CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Literature review and related researches

Literature review includes the following topics: breast cancer; quality of life; and impact of breast cancer and its treatment on quality of life.

Breast cancer

Breast cancer is a malignant disease that commonly occurs in females. The incidence of breast cancer is increasing rapidly in China (Wang, Zhu, & Xing, 1995) as well as other parts of the world (Gerfinkel, Boring & Heath, 1994; Wong & Bramwell, 1992). Many factors are found to be associated with a significantly increased incidence of breast cancer. For instance, advancing age, mother or sister with breast cancer, previous breast cancer, previous chest radiation, previous diagnosis of proliferate disease, mammographic pattern of dysplastic parenchyma, age greater than 30 years at the time of first full-term pregnancy, high socioeconomic status, early menarche, and late menopause (Kelsey & Gammon, 1991, cited in Polaski & Tatro, 1996).

The clinical manifestation of breast cancer can be the presence of a painless mass or lump in breast, persistent dermatitis of nipple or areola, serious or bloody nipple discharge, dimpling of skin, enlarged axillary lymph nodes on affected side, fixation of mass on chest wall, nipple retraction, swelling, and redness of breast (Cawley, 1995). According to the International Tumor, Node, Metastasis classification staging for cancer, the clinical stage of breast cancer ranges from I to IV, with stage I being very small tumors (less than 2 cm) with no lymph node involvement nor metastasis. Stage II and III are broken down into IIA, IIB, IIIA, and IIIB. Classification of these stages depends on the size of tumor or lymph node involvement. Stage IV indicates the presence of metastasis spread, regardless of tumor size or lymph node involvement (Vorpahl, 1996).

The ACS (1993) estimated the 5-year survival rate for women diagnosed with breast cancer as following: 100% with in situ breast cancer, 93% with localized breast cancer, 71% with regional spread (Wyatt, Kurtz, Liken, 1993). Sant, et al. (1991) studied 1,991 female invasive breast cancer patients who were diagnosed from 1976 to 1981 and were followed up until May 1987. The length of follow-up, ranged from 6 to 11 years. Relative survival was 69% at 5 years and 58% at 10 years while median survival was 8.8 years. Patients belonging to the 40-44 age group showed the best prognosis of this study. Their relative survival was 84.9% at 5 years. The subsequent age group of 45-49, 5-year relative survival was 80.46%, showed a slightly lower survival. Also, in China, 5-year survival was found to be over 80% in early-stage breast cancer (Yu, 1995).

The primary treatment of early stage of breast cancer is surgery (Monahan, Drake, & Neighbors, 1994). Currently, there are several surgical options that are used to treat breast cancer, including lumpectomy, modified radical mastectomy (MRM), and radical mastectomy. Nevertheless, the standard and most common approach for primary breast cancer is MRM (Monahan, Drake, & Neighbors, 1994). Breast cancer is now considered to be a systematic rather than a local disease (Long & Phipps, 1993). Therefore, medical treatment has now changed from surgery to combined therapy. Commonly, MRM has been used in conjunction with radiotherapy and/or chemotherapy. However, mastectomy followed by radiotherapy showed significantly satisfactory effect in reduction of cancer recurrence rate (Pierce & Glatstein, 1994).

