FACTORS ASSOCIATED WITH LEVEL OF SPIRITUAL WELL-BEING IN FEMALE CANCER PATIENTS IN CLINICAL REMISSION IN HOSPITAL UNIVERSITI SAINS MALAYSIA

A CROSS SECTIONAL STUDY

By
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ABSTRAK

FAKTOR-FAKTOR YANG BERKAITAN DENGAN TAHAP KESEJAHTERAAN ROHANIAH DIKALANGAN PESAKIT KANSER WANITA DALAM FASA REMISI KLINIKAL DI HOSPITAL UNIVERSITI SAINS MALAYSIA

Latar belakang: Kesejahteraan rohaniah dipercayai menjadi satu komponen penting dalam memastikan kualiti hidup yang lebih baik dikalangan pesakit kanser dan menggabungkan kesejahteraan rohaniah ke dalam amalan klinikal telah diberi penekanan yang lebih pada tahun-tahun kebelakangan ini.

Objektif*:* Kajian ini mengkaji hubungan di antara kebimbangan dan kemurungan dengan kesejahteraan rohaniah dan domain-domainnya, dengan faktor-faktor lain yang berkaitan, di kalangan pesakit kanser wanita yang berada dalam fasa remisi.

Kaedah: Seramai 150 pesakit kanser wanita yang berada dalam fasa remisi untuk sekurang-kurangnya 6 bulan, telah diambil dari klinik onkologi pesakit luar di Hospital Universiti Sains Malaysia (HUSM). Kebimbangan & kemurungan, dan tahap kesejahteraan rohaniah dinilai menggunakan Skala Kebimbangan dan Kemurungan Hospital (HADS) - Versi Bahasa Melayu, dan Skala Kesejahteraan Rohaniah (SWBS) - Versi Bahasa Melayu , masing-masing . Faktor-faktor demografik dan klinikal lain yang mungkin berkaitan telah diperolehi melalui helaian data pesakit . Hubungan antara tahap kesejahteraan rohaniah dan factor-faktor lain yang berkaitan telah dianalisa dengan menggunakan kaedah Mutiple Linear Regression (MLR).

Keputusan: Sebanyak seratus lima puluh set data lengkap diperolehi. Terdapat korelasi negatif yang signifikan antara skor kebimbangan dan skor kesejahteraan rohaniah

keseluruhan (p= 0.200) dan EWB (p<0.001), tetapi tiada hubungan yang signifikan dengan RWB. Tahap pekerjaan menunjukkan korelasi positif yang signifikan dengan SWB keseluruhan (p < 0.001), EWB (p <0.001) dan RWB (p < 0.001). Walau bagaimanapun, tiada hubungan yang signifikan ditemui antara skor kemurungan dan faktor demografi yang lain.

Kesimpulan: Kajian ini mendapati kebimbangan dan tahap pekerjaan adalah berkaitan dengan tahap kesejahteraan rohaniah tetapi kemurungan dan faktor-faktor demografi yang lain tidak memberi kesan kepada rohani kesejahteraan rohaniah terhadap pesakit kanser wanita yang berada dalam fasa remisi.

ABSTRACT

FACTORS ASSOCIATED WITH LEVEL OF SPIRITUAL WELL-BEING IN FEMALE CANCER PATIENTS IN CLINICAL REMISSION IN HOSPITAL UNIVERSITI SAINS MALAYSIA

Background: Spiritual well-being (SWB) is believed to be an important component in ensuring better quality of life in cancer patient and incorporating SWB into clinical practice has been given more emphasis in recent years.

Objectives: This study examines the relationship between anxiety and depression with SWB and its domains, and other associated factors, among female cancer patients who are in remission.

Methods: A total of 150 female cancer patients who are in remission for at least 6 months, were recruited from the out-patient oncology clinic of Hospital Universiti Sains Malaysia (HUSM). Anxiety and depression, and level of spiritual well-being were assessed using the Hospital Anxiety and Depression Scale (HADS) – Malay Version and the Spiritual Well-Being Scale (SWBS) – Malay version, respectively. Other possible associated demographic and clinical factors data were obtained using the Patient's Data Sheet. The relationship between level of SWB and associated factors were analyzed using the Multiple Linear Regression (MLR), controlling possible confounding factors.

