# RESEARCH COMMUNICATION

# Quality of Life in Malaysian Colorectal Cancer Patients : A Preliminary Result

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## Abstract

**Objective: Rapidly increasing colorectal cancer (CRC) incidence in Malaysia and the introduction of cutting edge new treatments, which prolong survival, mean that treatment outcome measures meed to be evaluated, including consideration of patient's quality of life (QoL) assessment. There are limited data on QoL in CRC patients, especially in Malaysia. Therefore, this study was performed focusing on cancer stages and age groups. Methods: The cross sectional study was conducted from June to September 2011 at three public tertiary hospitalswith the EORTC QLQ C-30 questionnaire in addition to face to face interview and review of medical records of 100 respondents. Results: The mean age was 57.3 (SD 11.9) years with 56.0% are males and 44.0% females, 62% of Malay ethnicity, 30% Chinese, 7% Indian and 1% Sikh. Majority were educated up to secondary level (42%) and 90% respondents had CRC stages III and IV. Mean global health status (GHS) score was 79.1 (SD 21.4). Mean scores for functional status (physical, emotional, role, cognitive, social) rangeds between 79.5 (SD 26.6) to 92.2 (SD 13.7). Mean symptom scores (fatigue, pain, nausea/vomiting, constipation, diarrhea, insomnia, dyspnoea, loss of appetite) ranged between 4.00 (SD 8.58) to 20.7 (SD 30.6). Respondents role function significantly deteriorates with increasing stage of the disease (p=0.044). Females had worse symptoms of pain (p=0.022), fatigue (p=0.031) and dyspnoea (p=0.031). Mean insomnia (p=0.006) and diarrhea (p=0.024) demonstrated significant differences between age groups. Conclusion: QOL in CRC patients in this study was comparable to that in other studies done in developed countries. Pain, fatigue and dyspnoea are worse among female CRC patients. Given that functions deteriorates with advanced stage of the disease at diagnosis, a systematic screening programme to detect cases as early as possible is essential nationwide.**

**Keywords:** Colorectal cancer - quality of life - EORTC QLQ C-30 - Malaysia

## Introduction

Colorectal cancer (CRC) is one of the most common cancer in the world. It is the third most common cancer in United Kingdom (Cancer Research UK, 2010) as well as in the United States of America (Jemal et al., 2008). In the Asian population, there is a rapid increase in the trend of colorectal cancer incidence (Hyodo et al., 2010). Malaysia is also experiencing the same increasing trend of colorectal cancer, where it becomes the most common cancer among males superseded lung cancer (National Cancer Registry, 2006). The increasing trend of colorectal cancer incidence in Asia and many other economic transition countries (Center et al., 2009) prompt a more effective screening programme as well as comprehensive treatment of CRC which includes consideration of patient's quality of life.

In Asia, screening with faecal occult blood test is a national policy only in Japan, Taiwan and Korea (Hyodo et al., 2010). In Malaysia, currently the awareness of the importance of CRC screening is very low especially among the general population as well as the policy makers

which resulted in inadequate resources allocation for faecal occult blood test and colonoscopy and subsequently late stage of the disease at presentation. The advances in the treatment of colorectal cancer and effectiveness of the screening programmes especially in the developed countries had resulted in the increasing number of colorectal cancer survivors not only because of the disease could be cured but patients can survive longer with the disease. Therefore, the paradigm of outcome in colorectal cancer treatment for the past decade has slowly shifted towards improvement of patients' quality of lives, besides survival and disease free survival. This shows that health related quality of life is one of the fundamental aspects in colorectal cancer management while survival and disease free survival remain critical Bottomley (2002). Assessment of colorectal cancer patients quality of life is important for patients as well as to the clinicians because the results can guide patients to the treatment options while informed decision making can be made by the clinician. Quality of life although it is a subjective perception of cancer patients' symptoms, function and side effects

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of treatment, its' result may guide clinician in making treatment decision. The use of patient's reported questionnaire has become a standard practice to assess patients's QOL. The European Organization for Research and Treatment in Cancer (EORTC) Quality of Life Questionanaire Core-30 (EORTC QLQ) C-30 is a multidimensional structured questionnaire which is applicable across a range of cultures to assess quality of life in cancer patients. It incorporates five functional scales (physical, role, cognitive, emotional and social); eight symptoms scales (fatigue, nausea/vomiting, pain, dyspnoea, insomnia, appetite loss, constipation and diarrhoea); patients perception on financial impact of the disease and a global health status scale (Aaronson et al., 1993). This questionnaire has been validated to be used among breast cancer patients in Malaysia (Yusoff et al., 2010). In Malaysia there is limited data on the health related quality of life especially among CRC patients. Therefore, this study will attempt to describe the QOL among CRC patients receiving formal treatment at three different hospitals in Malaysia and the factors associated with QOL.

