

**THE SELF-EFFICACY FOR COPING AND
QUALITY OF LIFE IN WOMEN WITH BREAST CANCER
IN HOSPITAL UNIVERSITI SAINS MALAYSIA**

By

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DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE DEGREE OF MASTER OF
MEDICINE (FAMILY MEDICINE)

UNIVERSITI SAINS MALAYSIA

2015

ACKNOWLEDGEMENT

I would like to convey my deepest appreciations to the following person for the major contribution toward completion of the dissertation.

- Dr Nani Bt Draman, my supervisor (Department of Family Medicine), for her excellent ideas, guidance and assistance during proposal and dissertation write up.
- Dr Siti Suhaila Bt Mohd Yusuff, my co-supervisor (Department of Family Medicine), for her guidance, comments and advice of the study.
- AP Dr Norsa'adah Bt Bachok, my co-researcher (Department of Biostatistic), for her guidance and comments on statistical analysis from the beginning until the end of the study.
- AP Dr Saiful Bahari Bin Ismail, my co-supervisor, who supported me.
- Puan Asmat, Counsellor in Oncology Clinic, who assists me to find patients in the Oncology Clinic.
- I acknowledge those in the Radiotherapy Unit and the Ethic committee members, Hospital Universiti Sains Malaysia (HUSM), for the supported and allowing me to conduct this study.
- I am grateful to all lecturers and colleagues for their suggestions, concerns and advice throughout this study.

Finally, thank you for my beloved husband Syed Khairuddin Bin Syed Idrus and our children Syed Adam Hariz, Sharifah Amalia Fatnin, and Syed Aidil Dzakwan for their unconditional support and understanding during the preparation of this dissertation. Without them, this dissertation would never have been accomplished.

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LIST OF ABBREVIATIONS

BCS	Breast Conservative Surgery
BMI	Body mass index
CBI	Cancer Behavior Inventory
CI	Confidence Interval
EORTC	European Organization for Research and Treatment of Cancer
IQR	Interquartile ratio
LOA	Loss of appetite
LOW	Loss of weight
QLQ	Quality of Life question
QoL	Quality of life
RM	Ringgit Malaysia
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
VIF	Variance Inflation Factor
WHO	World Health Organization

ABSTRACT

English Version

Title: The self-efficacy for coping and quality of life in women with Breast Cancer in Hospital Universiti Sains Malaysia.

Introduction: Breast cancer is the second most common cancer in the world and the commonest cancer in Malaysia. High level of self-efficacy for coping in breast cancer survivors has a positive effect on health behaviors, symptom control, compliance with cancer treatment, as well as on quality of life (QoL). This study aims to determine the self-efficacy for coping scores and its association with socio-demographic and clinical variables. As well as to determine the global, functional and symptoms QoL and its correlation with self-efficacy for coping within 3 years of diagnosis in breast cancer women in Hospital Universiti Sains Malaysia.

Methodology: This is a cross sectional study involving 168 women diagnosed with breast cancer between January 1, 2009 and December 31, 2012. The universal sampling method was applied following inclusion and exclusion criteria recruited from January 2012 to December 2012. The inclusion criteria were age >18 years old, histologically confirmed breast cancer and cancer was diagnosed from January 2009 until December 2012. The exclusion criteria were illiterate and diagnosed with cognitive impairment. A self-administered/self-guided questionnaire used to obtain the socio-demographic and clinical characteristics, self-efficacy for coping and QoL. The

brief Cancer Behavior inventory (CBI-B) and the European Organization for Research and Treatment of Cancer (EORTC) with breast cancer's questionnaires were used. Patients' medical record was used for detail information about medical/clinical data. The data were analyzed by using multiple linear regressions and Spearman rank correlation.

Result: The mean score of self-efficacy for coping in breast cancer women was 83.67 (95% CI: 81.87, 85.47). The positive impact on self-efficacy for coping were higher educational levels ($\beta=7.26$, $p<0.001$) and good income ($\beta=0.001$, $p=0.021$). However, positive family history of breast cancer ($\beta=-5.43$, $p=0.008$), and performed breast cancer surgery ($\beta=-16.44$, $p=0.003$) reduced the self-efficacy for coping. The mean of global QoL was 59.9 (95% CI 56.7, 63.0). The global QoL ($r=0.407$ $p<0.001$), and functioning QoL subscales (r ranged from 0.191 to 0.308, $p<0.05$) were significant positive correlation with self-efficacy for coping, but symptoms QoL subscales (r ranged from -0.157 to -0.282, $p<0.05$) had significant negative correlation with self-efficacy for coping.