Results: One hundred and fifty complete data sets were obtained. There is a significant negative correlation between anxiety score and overall SWB score (p= 0.200) and EWB (p<0.001), but no significant correlation with RWB. Employment showed a significant positive correlation with overall SWB (p<0.001), EWB (p<0.001) and RWB (p<0.001).

However, there were no significant correlation found between depression score and other demographic factor.

Conclusion: This study found that anxiety and employment is significantly associated with spiritual well-being but depression and other demographic factors has no impact on the spiritual well-being of female cancer patients who are in remission.

CHAPTER 1: INTRODUCTION

1.1 Introduction

Malignancy or the term "cancer" which is more familiar to the layman has been affecting mankind for centuries. It is one of the leading causes of mortality and morbidity affecting the Malaysian population. The National Cancer Registry of Malaysia (NCR) records 21,773 people being diagnosed with cancer yearly and it has also been estimated that one in every four Malaysians will develop cancer by the age of 75 years old (Omar, Ali, & Tamin, 2006). As there are various diagnostic and therapeutic modalities for cancer now days, it has invariably increased the survival rate of cancer sufferers (Gonzalez, Castañeda, Dale, Medeiros, Buelna, Nuñez, & Talavera, 2014). Cancer is a chronic disease, and it has great impact on the quality of life of the survivor. It affects the individual physically, psychologically, socially and economically which causes imbalance in life and its mechanism of adaptation, thus jeopardizing future plans in life (Somunoglu & Tatar, 2012).

In recent years, quality of life (QOL) in patient with cancer has been given much importance, and this has been often included in cancer research and treatment (Montazeri, 2008). People are not only concerned with the length of life but also its quality (Montazeri, 2008). The World Health Organization has recognized 4 main domains of QOL, namely the physical health, psychological well-being, social-relationship and environment. Spiritual well-being (SWB) which is a subdomain of the psychological well-being is said to be an important aspect of QOL (Kandasamy, Chaturvedi, & Desai, 2011). Despite being a major component in QOL, however, spiritual wellbeing (SWB) is given less attention by the medical professionals (Kandasamy, Chaturvedi & Desai 2011). This neglect could be due of the subjectivity and complexity of interpretation of spirituality (Reynolds, 2006).

There have been various definitions and understanding to the concept of religiosity and spirituality. Some use it interchangeably but others prefer to differentiate them. Many understand the term religion as an organized group or community with a set of rules that guides them, in their pursue of goals in life, and spirituality as a subjective experience of something greater than oneself. From perspective of Islam, which forms the major religion in Malaysia, Muslims believe there are no differences between religion and spirituality, as there is no distinction between thoughts and action (Nasr, 2013). Religion is a broader construct which encompasses 'a way of life', whereby spirituality is part of it (Farizah A et al, 2011). This concept is similar to other religion namely Christianity, Hinduism and Buddhism (Koenig, King & Carson, 2012). To an atheist or an agnostic on the other hand, spirituality revolves around strong believes in significant relationships, self-chosen values or goals which forms the inner driving force in them, rather than believing in God (Tanyi, 2007). In other words, it is the complex interaction between the inner self and the external self. Whether the inner self is associated with God or not is not a vital issue in the context of spirituality (Ashmos & Duchon, 2007).

Religion in Oxford dictionary is defined as "belief in superhuman controlling power, system of faith and worship" (Hornblower, Spawforth, & Eidinow, 2012). Religion is the involvement in beliefs, practices and rituals of traditional religion (Banton, 2013). As such, most religions are aimed at believing in a higher power and practicing acts that would please that higher power (McCoubrie & Davies, 2006). Religiosity is defined as "the state of being religious" (Hornblower, Spawforth, & Eidinow, 2012; McCoubrie & Davies, 2006). It is the way in which individuals express and practice their religious believes (Musgrave & McFarlane, 2004).

The impact of religiosity on health has attracted many researchers in recent years (Holdcroft, 2006). Studies have demonstrated that religious affiliation is a significant

predictor of life satisfaction, a sense of belonging and life purpose (Dezutter, Soenens, & Hutsebaut ,2006; Fontaine, Duriez, Luyten, Corveleyn, and Hutsebaut, 2005). People who have stronger religious faith has been found to have lesser stressful life events and better life satisfaction (Holdcroft, 2006). Even though different, religion and spirituality may coexist and they are not exclusively distinct. Spirituality may be present in the absence of religiosity (Wright, 2001; McCoubrie & Davies, 2006).

