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QUALITY OF LIFE OF CANCER PATIENTS UNDERGOING RADIOTHERAPY IN THE RADIOTHERAPY CLINIC AT HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM)

by

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ABSTRACT

This cross sectional study assessed the QOL outcomes among cancer patients undergoing radiotherapy in Radiotherapy Clinic of HUSM. Study done to determined the domain of QOL of cancer patients which were physical, social/family, emotional and functional well-being based on FACT-G questionnaire. In addition, since the patients were from various demographic and clinical characteristics, this study also examined the association of these characteristics with their QOL outcomes. The questionnaire was given to the patients who were coming for their scheduled of radiotherapy. The sample was selected by systemic random sampling. The total sample size in this study was 52 (n=52). The statistical analysis shows that the most affected domain of QOL is physical well-being followed by functional well-being with the mean score and SD were 17.94(7.60) and 18.79(7.15) each. Social/family and emotional well-being was less affected of QOL domain with the mean score were 22.95(4.93) and 18.04(4.61) each. Besides that, apparently there is no association between age, sex, marital status, and stage of cancer to the QOL outcomes (p>0.05). Only educational level (p=0.02), employment (p=0.007) and household income (p=0.046) was found to have association to the QOL outcomes. Patients in a group of low educational level, unemployed and household income of <RM570.00 showed more moderate impairment of QOL. There is no patients experience severe impairment of QOL.

KUALITI KEHIDUPAN PESAKIT-PESAKIT KANSER YANG SEDANG MENJALANI RAWATAN RADIOTERAPI DI KLINIK RADIOTERAPI HOSPITAL UNIVERSITI SAINS MALAYSIA (HUSM)

ABSTRAK

Kajian keratan lintang ini dijalankan untuk menaksir kualiti kehidupan di kalangan pesakit kanser yang sedang menjalani rawatan radioterapi di Klinik Radioterapi, HUSM. Kajian dijalankan untuk menentukan domain kualiti kehidupan di kalangan pesakit-pesakit kanser iaitu kesejahteraan fizikal, sosial/kekeluarga, emosi dan fungsi. Selain itu, memandangkan pesakit-pesakit memiliki ciri-ciri demografi dan klinikal yang berbeza-beza, kajian ini juga dijalankan untuk melihat perkaitan antara faktor-faktor demografi dan klinikal dengan kualiti kehidupan. Borang soal selidik diberikan kepada pesakit-pesakit yang mendapatkan rawatan radioterapi seperti yang dijadualkan. Sampel dipilih melalui persampelan sistematik. Jumlah saiz sampel dalam kajian ini adalah 52 (n=52). Analisis statistik menunjukkan domain kualiti kehidupan yang paling merosot adalah kesejahteraan fizikal dan diikuti kesejahteraan fungsi dengan skor min dan sisihan piawai 17.94(7.60) dan 18.79(7.15) masing-masing. Kesejahteraan sosial/keluarga dan emosi kurang merosot dengan skor min dan sisihan piawai 22.95(4.93) dan 18.04(4.61) masing-masing. Selain itu, secara jelas menunjukkan bahawa tiada perkaitan antara umur, jantina, status perkahwinan dan tahap kanser terhadap kualiti kehidupan. Hanya tahap pendidikan (p=0.02), pekerjaan (p=0.007) dan jumlah pendapatan sebulan seisi keluarga (p=0.046) mempunyai perkaitan dengan kualiti kehidupan. Pesakit dalam kumpulan tahap pendidikan rendah, tidak bekerja dan jumlah pendapatan seisi keluarga <RM570.00 menunjukkan lebih banyak kemerosotan sederhana kualiti kehidupan. Tiada pesakit mengalami kemerosotan teruk kualiti kehidupan.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Cancer occurs when cells in the body become abnormal and multiply without control. These cells form a growth of tissue called a tumor. A tumor can be benign or malignant. Cancer can be classified into various types. The most common types of cancer are breast cancer, gynaecological cancer, urological cancer, cancer of lung, gastrointestinal, and head and neck, lymphoma, leukemia, and brain tumor, and also bone and skin metastasis (advanced cancer) (Janda, Newman, Obermair, Woelfl, Trimmel, Schroeckmayr, Widder & Poetter 2004).

