however, these studies are limited to certain cancer type (Priscilla et al., 2011) or disease state (Lin et al., 2012). There is paucity in data concerning HRQoL of cancer patients particularly with a wide demographic and disease variations. Therefore, this study was aimed to investigate the HRQoL of a group of cancer patients in regard with their demographic and disease characteristics.

Materials and Methods

Ethics consideration

Ethical approval was obtained from the Medical Research and Ethical Committee (MREC) of the Ministry of Health Malaysia prior to the study commencement. Written consent was also taken from the patients prior to data collection. Patients were assured about the confidentiality of their responses and their right to withdraw from the survey.

Study design and setting

The study was designed as a questionnaire-based, cross-sectional analysis. Patients were recruited from Penang general hospital, Penang, Malaysia. This hospital provides major oncology services to the residents of the state of Penang and some neighbouring states including Kedah, Perlis and Perak. The hospital provides all major diagnostic and surgical procedures for cancer patients, where as the radiotherapy is provided to patients in a private hospital (Mount Miriam Cancer Hospital). The oncology department of this hospital is composed of an oncology ward, an oncology clinic, and palliative and day-care units.

Participants

Patients 18 years and above age, diagnosed with any type of cancer in the period of last 6 months to 5 years, and able to read or understand Malay (national language of Malaysia) or English, were included in this study. A total of 498 patients registered in the oncology department from August 2011 to November 2011.

Study tool

HRQoL was measured by European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) (Aaronson et al., 1993). The questionnaire comprised of a total of 30 questions with nine multi-item scales; five functional scales (Physical, Role, Cognitive, Emotional and Social Functioning), three symptom scales (Fatigue, Pain, Nausea/Vomiting), and a Global Health Status/QoL scale. Six single item scales are also included (Dyspnea, Insomnia, Appetite Loss, Constipation, Diarrhea and Financial Difficulties). The questions appear in Likert

scale format with answers as follows: "Not at all", "A little", "Quite a bit" and "Very much". The scales range from 1 to 4 except for the global health status scale, which has 7 points ranging from 1 (very poor) to 7 (excellent). All scores ranged from a minimum of 0 to a maximum of 100 and were computed using linear transformation by referring to the EORTC scoring manual (Aaronson et al., 1993). Higher scores indicate better functioning and global health status, whereas, higher scores in symptom scales indicate more symptoms. The approval was obtained by the European Organization for Research and Treatment of Cancer Quality of Life. Tool was used in two languages i.e. Malay and English.

Results

HRQoL scores and their correlation with Global Health Status (GHS) scores

A total of 393 questionnaires were included for the final analysis. Table 1 represents the responses to the EORTC QLQ-C30 of the patients and their association with Global Health Status (GHS). The mean GHS score was 60.7 (SD±21.3). Results indicated that all the subscales were linearly and fairly correlated with HRQoL except social functioning subscales. Patients with better physical, emotional, role and cognitive status experienced better HRQoL. On the symptoms scale pain and fatigue were significantly but negatively correlated with HRQoL. Weak negative correlation was also observed between dyspnoea, insomnia, appetite, constipation and financial difficulties with HRQoL.

Association between demographic characteristics of the participants and the mean GHS scores

The demographic characteristic of the participants and the association between the global health scores is summarized in Table 2. The mean age of the participants

Table 1. Mean Scores of EORTC QLQ-C30 Subscale and Their Correlation with GHS Scores

