Predicting Quality of Life in Taiwanese Women with Breast Cancer and the Role of Complementary and Alternative Medicine: A Mixed-Method Study

By

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STATEMENT OF ORIGINALITY

Except where reference is made in the text, this thesis contains no material previously published elsewhere, or extracted in whole or in part, from a thesis by which I have qualified for, or have been awarded another degree or diploma. No other person’s work has been used without due acknowledgement.

This work has not been submitted for the award of any degree or diploma in any other tertiary institution.

Signature:_____________________________________

Fang-Ying (Sylvia) Chu
DEDICATION

This thesis is dedicated to the memory of my father, who passed away during my PhD journey.

To my mother, who has always been supporting, encouraging and engraving the elements of power and ability on my heart, as we have shared our pain and loss.

This thesis is also dedicated to all the women who have faced breast cancer and willingly shared their experiences, thoughts, and time with me.
ABSTRACT

Breast cancer is a common form of cancer in women. In Taiwan, breast cancer ranks as the second highest incidence of all cancers and is the fourth leading cause of cancer death for women. Being diagnosed and living with breast cancer involves a series of stressful life events that impact on many aspects of women’s quality of life (QOL). Consequently, many women with breast cancer have developed particular coping strategies and used complementary and alternative medicine (CAM) to enhance their QOL and well being. While research has shown that cultural and contextual factors affect QOL in women with breast cancer, it is unclear how well personal and environmental variables, specifically treatment-related stressors, coping, and CAM use, predict QOL in Taiwanese women with breast cancer. The overall purpose of this study was to identify the predictors of QOL and to explore the role of CAM use in Taiwanese women with breast cancer.

A mixed methods two-phased study was used. The study was underpinned by the pragmatist paradigm, and employed a sequenced combination of quantitative approach followed by qualitative inquiry. The complementarity approach was chosen to enhance, enrich and illustrate the results from one method with the results from the other method. Phase One used a predictive survey to identify the relationships between QOL and its hypothesised predictors in a convenience sample of outpatients from a large general hospital in eastern Taiwan. The survey data were collected by face-to-face interviews using structured instruments that comprised: a demographic profile sheet; and five scales, including symptom distress, anxiety and depression, internal health locus of control, use of coping strategies, and QOL; as well as number of individual items in relation to CAM use. The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire-Cancer (EORTC QLQ-C30) was used to measure the QOL. It is composed of five functioning scales, a single scale for global QOL, three symptom scales, and six individual symptom items. A number of multiple regression analyses were undertaken to identify the significant predictors of each of the EORTC QLQ-C30 scales.

A total of 240 women were invited to participate in study. The overall response rate was 81.7% (n = 196), which is considered statistically high. The majority of
respondents were high school educated, married, Buddhists, not currently employed, and with a mean age of 53 years. The average time since diagnosis was 28 months. Most women were diagnosed with Stage II breast cancer, and had had a mastectomy with no recurrence of the disease. Approximately 74% of the women reported that they were CAM users before and/or after their diagnosis. The women’s perceived QOL was predicted by several independent variables. A combination of the independent predictive QOL variables explained 5.7% to 43.8% of the variance. In particular, symptom distress, anxiety and depression were the most influential variables in the prediction of QOL. Additionally, the use of coping strategies, such as planning coping, denial, humour, venting, and self-distraction, made statistically significant contributions to the prediction of various aspects of QOL.

Phase Two of the study used a qualitative exploratory design to describe the role of CAM use in the context of Taiwanese women’s health needs and perceived QOL, from the perspective of women with breast cancer. Various perceptions were integrated and further illustrated the women’s use of CAM. Three major domains were identified: women’s reasons for CAM use; influences on decision making regarding CAM; and effects of CAM use. Within these three domains, eight major categories emerged: dealing with emerging health problems through CAM use; regaining balance in life; fighting cancer to enhance health; family and friends’ influence; communication with health care professionals; beliefs about CAM; living a normal life through using CAM; and building strong social networks.

This study supports the stress and coping model proposed by Lazarus and Folkman, that indicated that people use particular coping strategies in response to the situation and context; and these, may affect their adaptation. The findings suggest that the use of certain coping strategies and CAM use may be integrated within the conventional biomedical treatments to help improve breast cancer patients’ well being. Understanding CAM use in women with breast cancer may inform clinical practice and assist health professionals to provide compassionate and comprehensive cancer care, and thus support women in making informed treatment decisions.
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CHAPTER ONE

INTRODUCTION

Breast cancer is a life-threatening disease and also one of the world’s foremost health problems. The incidence of breast cancer in Taiwan is increasing (Department of Health, 2008). As a consequence, a great number of Taiwanese women being diagnosed and living with breast cancer have to face various health problems. This may result in a reduction of their quality of life (QOL). Thus, it is important to identify the factors that might influence patients’ QOL. This study examined the predictors of QOL in Taiwanese women with breast cancer. These potential predictors included demographics and clinical characteristics, symptom distress, internal health locus of control, anxiety and depression, and use of coping strategies, such as complementary and alternative medicine (CAM) use. Specifically, the study explored the role of CAM use among Taiwanese women with breast cancer in helping them cope with their illness. Chapter One presents an overview of the research reported in this thesis under the following headings:

- Background;
- Significance;
- Aims;
- Research Questions; and
- Thesis Structure

1.1 Background

Breast cancer is a common form of cancer in women. For those women who have been diagnosed and living with breast cancer, a series of stressful life events can impact upon multiple aspects of their QOL (Ben-Arye, Frenkel, & Margalit, 2004; Boon, Westlake, Deber, & Moineddin, 2005; Canales & Geller, 2003). In Taiwan, breast cancer is the most commonly diagnosed cancer among Taiwanese women, contributing to more than 25% of the overall cancer burden in this population (Lee et al., 2005). Due to the economic development in Taiwan during the past decade, the health care in Taiwan has evolved to reflect a Western medical care model, despite its having a well established system of Traditional Chinese Medicine (TCM). Indeed, the
health care system has been extensively influenced by the Western countries, such as the United States. As a consequence, the most current treatment and symptom-management modalities for Taiwanese women with breast cancer are derived from Western biomedical models (Yen et al., 2006).

With these treatments, cure and survival rates of breast cancer have significantly increased (Chie et al., 2002; Yen et al., 2006). However, while undergoing these treatments, breast cancer patients face physical (Anagnostopoulos, Vaslamatzis, & Markidis, 2004; Arman, Rehnsfeldt, Lindholm, & Hamrin, 2002; Badger, Braden, Mishel, & Longman, 2004), emotional, psychological (Vos, Visser, Garssen, Duivenvoorden, & de Haes, 2006), and psychosocial challenges (Carver et al., 2005). As a result, many women with breast cancer are compelled to use particular coping strategies to increase their well being and perceived QOL (Hack & Degner, 2004).

A number of studies have shown that many more women with breast cancer used complementary and alternative medicine (CAM) as coping strategies to manage physical and psychological symptoms than did individuals with other types of cancer (Abdullah, Lau, & Chow, 2003; Burstein, Gelber, Guadagnoli, & Weeks, 1999; Cui, Shu, Gao, Wen et al., 2004; DiGianni, Garber, & Winer, 2002; Morris, Johnson, Homer, & Walts, 2000; Richardson, Sanders, Palmer, Greisinger, & Singletary, 2000; van Leeuwen, Houverzijl, & Hoekstra, 2000). Most CAM use studies have been conducted in North America and Europe; however, there appears to be geographic and cultural diversity with regard to the prevalence and patterns of CAM utilisation, the reasons for its use, and the characteristics of the users (Abdullah et al., 2003; Burstein et al., 1999; Cui, Shu, Gao, Wen et al., 2004; DiGianni et al., 2002; Morris et al., 2000). It may be difficult to extrapolate results from studies conducted in the West to East Asian countries, such as Taiwan. Moreover, data on the characteristics of users, concomitant psychological disturbance, the effect of QOL, and compliance with standard treatment continue to be varied among breast cancer patients.

1.1.1 Incidence and Prevalence of Breast Cancer

In Western countries, including Australia, the USA, and the United Kingdom (UK), the incidence and prevalence of breast cancer has increased dramatically over the last
50 years. For example, in Australia, one in eleven women will develop breast cancer before the age of 75 (Luke, Priest, & Roder, 2006), while the National Cancer Institute of the USA estimates that about one in eight women will develop breast cancer during their lifetime (Smigal et al., 2006). In the UK, the lifetime risk is one in nine women (Atkins & Fallowfield, 2006). The incidence of breast cancer in Australian women rose from 100.5 cases per 100,000 population in 1991 to 117.2 cases per 100,000 population in 2001; an average increase of 1.4% per annum (Luke et al., 2006). In the USA, the incidence of breast cancer in women was 110 cases per 100,000 population in 2004 (Smigal et al., 2006), while in the UK, the breast cancer rate for women was 116 cases per 100,000 population in 2001 (Atkins & Fallowfield, 2006).

However, in Asian countries, such as Taiwan, the prevalence and incidence of breast cancer is much less, but it is increasing at a much faster rate than in the West. Breast cancer has the second highest incidence of all cancers, and is the fourth leading cause of cancer death in Taiwanese women (Wu et al., 2006). During the past several decades, the age-adjusted breast cancer incidence has increased markedly in Taiwan (Wu et al., 2006). The incidence of breast cancer rose from 5.94 per 100,000 in 1979 to 49 per 100,000 in 2005, affecting mostly women in the 35 to 54 year age range (Department of Health, Taiwan, 2008). Additionally, the age of onset in Taiwan is much younger than is the case in Western societies (Wu et al., 2006); the incidence of the disease and the resultant mortality have both increased in recent years (Chie et al., 2002; Department of Health, 2008). The Department of Health of Taiwan (2008) estimated that in 2005, more than 6,000 new cases of invasive breast cancer were diagnosed and that 1,552 women died from their breast cancer. However, with earlier detection through mammography screening and advances in the treatment of breast cancer, many more women are surviving this disease. Importantly, those women who live for another five years after the breast cancer diagnosis has increased over the past decade (Bellizzi & Blank, 2006). The five-year relative survival rate for Australian women with breast cancer during 1992-1997 was 84%, compared with 72.3% between 1982-1986 (Luke et al., 2006). In Taiwan, the overall five-year relative survival rate for early stage breast cancer patients is 80%, and 60% for the ten-year survival rate (Chie et al., 2002; Department of Health of Taiwan, 2008).
1.1.2 Treatment of Breast Cancer