According to World Health Organization (WHO 2003), cancer were responsible for 12 % of the nearly 56 million deaths worldwide from all causes. In many countries, more than a quarter of deaths are attributable to cancer. In 2000, 5.3 million men and 4.7 million women developed a cancer and altogether 6.2 million died from these diseases. Cancer rates could further increases by 50% to 15 million new cases in the year 2020 (WHO 2003). In Malaysia, 40, 000 new cases of cancer were identified and it make the cancer as the second leading cause of death in which 80 % of the cancer are breast cancer, following by prostate cancer, bone and blood cancer (Rahman 2005).

Quality of life (QOL) issues have historically played an important part in the nursing role of patient advocacy. Ropka (2002) found in the Year 2000 Oncology Nursing Society's (ONS) Research Priorities Survey that QOL ranked second among the top 20 research priorities of sampled nurses. QOL refers to the psychosocial, emotional, and physical outcomes of healthcare treatment as perceived by the patient (Bland 1997). Patients interpret their feelings of well-being using expectations, perceptions,

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experience, and religious or community beliefs. Each of these may vary, and each depends on the patient's attitude after the specific therapeutic intervention and may change over time. The term QOL has been defined and measured in many different ways in the literature. Haas (1999) defined QOL as multidimensional evaluation of an individual's current life circumstances in the context of the culture and value systems in which they live and the values they hold.

Diagnoses and treatments of cancer frequently imposed significant burdens on cancer patients. QOL are affected by the diagnosis itself (Schaafsma & Coy 2000) as well as the diagnostic procedures, and often deteriorates further due to treatment-related side effects (Janda, Johnson, Woelfl, Trimmel, Bressmann, Schröckmayr, Widder & Trotti 2002). Patients suffer from reduced QOL even long after their cancer treatment has been completed (Mackie, Hill, Kondryn & Mcnally 2000). QOL of cancer patients might predict the response to their treatment such as radiotherapy. The importance of considering QOL issues throughout the treatment of cancer patients is evident (Gritz, Carmack, de Moor, Coscarelli, Schacherer, Meyers & Abemayor 1999). Although QOL variables are being delineated for cancers of various organ systems, safeguarding the patient's sense of well-being and self-esteem fosters the best possible QOL for the patient in either a curative or a palliative setting.

Most of the cancer patients are treated with radiotherapy, chemotherapy, surgery, or the combination treatment. The treatment options are based on some clinical factors such as types and stage of cancer. Radiation therapy is an important treatment modality for the management of cancer, where a precise and homogenous dose of ionizing radiation is delivered to the tumor. It is found that up to 60% of all cancer patients receive radiotherapy at some stage of their illness (WHO 1997). During exposure to radiation, the body experiences stress at the cellular and psychological levels (Biswal, Kumaraswamy & Mukhtar 2004). These experiences are known as the

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side effects of the radiation therapy. For clinicians, it is obvious that a significant number of patients suffer from acute, impaired QOL during treatment (WHO 1997), whereas others seem to improve in their QOL (Grob, Altscher, Brandtner, Hauber-Mischlich, Kiricuta, Siegmann & Engenhart-Cabillic 2002; Schaafsma & Coy, 2000).

1.2 Problem Statement

Although several prospective randomized trials are evaluating the effectiveness additive therapy of cancer, the impact of these treatments on QOL also must be assessed. The various anticancer therapies in evolution probably have significant toxicities and side effects that curtail their application. Radiotherapy is one of the anticancer treatments which can give several side effects that may in turn affect the QOL outcome of cancer patients. Based on Functional Assessment of Cancer Therapy-General (FACT-G) questionnaire (www.facit.org), QOL can be divided into several domains which is physical, social/family, emotional, and functional well-being. So, in terms of cancer patients undergoing radiotherapy, it is important to know the most affected domain facing by the cancer patients which are cause by treatment-related side effects and the cancer itself especially in the Radiotherapy Clinic at HUSM setting.