Spirituality is defined as "of or relating to a person's spirit" (Hornblower, Spawforth, & Eidinow, 2012). It is giving a purpose in life by interpreting illness and personal difficulties in a manner that is more logical (McCoubrie & Davies, 2006; Walter, 2002; Thomson, 2000). Several authors acknowledge that spirituality involves an individual's search for meaning in life, wholeness, peace, individuality, and harmony (Tanyi,2007; McCoubrie & Davies, 2006; Walter, 2002; Thomson, 2000). Others have described spirituality as an internal force that drives an individual towards the optimal potential and is an integral component of human being (Hornblower, Spawforth, & Eidinow, 2012; Wright, 2006). This internal driving force for many is about recognizing one's own divine power and using that power to live in a more satisfying external life (Ashmos & Duchon, 2007). Spirituality may be present in the absence of religiosity (Wright, 2001; McCoubrie & Davies, 2006). It may be aggravated when a person is experiencing deterioration of health and heightened when he or she is facing the end of life situation. At this juncture, questions such as "Why me?" or "Is there a meaning for life?" may arise in the person. This is to make sense of the suffering the individual is undergoing and at the same time facing the bed of death. (Rousseau, 2008; McCoubrie & Davies, 2006). Making sense of life is believed to be an important factor in living the best at the moment of dying. As such spirituality enhances once health by "living the best"

factor which is a deeper understanding of the purpose and meaning of life (Hui, Cruz, Thorney, Parsons, Delgado & Bruera, 2011).

In contrast to spirituality which is more complex and subjective to be assessed, spiritual well-being is objective and measurable, hence easily assessed (Manod, 2011). According to Paloutzian & Park (2014), spiritual well-being consist of 2 domains which are the religious well-being and the existential well-being. Religious well-being refers to the vertical or the 'other worldly' dimension of spirituality which emphasizes on the connectivity between the individual and the higher being. In contrast, existential well-being refers to the perception of life's purpose and satisfaction or in other words, it is a horizontal or 'this worldly' component of spirituality (Paloutzian & Park, 2014).

Many studies have been conducted to identify the relationship between spirituality and coping in those suffering from cancer (Lin & Wu, 2003; Gonzalez, Castañeda, Dale, Medeiros, Buelna, Nuñez, & Talavera, 2014; Boyes, Girgis, Zucca & Lecathelinais, 2009). A study on spirituality and psychological wellbeing among Asian American women who are survivors of breast cancer showed significant association between spirituality and psychological well-being (Yamada, 2010). Over the past decades, the number of studies showing positive association between spirituality and health outcomes has increased significantly (Gonzalez, Castañeda, Dale, Medeiros, Buelna, Nuñez, & Talavera, 2014). Another study which examined the role of spirituality in cancer among African American showed, this group of people believes spirituality plays a strong role in their cancer coping and survivorship (Schulz, 2008).

There have been correlations between spiritual well-being and prognosis of cancer, which affects the quality of life of the sufferers. However, many other factors influence SWB, such as depression and anxiety (Williams & Dale, 2006). Depression and anxiety is common among cancer survivors. In a study conducted by Williams and

Dale (2006) among patients suffering from cancer using the Hospital Anxiety and Depression Scale, it was found that 17.7% were having anxiety and 9.9% were having depression based on the DSM-III-R criteria. However, the drawback of this study was that, there was no further psychiatric evaluation done to determine the proportion of people required follow-up treatment. A study done by Reich, Lesur & Dale (2006) showed that prevalence of anxiety and depression was 13% and 9% respectively, as assessed with HADS. In hospitalized patients, the risk of psychiatric distress was approximately twice that of patients in the outpatient clinic. (Aass.N et al, 2007). As such, depression and anxiety has a significant effect on the QOL of the cancer sufferers (Gonzalez, Castañeda, Dale, Medeiros, Buelna, Nuñez, & Talavera, 2014; Boyes, Girgis, Zucca & Lecathelinais, 2009). In long term cancer survivors, however, depression and anxiety is found to be improving. This is due to their ability to adjust themselves with the as the cancer experience (Boyes, Girgis, Zucca & Lecathelinais, 2009). Studies have also shown that female cancer patients are more anxious, depress and poorer QOL as compared to men (Vodermaier, Linden, MacKenzie, Greig, & Marshall, 2011; Lin, Yee & Selamat, 2011; Natrah, Ezat, Syed, Rizal, & Saperi, 2012; Chan, Ahmad, Azman, Yusof, Ho, Krupat, 2015). Therefore, recognizing the psychological impact in these female patients is vital to initiate early treatment.

