QUALITY OF LIFE OF GERIATRIC CANCER PATIENTS UNDERGOING CHEMOTHERAPY IN HOSPITAL UNIVERSITI SAINS MALAYSIA (HOSPITAL USM)

By

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LIST OF ABBREVIATIONS

QOL	-	Quality Of Life
WHO	-	World Health Organization
Hospital USM	-	Hospital Universiti Sains Malaysia
IQOL	-	Integrity Quality Of Life
FACIT	-	Functional Assessment of Chronic Illness Therapy
FACT-G	-	Functional Assessment of Chronic Therapy- General
DNA	-	Deoxyribonucleic Acid
ONS	-	Oncology Nursing Society's
EORTC	-	European Organization for Research and Treatment of Cancer
HIV	-	Human Immunodeficiency Virus
NROD	-	Nuclear, Radiology and Oncology Department
KPS	-	Karnofsky Performance Scale
PWB	-	Physical well-being
EWB	-	Emotional well-being
SWB	-	Social well-being
FWB	-	Functional well-being
SPSS	-	Statistical Package for Social Sciences Software

QUALITY OF LIFE OF GERIATRIC CANCER PATIENTS UNDERGOING CHEMOTHERAPY IN HOSPITAL UNIVERSITI SAINS MALAYSIA (HOSPITAL USM)

ABSTRACT

Quality of Life issue has historically played an important part in the nursing role of patient advocacy. Quality of Life differs for each individual and is dependent on different factors such as socio-demographic data and clinical data. Mostly, previous study that review on quality of life of cancer patients undergoing chemotherapy cover all the different age groups, and older patients tend to be underrepresented. A cross-sectional survey design was used to determine quality of life of geriatric cancer patients at hospital USM. 57 respondents were recruited through the purposive sampling method. Because this study involving vulnerable population, the questionnaire was answered by respondents with guided by researcher and fitness status of the respondents was judged first by the researcher using KPS score. Data was statistically analyzed using the software package SPSS version 22.0. Statistical significance was considered at p value <0.05. The findings showed that most of the geriatric (86.0%) experienced moderate impairment in their Quality of Life with the most effected domain is physical well-being (mean=10.46) followed by functional well-being. While emotional and social well-being was less affected. Besides that, chi-square test showed that there is no significant association between geriatrics' socio-demographic variables with Quality of Life's outcomes which are vice versa with clinical variables. In conclusion, since only clinical variables have significant association with Quality of Life outcomes, the further research should be done to determine the socio-demographic factors that contribute significantly to geriatric cancer patients' Quality of Life. This will help to improve health services and Quality of Life of geriatric.

KUALITI HIDUP PESAKIT KANSER GERIATRIK YANG MENJALANI RAWATAN KEMOTERAPI DI HOSPITAL UNIVERSITI SAINS MALAYSIA

ABSTRAK

Isu Kualiti Hidup telah memainkan peranan penting dalam tugas jururawat terhadap sokongan pesakit. Kualiti Hidup adalah berbeza bagi setiap individu dan bergantung kepada faktor-faktor yang berbeza seperti faktor sosiodemografik data dan klinikal data. Banyak kajian-kajian sebelum ini mengenai kualiti hidup pesakit kanser yang menjalani kemoterapi meliputi semua kumpulan umur, dan golongan orang tua kurang diambil perhatian. Kajian 'cross-sectional' telah digunakan bagi menentukan kualiti hidup pesakit kanser geriatrik di Hospital USM. 57 responden telah dikumpulkan melalui kaedah 'purposive sampling'. Oleh kerana kajian ini melibatkan populasi tidak berdaya, soal selidik telah dijawab oleh responden dengan bantuan penyelidik dan status kecergasan responden telah diambil kira terlebih dahulu oleh pengkaji dengan menggunakan skor KPS. Data yang diperolehi dianalisis dengan menggunakan perisian SPSS versi 22.0. Kepentingan Statistik dianggap pada nilai p <0.05. Hasil kajian menunjukkan bahawa kebanyakkan geriatrik (86.0%) mengalami kemerosotan yang sederhana dalam kualiti hidup mereka dengan domain yang paling terjejes ialah kesejahteraan fizikal (min = 10.46) diikuti dengan kesejahteraan fungsi. Sementara kesejahteraan emosi dan sosial adalah yang paling kurang terjejeas. Selain itu, ujian 'chi-square' menunjukkan bahawa tidak ada hubungan yang signifikan antara pemboleh ubah sosio-demografik geriatrik dengan hasil kualiti hidup mereka yang mana sebaliknya dengan pembolehubah klinikal. Kesimpulannya, oleh kerana hanya pembolehubah klinikal sahaja yang mempunyai hubungan yang signifikan dengan hasil kualiti hidup pesakit, penyelidikan lanjut perlu dilakukan untuk menentukan faktor-faktor sosio-demografik yang menyumbang secara ketara kepada kualiti hidup pesakit kanser geriatrik. Ini akan membantu untuk meningkatkan perkhidmatan kesihatan dan kualiti hidup pesakit tua.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Cancer is one of the most important health concerns of today. Cancer is not a single disease with a single cause but it is a group of distinct diseases with different causes, manifestation, treatments, and prognosis. Eggert (2011) define cancer as a disease process that begins when a cell transformed by genetic mutations of cellular DNA that may result from inherited or acquired mutations and will lead to abnormal cell behavior. This abnormal cell behavior is multiply without control. This cell called tumor. Tumor can be benign or malignant. According to Porth and Matfin (2009), benign is well differentiated cells resemble normal cells of the tissue from which the tumor originated that grows by expansion and does not infiltrate the surrounding tissue. Whereas, still based on Porth and Matfin (2009), malignant cells are undifferentiated and may bear little resemblance to the normal cells of the tissue from which they arose. It grows at the periphery and overcomes contact inhibition to invade and infiltrate surrounding tissues. The rate of growth is variable and depends on level of differentiation. Cancer can be classified into various types. Most common types of cancer among male geriatric is lung cancer, while in female is breast cancer (Manitta et al., 2011).