Radiotherapy usually starts during the fourth to sixth weeks after mastectomy (Hughson, Cooper, McArdle, & Smith, 1987). This technique is used to prevent cancer metastasis by producing ionizing radiation to destroy cancer cells (Hagopian, 1991). The target of radiant delivery is deoxyribonucleic acid (DNA) of the cell. The breast is radiated daily over the course of 4 to 5 weeks with the total dose of 4,500-5,000 rads (Vorpahl, 1996). The common used dose of radiotherapy ranges from 200 to 300 rads/day in Oncology Hospital in China. Common side effects of radiotherapy are tiredness, skin changes, loss of appetite, nausea, vomiting, hair loss, trouble swallowing, taste changes, sore throat/mouth, diarrhea, and sleep disturbance (Weintraub & Hagopian, 1990). Most of the side effects occur after two weeks of radiotherapy (Bender, Yasko, & Strohl, 1996). Weintraub and Hagopian (1990) reported that mean severity of side effects increased as the number of treatments increased, peaking between the third and sixth weeks of treatment and remaining elevated until the first follow-up visit. At the completion of one week of treatment, 62% of the subjects reported having at least one side effect; the percentage increased steadily throughout treatment experience. By the fifth week of treatment, 89% of the subjects reported experiencing side effects related to their radiation. Another study conducted to identify the symptoms of cancer patients after radiotherapy (N=111), showed that 104 of them (94%) experienced at least one symptom at the end of treatment (Rose, Shrader, Korlath, Priem, & Larson, 1996). Teeple (1987) (cited in Knobf, 1990) conducted a study to determine the onset and duration of distress, frequency and severity of symptoms during the radiotherapy. Three most common symptoms reported were fatigue, skin reactions, and sensory changes. Fatigue increased in severity over time, the peaks of frequency were at the end of the second and fifth weeks; the peak of severity was from the forth to fifth week, and most patients reported it to be worse in the afternoon and evening hours. Skin reactions occurred in all patients by the third week of treatment; the peak of severity was at the end of the fifth week, and were described as itchiness, tenderness, swelling, heat, dryness, and scaliness. Sensation changes were described as electric shock-like "sensations as a hot or stabbing pain". The peak of frequency began at the end of the second week while the peak of severity was at the end of the fifth week. These sensations were intermittent, momentary, and occurred throughout the day and nighttime hours. Although this information was gathered from study with small sample size (N=8) and all information should be interpreted with caution, it showed the possible impact of radiotherapy on the subjects' well-being overtime during the course of radiotherapy.

Regardless of the effectiveness of the therapy, the patients have to live with negative changes throughout the course of treatment. Furthermore, from the study of Sant, et al. (1991), patients with 40-49 years of age were the best prognosis group of the breast cancer. Likewise, in China, this age group of people was the majority of the patients who received radiotherapy followed MRM (Zhang, 1997). In general, this group holds the great responsibilities both for their family and society. Therefore, nurses need to help them achieve physical, psychological, and social well adjustment throughout the course of treatment in order to minimize those sufferings as well as maximize an optimal quality of life.

In conclusion, breast cancer commonly occurs in females. One of the most common treatment of early stage breast cancer is radiotherapy followed MRM. With early detection and proper management, the 5-year survival was found to be increased. Unfortunately, the breast cancer and its treatment may bring a major physical and psychosocial deterioration; thus, quality of life may be impacted during the course of the treatment. Although, this period is not last long, it considered to be stressful and effect holistic well-being of the patients.

Quality of life

Definition of quality of life

Quality of life is a broad concept. It is a multidimensional construct that includes all areas of life which is dynamic in nature (Dow, 1990, cited in Ferrell, et al, 1995). It can be changed according to the circumstances that the individuals face (Hind, 1990).

From intensive review of literature, Ferrans (1990) classified existed definitions of quality of life that are related to health care into five broad categories: 1) normal life, 2) happiness/satisfaction, 3) achievement of personal goals, 4) social utility, and 5) natural capacity.

Quality of life as defined in term of normal life focus on the ability to have a normal life. This means ability to function at a level that similar to other healthy persons or typical persons of the same age. A major problem encountered when using these definitions to measure quality of life is deciding whose criteria to be used in defining "normal". At the same time, these definitions do not take into account the patients' own perception of their quality of life (Ferrans, 1990).