Scale Items	Mean	SD	Correlation coefficient	P values
Global Health Status**	60.7	21.3	-	-
Functional scales†				
Physical functioning	71.6	31.9	0.37	**<0.001**
Role functioning	72.4	27.1	0.23	**<0.001**
Emotional functioning	77.4	22.1	0.27	**<0.001**
Cognitive functioning	84.9	23.6	0.2	**<0.001**
Social functioning	83.0	26.5	0.09	0.050
Symptom scales/items¥				
Fatigue	32.1	28.3	-0.34	**<0.001**
Nausea and vomiting	16.1	27.8	-0.063	0.210
Pain	29.7	35.0	-0.31	**<0.001**
Dyspnoea	17.5	33.3	-0.125	**0.013**
Insomnia	28.6	26.5	-0.18	**<0.001**
Appetite loss	26.9	24.8	-0.23	**<0.001**
Constipation	12.4	31.8	-0.125	**0.013**
Diarrhoea	11.3	21.3	-0.07	0.119
Financial difficulties	27.8	28.6	-0.14	**0.004**

*All scores have a potential range from 0 to 100. **High score for the global health status/QoL represents a high QoL. †High score for a functional scale represents a high/healthy level of functioning. ¥High score for a symptom scale/item represents a high level of symptomatology/problem

Table 2. Association between Participants' Demographic Characteristics and the Mean GHS Scores

Variables		Frequency (%)	Mean Global Health scores	SD	P values
Age¥			(Mean±SD)		53.92(±13.0)
	18-27	12 (3.1)	68	21.8	
	28-37	29 (7.4)	62.6	19.8	0.171
	38-47	73 (18.6)	63.3	22.8	
	48-57	118 (30.0)	59.1	20.6	
	58-67	109 (27.7)	62	20.3	
	>67	52 (13.2)	54.9	23.1	
Gender¥¥	Male	133 (33.8)	57.4	21.8	**0.035**
	Female	260 (66.2)	62.3	20.9	
Race¥	Malay	190 (48.3)	63.8	20.8	
	Chinese	136 (34.6)	57.9	21.1	**0.047**
	Indian	60 (15.3)	57.7	22.2	
	Others*	7 (1.8)	57.1	25.6	
Religion¥	Islam	194 (49.4)	63	20.8	
	Buddhism	125 (31.8)	59.2	21.5	
	Hinduism	52 (13.2)	59.4	22.0	**0.011**
	Christianity	14 (3.6)	48.8	16.6	
	Others**	4 (1.0)	35.4	23.9	
	Irreligion	4 (1.0)	54.1	15.9	
Educational status¥					
	Primary	113 (28.8)	63.3	20.8	
	Secondary	191 (48.6)	59.2	22	
Diploma/Matriculation		28 (7.1)	58.6	19.5	0.431
	University degree	22 (5.6)	59.8	23.9	
	Postgraduate degree	5 (1.3)	71.6	16.2	
	Never go to school	34 (8.7)	61.2	19.3	
Marital status¥	Unmarried	41 (10.4)	60.5	20.2	
	Married	325 (82.7)	61.4	21.2	**0.022**
	Divorced	7 (1.8)	69	24.3	
	Widowed	19 (4.8)	47.3	21.3	
	Others***	1 (0.3)	41.7	-	
Employment status¥					
	Employed	105 (26.7)	64.3	20.5	
	Unemployed	119 (30.3)	58.3	21.4	0.072
	Retired	74 (18.8)	57.7	21.4	
	Home maker	87 (22.1)	61.2	21.9	
	Student	6 (1.5)	74.9	20.4	
	Others****	2 (0.5)	50	0	
Medical Insurance¥¥					
	Yes	82 (20.9)	65.6	18.2	**0.021**
	No	311 (79.1)	59.4	21.9	
Monthly income in MYR/month¥					
	No income	250 (63.6)	61.8	20	
	<1000	56 (14.2)	59.8	24	0.864
	1000-3000	64 (16.3)	57.6	23.5	
	>3000	23 (5.9)	59.4	22.5	

*Sikh, Iban, **Sikhism, ***Unknown, ****Odd jobs, ¥Kruskal–Wallis Test, ¥¥Mann–Whitney test

Table 3. Association between Participants' Disease Characteristics and the Mean GHS Scores