## Materials and Methods

This is a cross sectional study conducted between June to September 2011 and we obtained 100 participating respondents from three public tertiary level hospitals including a teaching hospital. Purposive sampling method was used to choose these hospitals as they are hospitals with surgical and oncology specialties, within Klang Valley and are easily accessible. Upon receiving ethical approval from these institutions as well as Ministry of Health Malaysia, universal sampling was done where all patients who attended surgical/oncology clinics and inpatients' wards as well as from the daycare centre were chosen. The eligibility criterias used were confirmed diagnosis of CRC within the past two years, age more than 18 years old and without mental health problems. Informed consent to participate in the study was obtained from patients prior to the guided, face to face interview by trained interviewers. Review of medical records was also employed to ensure validity of diagnosis, treatment method and stages of disease.

In EORTC QLQ C-30, there are 30 questions which assess global health, functions, symptoms and financial implications of the disease. There are four response scales for most items; from 1 (not at all) to 4 (very much) except for global health status which employed a seven point response scale. All raw data were linearly transformed through Syntax description order; to give a score between 0-100. A high score for a global health scale or functional scales represent a higher level of QOL , thus higher level of function. On the other hand, higher scores on the symptoms scales represent a higher level of self-perceived symptoms by patients (Fayers et al., 2001).

Respondents' sociodemographic profile gathered were age, gender, ethnicity, educational level and occupation as well as their stage of their disease. SPSS-version 19 was used to analyse the data using the power of study of 80% and an alpha error of less than the value of 0.05 to be statistically significant. Descriptive statistics were used to describe the result for sociodemographic characteristics of the respondents and scales in EORTC QLQ C-30. All continuous variables were checked for their normality through Kolmogorov-Sminoy analysis. Independent sample t-test, analysis of variance (ANOVA) and non parametric analysis such as Mann-Whitney U test and Kruskal-Wallis test were used (based on the normality of the scores) to test whether there are significance differences in the mean (or median) of each EORTC QLQ C-30 scales scores across age groups, disease stages as well as other independent variables.

## Results

A total of 100 respondents were included in this preliminary report, 44.0% of respondents were from the teaching hospital, 40.0% from a southern hospital and 16.0% from a central tertiary level hospital. We obtained a 100% response rate among respondents who willingly participated in the EORTC QLQ C-30 questionnaire.

*Sociodemographic Profile*
The mean age of respondents is 57.29 (SD 11.89) years (range: 19-78 years). As many as 80 respondents (80.0%) was more than 50 years old. While from these respondents more than 50 years old, as high as 23.0% are aged between 55-59 years old. Only 20 respondents (20.0%) are less than 50 years.

The mean age amongst male and female respondents were almost similar with mean age for male respondents was 56.70 (SD 11.77) years and slightly older age for females, at mean age of 58.05 (SD 12.14) years. The age difference is not significant (t=0.561; p=0.576).

There are 56.0% of male respondents and 44.0% female respondents in this study. The CRC incidence rate is definitely higher among males in Malaysia and this could explain the higher percentage seen among men. In terms of gender distribution, there is no significant difference in gender distribution across all ethnic groups ($X^2$=1.988; p=0.58) as well as across age groups ($X^2$= 13.880; p=0.179).

Ethnic distribution among respondents are reflective of the Malaysian population in general which are 62% are of Malay ethnicity, 30% Chinese, 7% Indian and 1% are from other ethnicity such as Sikhs. Patients from Chinese ethnicity constitutes 56.7% in stage IV CRC; majority of Indians patients at 57.1% are in stage III, however this differences are not significant ($X^2$=4.877; p=0.560). Among respondents less than 50 years old, 80.0% are Malays and among Malays themselves 25.8% are in the younger age group (less than 50 years old).