Conclusion: The self-efficacy for coping mean score was moderate in breast cancer women. Higher educational levels and good income increased the self-efficacy for coping. However, positive family history of breast cancer and breast cancer surgery reduced the self-efficacy for coping. The global QoL mean score was slightly below average in this study and the functional QoL had a significant positive correlation with self-efficacy for coping. But, symptoms QoL had a significant negative correlation with self-efficacy for coping.

Malay version

Tajuk: Kecekapan diri untuk mengatasi dan kualiti kehidupan penghidap kanser payudara wanita di Hospital Universiti Sains Malaysia.

Pengenalan: Kanser payudara adalah yang kedua tertinggi di dunia dan yang paling ramai di kesan di Malaysia. Kecekapan diri untuk mengatasi yang tinggi dalam penghidap kanser payudara memberi kesan yang positif kepada cara hidup sihat, kawalan simptom, kepatuhan pada rawatan kanser, dan juga taraf kualiti kehidupan. Kajian ini bertujuan untuk mengenalpasti skor min kecekapan diri pesakit untuk mengatasi barah payudara, kaitannya dengan sosiodemografik dan klinikal data. Juga, untuk mengenalpasti skor min kualiti kehidupan global, fungsi dan simptom dalam jangka masa 3 tahun di sahkan menghidap kanser payudara dan hubungkaitnya dengan kecekapan diri pesakit kanser payudara wanita untuk mengatasi kanser di Hospital Universiti Sains Malaysia

Kaedah Kajian: Kajian ini adalah secara keratan rentas melibatkan 168 orang wanita yang disahkan menghidap barah payudara dari 1 Januari 2009 sehingga 31 Disember 2012. Pemilihan sampel dilakukan secara universal berdasarkan kriteria kemasukan dan penolakan bermula dari Januari 2012 hingga Disember 2012. Kriteria kemasukan adalah pesakit kanser payudara berumur 18 tahun ke atas, sah menghidap kanser payudara secara histologi, dan kanser di sahkan dari Januari 2009 hingga Disember 2012. Kriteria penolakan pula pesakit yang tidak boleh membaca dan di sahkan bermasalah dari segi fungsi kognitif. Borang soal-selidik/penjelasan di gunakan untuk mendapatkan data berkaitan sosiodemografi dan klinikal, kecekapan diri untuk mengatasi dan kualiti kehidupan pesakit. Soalan yang di gunakan adalah 'brief Cancer Behavior

Inventory' dan 'European Organization for Research and Treatment of Cancer'. Rekod pesakit juga di gunakan untuk mendapatkan maklumat klinikal. Data dianalisa menggunakan regresi linear berganda dan korelasi 'Spearman rank'.

Keputusan: Markah purata kecekapan diri untuk mengatasi penyakit kanser payudara wanita adalah 83.67 (95% CI: 81.87, 85.47). Tahap pendidikan yang tinggi ($\beta=7.26$, $p<0.001$), dan pendapatan yang bagus ($\beta=0.001$, $p=0.021$) menyumbang kepada peningkatan kecekapan diri untuk mengatasi. Sebaliknya, sejarah keluarga yang menghidap kanser payudara ($\beta=-5.43$, $p=0.008$) dan pembedahan payudara ($\beta=-16.44$, $p=0.003$) mengurangkan tahap kecekapan diri untuk mengatasi. Markah purata untuk kualiti kehidupan global adalah 59.9 (95% CI 56.7, 63.0). Kualiti kehidupan global ($r=0.407$, $p<0.001$) dan subskala fungsi kualiti kehidupan (r di antara 0.191 hingga 0.308, $p<0.05$) berhubungkait secara positif dengan kecekapan diri pesakit untuk mengatasi kanser payudara tetapi simptom kualiti kehidupan (r di antara -0.157 hingga -0.282, $p<0.05$) berhubungkait secara negatif dengan kecekapan diri untuk mengatasi kanser.