Variables	Frequency (%)	Mean Global Health scores	SD	P value¥
Primary cancer site				
Breast	143 (36.4)	63.1	21.5	
GIT cancers*	88 (22.4)	59.4	20.8	
Gynaecological cancers**	37 (9.4)	62.6	16.5	
Lung	34 (8.7)	52.4	24.6	
Naso-pharynx	23 (5.9)	64.8	20.2	**0.044**
Prostate gland	15 (3.8)	64.4	16.1	
Bone	11 (2.8)	49.2	21.2	
Brain	11 (2.8)	61.3	24.7	
Thyroid	8 (2.0)	79.1	7.6	
*Others***	21 (5.3)	49.9	20	
Don't Know	2 (0.5)	50	23.6	
Duration of disease (Mean±SD) 2.0±0.92				
6 months-1year	147 (37.4)	60	21	
>1-3 years	149 (37.9)	62.2	21.7	0.691
>3-5 years	74 (18.8)	60.2	19.7	
Don't Know/Not Sure	23 (5.9)	56.8	26.1	
Cancer stage				
Very advanced	103 (26.2)	52.2	22	
Slightly advanced	165 (42.6)	64.3	19.1	**<0.001**
Not advanced at all	65 (16.5)	66.6	20.5	
Undetermined	18 (4.6)	54.6	24.2	
Don't Know/Not sure	42 (10.7)	60.5	21.9	

*Gastrointestinal Tract cancers include colon, rectum, stomach, and intestine. **Gynaecological cancers include ovarian, cervical, uterine cancers. ***Others, include carcinoma of tongue, germ cell, skin, lymphoma. ¥Kruskal–Wallis Test

with GHS scores (p=0.022) having higher mean GHS score of 69.0 among divorced participants.

Association between disease characteristics of the participants and the mean GHS scores

Table 3 represents the disease characteristics and mean score GHS scores of the participants. Two hundred and ninety six (n=296, 75.3%) were diagnosed with cancer within six months to 3 years. Most common primary cancer sites were breast cancer (n=143, 36.4%), followed by gastrointestinal (including colon, rectum, stomach, and intestine) cancers (n=88, 22.4%) and gynaecological (including ovarian, cervical, uterine) cancers (n=37, 9.4%). Majority of the patients were having their cancers between slightly advanced (n=165, 42%) to very advanced (n=103, 26.2%). In addition (34.1%) received chemotherapy, surgery and radiotherapy, (17%) received surgery and chemotherapy and (14.5%) were on chemotherapy alone (data not given in the Table).

Bone cancer patients were having the lowest mean GHS scores of 49.2 (p=0.044). Stage of cancer was significantly associated with the mean GHS scores. Patients at very advanced stages of cancer reported to have lower GHS mean score of 52.2 (p<0.001). No significant difference was observed between the duration of disease and GHS scores.

Discussion

This study was aimed to investigate the HRQoL of a group of cancer patients having cancers of different types and at different stages. The study confirmed that the cancer has affected patients' quality of life adversely. The global health status score was lower than the individual scores on

was 53.92 (SD±13) years. The cohort was dominated by females (n=260, 66.2%). Nearly half (n=190, 48.3%) of the participants were from Malay ethnicity, practicing Islam as their religion (n=194, 49.4%). Majority (n=191, 48.6%) were having secondary level of education, one hundred and nineteen (33.3%) were unemployed, two hundred and fifty (63.3%) reported to have no monthly income (including house wives and students), and majority (n=311, 79.1%) did not have any medical insurance.