Besides that, there are some studies that determine the relationship between sociodemographic factors and QOL outcomes of cancer patients (Janda et al. 2004). Although the cancer patients undergoing the same treatment which is radiotherapy, population-based studies, however, have shown that patient characteristics such as age, gender, marital status and diagnoses may have a profound impact on QOL ratings (Hjermstad, Fayers, Bjordal & Kaasa 1998a, 1998b) but in the study done by Jordhoy, Fayers, Loge, Saltnes, Ahlner-Elmqvist & Kaasa (2001) found that there is minor differences between genders. With this gap, it is clear that the sociodemographic

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variables must be took into consideration when identify the QOL outcomes of cancer patients especially those are following radiotherapy treatment.

In addition of that, clinical variables also must be taken into consideration when identifying the QOL outcomes of cancer patient undergoing radiotherapy. This is because clinical variables were found to have significant predictors of QOL of cancer patients which should be considered when treating patients and conducting QOL studies in the future (Terrell, Ronis, Fowler, Bradford, Chepeha, Prince, Teknos, Wolf & Duffy 2004). Patients may feel variations in QOL after the management of new primary tumors of different organ systems (Janda et al. 2004). QOL may change with time and circumstances, and what has been found to influence the QOL in population-based surveys, may not be valid among patients who are severely ill (Cohen and Mount, 1992).

Therefore, the Integrative Theory of QOL (Ventegodt, Merrick & Anderson 2003) was used to address this study. According to this theory, QOL can be divided into subjective and objective of QOL. One of the components of subjective of QOL is well-being while objective of QOL may include objective factors such as sociodemographic variables and state of health (clinical variables). Based on this theory, both well-being and objective factors may influence QOL outcomes. So, by using this theory, this study is determining the influence of sociodemographic variables and clinical variables (stage of cancers) on overall QOL of cancer patient undergoing radiotherapy. Since the patient who come to the radiotherapy clinic in HUSM are vary in their demographic variable and clinical variable, study on this variety is necessary since these factor may effects the QOL outcomes of the patients.

Figure 1.1 and 1.2 shows the statistics of cancer patients received radiotherapy in Radiotherapy Clinic at HUSM for the year 2006 and 2007. Since lake of studies that has been done to identify the QOL outcomes of cancer patients receiving radiotherapy in many clinical setting, it is necessary to conduct the study of QOL in HUSM setting which