Cancer is the major disease and cause of death in old age (WHO, 2008).From 2010 to 2030, it is estimated there will be an expected 67% increase in cancer incidence among older adults, compared with an 11% increase for younger adults (Smith et al., 2009). According to Siegel, Ward, Brawley, et al., (2011) more than 1.5 million Americans were diagnosed with various types of cancer and the most cancer occurs in

older people age more than 65 years. According to the statistics of the Netherlands Institute for Health Sciences (NIHES) cancer epidemiology (2010) in Netherlands, mortality from cancer increase with age. The proportion of older population which is more than 65 years old in Asia is rising rapidly (Shrestha, 2009). Same study stated that, patients aged 65 or older have a significantly higher risk for cancer incidence and cancer mortality. At Malaysia, the incidence of cancer in Sarawak is 212 per 100,000 (Rajiv, Shamir, Swee & Beena, 2012). Age standardized incidence rate (ASR) also shown an increasing trend with age in colorectal, prostate, head and neck cancer in Sarawak (Rajiv et al., 2012). Since the number of older patients with cancer will be increasing over time due to the aging of the world's population, good treatment and outcome of the treatment associated with theirs' quality of life outcomes is very important (Smith et al., 2009).

Quality of Life (QOL) issue has historically played an important part in the nursing role of patient advocacy. Ropka (2002) as cited by Pasetto et al., (2007), found in the year 2000, Oncology Nursing Society's (ONS) research priority survey that QOL ranked second among the top 20 research. QOL is referring to the extent to which one's usual or expected physical, emotional and social well-being is affected by a medical condition and/or its treatment. But, according to Lin (2013), QOL is defined as an individual's total well-being including all aspect of life which are physical, emotional, social, mental financial and spiritual. QOL has many dimensions such as material well-being, close relationships, health, emotional well-being, and productivity. QOL differs from individual to individual and is dependent on different factors.

Diagnosed and treatment of cancer frequently imposed significant burdens on geriatric cancer patients. QOL are affected by the diagnosis itself as well as the

diagnostic procedures and often deteriorates further due to treatment related to side effect (Cheng & Yeung, 2012). QOL of geriatric cancer patients might predict the response to their treatment such as chemotherapy anticancer therapy.

Most of geriatric cancer patients are treated with radiotherapy, chemotherapy, surgery or the combination treatment. However, this study is focus on chemotherapy. Cancer treatment options offered to cancer patients are based on treatment goals for each specific type, stage, and grade of cancer. Chemotherapy involves the use of antineoplastic drugs in an attempt to destroy cancer cells by interfering with cellular functions, including replication and DNA repair (Levine, 2010). It may be combined with surgery, radiation therapy, or both to reduce tumor size preoperatively (neoadjuvant), to destroy any remaining tumor cells postoperatively (adjuvant). According to Janice and Kerry (2014), chemotherapy is used primarily to treat systemic disease rather than localized lesions that are amenable to surgery or radiation.

Elderly patients are more vulnerable to toxicities from cytotoxic chemotherapy due to the decreased functional reserve and capacity of the metabolic and excretory systems (Carreca & Balducci, 2009). Study by Cleeland et al. (2011) revealed that during chemotherapy on geriatric patients, they experienced persistent severe symptoms and those symptoms interfered significantly with the patients' functioning throughout the 15 week study. The other study by Kozachick (2008), that involving about 800 geriatric cancer patients that undergone chemotherapy, it was found that fatigue, sleep disturbance and pain were the most frequently symptoms reported. For health care professionals, it is obvious that a significant number of geriatric patients suffer and impaired QOL during chemotherapy.

1.2 Problem Statement

Although several prospective randomized trials are evaluating the effectiveness treatment therapy of cancer, the impact of these treatments on QOL also must be assessed. The various anticancer treatment therapies in evolution probably have significant toxicities and side effects that curtail their application. Study done by Hurria et al. (2011) existing oncology performance status measures were applied to all adult patients with cancer to assess eligibility for clinical trials and predict treatment toxicity. Same with study done by Shin et al. (2012), the study also focus on toxicities and functional consequences of chemotherapy in cancer patients. Chemotherapy is one of the anticancer treatments which can give several side effects that may in turn effect of QOL outcomes of cancer patients (Cheng & Yeung, 2012). Based on FACT-G questionnaire, QOL can be divided into four domains which are physical well-being, social well-being, emotional well-being and functional well-being (Victorson et al., 2008). So, in terms of cancer patients that undergoing chemotherapy, it is important to know the quality of life outcomes of cancer patients that are cause by chemotherapy sides' effects.