Education level shows that 42% of respondent's educations are up to secondary school level. There is no significant difference in stage of the disease among respondent's levels of education ($X^2$=6.037; p=0.419). In terms of stage of the disease at diagnosis, more than 90% respondents are in stage III and IV; while there was no respondent from stage I as mentioned in the above reason.

The mean age of respondents in stage II is 62.1(SD 9.02) years, stage III is 57.26 (SD 12.06) years and

stage IV is 56.30 (SD 12.23) years but these differences are not significant (ANOVA, F=0.981 p=0.379). Other sociodemographic characteristics of respondents such as gender, ethnicity, level of education and stage of the disease are shown in Table 1. There was no stage I cancer cases available.

*Quality of Life*

Respondents' QOL was measured using EORTC QLQ C-30 questionnaire that constituted one Global Health Status (GHS) score, five functional score and eight symptoms score. Normality check for all the scores indicate that only GHS and financial implication are normally distributed while the rest are not normally distributed due to skewness of the variables data which is commonly occurs in quality of life data (Engle 2003). Therefore the analysis of quality of life data mainly used non parametric statistical analysis, while other data analysis used the parametric analysis depending on the normality of the data tested.

a) Global health status (GHS), the mean waw 79.1(SD 21.43) (male, 82.44 (SD 19.76); female 74.81 (SD 22.90) ,not significant (t=1.786; p=0.077)). There is no correlation between GHS and age (r=0.051; p=0.611). Among the ethnicities, Indian has the highest mean GHS (88.10; SD 17.91); followed by Malays (80.51; SD 20.91) and Chinese (74.44; SD 23.05). Although mean GHS score increases with increasing level of education, this difference is not significant (ANOVA, F=2.221; p=0.091). GHS score is highest in patients at stage II with the mean score of 85.00 (SD 12.91); compared to stage III mean GHS score at 78.49 (SD 24.14) and stage IV at 78.37 (SD 20.39) but these differences are not statistically significant (p=0.659). Comparing the mean GHS by age categories, results showed that GHS is not associated with age categories (ANOVA, F=0.419; p=0.659) whereby the mean GHS in younger age group (less than 50) is 76.67 (SD 22.06). The mean GHS in respondents at age 50 and above is at 79.69 (SD 21.37). In general the overall GHS in this preliminary study is comparable to other studies done in developed countries as shown in Table 2.

b) Functional and Symptoms Score, respondents mean functional and symptoms score were compared with other studies (Engle et al., 2003; Tsunoda et al., 2005; Braun et al., 2011). The mean functional score in this study ranges between 79.50 (SD 26.58) to 92.17 (SD 13.71). However, respondents symptoms score in this study are almost similar with other studies. There is a significant difference using the Mann-Whitney U test between the cognitive function between man and women (p=0.031); in which male respondents have better cognitive function compared to females. Mann-Whitney U test also showed that pain (p=0.022); fatigue (p=0.031) and dyspnoea (p=0.031) have statistically significant difference between male and female, where female experienced worse symptoms.

In terms of ethnicity, there is a significant difference (Kruskal Wallis test) in the mean score of diarrhea among the four ethnicities (p=0.004). Sikh and Indian respondents reported having worse symptoms of diarrhea compared to Malay and Chinese. Even though there are no significant difference (Kruskal Wallis test) in the mean functional

**Table 1. Sociodemographic Characteristics of 100 Respondents**

| Variables | | N | Percentage (%) |
|---|---|---|---|
| Gender: | Male | 56 | 56 |
| | Female | 46 | 46 |
| Ethnicity: | Malay | 62 | 62 |
| | Chinese | 30 | 30 |
| | Indian | 7 | 7 |
| | Others | 1 | 1 |
| Level of Education: | Never schooled | 8 | 8 |
| | Primary school | 40 | 40 |
| | Secondary school | 42 | 42 |
| | Tertiary-University | 10 | 10 |
| Stage of Disease: | I | 0 | 0 |
| | II | 10 | 10 |
| | III | 42 | 42 |
| | IV | 47 | 47 |