Happiness/satisfaction are category of quality of life definitions that focus on a person's happiness or satisfaction. It should be noted that happiness and satisfaction are not synonyms, although they are closely related concepts. Happiness and satisfaction have been found to be somewhat differently across the life span in the general population. Happiness has been found to decrease with age, whereas satisfaction has been found to increase. Campbell, et al. (1976) pointed out that happiness suggests short-term positive feelings, whereas satisfaction implies a longer-term cognitive experience resulting from a judgement of life's conditions (cited in Ferrans, 1990). For this reason, satisfaction comes closer to capture the concept of quality of life than does happiness (Ferrans, 1990). Thus, for this study, quality of life was not defined as level of life satisfaction.

Achievement of personal goals as another way to define quality of life focus on the congruence between desired and achieved goals (success or failure) (Ferrans, 1990). The discrepancy between what one wishes to have and what one actually has is often the focus. Goal discrepancy will undoubtedly reduce quality of life, but quality of life is probably more than goal attainment. Achievement of goals can be said to be related to the happiness and satisfaction, in that goal achievement can bring about a sense of satisfaction (Rustone, 1995), but failure brings dissatisfaction (Ferrans, 1990). Goal achievement for this study is just only one perspective of quality of life, which can not represent every aspect of quality of life among mastectomy patients receiving radiotherapy.

Social utility defined quality of life as the ability to lead a socially "useful" life, which are most commonly used to make decisions on health care policy where economic considerations are prominent (Edlund & Tancredi, 1985, cited in Ferrans, 1990). The definition of quality of life in this group is fit for community or social as a global view, but not fit with the certain group of population like mastectomy patients receiving radiotherapy.

Quality of life as defined by natural capacity focus on a person's physical and/or mental capabilities. These definitions are typically used to make decisions regarding whether to try to save a patient life or to allow him/her to die (Ferrans, 1990). Its focus is on objective evaluation of patients' quality of life. Therefore, this is fit for only terminally ill patients or those who can not capable to make decision by themselves, not mastectomy patients receiving radiotherapy.

Ferrans' definition of quality of life categorized by happiness/satisfaction aspect, but focusing more on satisfaction. Such definition concerns the patients' own perception through their cognitive function in conjunctive with mood state. Campbell (1976) strongly indicated that quality of life should rest on the experiences of life, and the essence lies in the person's own evaluation of the experience. In addition, the individual own judgment is crucial because different people value different things in different ways (cited in Ferrans, 1990). The satisfactions, joys, burdens, and suffering experienced vary tremendously from one person to the others. Therefore, quality of life should be subjectively assessed.

In 1984, Ferrans developed the quality of life conceptual framework based on the intensive literature review. She defined quality of life as a person's sense of well-being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her. The definition addresses the fact that people's values make various aspects of life have variation impact on individuals' quality of life. This definition is intentionally subjective in nature, focusing on the experience rather than the conditions of life.

Furthermore, Ferrans categorized quality of life into four major domains: health and functioning, psychological/spiritual, socioeconomic, and family domain. These domains are themselves composed of a broad spectrum of aspects of life. Health and functioning domain consists of 12 specific aspects: usefulness to others, physical independence, responsibilities, own health, stress, leisure activities, retirement, travel, long life, sex life, health care, and discomfort/pain. Psychological/spiritual domain focuses on life satisfaction, happiness, self, goals, peace of mind, personal appearance, faith in God, and control over life. Socioeconomic domain concerns about standard of living, financial independence, home, job/unemployment, neighborhood, friends, emotional support, and education. Family domain includes family happiness, children, spouse, and family.

Ferrans (1994) conducted a qualitative study to test whether these four domains can capture all aspects of life among breast cancer patients (N=61). Participants were asked to respond to two open-ended questions: 1) All things considered, do you think that all you have gone through to treat the cancer was worth it?, and 2) Is there anything else you would like to tell us about your life or your health care? By writing in the provided sheet, she found the results mentioned by the respondents in their own words, can be categorized into four major domains: health and functioning, psychological/spiritual, socioeconomic, and family domain which fit with the framework she developed in 1984. Under health and functioning domain the responses repeatedly reported about pain, health, effectiveness of health care, and long life. In psychological/spiritual aspects, majority of sample paid their attention on faith in God, peace of mind, and goals were common reported. For socioeconomic domain, respondents mentioned about friends, emotional support, and financial problems. In family domain, they mentioned about their spouses and family health. Therefore, by the use of qualitative research, the conceptual framework of Ferrans (1984) was proved to capture all aspects of quality of life among breast cancer patients.