In dealing with terminal illness such as cancer, the sufferers would also use complementary and alternative medicines (CAM) in addition to the professional help, which include spiritual healings (Cassileth, Schraub, Robinson & Vickers, 2001). In a review done by Barrie et (2011) it has been reported that there is a large and heterogeneous group of unproved remedies which includes spiritual healings used to treat cancer in both developed and developing countries around the world. Similarly, in Malaysia, the usage of these complementary and alternative medicines to treat cancer are

common (Shaharudin, Nor, Emran, Shahril, 2011; Saibul, Shariff, Rahmat, Sulaiman, & Yaw, 2012) and is strongly influenced by the local culture (Muhamad, Merriam & Suhami, 2011). The two most common forms of CAM in Malaysia were dietary supplements and prayers (Shaharudin, Nor, Emran, Shahril, 2011; Chui, Abdullah, Wong, Taib, 2014; Ikram, Rina, Khanapi, & Ghani, 2015). Many cancer sufferers believe that CAM has the ability to cure their illness and further prevent its speread. Some even believe that CAM can assist modern treatment to work better (Helyer et al, 2006). Most of the sufferers seek CAM at stage II and stage III of their cancer (Norsa'adah, Rampal, Rahmah, Naing & Biswal, 2011)

Despite many studies being conducted on the psychological and spiritual well-being among cancer patients, however, there are limited local studies on cancer patients who are in remission. As such, we designed this study in order to examine the association between anxiety and depression with spiritual well-being among female cancer patients who are in remission. The aims of this study were to determine the factors (demographic, anxiety and depression) associated with spiritual well-being, to describe the level of spiritual well-being in female cancer patients who are in remission and to determine the relationship between anxiety and depression with spiritual well-being in female cancer patients who are in remission. In this study, we sought to answer the question "does anxiety and depression affect spiritual well-being and what are the demographic and clinical factors that affect spiritual well-being among female cancer patients who are in remission. The hypothesis was that the more severe the anxiety and depression in female cancer patients in clinical remission, the worst will be their level of spiritual well-being.

CHAPTER 2: OBJECTIVES OF THE STUDY

2.1 General objectives

The general objective of this study was to determine the associated factors of spiritual well-being among female cancer patients who are in remission.

2.2 Specific objectives

1. To determine the level of Overall Spiritual Well-Being, Existential Well-Being and Religious Well-Being in female cancer patients who are in remission using the Spiritual Well-Being Scale

2. To examine the relationship between anxiety and depression with spiritual well-being in female cancer patients who are in remission. The level of anxiety and depression is identified using the HADS – Malay version.

3. To examine the demographic and clinical factors associated with spiritual well-being. The demographic factors were age, marital status occupation and education level. The clinic factors include duration since diagnosis, depression and anxiety. Data on the demographic factors were obtained using the Patients Demographic Data Sheet.

CHAPTER 3: MANUSCRIPT

3.1 Title page

FACTORS ASSOCIATED WITH LEVEL OF SPIRITUAL WELL-BEING IN FEMAL CANCER PATIENTS UN CLINICAL REMISSION IN HOSPITAL UNIVERSITI SAINS MALAYSIA.