**Table 2. Respondents Mean Score (EORTC QLQ C-30) Compared With Other Studies**

| Domains | EORTC QLQ C-30 score | | Engle 2003 | | Braun 2011 | | Tsunoda 2005 | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Global health status | 79.1 | 21.4 | 65 | NA | 62.6 | 24.0 | 74.8 | 22.7 |
| Physical Function | 83.2 | 20.5 | 82 | NA | 78.6 | 20.7 | 88.3 | 16.0 |
| Role Function | 79.5 | 26.6 | 65 | NA | 70.3 | 30.3 | NA | NA |
| Emotional Function | 86.4 | 17.9 | 69 | NA | 70.6 | 22.7 | 89.8 | 11.9 |
| Cognitive Function | 92.2 | 13.7 | 83 | NA | 79.7 | 22.0 | 83.1 | 18.0 |
| Social Function | 88.2 | 17.3 | 74 | NA | 68.4 | 31.1 | 93.1 | 14.1 |
| Fatigue | 16.6 | 19.8 | 35 | NA | 38.8 | 27.9 | 24.3 | 20.4 |
| Nausea / vomiting | 4.00 | 8.58 | 5 | NA | 13.4 | 22.3 | NA | NA |
| Pain | 17.2 | 21.3 | 19 | NA | 29.3 | 30.6 | 7.8 | 16.5 |
| Dyspnoea | 8.7 | 16.2 | 14 | NA | 19.5 | 26.2 | NA | NA |
| Insomnia | 20.7 | 30.6 | 31 | NA | 33.7 | 31.8 | NA | NA |
| Appetite loss | 18.0 | 22.9 | 11 | NA | 25.2 | 31.2 | NA | NA |
| Constipation | 8.67 | 23.0 | 13 | NA | 17.5 | 27.4 | NA | NA |
| Diarrhoea | 10.3 | 21.0 | 28 | NA | 15.4 | 24.1 | NA | NA |
| Financial problems | 26.0 | 30.6 | 22 | NA | 32.5 | 32.9 | NA | NA |

* 'SD- standard deviation. NA- non applicable

**Table 3. Stage Variation**

| Domains | Stage II | | Stage III | | Stage IV | | F | P |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | | |
| Global health status | 85 | 13 | 78 | 24 | 78 | 20 | 0.42 | 0.66 |
| Physical Function | 90 | 13 | 82 | 22 | 83 | 21 | 1.34 | 0.51 |
| Role Function | 97 | 11 | 78 | 28 | 78 | 26 | 6.32 | 0.04** |
| Emotional Function | 93 | 13 | 84 | 20 | 87 | 17 | 1.80 | 0.41 |
| Cognitive Function | 99 | 12 | 91 | 15 | 93 | 13 | 0.19 | 0.91 |
| Social Function | 92 | 14 | 88 | 19 | 88 | 17 | 0.71 | 0.70 |
| Fatigue | 7 | 14 | 18 | 22 | 18 | 19 | 3.72 | 0.16 |
| Nausea / vomiting | 2 | 5 | 2 | 6 | 6 | 11 | 3.78 | 0.15 |
| Pain | 12 | 14 | 18 | 23 | 18 | 21 | 0.40 | 0.82 |
| Dyspnoea | 5 | 14 | 6 | 13 | 11 | 19 | 1.86 | 0.40 |
| Insomnia | 13 | 14 | 24 | 34 | 21 | 30 | 2.22 | 0.33 |
| Appetite loss | 15 | 16 | 17 | 22 | 21 | 25 | 1.55 | 0.46 |
| Constipation | 0 | 0 | 14 | 29 | 6 | 18 | 4.17 | 0.12 |
| Diarrhoea | 15 | 23 | 9 | 19 | 11 | 22 | 0.70 | 0.71 |
| Financial problems* | 15 | 23 | 30 | 32 | 26 | 31 | 1.82 | 0.17 |

* ANOVA test; **p<0.05 Kruskal Wallis Test

scores between age groups, there is a significant difference in the mean score of insomnia (p=0.006) and diarrhea (p=0.43) between age groups.