Besides that, QOL among geriatric patients that undergoing chemotherapy or anticancer treatment is very important to be considered because older patients make up a unique and important population group in the cancer setting who need special attention, especially considering that this population is at increased risk of symptoms morbidities (Cheng & Yeung, 2012). Mostly, previous study that review on quality of life of cancer patients that undergoing cancer treatment cover all the different age groups of cancer populations, and older or geriatric patients tend to be underrepresented (Cheng & Yeung, 2012). In addition, study on elderly population is very crucial because the proportion of elderly in Malaysia is increasing due to significant

socioeconomic and demographic transformation (Karim, as cited in Mastura & Yusoff, 2012). Based on Nik Mastura & Yusoff (2012), the lifespan of Malaysian is increasing. Concomitant with this, the elderly population is also on the increase. The elderly population of Malaysia is projected to increase from 6.4% in the year 2000 to 7.0 % in the year 2005, and subsequently to 12.0 % in the year 2020. So, the increasing of this vulnerable population, it is very important to improve theirs' quality of life in health care.

Study by Cleeland et al. (2011) revealed that during chemotherapy 30% of the patients with advanced lung cancer with a mean age of 60 years, experienced persistent moderate or more severe symptoms, and that those symptoms interfered significantly with the patients' functioning. Cheng & Yeung (2012), stated that, although a wide variety of methods was used to measure the symptoms of interest across those studies, fatigue (physical), sleep disturbance (functional), pain (physical), affective symptoms including anxiety and mood disturbance (emotional), and digestive symptoms of nausea (physical) are all reported as being the most prevalent adverse symptoms affecting older patients throughout the process of cancer diagnosis and treatment. These multiple symptoms significantly affect theirs' QOL. But in secondary analysis conducted by Kozachik, (2008) that involving about 800 elderly cancer patient, it was found that physical and emotional symptoms is the most frequently reported during chemotherapy and the first year after cancer was diagnosed. Evidence suggests that cancer and its treatment may persist for weeks, months or years and may worsen (Cheng & Yeung, 2012). So with these finding of previous studies, it is important to know which domain in QOL is the most affected geriatric cancer patients that undergoing chemotherapy.

Mao et al. (2007), has been found that QOL is related to demographic factors such as gender and age. A study conducted by Qadri et al. (2013), it is found that the QOL was significantly better in the male sex. Same finding in study by Lokare et al. (2011), they found that QOL was significantly better among male elderly. But study by Vrettos et al. (2011), found that female patients experience more frequently anxiety and depression than male patients. Anxiety and depression can interrupt QOL of elderly cancer patients. In the same study also found that married geriatric cancer patients have better QOL than single and divorce. Liu and Umberson (2008) found self-reported health of those widowed, divorced and separated to be poor QOL to those who are married, especially among women.

But another study by Slovacek et al. (2005), found that elderly men with prostate cancer has reported the absence of a significant association between marital status and quality of life of elderly that undergoing chemotherapy. While study conducted by Nilsson, Rana & Kabir (2006) in Bangladesh showed that poor economic status was a significant determinant of poor QOL among elderly patients. In a study conducted by Kumar et al. as cited in Datta, Pratim & Majumdar (2015), they have found that socio-economic status played an important and significant role in determining the QOL of elderly. In all domains of QOL (physical, emotional, social and environmental) of elderly people who were had primary level education was significantly lower than people who had an educational level at secondary level and above. With these findings from previous study, it is clear that socio-demographic variables must be taken into consideration when identify of QOL outcomes of elderly cancer patients especially those are following chemotherapy treatment.

In addition of that, clinical variable also must be taken during considering QOL outcome. Socio-demographic (income), general health (medical conditions) and treatment characteristics have all been found to be associated with QOL (Klein, Mercier & Abeillard, 2011). Chemotherapy is more sensitive during actively proliferating cells within a tumor which is in cancer stage one and stage two (Janice & Kerry, 2014). Non-dividing cells capable of future proliferation are the least sensitive to antineoplastic medication that used during chemotherapy. However, the non-dividing cells must be destroyed to eradicate the cancer. Chemotherapy can be considered as the commonest cancer treatment modality, especially for patients in more advanced stage of cancer which is supported by many others literature (Pandey et al., 2015). Study by Pandey et al. (2015), the site of cancer, time elapsed since diagnosis, stage of cancer, and presence of distance metastasis were found to be associated with QOL.

Same the study finding by Toyama et al. (2013) in Japan, found that stage of cancer were significant with QOL of cancer patients. Study done by Zhou, Ming & Wei (2004), among the factor related to patient's diseases condition and treatment, some factor affecting certain aspects of QOL which is types of tumor and stage of cancer. But, the finding of Hammerlid and Taft (2010), cancer stage was not associated with any of the QOL scales. While one might think that those persons with late stage cancer would have decreased QOL, but, in that study many of elderly patients with advanced cancers (stage III and IV) are treated with surgery-sparing, chemotherapy, which may potentially preserve function and QOL. With this gap, it is clear that clinical variables must be consider when identify QOL outcomes. In order to identify QOL outcomes in geriatric cancer patients that undergoing chemotherapy, the Integrative Quality of Life Theory (IQOL) was used in this research study.