Kesimpulan: Kecekapan diri pesakit wanita untuk mengatasi barah payudara adalah sederhana. Tahap pendidikan yang tinggi dan pendapatan yang bagus meningkatkan kecekapan diri untuk mengatasi kanser. Tetapi, sejarah keluarga yang menghidap kanser payudara dan pembedahan kanser payudara mengurangkan kecekapan diri untuk mengatasi kanser. Skor min kualiti kehidupan global adalah bawah sedikit daripada markah purata. Fungsi kualiti kehidupan berhubungkait secara positif dengan kecekapan diri untuk mengatasi kanser. Tetapi, simptom kualiti kehidupan berhubungkait secara negatif dengan kecekapan diri untuk mengatasi kanser.

CHAPTER 1 : INTRODUCTION

Breast cancer is the second most common cancer worldwide and the commonest malignant tumor among women, accounts for more than 1,000,000 new cases worldwide each year and more than 375,000 cancer death per year (1). It cause major physical and psychosocial health burden in either well developed or less developed countries.

In developing countries, the onset of breast cancer is common in the younger age group with more aggressive and rare forms of cancer such as inflammatory types (2). On the contrary, the disease is prevalent among post-menopausal women in Western countries, in which is prominent in the mean age of 60 years old (3).

In Malaysia, breast cancer is the most common cancer. There were 3,525 female breast cancer patients registered in the National Cancer Registry Malaysia in year 2006 and accounted as 16.5% of all cancer registered for that year (4, 5). The incidence rate of breast cancer rose steadily in which 4,337 in 2002 compared to 3,825 for the year 2000 (4). The disease is accounted for 31% of all newly diagnosed female cancer in Malaysia. The latest report from cancer registry shows that starting from the age of 30 the incidence of breast cancer is increasing in trend and peaks at the 50-59 age group however it reduced in the elderly age group (4).

Diagnosed with breast cancer was undeniably distressing and the previous studies show that it was associated with negative consequences on physical, mental and social well-being of the women (6). Self-efficacy for coping was crucial when dealing with fatal disease and unwanted cancer treatment. It is associated with QoL, the higher the self-efficacy for coping, the better the QoL (7).

Self-efficacy for coping and QoL in various type of cancers were extensively studied worldwide (8) especially breast cancer. However, there was no study found in Malaysia. Therefore, self-efficacy for coping and QoL need to be evaluated further to identify the level of self-efficacy for coping in breast cancer population, and its association with socio-demography and clinical factors.

There were many tools to measure the self-efficacy for coping and QoL in breast cancer women such as Brief Cancer Behavior Inventory (CBI-B) (9, 10) and Long Cancer Behavior Inventory (CBI-L) (11). The CBI-L was widely used however CBI-B was chosen because it is easy and simple tool to be used, reliable and valid to measure the self-efficacy for coping in cancer patients. The CBI-L contained 33 items, so it is time consuming for cancer patients to answer.

The QoL also important components in breast cancer women and in this study it was measured by using Malay version “European Organization for Research and Treatment of Cancer (EORTC) questionnaire (QLQ-C30 and QLQ-BR23) (12).

1.2 Justification and rationale

This research is conducted to determine the self-efficacy for coping and quality of life (QoL) in breast cancer women in Kelantan within 3 years of diagnosis. The aim of this study was to gain the information regarding self-efficacy for coping and QoL in breast cancer women, its associated factors, mean score of the QoL subscales and the correlation between self-efficacy for coping and QoL. The participants selected within 3 years of diagnosis because no previous study done within this time frame. In addition, we might face inadequate numbers of participants if breast cancer women were chosen within a very short duration of cancer diagnosis such as within 1 or 2 years after diagnosed with cancer. There were studies done within one year of breast cancer diagnosis (11), and other studies done within one to five years of diagnosis (13). However most of the studies did not have a specific duration of the breast cancer diagnosis for their participants (14).

CHAPTER 2: LITERATURE REVIEW

2.1 Self-efficacy

Self-efficacy is defined as an individual's self-judgment about his/her capacity to be able to organize the necessary activities to successfully demonstrate a specific performance. The higher the level of self-efficacy, the greater the performance accomplishments (15). Self-efficacy determines how a person thinks, feels, motivates and performs certain actions. Therefore, it is an important concept in accepting cancer diagnosis and symptoms' management related with disease and its treatment.