Based on Table 3, respondents' role function is

significantly associated with disease (Kruskal Wallis test), stage with increasing stages showing decreasing role function (p=0.043).

c) Financial implication, in this study, mean score of financial implication of CRC on respondents is 26.00 (SD 30.55). Comparing this value with another studies, there is not much difference whereby on average, patients do not feel so much financial burden of the disease. There is no correlation between age and financial implication (r=0.040; p=0.691). Financial implication of CRC are not affected by stage of disease or age groups. However, as expected, level of education is a factor that influence patients perception of financial implication of CRC (ANOVA, F=3.145; p=0.029). Mean score of financial implication of CRC increases with decreasing level of education. This means that less educated patients are likely to have a worse financial implication towards the disease.

## Discussion

CRC is a growing burden especially to developing countries. Literatures have shown that the effects of cancer are not only to patients' health but also cost their quality of life Watson (2001), Bottomley (2003). The introduction of new, more effective treatment prolongs survival. Therefore, evaluation of patients' quality of life becomes important and essential in guiding physician to make decision as well as patients choosing their treatment option Bottomley (2003). In Malaysia, only a few studies have been done to assess quality of life among CRC patients despite the growing burden of this disease. Therefore this study is timely and essential to determine the quality of life in CRC patients especially those receiving treatment.

Respondents of this study mainly in stage III and IV of CRC, which are considered to be in late stages of the disease and we have no respondents was found to be in stage I from the public tertiary level hospitals. This shows that, the awareness of colorectal cancer screening in Malaysia to detect the early CRC stage is very poor, mainly ad-hoc and not implemented as a national wide programme. This is in line with the findings of a study done by Kong et al. (2010) where it was stated that there is near zero awareness on CRC screening among the general population.

Literatures also suggest that poor socio economic status might be the factor contributing to the late stage at diagnosis of CRC (Mandleblatt et al., 1996). The Global Health Status (GHS) and all functional scores in this study are slightly higher than studies by Braun et al. (2003) and Engle et al. (2011). The reason for this might be the respondents in this study are mainly patients receiving treatment at tertiary level hospital, that provide better inpatients services including palliative care and pain care management. Therefore, the result is reflective of the quality of life in patients who are still being influenced by hospital surroundings as compared to other studies done (Braun et al., 2003), (Engle et al., 2011) where the questionnaire were mailed to the respondents at home who are within the family and community environment. There are certain characteristic at home health care/ patients living in community which influence patients' perception

towards their health and treatment outcome Ellenbecker (2008). Cultural factors such as societal stigma, physical appearance and also societal beliefs are some of the factors which can reduce patients perception towards their quality of life. Another reason might be due to the nature of data collection in this study whereby respondents were asked the questions by trained interviewer and not a self completion as done by the two studies where they are more willing to forward their grouses and grievances. In this case, respondents tend to mark-up their score to impress the interviewer as in the Hawthorne effects. Overall, the GHS and functional scores in this study are comparable to other studies done in developed countries.

Mean age of the 100 respondents in our study is at 57.29 years (SD 11.89) which is almost similar with other studies. However, almost a quarter of the respondents are at the age of 55-59 years old (23.0%) which is relatively a younger population age group. This result is in agreement with studies in Western countries by Braun et al. (2011) in United States and Engle et al. (2003) in Germany but on the other hand Tsunoda et al. (2005) in Japan showed that majority (43.0%) of their respondents are more than 70 years old due to the ageing effect of the population. Even though this is not a national survey of CRC in this country, this reflects that younger generation of the population in Malaysia are acquiring CRC. These might be due to the effects 'globalisation' of our population in which unhealthy lifestyle, eating habits and poor screening uptake that has rampaged most of the younger generations nowadays. The risk factors of food and dietary intake, smoking, sedentary lifestyles are partly to blame for this phenomenon. The lifestyle and dietary habits adopted by the younger population in Malaysia nowadays which in favour of sedentary life, smoking habits, high caloric intake, more red processed meat and less fibre are all the factors which can contribute to the development of CRC.

Interestingly, the Malays presented with a more late stage of CRC compared to Chinese and Indians. This is similar to findings of a study done in 2007 where 54.3% Malays were commonly diagnosed as stage C2 while 58.1% Chinese with stage B2 (Azmi et al., 2007). The Malay population in Malaysia has a strong belief in traditional healers. They tend to seek treatment from traditional or complimentary healers first before they go to the hospital and this is why they are in the late stages of the disease at diagnosis. Lack of health awareness among Malays in which they regards their symptoms as simple illness also contribute to their delay in their presentation to formal health care providers.