1.3 Research Objectives

1.3.1 General Objective

To determine the Quality Of Life (QOL) outcomes of geriatric cancer patients undergoing chemotherapy in Hospital Universiti Sains Malaysia (Hospital USM)

1.3.2 Specific Objectives

1. To identify the quality of life domains (physical, social, emotional and functional well-being) that most effected in geriatric cancer patients undergoing chemotherapy.
2. To determine the association between socio-demographic variables (gender, marital status, educational level and monthly income) with quality of life outcomes of geriatric cancer patient undergoing chemotherapy.
3. To determine the association between clinical variables (stage of cancer and cycle of chemotherapy) with quality of life outcomes of geriatric cancer patients undergoing chemotherapy.

1.4 Research Questions

1. What is the quality of life domains that most affected in geriatric cancer patients undergoing chemotherapy at Hospital USM?
2. Is there any association between socio-demographic variables and quality of life outcomes of geriatric cancer patients undergoing chemotherapy at Hospital USM?
3. Is there any association between clinical variables and quality of life outcomes of geriatric cancer patients undergoing chemotherapy at Hospital USM?

1.5 Research Hypothesis

Hypothesis 1 Ho: There is no significant association between socio-demographic variables with quality of life outcomes of geriatric cancer patient undergoing chemotherapy.

H_A: There is a significant association between socio-demographic variables with quality of life outcomes of geriatric cancer patient undergoing chemotherapy ($Ho \neq H_A$).

Hypothesis 2 Ho: There is no significant association between clinical variables with quality of life outcomes of geriatric cancer patient undergoing chemotherapy.

H_A: There is a significant association between clinical variables with quality of life outcomes of geriatric cancer patients undergoing chemotherapy ($Ho \neq H_A$).

1.6 Definition of Terms (Conceptual)

Quality of Life: Cella and Tulsky (1993), as cited in Victorson et al. (2008) QOL refers to the extent to which one's usual or expected physical, emotional and social well-being is affected by a medical condition and/or its treatment. But, according to Lin (2013), QOL is defined as an individual's total well-being including all aspect of life which are physical, emotional, social, mental financial and spiritual. But in this research study, QOL is focusing in four domains which are physical, social, emotional and functional well-being only.

Geriatric: Geriatric is relating to old people, especially with regard to their health care (Free Dictionary, 2015). According to WHO (2015), most developed world countries have accepted the chronological age of 65 years as a definition of elderly or older person. But in Malaysia, elderly people are 60 years old and older (Mastura & Yusoff, 2012). So, in this research study only focus on 60 years old and above.

Geriatric cancer: Geriatric cancer was defined by Andrea et al. (2010) is a patient age more than 65 years old with histologically confirmed diagnosed of a solid or hematologic tumor. For this research study, it only focus on patient with age 60 and above and was diagnosed having any types of cancer or tumor.

Chemotherapy: Chemotherapy is defined as the treatment that involving the use of antineoplastic drugs in an attempt to destroy cancer cells by interfering with cellular functions, including replication and DNA repair (Levine, 2010). Chemotherapy may be combined with surgery, radiation therapy, or both to reduce tumor size preoperatively (neoadjuvant), to destroy any remaining tumor cells postoperatively (adjuvant) (Janice & Kerry, 2014). For this study, it is focus on both neoadjuvant and adjuvant chemotherapy.

1.7 Significant of the Study

Finding of this study provides a new knowledge related to quality of life of geriatric cancer patient that undergoing chemotherapy. Besides that, from this finding, the most affected domain of QOL in geriatric cancer patients can be identified. This is important to health care provider, so that they can plan for further intervention to improve the QOL in effected domain. This study also provides some useful information for nurses to plan patient's care that focus on geriatric patient during chemotherapy to increase patients' quality of life. Furthermore, the findings of this study can be used as a baseline data for further research in this area.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviewing the current literature related to quality of life of cancer patients that undergoing cancer treatment among elderly. It presents information on geriatric patients who was diagnosed with cancer includes the cancer treatment which is chemotherapy. Besides that, the impact of chemotherapy treatment on geriatric patients' quality of life will be discussed in this chapter. All these information are included in this study to improve the current knowledge in this area of care.

2.2 Quality of Life

2.2.1 Introduction to Quality of Life

Cella and Tulsky (1993), as cited in Victorson et al. (2008) Quality of life is a broad multidimensional concept that considers a person's physical, emotional, social, and spiritual well-being. QOL refers to the extent to which one's usual or expected physical, emotional and social well-being is affected by a medical condition and/or its treatment. But, according to Lin (2013), QOL is defined as an individual's total well-being including all aspect of life which are physical, emotional, social, mental financial and spiritual. While In clinical practice, QOL means maintenance of function and symptom control (Pasetto et al., 2007).

According to American Cancer Society (2014), physical well-being is the degree to which symptoms and side effects, such as pain, fatigue, and poor sleep quality, affect the ability to perform normal daily activities. While, emotional, or psychological, well-being refers to the ability to maintain control over anxiety, depression, fear of cancer

recurrence, and problems with memory and concentration. Social well-being primarily addresses relationships with family members and friends, including intimacy and sexuality. Employment, insurance, and financial concerns also affect social well-being. Finally, spiritual well-being is derived from drawing meaning from the cancer experience, either in the context of religion or through maintaining hope and resilience in the face of uncertainty about one's future health.