Self-efficacy is an important component of Social Cognitive Theory where it is becoming recognized for its significant effect on patients' adaptation to their illness and self-care behavior (8). Self-efficacy theory is developed based on four principals; performance attainment (direct mastery experiences), vicarious experiences (observing the performance of others), verbal persuasion, and lastly arousal state (physiological states to partly judge their capability, strength, and vulnerability). The performance attainment is the most powerful factor of self-efficacy based on previous personal accomplishments and success. If self-efficacy is lacking, people tend to behave ineffectively even though they know what to do (15).

2.1.1 Self-efficacy for coping with cancer

The self-efficacy for coping has a similar meaning with self-efficacy. It is regarding a person's subjective appraisal of her/his ability to cope with the environmental demands on the stressful situation (15). Coping refers to a behavior that protects people from being psychologically harmed by problematic social experience (16). Previous studies have shown that cancer patients who reported greater self-efficacy in coping with their disease were better adjusted and have better QoL as compared to the patients with lower self-efficacy (9, 17). Various factors contribute to the reduction of the coping abilities in patients with cancer such as pain (18), fatigue, cancer symptoms and treatment, depression and anxiety (19). However, a person has different capability to self-manage their symptoms, psychological and emotional response to accept and cope with cancer and cancer-related side effects. One of the studies showed that women diagnosed with non-invasive breast cancer also experience powerful emotions once they were diagnosed with cancer and religious practice was used to increase a person's coping level (20).

2.2 The duration of the cancer diagnosis on the self-efficacy for coping and quality of life

The self-efficacy for coping and QoL of cancer patients are affected by various factors, ranging from diagnosis (21) , stage of disease, the type of treatment the patients get, depression, and spiritual beliefs.

The self-efficacy for coping is a dynamic process and it fluctuates from time to time (15), since the time of the diagnosis given, during treatment and after completing the treatment. The self-efficacy for coping was beneficial in breast cancer survivors because it contributed for better mental health and more positivity in battling to fight with cancer. Therefore, based on Bandura theory, self-efficacy for coping was increased after longer duration of cancer diagnosis (15). However, a study by Rottmann and friends showed that longer time since diagnosis associated with poorer self-efficacy ($\beta=-0.64$, $p=0.0007$). They reported poorer self-efficacy for coping in their study possibly due to their breast cancer women were delayed in attending the rehabilitation course, therefore their participants distressed and had a poor self-efficacy for coping (22).

The self-efficacy is influenced by early or delayed in breast cancer confirmation. A study in Taiwan showed that women who delayed a breast cancer evaluation had a decrease of self-efficacy after surgery while those who did not delay had an inverse result. From their study, anxiety and depression significantly reduced the self-efficacy in their women (23).

Regarding the relationship in between duration of cancer diagnosis and QoL, a study in the United States showed that in an average of three years after diagnosis, breast cancer women were coping well with cancer diagnosis and the participants QoL scored were similar to the general adult United States population (24). However, a study by Bernhard and friends showed

that the global QoL was poor in breast cancer women within first 2 years of diagnosis and after 5 years of complete treatment. The reason for poor global QoL in breast cancer women within 2 to 5 years of diagnosis due to the fear for the possible relapse and depressive reactions after being diagnosed with cancer (25).

Mastectomy procedure also significantly reduced the QoL in breast cancer survivors. A study by Steeg *et al* shows that after 4 to 5 years following mastectomy, the QoL in breast cancer women was still impaired. This is because following mastectomy, breast cancers women experiences pain at the surgical site, lymphedema, and numbness (26). However, from Arndt *et al* study in Germany showed that the global QoL comparable with general population women after one year of breast cancer diagnosis. Their global QoL scores were comparable with scores in women without breast cancer because global QoL were assessed after the acute treatment-related side effects (chemotherapy) disappeared. However certain sub-domains such as emotional, social, role and cognitive functioning QoL were still impaired (11).

2.3 Associated factors for self-efficacy for coping in breast cancer

2.3.1 Socio-demographic factors

There were several studies showed that self-efficacy for coping were significantly associated with age (17), education and time since diagnosis (22). The self-efficacy for coping also had a protective effects on the unemployment, mastectomy, and co-morbidity (13). Marital status, economic status, types of breast surgery, and adjuvant chemotherapy had an association with coping mechanism based on qualitative study by Suriati *et al* (27).