Measurement of quality of life

There are several single instruments for measuring the quality of life, such as Quality of Life Index (QLI), Quality of Life-Cancer Survivors (QOL-CS), and Ferrans and Powers Quality of Life Index (Frank-Stromborg, 1992). However, not all of these instruments are appropriate to measure the quality of life defined for this study. The discussion is as following:

Padilla, et al (1983), developed the Quality of Life Index, which is a subjective self-evaluation questionnaire (14 linear analog scale items). They viewed quality of life as a broad concept, and the scale included three general areas: psychological well-being (general quality of life, fun, satisfaction, usefulness, sleep), physical well-being (strength, appetite, work, eating, sex), and symptom control (pain, nausea, vomiting) (cited in Frank-Stromborg, 1992). The quality of life was tested among four subject groups: oncology outpatients receiving chemotherapy (N=48) or radiotherapy (N=39), oncology inpatients receiving chemotherapy (N=48), and nonpatient volunteers (N=48). Test-retest reliability coefficients was .60, internal consistency was .88 (cited in Frank-Stromborg, 1992). However, this instrument left out social, economical, and family aspect, which are important for breast cancer patients undergoing radiotherapy followed MRM.

Quality of Life-Cancer Survivors (QOL-CS) developed by Ferrell, Dow, Ly, Leigh, and Gulasekaram (1995). It is a 11-point (scale from 0 to 10) rating scale, which includes four domains: physical well-being, psychological well-being, social well-being, and spiritual well-being. The overall QOL-CS test-retest reliability was .89 with individual subscale .81 for social well-being, .88 for physical well-being, .88 for psychological well-being, and .90 for spiritual well-being. Internal consistency using Cronbach's alpha coefficient as a measure of agreement between items and subscales. Analysis revealed an overall score of r=.93. Subscale alpha scores were r=.71 for spiritual well-being, r=.77 for physical well-being, r=.81 for social well-being, and r=.89 for psychological well-being. Content validity determined by a panel of quality of life researchers and nurses with experience in oncology (Ferrell, et al., 1995). This instrument seems to cover all aspects of life, but how importance of such aspect to the individuals is not taken into account.

Ferrans and Powers Quality of Life Index (QLI) was developed to measure the quality of life in healthy people as well as those who were experiencing an illness. There are 35 items on the original instrument that assess for these followings: life goals, general satisfaction, stress, and physical health. The instrument consists of two sections. One section measures satisfaction with various domains of life, and the other measures how importance those domains to the individuals. Content validity was supported by the way in which the items were developed. These items were based on an intensive review of the literature and dialysis patients' responses to open-ended questions asking about quality of life (Ferrans & Powers, 1985). Concurrent validity was supported by correlations of .65 and .77 between overall scores and a measure of life satisfaction (Ferrans & Powers, 1985; Ferrans & Powers, 1992). Stability reliability was checked in 1985 within the similar group as the subject in this study by a test-retest correlation of .81 with a 1-month interval. It was first used with hemodialysis patients in 1993 (N=349). Internal consistency reliability of the QLI was supported by Cronbach's alphas of .90 and for the scale overall, and alphas of .87, .82, .90, and .77 for the health and functioning, social and economic, psychological/ spiritual, and family subscale, respectively. The result indicated that the patients were satisfied with their life in general. And also the result showed that there were significant differences between subscales. The mean score for the family subscale was significantly higher than the means for health and functioning, social and economic, and psychological/spiritual. In addition the mean score for the health and functioning subscale was significantly lower than the means for the other subscales: socioeconomic, psychological/spiritual, and family. In short, quality of life in hemodialysis patients might be determined mostly by family domain.