According to data from the National Health Interview Survey, approximately one in four cancer survivors have a decreased quality of life due to physical problems and one in 10 due to emotional problems (Weaver, Forsythe & Reeve, 2012). Although quality of life may decline considerably during and shortly after active cancer treatment, the majority of disease free cancer survivors (5 years or more) report a quality of life comparable to those with no history of cancer (Ganz, Leedham, Meyerowitz & Berlin, 2002) . Still, many survivors continue to suffer. Individuals who have a history of more invasive and aggressive treatments tend to report poorer functioning and quality of life in the long term (American Cancer Society, 2014).

Over the past decade, more attention has been given to the area of quality of life that related to health among cancer patients. Jacobsen and Jim (2011) reported that, QOL was found to be a significant aspect of cancer survivorship. Previous research that has been done by Najwa, Zaharah, and Nor (2014) stated that, Ferrel et al., (1996) construct a QOL conceptual model which significant to cancer survivors. The model can be divided into several components, including psychological well-being, social well-being, spiritual well-being and physical well-being. QOL is important endpoint in large-scale clinical trials investigating the effects of anticancer treatment (Victorson et al., 2008). Moreover, QOL outcomes have considerable relevance for efforts to inform

patients about the expected consequences of specific treatment and for efforts to identify the expected rehabilitative needs of cancer patients (Najwa et al., 2014).

Increasing age is a major risk factor for developing cancer and the number of older people is rapidly expanding. The improvement and maintenance of QOL are a major goal of cancer care for older people (Esbensen & Thomsen, 2011). American Cancer Society (2014) stated that, age is also an important predictor of quality of life. The survivors diagnosed at a younger age tend to have poorer emotional functioning, whereas older age at diagnosis is often associated with poorer physical functioning (Sweeney et al., 2006). Many survivors of childhood cancer have cognitive or functional deficits that impact their ability to successfully complete their education and find employment, which in turn can impact psychological well-being and lower quality of life (Hudson, Ness & Gurney, 2013).

Study by Park et al. (2011), examined the age-related differences of QOL between younger and older breast cancer survivors as well as the unique contribution of age after controlling for other age-correlated variables. Results from these analyses suggest that women age less 50 years manifest significantly better QOL than women age more than 50 years (Park et al., 2011). The study by Wedding, Pientka & Hoffken, (2007), elderly cancer patients tend to weight their health related QOL as more important than gain in survival, when compared to younger patients. An age-dependent decrease in QOL outcomes is reported in patients and normative samples. In one of the few studies on QOL evaluation in 131 elderly cancer patients by Rustoen et al. (1999) as cited by Pasetto et al. (2007), elderly population (age range 60–78 years, 33% of the total sample) showed a lower QOL than the younger group (19–39 years).

QOL of geriatric patients undergoing anticancer treatment such as chemotherapy is also interrupted during, after or before that treatment (Stephanie et al. 2013). Chemotherapy is defined as the treatment that involving the use of antineoplastic drugs in an attempt to destroy cancer cells by interfering with cellular functions, including replication and DNA repair (Levine, 2010). Chemotherapy may be combined with surgery, radiation therapy, or both to reduce tumor size preoperatively (neoadjuvant), to destroy any remaining tumor cells postoperatively (adjuvant) (Janice & Kerry, 2014).

Study by Hurria et al. (2011) found that older adults are vulnerable to chemotherapy toxicity due to decrease functional reserve and capacity of the metabolic and excretory systems. This can alter patients' QOL. This shown in study by Stephanie et al. (2013) that found older patients is high risk for early functional decline during chemotherapy. The same finding in study by Shin et al. (2012) that found functional consequence of chemotherapy was deterioration especially physical and neurocognitive functions. Physical and functional are the domain in QOL measurement (Webster, Cella & Yost, 2003) of cancer patients. This shows that QOL of geriatric cancer patient is interrupted before, during or after chemotherapy.

2.2.2 Socio-demographic variables and QOL

Quality of Life is one of the most important patient-reported outcomes in cancer therapy. Measurement of QOL at diagnosis may provide useful information regarding patients' preferences and prognosis, while follow-up measurements may indicate acceptance, adaptation and adverse effects of disease and therapy. QOL has been widely explored in many diseases and its change is a primary endpoint of many clinical trials. An increasingly important issue in oncology is to evaluate Quality of Life in cancer patients. The cancer-specific QOL is related to all stages of this disease.

In fact, for all types of cancer patients general QOL instruments can be used to assess the overall impact of patients' health status on their QOL (Sajid, Tonsi & Baig, 2008). The different socio-demographic factors may affect the quality of life of geriatric cancer patients. Socio-demographic factors such as gender, marital status, educational level and income can affect QOL of geriatric patient who undergoing chemotherapy. A study conducted by Qadri et al. (2013), it is found that the QOL was significantly better in the male sex. As a society, we tend to think that women are more "social beings" than men, but the perception on the individual level may be different. Until recently, women were more isolated at home while men had the social connection of a work environment, which likely persisted beyond retirement (Lisa, Sandra & Kathy, 2007).

An increased number of social ties and a greater amount of social support among men, including the support provided by their wives, may enable males to perceive their health related QOL as better, even if they are burdened with a similar or greater number of chronic conditions compared to women of the same age. Indeed, studies do suggest that men tend to report a higher overall health related QOL than women of the same age, despite a shorter life expectancy and higher mortality rate (Lisa et al., 2007). Same finding in study by Lokare et al. (2011), they found that QOL was significantly better among male elderly.