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3.2 Abstract

Background: Spiritual well-being (SWB) is believed to be an important component in ensuring better quality of life in cancer patient and incorporating SWB into clinical practice has been given more emphasis in recent years. ***Objectives:*** This study examines the relationship between anxiety and depression with SWB and its domains, and other associated factors, among female cancer patients who are in remission. ***Methods:*** A total of 150 female cancer patients who are in remission for at least 6 months, were recruited from the out-patient oncology clinic of University Sains Malaysia (HUSM), for this cross sectional study. Anxiety and depression, and level of spiritual well-being were assessed using the Hospital Anxiety and Depression Scale (HADS) – Malay Version and the Spiritual Well-Being Scale (SWBS) – Malay version, respectively. The relationship between level of SWB and associated factors were analyzed using the Multiple Linear Regression, controlling possible confounding factors. ***Results:*** There is a significant negative correlation between anxiety score and overall SWB score (p= 0.200) and Existential well-being (EWB) (p<0.001), but no significant correlation with Religious well-being (RWB). Employment shows a significant positive correlation with overall SWB (p<0.001), EWB (p<0.001) and RWB (p<0.001). However, there were no significant correlation found between depression score and other demographic factors. ***Conclusion:*** This study found that anxiety and employment is significantly associated with spiritual well-being but depression and other demographic factors have no impact on the spiritual well-being of female cancer patients who are in remission.

3.3 Introduction

Cancer is a growing health problem in Malaysia and is the fourth leading cause of death in Malaysian Ministry of Health Hospitals (Lim, 2012; MoH, 2015). It is also one of the 10 principle causes of admission to hospitals in Malaysia (MoH, 2015). The National Cancer Registry (NCR) of Malaysia has recorded as many as 21773 people being diagnosed with cancer in 2006. It is estimated that 1 in every 4 Malaysians will develop cancer by the age of 75 years old (Omar, Ali, & Tamin, 2006).

Cancer is a chronic medical disease and affects the quality of life of the survivor. It affects the individual physically, psychologically, socially and economically which causes imbalance in life and its mechanism of adaptation thus jeopardizing future plans in life (Somunoglu &Tatar, 2012). Recognizing this, in recent years, Quality of Life (QOL) in patients with cancer has been given much importance, and this has been often included in cancer research and treatment. Health-related QOL is now being more integral in the treatment plan of cancer patients (Montazeri, 2008), and it has been shown that assessing QOL in cancer patients has a positive impact on its prognosis (Montazeri, 2008). People are becoming more concerned not only with their length of life, but also its quality.

The World Health Organization has recognized 4 main domains of QOL, namely the physical health, psychological well-being, social-relationship and environment. Spiritual well-being (SWB) which is a subdomain of the psychological well-being is said to be an important aspect of QOL (Kandasamy, Chaturvedi, & Desai, 2011). Recognizing the importance of QOL in cancer patients, there has been more interest in studying the relationship between the spiritual well being (SWB) and the physical health among cancer patients in recent years (Kandasamy, Chaturvedi, & Desai, 2011). Despite the understanding of spirituality as a holistic approach in cancer treatment, there is still a gap

in addressing SWB in daily clinical practice among clinician (Anandarajah, & Hight, 2001; McCoubrie & Davies, 2006). This is because of the subjectivity and complexity of understanding SWB (Reynolds, 2006).

There have been various definitions and understanding of to the concept of spirituality and religiosity and some use it interchangeably. However, many prefer to differentiate them. In the perspective of Islam, there is no demarcation between religion and spirituality as there are no differences between thoughts and action (Nasr, 2013). Religion is a broader construct of 'a way of life' and spirituality is part of it (Ahmad, Muhammad, & Abdullah, 2011). Religion is defined as "belief in superhuman controlling power, system of faith and worship" (Hornblower, Spawforth, & Eidinow, 2012) which involves practices and rituals of traditional religion (Banton, 2013). As such, most religions are aimed at believing in a higher power and practicing acts that would please the higher power (McCoubrie & Davies, 2006). Meanwhile religiosity is defined as "the state of being religious" (Hornblower, Spawforth, & Eidinow, 2012; McCoubrie & Davies, 2006).

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3.4 Methods

This was a cross-sectional study conducted in the outpatient oncology clinic of Hospital Universiti Sains Malaysia, which is the main tertiary referral center for the east coast states of Peninsular Malaysia. The study population was female patients who attended the outpatient oncology clinic for their follow-ups, who were above 18 years, diagnosed to have cancer and was in remission and had completed chemotherapy or radiotherapy at least 6 months ago. Those who were cognitively impaired or were too ill to be interviewed were excluded from this study. Convenient sampling method was used to select the sample due to time and resource constraint. Data collection was done for a period of 4 months from 1st November, 2015 to 28th February, 2016.