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have the high number of cancer patients receiving radiotherapy each year. This is because healthcare provider must be aware of the patient's personal concerns and needs for a good QOL.
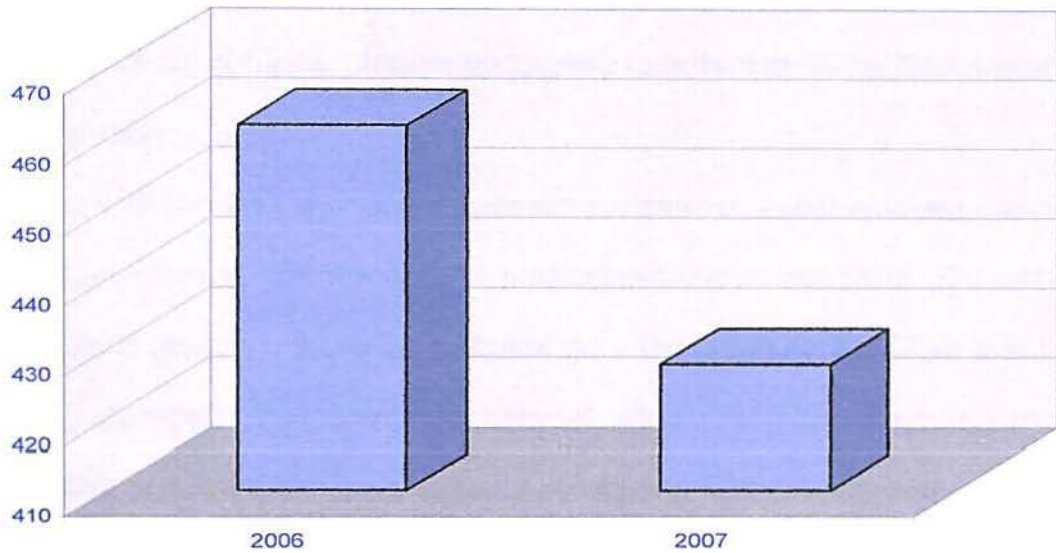
Figure 1.1: Statistics of cancer patients receiving radiotherapy in HUSM (2006-2007)
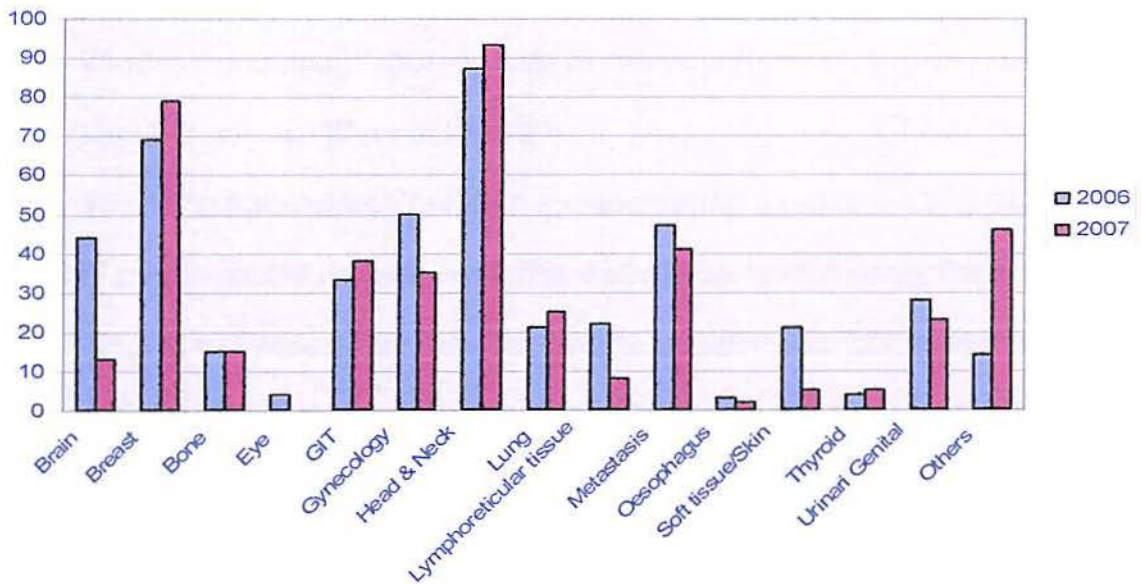
Figure 1.2: Types of cancer patients receiving radiotherapy in HUSM (2006-2007)

(*Jabatan Pentadbiran Nuklear, Radioterapi, & Onkologi HUSM* 2008)

1.3 Objectives of the study

1.3.1 General Objective

To assess the QOL outcomes of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM.

1.3.2 Specific Objectives

1. To determine QOL domains (physical, social/family, emotional and functional well-being) of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM.

2. To determine the association between sociodemographic variables (gender, age, marital status, educational level, employment and income) and QOL outcomes of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM.

3. To determine the association between clinical variable (stage of cancer) and QOL outcomes of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM.

1.4 Research Questions

1. What is the status of QOL domain of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM?

2. What is the association between sociodemographic variables and QOL outcomes of cancer patient undergoing radiotherapy in the Radiotherapy Clinic at HUSM?

3. What is the association between clinical variable and QOL outcomes of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM?

1.5 Hypothesis

1. H_0: There is no association between sociodemographic variables and QOL outcomes of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM.

   H_A: There is an association between sociodemographic variables and QOL outcomes of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM.

2. H_0: There is no association between clinical variable and QOL outcomes of cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM.