Study by Vrettos et al. (2011), found that married geriatric cancer patients have better QOL than single and divorce. Liu and Umberson (2008) found self-reported health of those widowed, divorced and separated to be poor QOL to those who are married, especially among women. Guner et al., (2006) had done a study to determine whether a relationship existed between QOL and socio-demographic characteristic such as marital status. The finding of the study concluded widowed spouses had lower QOL

scores. But another study by Slovacek at el. (2005), found that elderly men with prostate cancer has reported the absence of a significant association between marital status and quality of life of elderly that undergoing chemotherapy.

Previous studies by Ohsumi et al. (2009), Ashing-Giwa & Lim (2009), and Park & Hwang (2009) found that, educational level have been known to be significantly associated with QOL. Providing education and information about breast cancer and its management, and linking resource might be helpful to improve QOL among older patients. Study by Pasetto et al., (2007) to determine if QOL was related to gender, age, educational level, cohabitation, time since diagnosis, treatment or type of cancer in elderly patients. The result from that study show that the higher educational level, the better QOL among geriatric cancer patients. In all domains of QOL (physical, emotional, social and environmental) of elderly people who were had primary level education was significantly lower than people who had an educational level at secondary level and above (Datta et al., 2015).

Study conducted by Nilsson et al. (2006) in Bangladesh showed that poor economic status was a significant determinant of poor QOL among elderly patients. In a study conducted by Kumar et al. as cited in Datta et al. (2015), they have found that socio-economic status played an important and significant role in determining the QOL of elderly. Study by Pandey et al. (2015), among all variables regarding socio-demographic characteristics, gender, type of family, and economic status of the patient was found to be statistically significant for influencing the quality of life scores. Patients with medium economic status and those with poor economic status have less QOL score. The study by Datta et al. (2015) has showed that with an increase in per capita

monthly income the QOL score improve significantly. The increase in per capita income indicates better socio-economic status.

2.2.3 Clinical variables and QOL

Clinical variable also must be taken during considering QOL outcome. Socio-demographic (income), general health (medical conditions) and treatment characteristics have all been found to be associated with QOL (Klein, Mercier & Abeillard, 2011). Although adjuvant chemotherapy has improved survival among elderly women with early stage breast cancer Berry et al. as cited in Muss et al. (2009), the Oxford Overview analysis of 15 years results included too few patients older than 70 years of age to assess the effect of chemotherapy in that age group accurately. Study by Muss et al, (2009) found that adjuvant chemotherapy improves survival among older women with early stage of breast cancer.

Study by Pandey et al. (2015), the site of cancer, time elapsed since diagnosis, stage of cancer, and presence of distance metastasis were found to be associated with QOL. Same the study finding by Toyama et al. (2013) in Japan, found that stage of cancer were significant with QOL of cancer patients. In the study by Zhou et al. (2004), among the factors related to patient's diseases condition and treatment, some factors affecting certain aspects of QOL which is types of tumor and stage of cancer. But, the finding of Hammerlid and Taft (2010), cancer stage was not associated with any of the QOL scales. While one might think that those persons with late stage cancer would have decreased QOL, but, in that study many of elderly patients with advanced cancers (stage III and IV) are treated with surgery-sparing, chemotherapy, which may potentially preserve function and QOL.

2.3 Quality of Life Instruments

When evaluating outcomes of chronic disease therapy in clinical trials or in clinical practice, clinicians are concerned with three key issues which are quantity of life (duration of survival), quality of life (patient well-being), and the cost of therapy. All these parameters are measurable; however QOL may be measured using one of several non-equivalent metrics. The QOL questionnaire developed by the European Organization for Research and Treatment of Cancer (EORTC) and the Functional Assessment of Chronic Illness Therapy (FACIT) measurement system are currently the two most widely used QOL measuring tools in cancer clinical trials (Cella, 2000).

FACIT measurement system is a collection of 27 QOL questionnaires, with others in development, targeted at the management of chronic illnesses including cancer, human immunodeficiency virus (HIV), and multiple sclerosis. FACIT includes questionnaires specific to cancer (FACT), multiple sclerosis (FAMS), and HIV infection (FAHI). FACT is one of the FACIT scales consist of general questionnaire (FACT-G).

FACT-G scale is one commonly used QOL instrument in clinical cancer research in the United States (Webster, Cella & Yost, 2003) and can be used with patients with different cancer diagnosis. The FACT-G meets or exceeds all requirements for use in oncology clinical trials, including ease of administration, reliability, validity and responsiveness to clinical change (Victorson et al., 2008). FACT-G is a self-administrated health related QOL instrument designed for use by general oncology patients and consisting of 27 items that assessing physical well-being, social/family well-being, emotional well-being and functional well-being. This questionnaire is appropriate for use with any population of patients and with any form of cancer, and

extension of it have been used and validated in older population and in other chronic illness condition (Webster et al., 2003).

There is no standardized and validated method to categorize FACT-G scores. Fisch et al. (2003) examined two methods. First, they categorized FACT-G scores into groups of three based on absolute numbers (method 1). FACT-G scores can range from 0 to 108. The total FACT-G score is obtained by summing individual subscales scores (PWB + EWB + SWB + FWB) (Webster et al., 2003). Thus, a score of 0 to 36 indicate severe impairment, 37 to 72 would be considered moderate impairment, and 73 to 108 would be considered mild impairment of QOL.