The sample size was calculated using the single proportion formula, with consideration of each objective and the highest number of sample size was used. Expected proportion (P) was set to 0.5 to yield a maximum sample size, based on a study done among oncological patients in Iran using the same Spiritual Well-being Scale (Amir & Naji, 2013), whereby P was between 10% to 90%. Level of confidence was 95%. Due to limitation of resources, precision was set to 0.08. A total of 150 subjects was involved in this study.

The first author with the help of trained research assistants approached all eligible patients who fulfilled the inclusion criteria, during their usual appointment day. Detailed explanation of the study was given and written consent was obtained. Once participants had given their written consent, research tools which were all self-rated comprised of the demographic data sheet, spiritual Well-being Scale (SWBS) Malay version and the Hospital Anxiety and Depression Scale (HADS) Malay version, were given to the participants to be completed.

Hospital Anxiety and Depression Scale (HADS) Malay Version

The HADS is one of the the most widely used screening tool for anxiety and/or depression among cancer patients and the most extensively validated scale for screening emotionally distress among patients (McCoubrie & Davies, 2006; Mitchell, Meader, Symonds, 2010; Vodermaier & Millman, 2011). It assesses how a person is feeling for past weeks (McCoubrie & Davies, 2006). It is a self-rating 14-item scale which is scored as an index of severity of anxiety and depression. It contains 2 subscales, one for anxiety and the other for depression. Each subscale has 7 questions with a range of score from 0-21 and has a total of 14 questions which has an overall score of 0-42. Its cut-off point is 8/9 which was derived from the general population. Higher scores suggest morbidity. While the English version of HADS has been proven to be reliable and valid screening tool for depression and anxiety (Cameron, Crawford, Lawton, Reid, 2008; Castelli, Binaschi, Caldera, Mussa, & Torta, 2011; Julian, 2011), the Malay version of HADS has also been found to be a valid instrument to be used in the Malaysian population with good sensitivity and specificity (Yahya, & Othman, 2015).

Spiritual Well-Being Scale (SWBS) – Skala Kesejahteraan Rohaniah

The SWBS is one of the best available and commonly used toll to assess the level of spiritual well-being and has been used for various researches and clinical work (Ellison, 2006; McCoubrie & Davies, 2006; Yahaya, Momtaz, & Othman, 2012). It has been widely used among cancer patients around the world had also has been translated into various languages to suit the local population (McCoubrie & Davies, 2006; Abu-El-Noor, & Radwan, 2015). The *Skala Kesejahteraan Rohaniah* is the Malay translation of the original English version of SWBS which has good reliability and validity. (Imam, Abdul Karim, Jusoh, & Mamad, 2009). However, the psychometric property of the

Malay version was examined among student population. In order to confirm the reliability of this scale among cancer patients, alpha coefficient (Cronbach, 1951) was computed, which showed good internal consistency whereby Cronbach alpha was $\propto$>.90

There are 20 items in this scale and each item is scored from 1 to 6 with a total score range of 20-120 (higher score corresponds to greater well-being). It has 2 sub-scale; the Existential Well-Being (EWB) which measures one's level of life satisfaction and life purpose the, and Religious Well-Being (RWB) which measures how one views their relationship with God. Both subscale has 10 items for each and has a score range of 10-60. For the sub-scale, a score in range of 10-12 is low, 21-49 is moderate and 50-60 is high level of satisfaction in life (for EWB) or relationship with God (for RWB). For the overall spiritual well-being (SWB) which measures the perceived overall well-being, a score range of 20-40 is low, 41-99 is moderate and 100-120 is high sense of overall SWB. In order to use this scale among non-Muslims participants, the word Allah was changed to God. This scale is nonsectarian.

This study has been approved by the Human Research Ethics Committee (HREC) of University Sains Malaysia.

Statistical Analysis

Obtained data were entered and analyzed using SPSS for Mac, Version 22.0 Prior to analysis, data were checked, explored and cleaned. Prior to analyzing the data, normality of the data was tested. Due to smaller sample size, continuous data were used to increase the power of the statistical test. Descriptive statistics was performed for each variable, with continuous variables represented as mean and standard deviation and categorical variables as frequencies and percentage. To determine the relationship between anxiety and depression with spiritual well-being among female cancer patients

in remission, Pearson's correlation coefficient analysis was performed with a significant level set to $p<0.05$.