Regarding the educational level, a study done in Malaysia showed that individuals with higher educational levels have more comprehensive ways when approaching problems related to breast cancer diagnosis and treatment. The level of awareness about breast cancer increased in women with high educational level, and they were more alert with breast cancer screening and breast cancer symptoms (28).

Marital status and support from closed family members were significant factors in coping with breast cancer diagnosis and treatment (29, 30). The spouse role in taking over the role as a home manager is important to help the women to cope with cancer diagnosis. This reversal role is important for the family dynamics because the cancer treatment causes a negative impact on the women's role as a home manager. The emotional support from spouse and family members were important for them to share their fears, anxieties and uncertainty about cancer (31).

The religious (32), racial and cultural norms were important influences in coping with breast cancer (30, 33). A study among Chinese ethnic in Malaysia (34) and Muslims community (35) found that relying on God and religion helped them to cope better, increased their spiritual well-being, and less distress with fatal disease. Not only in our country, several studies such as in Thailand (36), Lebanese (37) and other countries showed similar findings. However, we did not specifically measure these factors in our study.

Everyone believes cancer is incurable and it is a fatal disease even though after seeking appropriate treatment. A study by Vivien *et al* showed that Malaysian Chinese socio-cultural beliefs and practices played a role in health-seeking behaviors, the ways of living and how they handling a cancer diagnosis. From the study, not only religion but positive thinking and

Complementary and Alternative Medicine helped them to release the pain and discomfort caused by the illness (34).

Personality trait was another significant factors associated with self-efficacy for coping in breast cancer women. From Taiwan study, personality trait in their women leads to delay in confirming a breast abnormality and women tend to neglect the abnormality and preferred herbs remedies, folk therapies and religious ceremony. They believe that herbs cured them without systemic unwanted side effects, thus medical advice is not essential for them (23). A study by Suriati *et al* also mentioned that socio-cultural and psychological factors in Malaysian women contributes for late screening and treatments (28).

2.3.2 Clinical characteristics factors

Clinical characteristic of breast cancer, such as cancer stage at diagnosis (17), types of surgery, comorbidity (13) and cancer treatment (chemotherapy and radiation therapy) (17) were associated with self-efficacy for coping. Women diagnosed with breast cancer at an earlier stage of diagnosis had better coping process when compared with women who came with late cancer diagnosis. In the earlier stage of breast cancer, a mass was confined to the breast area without ulcer or skin inflammation as compared with advanced cancer stage.

Mastectomy is the commonest treatment of choice in low and middle income countries compared with Breast Conservative surgery (BCS). Despite low cost, unavailability of new treatment, and late cancer presentation were the main reasons for that (3). In Malaysia, the majority of our breast cancer women delayed in seeking medical intervention and came with

bigger lump at presentation as well as with distant node metastasis (38). Therefore, mastectomy in combination with systemic chemotherapy or radiotherapy is the choice in the majority of our patients. Conversely with Singapore, introduction of the mammogram breast screening starting from the year 2002 showed the increasing of the breast cancer awareness among their women and most of them present at an earlier stage of cancer with smaller tumors (39).

Breast cancer surgery especially mastectomy were related with poor self-efficacy for coping. A study by Chang and friends among Taiwanese breast cancer women showed that their participants who delayed in breast cancer confirmation had lower self-efficacy level after surgery. This is because the longer they delayed the diagnosis, more advanced the cancer stage (23).

Chemotherapy is significantly associated with negative coping level as compared with radiotherapy and hormonal treatment. A study by Saniah and friends in Malaysia, involving 141 participants showed that women on chemotherapy had high level of depressive and anxiety symptoms, therefore they cope with cancer treatment by using religion, acceptance of the disease, and emotional support (33).

Regarding hormonal treatment, a study by Shelby *et al* found that higher self-efficacy for coping with symptoms in the study associated with greater functional, emotional, and social well-being of QoL (40).

Radiotherapy was well-tolerated by breast cancer women because it carries minimal serious morbidity. After the Breast Conservative surgery (BCS), radiotherapy treatment was indicated for breast cancer women because it significantly reduces the risk of local recurrence, reduced distant metastasis and improves survival (41). However, a study in Greece showed that after receiving the radiation therapy, the self-efficacy and QoL scored were reduced in their participants because of elevated anxiety scores. They used different questionnaire for self-efficacy for coping and QoL as compared with our study (42).