In addition, scores were categorized using the clinicians' judgments about level of QOL impairment to estimate the expected percentage of patients who would fall into each of three subgrouping of actual QOL as measured by the FACT-G (method 2). When there are missing data, prorating subscale scores is acceptable as long as more than 50% of the items were answered. For example a minimum of 4 of 7 items or 4 of 6 items. The total FACT-G score is considered appropriate to score as long as overall item response rate is greater than 80% (Webster et al., 2003). For example at least 22 out of 27 FACT-G items had answered.

So, there is a lot of instrument that can be used to measure QOL in geriatric cancer patients. By using standard QOL questionnaires in clinical practice, it is a potential way of helping health care professionals to adapt to the increasing requirement to assess the QOL among geriatric cancer patients that are estimated to represent 70% of all elderly patients with cancer by 2030 (Hurria, Browner & Cohen, 2012).

2.4 Conceptual Framework

In 2003, Ventegodt, Merrick and Anderson presented the theoretical and philosophical framework of the Danish Quality of Life Survey. The notion of a good life can be observed from subjective to the objective, where this spectrum incorporates a number of existing quality of life theories. This spectrum is called as the integrative quality-of-life (IQOL) theory.

IQOL theory is an overall theory or meta-theory encompassing eight more factual theories of QOL. Based on this theory, QOL can be divided into subjective QOL and objective QOL. Subjective QOL contain well-being, satisfaction with life, happiness, and meaning of life. While in objective QOL contain objective factors, fulfillment of needs, realization of life potential, and biological order. (Figure 2.1)

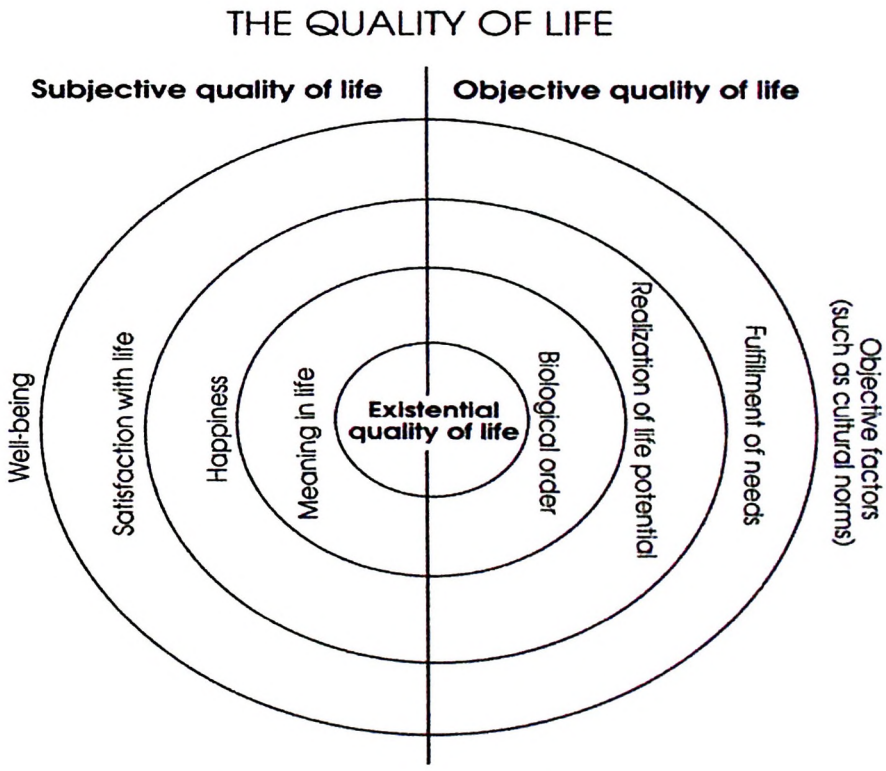

Figure 2.1: The Integrative Quality of Life Theory (IQOL)

(Ventegodt, Merrick & Anderson, 2003)

This research study use the Integrative Quality of Life theory (IQOL) () to help the researcher to understand the population's behavior under study. QOL is assessed with the help of both objective and subjective indicators (Susniene & Jurkauskas, 2009). In this study, QOL will be assessed based on subjective QOL which is well-being and objective QOL which is objective factors. Well-being and objective factors are known to be the most superficial of QOL, as they are concerned with superficial ability to adapt to our culture (Ventegodt et al., 2003).