   H_A: There is an association between clinical variable and QOL outcomes among cancer patients undergoing radiotherapy in the Radiotherapy Clinic at HUSM.

1.6 Definition of Terms (Conceptual/Operational)

1.6.1 Cancer

An abnormal growth of cells which tend to proliferate in an uncontrolled way and, in some cases, to metastasize (spread) (MedcineNet.com, 2004).

1.6.2 Cancer patient

The patient who was diagnosed having any type of cancer (Janda et al. 2004) and undergoing radiotherapy treatment as the curative and palliative treatment.

1.6.3 Quality of Life

The ability of the patients to perform everyday activities in relation to physical, psychological and social well-being, incorporating patient satisfaction with their level of functioning (Epstein, Phillips, Epistein, Nevill & Stevenson-Moore 2002). This QOL was measured based on four main domain of QOL.

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1.6.4 QOL domain

Refer to the four types of domain of QOL which are physical, social/family, emotional and functional well-being (FACT-G).

1.6.5 QOL outcomes

Outcomes of radiotherapy perceived by the cancer patients in terms of physical, social/family, emotional and functional well-being. The QOL outcomes were divided into mild, moderate and severe impairment.

1.6.6 Radiotherapy

A precise and homogenous dose of ionizing radiation is delivered to the tumor of the cancer patients that may cause the body experiences stress at the cellular and psychological levels (Biswal, Kumaraswamy & Mukhtar 2004) thus may contribute radiotherapy-related side effects (Dagnelie, Pijls-Johannesma, Lambin, Beijer, De Ruysscher & Kempen 2007).

1.6.7 Sociodemographic variables

Patient characteristics (Jordhoy et al. 2001) which are age, gender, marital status, educational level, employment and household monthly income.

1.6.8 Clinical variables

Medical characteristics (Jordhoy et al. 2001) which is stage of cancer. Stage of cancer can be divided into non-metastasis (insitu, local, regional) and metastasis (Dapueto, Francolino, Servente, Chang, Gotta, Levin & Abreu 2003).

1.7 Significant of the study

This study is significant in order to identify the most affected domain of QOL in cancer patients undergoing radiotherapy. This is important for the health care provider so that they may plan for further intervention to control or reduce the problems. Besides that, QOL assessment is not only used to evaluate the effect of clinical and psychosocial

interventions, but also as a source of information about the range of patients physical, functional and psychosocial problems that may contribute to an improved physician-patient communication (Madelon, Pijls-Johannesma, Pijpe, Gertrudis, Kempen, Lambin & Dagnelie 2005). Besides that, cancer has a major impact on patient's lives, the importance of QOL assessment is generally accepted. And less study has been done to identify the effects of QOL on cancer patients undergoing radiotherapy. By doing this, QOL outcomes of their patient may be improved during the treatment.

As suggested by the literature, psychological intervention appeared to be more effective if patients were selected for therapy rather than if they were just included on the basis of their cancer diagnosis (Sheard & Maguire 1999). Early psychological treatment might be important because patients are distressed before commencement of radiotherapy (Janda, Gerstner, Obermair, Fuerst, Wachter, Dieckmann & Potter 2000) and throughout treatment (Sehlen, Hollenhorst, Schymura, Herschbach, Aydemir, Firsching & Duhmke 2003). Early intervention may reduce patient distress (Sanson-Fisher, Girgis & Boyes 2000) so that their treatment of radiotherapy less affected their QOL outcomes.

Besides that, since QOL outcomes may be confounded by sociodemographic factors and clinical variables (Jordhoy et al. 2001), these factors consequently need consideration in study design and statistical analyses. This is particularly relevant where target population is generally very heterogeneous, and the patient selection may vary substantially from one setting to another. Different people may react to the treatment in the different way that may affect their QOL. Then, by knowing which groups of patients are the most affected and impaired in QOL based on their sociodemographic and clinical variables, physician can be focused more to that affected group and specific intervention may be needed to them to promote better QOL outcomes.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction to quality of life (QOL)

QOL refers to the psychosocial, emotional, and physical outcomes of healthcare treatment as perceived by the patient. Patients interpret their feelings of well-being using expectations, perceptions, experience, and religious or community beliefs (Janda et al. 2002). Each of these may vary, and each depends on the patient's attitude after the specific therapeutic intervention.