2.3.3 The Cancer Behavior Inventory (CBI)

The Cancer Behavior Inventory questionnaire is developed as a comprehensive measure of self-efficacy for coping in cancer patients. The first revision of CBI contained 43 items, and had evolved into a revised shorter 33 items (43). The CBI became even shorter and more convenient to use with the 14 items version (9).

Apart from the CBI, there are also other numerous tools to asses' self-efficacy for coping (14, 44). However, in this study the 14 items of the CBI-B questionnaire was chosen because it is simple and less burden to a cancer patient to answer. In addition, the reliability of the CBI-B was similar with the CBI-L (9).

Regarding the CBI-L questionnaire, it contained 33 items and divided into 7 domains which is maintaining activity and independence, seeking and understanding medical information, stress management, coping with treatment related side effects, accepting cancer/maintaining a positive attitude, affective regulation, and seeking social support. The CBI-L is a reliable

measures with good Cronbach alpha (0.94) (43). The CBI-L (Malay version) was validated with good Cronbach alpha (ranged 0.368 to 0.829) and in the process of publication.

The Cancer Behavior Inventory (CBI) questionnaire either long or short version are assessed on a 9-point Likert scale, ranging from 1 to 9. '1' means not at all confident and '9' means totally confident. Item scores are added to give a total score and the higher the scores indicating the greater the self-efficacy for coping.

Regarding the brief Cancer Behavior Inventory (CBI-B) (9), it contained 14 items derived from 33-item of the Cancer Behavior Long (CBI-L). The CBI-B questionnaire was developed to reduce burden to the cancer's patient to answer as compared with CBI-L. The psychometric analysis showed the internal consistency for CBI-B were good ranging from 0.84 to 0.88 (9). There were high correlation in between the CBI-B and CBI-L ($r=0.95$, $p<0.001$). In Heitzmann's study, 2 items were eliminated from the 14-item CBI-B which is item number 5 and number 14 because it did not load well on the factors. Finally, the CBI-B contained 12-item and divided into 4 domains. First domain was the "belief about maintaining independence and positive attitude", second domain was "belief in their ability to participate in medical care", third domain was "skills important for coping and stress management", and fourth domain was regarding their "capacity to manage their emotions/affect in difficult situations".

The psychometric analysis and validity of the CBI-B (Malay version) questionnaire was conducted. The reliability was good with Cronbach alpha ranging from 0.789 and 0.916 for each domain. Therefore, the CBI-B questionnaire is suitable to be used among Malay majority population.

2.4 Quality of life in breast cancer

There is no specific definition for quality of life (QoL). It is multidimensional and holistic including the social, emotional and physical well-being of patients. However, World Health Organization (WHO) defined quality of life as an individual's perception of his position in life in the context of the culture and value systems in which he or she lives and in relation to his goals, expectations, standards and concerns (45).

The QoL does not only measure breast cancer survivors but other types of cancer such as prostate cancer (46), colorectal cancer, and lung cancer (17). In breast cancer survivors, the impact of both intervention and disease on a patient's lifestyle or QoL are increasingly recognized (47). In developed countries, there were lots of studies done regarding the QoL and/or coping mechanism including self-efficacy for coping, psychological and psychosocial concerns in certain duration of cancer diagnosis such as in newly diagnosed breast cancer, one year after diagnosis and for the long term survivors (more than 5 years after the diagnosis). In our country and other less developed nations in contrast, less attention paid and studies conducted.

The QoL questionnaire contained few subscales such as in the European Organization for Research and Treatment of Cancer (EORTC) questionnaire, it were divided into global, functional and symptoms. Evidence showed that breast cancer survivors have significant problems with certain domain of QoL such as global QoL, pain, arm symptoms, and body image after long duration of cancer treatments (6). Similarly, Bernhard *et al* found emotional, social and sexual functioning deterioration in breast cancer survivors within 1 to 2 years after cancer diagnosis and more than 5 years after the disease-free (25).

In Taiwan study, breast cancer women (n=37) who did the Breast Conservative surgery (BCS), showed worse global QoL, low role functioning scores, higher symptomatic scores for fatigue, pain, dyspnea, appetite loss, breast and arm problems (48). In line with Spain study in (n=108) Caucasian women in the mean age 49.2 ± 8.2 years old showed significant associations for cancer-related fatigue, physical activity, systemic side effects and body image with depressed mood in their breast cancer survivors (49).