Simple linear regression was initially performed on each independent variable to determine any association between the demographic and clinical variables and SWB (which includes its domains). To further determine the association between the demographic and clinical factor with the SWB scores and to eliminate possible confounding factors, those variables which were statistically significant at the level of $p<0.25$ or deemed clinically significant were included in the multiple linear regression analysis. Forward, backward and stepwise elimination strategies were used so that the final model contained only significant variables. The selection of best fit model was used based on the rule of parsimony. Model of fitness for assumption check was done. In the multiple linear regression analysis, variables were considered to be significant at the level of $p<0.05$.

3.5 Results

Demographic characteristics of participants

The mean age of the participants were 53.47 (SD ±8.97) years old (range 28 – 78 years). Majority of them were Malays (88%), Islam (88.7%), and were married (77.3%). More than two third (81.3%) received formal education more than 6 years and majority (69.3%) were unemployed and had a monthly income less than RM3000 (70.7%). Table 1 summarizes the demographic characteristics of the participants.

Table 1 Socio-demographic characteristics of female cancer patients in remission who are attending out-patient oncology clinic of Hospital University Sains Malaysia (n=150).

Variable	Frequency (%)	Mean (SD[a])
Age (years)		53.47 (8.97)
Race		
Malay	1132 (88)	
Chinese	12 (8)	
Indian	3 (2)	
Siamese	3 (2)	
Religion		
Islam	133 (88.7)	
Buddhist	14 (9.3)	
Hindu	2 (1.3)	
Christian	1 (0.7)	
Marital status		
Married	116 (77.3)	
Single	6 (4.0)	
Divorced/Separated	28 (18.7)	
Education level		
< 6 years	28 (18.7)	
> 6 years	122 (81.3)	
Employment status		
Unemployed	104 (69.3)	
Employed	46 (30.7)	
Income per month (RM[b])		
3000 and below	106 (70.7)	
3001-10000	40 (26.7)	
10000 and above	4 (2.7)	

[a]SD – Standard deviation [b]RM – Ringgit Malaysia

Clinical characteristics of participants

The mean duration of time since diagnosis of their illness was 54.58 (SD ± 35.80) months (range 15-220 months) and the mean duration of remission was 30.13 (SD ± 28.27) months (range 7-158 months). The majority (n=123) of the subjects were diagnosed with breast cancer. Out of the 150 participants, 137 (91.3%) underwent surgery. One hundred and thirty-nine (92.7%) were given chemotherapy, 131 (87.3%) underwent radiotherapy and 67 (44.7%) were started on hormonal therapy. The clinical characteristics of the participants are shown in Table 2.

Table 2 Clinical characteristics of female cancer patients in remission who are attending out-patient oncology clinic of Hospital University Sains Malaysia (n=150).

Variable	**Frequency (%)**	**Mean (SD[a])**
Duration since diagnosis (months)		54.58 (35.80)
Duration in remission (months)		30.13 (28.27)
Type of cancer		
Breasts cancers	123 (82)	
Cervical & Endometrial cancers	11 (7.3)	
Gastrointestinal cancers	9 (6.0)	
ENT related cancers	4 (2.7)	
Bone cancers	2 (1.3)	
Renal cancers	1 (0.7)	
Surgical treatment		
Yes	137 (91.3)	
No	13 (8.7)	
Chemotherapy		
Yes	139 (92.7)	
No	11 (7.3)	
Radiotherapy		
Yes	131 (87.3)	
No	19 (12.7)	

Variable	Frequency (%)	Mean (SD[a])
Hormonal therapy		
Yes	67 (44.7)	
No	82 (54.7)	
Overall SWB[c] score		92.5 (14.53)
Low	0 (0.0)	
Moderate	101 (67.3)	
High	49 (32.7)	
EWB[d] score		45.41 (7.46)
Low	0 (0.0)	
Moderate	103 (68.7)	
High	47 (31.3)	
RWB[e] score		47.17(7.57)
Unsatisfactory	0 (0.0)	
Moderate	93 (62.0)	
Positive	57 (38.0)	
HADS[f] score		110.64 (4.73)
Total Depression score		3.46 (2.84)
Depressed	11 (7.3)	
Not Depressed	139 (92.7)	
Total Anxiety score		7.18 (2.6)
Anxious	39 (26.0)	
Not Anxious	111 (74.0)	