Ferrans and Powers Quality of Life Index-Cancer Version (Ferrans, 1990) was modified from the original tool based on an additional extensive review of the oncology literature in term of changes specifically in cancer patients. The content validity was supported and tested with breast cancer patients (N=111). Similar to the original, it takes into account how important various aspects of life to those individuals (Flanagan, 1982). Because people differ regarding to dimensions predominate in importance, all dimensions are not impacted equally by stressor (Ferrans and Powers, 1985). Patients are asked to rate how satisfied they are with 34 aspects of life, and then rate how important those same aspects are to them. Satisfaction responses are then weighted by the paired importance responses, so that the aspects of life that are most important to them have the greatest influence on their quality of life score. Thus, it is an appropriate instrument to measure the perception of mastectomy patients receiving radiotherapy, how they satisfied with their life that are important to them.

In summary, Ferrans and Powers Quality of Life Index-Cancer Version was developed specifically for cancer patients based on an extensive review of the quality of life in several perspective as well as oncology literature. It measures all dimensions of quality of life defined for this study. Specifically it does not only measure how patients satisfied with various domain of life, but also measure how importance of the domain to the subject. Thus, it can be an appropriate tool to measure quality of life among mastectomy patients receiving radiotherapy in this study.

Factors influencing quality of life

Quality of life is a dynamic process (Dow, 1990, cited in Ferrell, et al., 1995). Many factors can possibly influence quality of life. Moreover, individuals may perceive the consequences of changes generated by influencing factors in different way (Hinds, 1990).

Gender Gender is one of factors that may influence quality of life. This evidence was support by the study conducted by Ferrell, et al. (1995). In this study, the researcher investigated quality of life of long-term cancer survivors (N=687). The result of the study indicated that females had significant lower quality of life on physical, psychological, and social aspects compared to males. Conversely, females had comparatively improved rating for items on the spiritual well-being. Thus, the impact of cancer on quality of life in females seems to be more serious than those of males in most of the perspectives.

Marital status Evans et al. (1985) (cited in Ferrans & Powers, 1993) reported marital status had a significance influence on quality of life of patients with end-stage renal disease. The study was done in 53 breast cancer women who had a lumpectomy followed by radiation therapy. The study showed that those who were not married could not function well during the radiation therapy compared to those who were married (Graydon, 1994). Also, the study of cancer survivors (N=687) conducted by Ferrell, et al. (1995) showed the presence of a spouse, partner, or children living at home had an positive influence on the patients' quality of life.

Disease and treatment Many studies had showed disease and its treatment had an impact on quality of life. Study conducted by Hinds (1990) in cancer patients (N=87), showed that prognosis, surgery, and current radiotherapy had significance impact on patients' quality of life. However, different treatment may have different impact on quality of life. Berglund, et al. (1991) compared late effects of adjuvant chemotherapy and postoperative radiotherapy on quality of life in breast cancer patients (N=448). The result showed the overall quality of life of the chemotherapy patients was higher than those of the radiotherapy group. In addition, during the course of similar treatment, the quality of life may be altered differently from time to time.

Other factors Factors such as education, age, employment, income, race, self-control skills, and preference were claimed to have an impact on quality of life (Ferrans & Powers, 1993; Ferrell, et al., 1995; Hinds, 1990). However, few literatures had been found to support this evidence.

The impact of breast cancer and its treatment on quality of life

Breast cancer is a life-threatened disease. Diagnosed with breast cancer and its treatment may have an impact on patients' health and functioning, psychological/spiritual, socioeconomic, family and quality of life as a global point of view.