Quantitative assessment of the QOL in medicine did not begin until the late 1940s. As early as 1947 clinicians began to realize that the psychological impact of treatment for cancer was just as important as the physical effects resulting from treatment for the disease (Terrell 1999) and over the last 30 years, there has been an ongoing concern among health care providers and researchers to evaluate the efficacy of therapeutic interventions by their impact on QOL (Budischewski, Fischbeck & Mose 2008).

The term QOL appeared in the medical literature in 1966, when it was the subject of an editorial responding to a clinical outcomes study for breast cancer (Morton 1995). The belief at that time was simply asking a patients about QOL issues would impose more psychological trauma than ignoring the issues altogether. Then, the term "quality of life" came into popular use in the 1960s (Haas 1999). During this period, social scientists collected data on socioeconomic status, education, housing, and neighborhoods as a way to evaluate QOL. It soon became evident that there was more to QOL than the objective circumstances in which people lived. In fact, the objective indicators measured by social scientists at the time accounted for just 15% of the variance in an individual's

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QOL (Hass 1999). Psychologists suggested that subjective measures could account for the variance in an individual's QOL not predicted by objective measures. In 1972, Campbell and Rogers reported that psychological indicators such as happiness and satisfaction accounted for over 50% of the variance of QOL (Haas 1999).

In the context of cancer patients, morbidity in cancer patients has been estimated using a number of different strategies, including the assessment of QOL, satisfaction with care and patients' needs. QOL in cancer patients become a key word in the late 70's and the first modern attempt at quantitative measurement of QOL is credited to Priestman Baum, who developed a 10-item questionnaire for used with patients treated for breast cancer (Morton 1995). Previous reports indicate that QOL measures might carry independent prognostic information (Sloan, Loprizini, Kuross, Miser, O'Fallon, Mahoner, Heid, Bretscher & Vaught 1998) but others could not confirm these results and found only pain to be predictive for the QOL outcome of lung cancer patients (Herndon, Fleishman, Kornblith, Kosty, Green & Holland 1999). QOL research has indicated that the diagnosis and subsequent treatment of cancer impairs patients' work and social activities, management of the home, family and other relationships, sleep patterns, and sexual activity (Malone, Harris & Luscombe 1994). In addition, studies exploring the psychological squealed of cancer have suggested that cancer patients experience clinically significant levels of anxiety and depression (Aass, Fossa, Dahl & Moe 1997).

2.1.1 Sociodemographic variables and QOL

In studies of cancer patients using QOL outcomes, performance status, closeness to death, diagnoses and location of metastases as well as age and gender need consideration, either in design or in reporting of the findings (Jordhoy et al. 2001). This is because some proposed that QOL perceptions are influenced by their demographic variable and the patient's education and knowledge about expected outcomes of therapy.

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In the study of sociodemographic variable and QOL, Janda et al. (2004) studied found there were significantly more men than women reported impaired QOL in cancer patients. Men also reported better functioning and lower level of symptoms than women (Jordhoy et al. 2001). But, being male was associated with worse social well-being (Yost, Hahn, Zaslavsky, Ayanian & West 2008). Age differences have been noted repeatedly in studies of the effects of various cancer treatments (Mor, Allen & Malin 1994). According to normative data (Hjermstad et al. 1998a), older people report worse functioning and more symptoms than those who are younger but older persons with cancer have been found to manifest fewer and less severe psychosocial problems (Mor, Allen & Malin 1994). This may mainly be related to comorbidity (Michelson, Bolund, Nilsson & Brandberg 2000). Janda et al. (2004), also found that, older aged significantly reported impaired QOL than the younger age prior to commence of the radiotherapy. But there is different outcomes regarding to the older age because Jordhoy et al. (2001) found that older age was significantly associated with better emotional and social functioning.