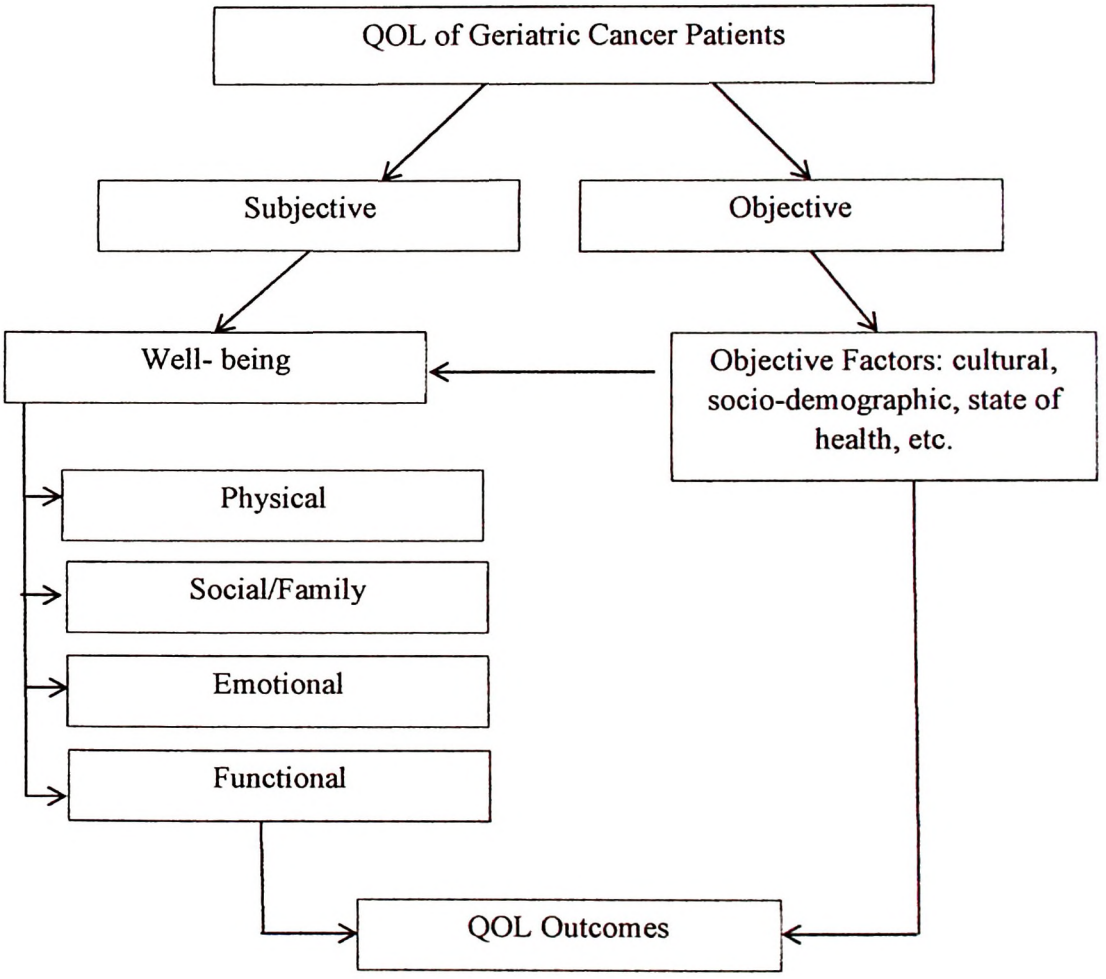

Figure 2.2: Subjective and Objective of QOL.

(Adapted from IQOL theory)

Based on figure 2.2 above, both well-being and objective factors are part of the outcome of QOL. Well-being usually relates to health which is how well a person's life is going but, health sought is said constituent of well-being, but it is not plausibly taken to all that matters for well-being. The subjective quality of life is how good a life each individual feels he or she has (well-being). Each individual personally evaluates how he or she views things and his or her feelings and notions. Whether an individual is content with life and happy are aspects that reflect the subjective quality of life (Ventegodt et al., 2003). Well-being domains in this study are physical, social/family, emotional and functional well-being. Previous study has found that different cancer patients experienced different QOL outcomes especially by its domain.

The objective factors are related to the external factors of life and are fairly easy to establish. The objective quality of life means how one's life is perceived by the outside world. This view is influenced by the culture in which people live. The objective quality of life reveals itself in a person's ability to adapt to the values of a culture and tells us little about that person's life. Examples are social status or the status symbols one should have to be a good member of that culture. Comprehensive quality of life survey must include both types of indicators (Juniper et al., 2005). Objective factors in this study are socio-demographic and clinical variables. Socio-demographic variables such as gender, marital status, educational level, and monthly income. While clinical variable is stage of cancer and cycle of chemotherapy.

Therefore, this study objectively not only to identify the most effected domain of QOL but also the association between the subjective factors (well-being) and objective factors (socio-demographic and clinical variables) with QOL outcomes.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

This study is a quantitative study which conducted as a non-experimental research design and does not involve any control or intervention groups. Specific research design that was used in this research is the Cross-Sectional study which is one of the non-experimental designs. This research design is used to assess the frequency and characteristics of a condition in a population at a particular point in time (NEDARC, 2010). This study design is relatively quick to carry out by requesting the respondents to answer the self-administered questionnaire that guided with researcher. This study design was conducted to assess the quality of life of geriatric cancer patient that undergoing chemotherapy in Hospital USM.

3.2 Population and Setting

Population that was chosen as a respondents in this study is geriatric patients who receiving chemotherapy at NROD (day care center), 1 Utara (gynecology ward) and 3 Selatan (oncology ward) in Hospital USM, Kubang Kerian, Kelantan.

3.3 Sampling Plan

During conducting a research study, certain inclusion and exclusion criteria were considered in selecting an eligible sample from the population.

Inclusion Criteria

1. Male and female aged 60 years old and above
2. Diagnosed with any types of cancer.
3. Undergone any cycle of chemotherapy at Hospital USM