A study by Arndt *et al* showed that one year after the diagnosis of breast cancer patient the physical, cognitive and social functioning QoL subscales were less affected. However, the emotional functioning QoL scored the lowest and almost 90% of their participants complaining of having depressed, irritable, and worried. Most of them reported that they were severely affected by 'fatigue' (80%), 'insomnia' (65-70%) and 'pain'. While other symptoms such as 'nausea and vomiting', 'constipation', 'diarrhea' and 'appetite loss' were less frequently reported (15-20%) (11).

In conclusion, the QoL impact in breast cancer survivors was widely studied and certain subscales were identified to be significant. In view of that, we are interested to study which QoL scores were significant in breast cancer women in Hospital Universiti Sains Malaysia.

2.5 Correlation between self-efficacy for coping and quality of life

Evidence showed that greater self-efficacy for coping is linked to the better QoL in breast cancer survivors (9, 14). To our knowledge, no study was found assessing self-efficacy for coping using brief cancer behavior inventory (CBI-B) and European Organization for Research and Treatment of Cancer quality of life questionnaires (EORTC). However, there were studies found measuring the self-efficacy for coping and QoL by using other tools (8, 11).

A study by Heitzmann *et al* showed self-efficacy for coping with cancer significantly correlated with QoL used the Functional Assessment of Cancer Therapy Scale (FACT-G) questionnaire. The self-efficacy for coping was related with four domains of QoL; physical, social/family, emotional and functional well-being (9).

Another study by Cunningham *et al* found positive correlation between perceived self-efficacy and QoL using the Stanford Inventory of Cancer patient Adjustment and Functional living Index-cancer questionnaires (14).

Not only limited to breast cancer survivors, there was a study done in prostate cancer patients. The results showed that, prostate cancer survivors who reported better general health QoL rated their self-efficacy for higher symptoms control. Not only patients, but partners also presented with similar results. Therefore, higher self-efficacy in patients related with less partners anxiety and less caregiver strains. They used the Self-efficacy for symptoms control questionnaire and specific QoL tools for prostate cancer (46).

A study by Porter *et al* in United States involved 150 lung cancer patients and their informal caregivers showed both of them had relatively lower self-efficacy scores. Patients and caregivers who were low in self-efficacy scores had significantly higher pain, and fatigue symptoms. They also had low physical and functional QoL scores. They found lower self-efficacy in lung cancer caregivers associated with higher levels of caregivers strain (17).

Based on above evidences, this study was conducted to determine the correlation between the self-efficacy for coping and the QoL in breast cancer women. And, we are more interested to know whether breast cancer women in Kelantan presented with similar or different results.

CHAPTER 3: OBJECTIVES

3.1 General objectives

To determine the self-efficacy for coping and quality of life in women with Breast Cancer in Hospital Universiti Sains Malaysia.

3.2 Specific objectives

1. To determine the mean scores of self-efficacy for coping in women with breast cancer in Hospital Universiti Sains Malaysia.
2. To determine the association between socio-demography and clinical factors with self-efficacy for coping in women with breast cancer in HUSM.
3. To determine the mean scores of quality of life in women with breast cancer in HUSM
4. To determine the correlation between self-efficacy for coping and quality of life in women with breast cancer.

3.3 Research hypotheses

1. The self-efficacy for coping score in women with breast cancer was significantly related with socio-demographic and clinical characteristic variables.
2. The self-efficacy for coping had a significant linear positive/negative correlation on the quality of life in women with breast cancer.

CHAPTER 4: METHODOLOGY

4.1 Study design

This is a cross sectional study done from January 2012 to December 2012.

4.2 Study area

This study conducted at Oncology Clinic and Radiotherapy Unit in HUSM. The Oncology clinic and Radiotherapy Unit is started since 1996 and received various type of cancer's patients such as breast cancer, gastrointestinal cancer, and others. Most of the patients were from East Coast of Malaysia which is from Kelantan, Terengganu and Pahang. The Oncology clinic was conducted by 1 Oncologist, 4 medical officers, 12 staff nurses and 2 oncology's counselors. Total daily patient attendance at the Oncology clinic was 30 patients and about 10 to 15 cases were breast cancer patients. The Oncology clinic also provides a day-care center for chemotherapy care of breast cancer women. The Radiotherapy Unit was run by 5 staffs, including one Oncologist. Daily breast cancer patient attendance was about 20 to 30 patients.