Overall, having higher education, being male or being married rather than living alone have been found to exert a positive influence on QOL (Michelson et al. 2000) but Jordhoy et al. (2001) found that no positive impact of living with a partner was found. In particular, it is found that reasonable to believe that having a partner would be important to their sense of well-being and emotional and social functioning (Yost et al. 2008; Jordhøy et al. 2001) but some proposed for not detecting any overall positive impact of having a partner or higher education (Michelson et al. 2000). Besides that, Shapiro & Keyes (2007) found that the link between marital status and social well-being is less clear. Fisch, Titzer, Kristeller, Shen, Loehrer, Jung, Passik & Einhorn (2003) findings also demonstrate that QOL in patients with advanced cancer receiving care in an outpatient setting does not seem to be associated with marital status and level of

education. However, better emotional functioning was indicated among patients with university education compared to those having 7 years at school or less whereas patients with a median level of education reported poorer general well-being than those with both highest and lowest level (Jordhoy et al. 2001). Jordhoy et al. (2003) also conclude that although the overall impact of sociodemographic characteristics may seem less important to QOL scores among advanced cancer patients than in general populations, age and gender should be allowed for.

Little is known about QOL and its relationship to patients' socioeconomic status (Montazeri, Hole, Miroy, McEwen & Gillis 2003). Few studies exist that address the issue in cancer patients in general but controversial results have been reported. Some showed that cancer patients of lower socioeconomic status have lower health-related QOL (Penson, Litwin, Lubeck, Flanders, Pasta & Carroll 1998), and others found no significant difference between affluent and deprived cancer patients with regard to their QOL (Wan, Counte, Cella, Hernandez, McGuire, Deasay, Shiomoto & Hahn 1999). In general, patients who were in lower socioeconomic status had lower functioning and global QOL at baseline which patients' role and physical functioning were significantly different (Montazeri et. al 2003). However, at follow-up assessment there were no significant differences between patients groups because patients of low socioeconomic status scored slightly higher on cognitive, social and emotional functioning and lower on other role, physical functioning and global QOL. However, it was found that in most measures, patients with low socioeconomic status had lower health-related QOL. Performing more advanced analysis, also found no significant effects of socioeconomic status on the reporting of overall health-related QOL (Wan et al. 1999). However, it is important to notice that indicators of socioeconomic status may differ within different societies and this should be taken into account when evaluate QOL.

However, some proposed that larger studies which are specifically designed for the purpose of identifying the QOL outcomes may be needed to fully explore the impact of these sociodemographic variable and other social factors (Janda et al. 2004; Michelson et al. 2000).

2.1.2 Clinical variables and QOL

QOL has been found to vary with clinical criteria such as performance status and prognoses (Osoba, Zee, Pater, Warr, Kaizer & Latreille 1994) and treatment related side effects. The most common radiotherapy related side effects are fatigue (Biswal et al. 2004). The occurrence of fatigue varies across tumour sites (Monga, U., Kerrigan, Thornby & Monga, T. 1999) and treatment stage (Borthwick, Knowles, McNamara, O"Dera & Stroner 2003; Monga et al. 1999). In comparison, looking at the results of the multivariate modeling reveals that those patients treated for lung, gastrointestinal, and head and neck cancer, or for advanced cancer were more likely to report worse QOL prior to commencing radiotherapy compared to breast cancer patient that were significantly less likely to report impaired QOL (Janda et al. 2004). Some study indicates that in lung and breast cancer patients preceding radiotherapy, fatigue is by far the predominant contributor to patient-perceived overall QOL (Dagnelie et al. 2007). Whether clinical interventions or psychosocial support can improve QOL in these patients and enhance prognosis following radiotherapy remains unknown.

In terms of physical functioning, patients with gastrointestinal cancer reported the best physical functioning and significantly better than those having cancer of the breast and genitourinary cancer in female (Jordhoy et al. 2001). The physical functioning worsen when the patient having skeletal metastasis. But, according to Budischewski et al. (2008), they could not detect any differences according to tumor stage to the physical, role, emotional, cognitive, and social functioning.

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