Female with mean GHS score of 62.3 (p=0.035) with Malay ethnicity with mean GHS score of 63.8 (p=0.047), Muslims with mean GHS score of 63.0 (p=0.011) were having better GHS scores. Patients having medical insurances showed better GHS score with mean score of 65.6 (p=0.02). Marital status was significantly associated

functional scales. Studies have shown that psychological impact of late cancer diagnosis, fear of cancer treatment and their side effects as well as fear of death may affect patients emotionally (Montazeri, 2008; Mirabeau-Beale et al., 2009). Participants of this study showed poor scores on emotional functioning compare to cognitive and social functioning. Side effects of conventional cancer therapies such as nausea and vomiting affect the quality of life of cancer patients. Lin et al. (2012) reported nausea and vomiting was poorly controlled among a group of breast cancer patients thus affecting the HRQoL of the participants of their study (Lin et al., 2012). However; nausea and vomiting scores were low among the participants of this study probably due to a better control of nausea and vomiting with effective antiemetic regimens. Similar to what has been reported previously, fatigue and pain was significantly associated with HRQoL among the participants of this study (Montazeri, 2008). Financial difficulties were another component significantly affected the HRQoL of the participants of this study. Majority of the participants were unemployed having no medical insurance. The burden of cancer treatment and not having the source of income may also affect patients emotionally and psychologically and contributed to a poor quality of life (Yen et al., 2011). Malaysian health care system offers free treatment for cancer to most of its citizens; however, an ever increasing number of cancer cases may force patients to seek treatment at private hospitals particularly during the aggressive phase of the disease. This may contribute in financial difficulties, hence cause poor quality of life. Patients having medical insurance showed better quality of life scores which is due to stable financial status and less worries regarding treatment expenses and management of the disease which may contribute to affect the quality of life of cancer patients.

Muslim, Malay female patients showed better global health scores, thus a better quality of life. This result is in line with Taleghani et al. (2006) which reported spirituality as a primary source of psychological well being among newly diagnosed Muslim breast cancer patients (Taleghani et al., 2006). Similarly, Harandy et al. (2009) reported that majority of the Muslim Iranian breast cancer survivors attributed spirituality and religiosity to cope with their disease and for their psychological well being (Harandy et al., 2009). In order to understand the role of religious teaching in Islam and its potential effects on patients' psychological well being it is imperative to understand the concept of life and death in light of the Holy Book Al-Quran. According to the Muslim faith, illness and cure comes from the Lord (Allah), as the Al Quran says in chapter 26, Al Shuara, verse 80: And when I sicken, then He (Allah) health me (Quran Explorer, 2011). Prayers are among the common coping strategies to deal with stress and to seek help from Allah in Muslim faith, as the Al Quran says in chapter 13, Al Rad, verse 28: They are those who believe and whose hearts find rest in the remembrance of Allah. Lo! in the remembrance of Allah hearts do find rest (Quran Explorer, 2011). Therefore, we can conclude that the global health score among Muslim female cancer patients indicates that a strong faith in Allah helped them in coping with cancer. Patients with bone

cancer and very advanced stage cancer patients showed the lowest GHS scores. Similar results were reported in China in a follow up study, which reported that patients with bone cancer were having poor HRQoL and during the follow-up HRQoL was reported to improve after receiving effective treatments for bone cancer (Sun et al., 2012). Although this study presented the HRQoL of Malaysian cancer patients, further investigation is needed to evaluate the HRQoL of Malaysian cancer patients particularly of those who suffering from bone cancer to improve palliative care services for this group of patients. A final possible reason of poor QoL of the participants of this study could be cancer treatment itself. It is evident among haematological cancer patients that patients during the active cancer treatment showed reduced physical functioning, poor appetite and fatigue compared to patients in non-active treatment (Johnsen et al., 2009). Since the sample was selected form hospital where majority of the patients were receiving conventional cancer treatment it can be concluded to some extent that the cancer treatment itself may contribute in poor QoL.

The study is as a cross sectional study among cancer patients in public hospital that are usually approached by low to middle income population. Whereas, the high income group usually uses these facilities in emergency only. Hence the results of our research may not represent the entire population.

In conclusion, the present study identified many demographic and disease related factors which may contribute in affecting the HRQoL of cancer patients. The functional and symptoms scores showed affect on patients with cancer, it is therefore, recommended that the better management of the disease symptoms and psychological and financial support is required for cancer patients.

Acknowledgements

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