Health and functioning domain

Persons diagnosed with breast cancer commonly manifest as skin edema, nipple retraction, bloody nipple discharge, and redness of breast (Cawley, 1995), are classified as physiological changes of the body. Axillary node dissection in MRM usually generate lymphedema, nerve damage, and adhesions, which may reduce capability of the affected arm. After mastectomy, some patients experienced chronic pain (postmactomy pain syndrome). Statement reported in qualitative study of Ferrans (1994) revealed the evidents that this group of people had learned to live with disabilities, and pain that they could never got used to. The loss of breasts was nothing compared to the loss of normal life because of pain. The pain had affected their life more than anything else (Ferrans, 1994).

Besides physical discomfort, patients also experienced sex problem. The study of Meyer and Aspegren (1989), showed 17% of mastectomized women had sexual dysfunctioning. They lost interest in sex, dropped the frequency of sexual relations compared to breast segmentectomy (Kemeny, Wellisch, & Schain, 1988). In Ferrans' (1994) qualitative study, one of young women, who had a MRM stated, "The physical appearance has affected my self-esteem tremendously. It has also affected my inhibitions regarding sex. I am divorced, and the fact that this is truly affects my ability to keep a boyfriend and frighten with the idea of having to spend the rest of my life alone." During the course of radiotherapy most of patients suffering the side effects of radiotherapy. Patients undergoing radiotherapy usually experience a certain amount of fatigue (Hughes, 1993). Seventy-five percent of radiotherapy patients more frequently reported loss of stamina and 10% patients reported persistent smell aversion (Berglund, Bolund, Fonander, Rutqvist, & Sjoden, 1991). Graydon conducted a study to assess quality of life in 53 women who had a lumpectomy or other breast-conserving surgery for breast cancer followed by radiation therapy. She found the most frequently mentioned functioning change was sleep and rest disturbance. On the other hand, patients traveling to hospital five days a week for a treatment that often made them feel tired and caused skin lesions might be expected to report excess physical symptoms (Hughson, Cooper, McArdle, & Smith, 1987). At the same time, their daily households activities were demonstrated (Bloom, et al., 1987). Therefore, these negative consequences impact on patients' health and functioning may influence quality of life among mastectomy patients receiving radiotherapy. The change of body appearance and functioning may induce psychological responses that have a major impact on their psychological/spiritual well-being.

Psychological/spiritual domain

Breast cancer that needed to continue the treatment may riskly to have a major impact on their psychological/ spiritual well-being. Most of them fear and denial of having illness. They experienced anxiety and some forms of depression. They worried about breast cancer would shorter their life span, especially those women who had small children because they wanted to see their children grow up (Northouse, 1989). The patients presented with a constant feeling of sadness (with or without tears); a loss of interest and capacity for enjoyment; and insomnia (Cox, 1984). A study done by the Breast Cancer Study Group (1987) compared women who had MRM for Stage I and II breast cancer to those who had cholecystectomy, biopsy of benign breast disease and to healthy women. None of the women selected had a pre-existing psychiatric disorder. Three months after surgery, the mastectomy group reported greater psychological distress anxiety, hostility, and concern about body (somatization). Dean (1987) reported that about 8% of patients experienced depression or have an anxiety state after mastectomy that is severe enough to warrant treatment and 17% have a moderate depression or anxiety reaction (cited in Turn, 1995). Forty percent of the mastectomized women had an on-going medication of some anti-anxiety drug (Meyer & Aspegren, 1989). Studies had found that the mastectomy patients feel less feminine, and have a poorer body image than patients with local excision such as lumpectomy or segmentectomy (Kemeny, Wellish, & Schair, 1988; Mock, 1993). Even late middle age women still felt their body appearance was devastated by mastectomy. Ferrans' (1994) qualitative study reported that one 53-year-old woman who with MRM stated, "I am ashamed of how devastated I was by the surgery". Such study aimed to assess feelings of anxiety and depression in 133 breast cancer patients with adjuvant radiotherapy following surgical treatment. The result showed 14% of the patients had morbid anxiety, 1.5% patients were recorded significant depression, 19% patients showed severe anxiety (Maraste, Brandt, Olsson, & Ryde-