[a]SD – Standard deviation [c]SWB – Spiritual Well-Being [d]EWB – Existential Well-Being
[e]RWB – Religious Well Being [f] HADS – Hospital Anxiety and Depression Scale

Spiritual Well-Being

The mean score of overall SWB was 92.5 (SD ±14.53) with mostly (67.3%) reported to have a moderate level of overall SWB. EWB score, which is a subscale of SWBS, was found to have a mean of 45.41 (SD ±7.46) with 103 (68.7%) subjects reporting a moderate level of EWB. The RWB, another subscale of SWBS had a mean of 47.17 (SD ±7.57) with 93 (63.0%) reported to have moderate level of RWB. No participants reported to have a low level overall SWB, EWB or RWB.

Anxiety and Depression

The mean score on the depression subscale of HADS was 3.46 (SD ±2.84) with only 11 (7.3%) participants reported to be depressed. The mean anxiety subscale score was 7.18 (SD ±2.6) with 39 (26.0%) participants reported to be anxious.

Relationship between anxiety, depression and SWB

Using the Pearson's correlation coefficient analysis, overall HADS score was significantly negatively correlated with EWB score (r= -0.200 p= 0.014) but not with overall SWB or RWB scores. The Anxiety subscale score was significantly negatively correlated with overall SWB score (r= -0.200, p= 0.014) and EWB score (r= -0.285, p <0.001) (Table 3). However, there was no significant correlation between anxiety score and RWB score. Depression score has no significant correlation with ether overall SWB, EWB or RWB scores.

Table 3 Correlation between HADS and SWBS scores

HADS[a]	SWBS[b]		
	Overall SWB[c]	EWB[d]	RWB[e]
Anxiety score			
Pearson correlation	r= -0.200	r= -0.285	r= -0.014
Significance (two-tailed)	p= 0.014*	p <0.001*	p=0.207
Depression score			
Pearson correlation	r= -0.013	r= -0.073	r= 0.047
Significance (two-tailed)	p= 0.876	p= 0.374	p= 0.564
Overall HADS score			
Pearson correlation	r=-0.118	r= -0.200	r= -0.028
Significance (two-tailed)	p=0.152	p= 0.014*	p= 0.730

[a]HADS – Hospital Anxiety & Depression [b]SWBS – Spiritual Well-Being Scale
[c]SWB – Spiritual Well-Being [d]EWB – Existential Well-Being
[e]RWB – Religious Well Being Scale
* significant when p<0.05

Association between demographic and clinical factors with SWB

Simple linear regression analysis was initially performed to determine the association between the different demographic and clinical factors and the SWBS score with their subscales. All variables found to be statistically significant in the SLR and other factors deemed to be of clinical importance were subsequently included in the multiple linear regression analysis.

Using the single linear regression analysis with p<0.25 for initial screening, significant association were found between age (p=0.008), marital status (p=0.114), employment (p<0.001), education level (p=0.005) and anxiety (p=0.014) with overall SWB score. However, duration since diagnosis and depression were not found to be significantly associated with overall SWB.

Similarly, age (p=0.008), marital status (p=0.064), employment (p<0.001), education level (p=0.006) and anxiety (p<0.001) were significantly associated with EWB, but duration since diagnosis and depression did not show statistical significance.

As for the RWB subscale, age (p=0.014), marital status (p=0.228), employment (p<0.001), education level (p=0.007) and anxiety (p=0.207) were significantly associated with RWB but duration since diagnosis and depression did not have significant association with RWB.

In the multiple linear regression analysis, employment (p<0.001) and anxiety (p=0.014) were significantly associated with overall SWB (Table 4). Similarly, employment (p=<0.001) and anxiety (p=0.001) were also significantly associated with EWB (Table 5). However, only employment (p<0.001) was significantly associated with RWB but not anxiety (Table 6). Age, duration of diagnosis, marital status, education level and depression were not significantly associated with overall SWB, EWB or RWB.