4.3 Population and sample

4.3.1 Reference population

Women with breast cancer in HUSM.

4.3.2 Source population

Women with breast cancer in HUSM who attended the Oncology Clinic and Radiotherapy Unit in HUSM

4.3.3 Study population

Women with breast cancer in HUSM who attended the Oncology Clinic and Radiotherapy Unit in HUSM and confirmed of breast cancer from January 1, 2009 and December 31, 2012.

4.3.4 Inclusion Criteria

1. Age > 18 years old
2. Histologically confirmed breast cancer patient and get treatment at HUSM.
3. Diagnosed of breast cancer from January 1, 2009 and December 31, 2012 (within 3 years of diagnosis)

4.3.5 Exclusion criteria

1. Illiterate
2. Diagnosed as cognitive impairment

4.3.6 Sampling method

This study used universal sampling method in view of inadequate numbers of patients for a random sampling during the study period.

4.3.7 Sample size

The sample size was calculated for each objective. The biggest sample size was taken as the study sample size.

Objective 1

To determine the mean scores of coping self-efficacy in women with breast cancer in Kelantan using single mean formula (9);

$$n = (z (\sigma/\Delta))^2$$

$$Z = 1.96$$

σ = population standard deviation (SD)

Δ = the estimation precision of the population mean

Table 1: Sample size calculation for objectives 1

CBI-B item	SD	Precision	Sample size (n)	10% non-response
Expressing negative feeling about cancer	2.17	0.35	148	177
Seeking help	1.86	0.30	147	176

Based on objectives 1, the maximum required women needed in this study were 177.

Objective 2

To determine the relationship between socio-demographic and clinical factors and coping self-efficacy in women with Breast cancer in HUSM. Sample size calculation was using Power and Sample Size Calculation software.

Based on 95% confidence Interval, α or error was set at 5 percent or 0.05

The power of the study was set at 80 percent or 0.08.

Table 2: Sample calculation for objectives 2

Variables	P_0 is the probability of the outcome for a control patients	P_1 is the probability of the outcome in an experimental subject	m is a ratio of control to experimental subjects	Expected number of respondents, n	Reference
Age	42%	65%	1	146	(44)
Education	72%	50%	1	152	(13)
Employed	40%	65%	1	122	(13)
Surgery (mastectomy)	35%	60%	1	122	(50)

Objective 3

To determine the mean scores of quality of life (QoL) in women with Breast cancer in HUSM using single mean formula (11);

$$n = (z (\sigma/\Delta))^2$$

$$Z = 1.96$$

σ = population standard deviation (SD)

Δ = the estimation precision of the population mean

Table 3: Sample calculation for objectives 3

Items	SD	Precision	Sample size (n)
Global QOL	22.0	5.0	74
1. Functional Scale			
Physical functioning	21.7	5.0	72
Role functioning	29.3	6.0	131
Emotional functioning	29.0	6.0	129
Cognitive functioning	27.6	6.0	117
Social functioning	29.0	6.0	129

Objective 4

To determine the correlation between self-efficacy for coping and QoL in women with Breast cancer in HUSM. Sample size calculation was using Power and Sample Size Calculation software. However, due to inadequate data from the literature, this sample size has not been able to be calculated. Based on expert opinion, the number of sample size based on objectives 4 was less than objectives 1, 2 and 3.

As a conclusion, the maximum required sample after considering 10% non-response rate was 177 based on sample size calculation for objectives 1

4.3.8 Operational definitions

1. Self-efficacy for coping

means an individual's self judgement about his/her capacity to be able to organize the necessary activities to successfully demonstrate a specific performance by using brief Cancer Behavior Inventory (CBI-B) questionnaire (15).

2. Quality of life

is an individual's perception of his/her position in life in the context of the culture and value systems in which he lives and in relation to his/her goals, expectations, standards and concerns by using European Organization for Research and Treatment of Cancer (EORTC) QLQ-C30 and QLQ BR-23 questionnaires (45).

3. Breast cancer

means confirmed by histologically findings based on ICD-10.

4. Living arrangement

means a husband or informal caregivers (17) who were living together and taking care of their spouse or relatives with breast cancer.

5. Menstrual cycle irregularities

means oligomenorhea, and amenorrhea (primary and secondary include menopause and premature menopause following cancer treatment).