Brandt, 1992). A study examined the relationship among uncertainty, hope, symptom severity, control preference, and psychosocial adjustment in cancer persons after having 15 days of radiotherapy showed rate of uncertainty of 17% and hope of 16%. These findings indicated explained significant amount of the variance in adjustment. At the end of treatment, uncertainty (18%), hope (11%), and symptom severity (7%) all significantly increased. Great uncertainty and less hope were associated with more adjustment problems; symptom severity increased the expression of adjustment difficulty at completion of the treatment (Christman, 1990). On the other hand, a few patients feared that radiotherapy might cause long term physical harm (Hughson, Cooper, McArdle, & Smith, 1987). These negative psychological responses may contribute to low quality of life as well as influence their social lives. And along with the on-going treatment, the financial problem may develop.

Socioeconomic domain

Following mastectomy, the women may feel less than whole and being unacceptable as a person (MacGinley, 1993). They are often having episodes of over sensitivity to others' opinion, and had less leisure time activities, with avoidance of activities necessitating exposure of the body, such as athletics or swimming (Meyer & A spegren, 1989). At the same time, their social activities, interpersonal relations, role functioning and psychosocial adjustment were influenced (Northouse & Swain, 1987; Kawga-Paltoglou, et al., 1992; Hughes, 1993). The impact of mastectomy on occupation vary a lot from ones to anthers. For some, a mastectomy means the end of a career. For others, no alterations in occupational pursuits will occur. Stopping work may lead to financial problem. Their income may decrease, while the cost of the therapy increase. With the on-going of the treatment, it may become more serious problem. After mastectomy, social contacts with individuals outside, and the marital relationship are most vulnerable to decay. The mastectomee may withdraw from others and avoid connect with friends, or acquaintance due to embarrassment or shame (Lambert & Lambert, 1985). These socioeconomic changes may have impact on their quality of life. However, breast cancer diagnosis and its treatment may not only have major impact on breast cancer patients themselves, but also their families.

Family domain

Diagnosed with breast cancer has an impact on patients' family, especially their spouses. A study of Northouse (1989) showed that after surgery patients' husbands had high stress. Husbands of women with breast cancer were as emotionally distressed as their wives (Northouse, 1990). Some patients could not be understood by their husbands, as a result, they did not share their feelings with their husbands anymore (Ferrans, 1994). Some studies had showed that patients who had undergone mastectomies and could not talk about their concerns had a lower self-esteem and poorer social and emotional adjustment (Zemore & Shepel, 1989, cited in Ferrans, 1994). On the other hand, lack of communication between wife and husband may induce conflict (Cox, 1984). Children whose mother undergoing breast cancer treatment had difficult living as normal. Children coped differently according to their age, young children primarily feared the mothers' death (Issel, Ersek & Lewis, 1990). These negative impacts on family may make their life change, especially for Chinese people since most of them recognize family as an important part of their life.

In summary, breast cancer and its treatment may bring several negative consequences to patients' health and functioning, which may possible induce negative psychological responses, bring social dysfunction and economic problem, and influence patients' husband and children. Thus, they are anticipated to have an impact on quality of life among mastectomy patients during the course of radiotherapy.

Conceptual framework

Breast cancer and its treatment may have several negative impacts on mastectomy patients' health and functioning, psychological/spiritual, socioeconomic, and family while receiving radiotherapy. This study used Ferrans' conceptual framework of quality of life. Quality of life (Ferrans, 1990) is conceptualized as a multidimensional construct composed of four domains: health and functioning, psychological/spiritual, socioeconomic, and family. It captures all aspects of life that may be changed due to being diagnosed of breast cancer and the suffering generated while receiving radiotherapy followed MRM.