National Cancer Control Programme in Malaysia has outlined strategies to reduce the incidence and mortality due to cancer and improve the quality of life of cancer patients. These include optimum utilization of available resources, accessibility to a complete and reliable data on cancer, appropriate dissemination of cancer information to the public and strengthening of the existing preventive measures. Unfortunately, the later strategy is not being aggressively done in which our CRC screening programme and at creating awareness among the population are being underplayed. Therefore more aggressive efforts to boost on screening programme

adoption for the country through risk assessment scores and boosting awareness especially to the high risk group of population should be implemented.

Global health status (GHS) of respondents are comparable with studies done in developed countries despite that all these patients in our study are not on the novel monoclonal antibody. Monoclonal antibody are recognised as the newer, more expensive, more effective and less side effects treatment option for CRC in advanced stages of cancer. From literature reviews, studies that showed patients managed on monoclonal antibody will present with better survival as well as improved quality of life (Au et al., 2009).

Male respondents reported having better cognitive function than female. Female also are reported experienced worse symptoms of pain, fatigue and dyspnoea. This is in agreement with a study done in Germany where it found that Global Health Status and physical functioning were significantly worse for woman than for men. The women score is more affected because of the bigger effect of this disease on women physically and thus produce more symptoms.

Physical functioning and global health are both impaired, and fatigue is the most relevant factor over time for women (Ruste and Ngelangel, 2011). The 5 year survival rate also adversely affect man in which female had a significantly increased 5 year survival rate (McArdle et al., 2003). This finding is also consistent with other studies by Engle et al. (2003) and Schmidt et al. (2005).

Fatigue level were significantly higher for woman than for men, perception of postoperative QOL is different between men and women after surgery for rectal cancer. Women feel more stress throughout the entire follow-up period, as shown in significantly higher treatment strain values up to 12 months after surgery.

This study also found that diarrhea is higher among the Indian and Sikh compared to Malay and Chinese. In other study by Sanoff et al. (2009) reported that adverse reaction of diarrhea is more prevalent in White American than Blacks.

Results from this study noted that the symptom insomnia was also reported to be worse in the extreme age groups. They include the very young age group of between 15-19 years and the very old age group 75-79 years. This might be due to the emotional effects CRC as well as physiologic changes especially to the oldest age group of patients and left them unable to get a good night sleep. Diarrhea is another symptom that significantly affect the younger age group. The reason for this might be that younger people always have many more activities and role to play in their daily life, therefore when they have diarrhea that limits their activities they feel that symptom is very irritating and designate a high score for it.

In terms of functioning status, this study revealed that respondent's role function deteriorates with advanced stage of the disease. In other words, their function to do daily work or other activities or even pursuing their hobbies or leisure time activities are more affected if they are in a more advanced stage. Therefore, this again warrants a serious attention to be paid to the importance of awareness towards screening for CRC in order not have more patients presented with advanced stage of CRC and have limited role functions.

In this study, financial implication of CRC is not a burden to most of the respondents. This is because the health financing system in Malaysia which is mainly subsidized by the government especially for medical treatment. Therefore with the escalating cost of health care, mainly borne by the government; patients rarely feel the burden even with the expensive treatment of CRC. However, less educated patients who commonly come from the lower socioeconomic group, perceived higher financial burden because of transportation cost, supplementary medication as well as days away from work due to treatment of CRC.

In conclusion and recommendation, this study found that quality of life in CRC patients in Malaysia is comparable to other studies done in developed countries. Majority of CRC patients are in younger age groups, presented at the late stage (stage III and IV), of Malays ethnicity. They also present with limited role function and global health status. Therefore, management of CRC should also focus on the aspect of improving CRC quality of life especially among women survivors who perceived worse symptoms compared to males. The importance of screening programme to detect early cases of CRC should be emphasized and increasing populations' awareness towards CRC and screening. This would present as a high impact investment that should benefit not only to the suffering patients but also the general population.

## Acknowledgements

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