Treatment of breast cancer, in the Western biomedical tradition, has become more complex and dynamic since the past decade (Browall et al., 2008; Nissen et al., 2001; Revenson & Pranikoff, 2005; Ridner, 2005). For women with early breast cancer, less extensive surgery is becoming more common. Whether the surgery is conservative (e.g. lumpectomy) or radical (e.g. modified radical mastectomy), a course of radiation therapy and/or chemotherapy may follow. Despite the primary treatment chosen, physical symptoms, psychological distress, and functional impairment are an issue for women with breast cancer (Ahn et al., 2007; Boehmke & Dickerson, 2005). After mastectomy or lymph node excision, the women may experience a series of problems, such as lymphoedema, phantom breast sensation, arm paresthesia, or a decreased range of movement in the affected arm (Browall et al., 2008; Nissen et al., 2001; Revenson & Pranikoff, 2005; Ridner, 2005). Aside from these changes in body state, body-image disruption has been implicated primarily, with morbidity reportedly highest after mastectomy and lowest after breast conserving treatment (Browall et al., 2008; Nissen et al., 2001; Revenson & Pranikoff, 2005; Ridner, 2005). The women’s altered body image may create prolonged negative psychological reactions (Ahn et al., 2007; Avis, Crawford, & Manuel, 2005; Boehmke & Dickerson, 2005; Vos et al., 2006).

In comparison, radiotherapy brings little mood disturbance (Millar, Purushotham, McLatchie, George, & Murray, 2005). Nevertheless, complications such as fatigue, breast oedema, skin reactions, breast tenderness and hyperpigmentation are common (Knobf & Sun, 2005). Additionally, chemotherapy causes systemic side effects including nausea, vomiting, alopecia, cystitis, neuropathies, fatigue, diarrhea, weight gain, bone marrow suppression and menopausal symptoms (Groenvold et al., 2007; Janz et al., 2007; Lemieux, Maunsell, & Provencher, 2008; Lengacher et al., 2006). The type, intensity, and number of side effects can directly contribute to the increased distress experienced by the women receiving chemotherapy (Byar, Berger, Bakken, & Cetak, 2006; Groenvold et al., 2007; Janz et al., 2007). As a result, it is not surprising that those receiving adjuvant chemotherapy may have a higher frequency of psychological problems, such as anxiety, depression, anger, being overwhelmed by emotions regarding the cancer and concerns about the success of the treatment (Byar
et al., 2006; Lemieux et al., 2008). Overall, the cancer treatment-related side effects and symptoms are perceived by many breast cancer patients as a burden. Consequently, these side effects and symptoms are often difficult to manage, and can significantly impair a cancer patient’s QOL (Byar et al., 2006; Ganz et al., 2004; Leak, Hu, & King, 2008; Lengacher et al., 2006).

The side effect burden is an important factor that impacts on QOL, often being included as a dimension in QOL measures (Bender, Ergyn, Rosenzweig, Cohen, & Sereika, 2005; Byar et al., 2006; Frost et al., 2000; Ganz et al., 2004; Kenne Sarenmalm, Ohlen, Oden, & Gaston-Johansson, 2008). Further, side effects increase ambiguity or uncertainty in relation to the state of the illness (Mishel et al., 2005). The greater the side effects, the greater the uncertainty regarding: (1) the state of the illness; (2) what will happen; and (3) the personal meaning of the experience (Mishel et al., 2005). Given the induction of side effects by allopathic medical therapies, and the perceived ineffectiveness of conventional medicine at preventing and relieving these side effects, women often seek help outside the conventional Western medical model. They see CAM as having the potential to help palliate the side effects of the treatment (Kremser et al., 2008; Lengacher et al., 2006; Molassiotis, Scott et al., 2006) and increase their QOL (Buettner et al., 2006; Fasching et al., 2007; Helyer et al., 2006; Owens, 2007).

Complementary and alternative medicine (CAM) has been defined by the USA National Centre for Complementary and Alternative Medicine (NCCAM) as a group of diverse medical and health care systems, practices, and products that are not regularly considered to be part of conventional medicine (NCCAM, 2005). The term complementary and alternative medicine (CAM) is used to describe non-conventional Western, biomedical health care and is described as medical interventions neither taught widely at medical schools nor generally available at hospitals (Eisenberg et al., 1998). There are other words such as ‘alternative’, ‘complementary’, ‘integrative’, ‘non-Western’, and ‘unconventional’ medicines used interchangeably in the literature (Eisenberg, Kessler, Foster, Norlock, Calkin et al., 1993). According to Cassileth (1996), complementary therapies can be defined as therapies that:

…..supplement mainstream medicine or provide palliation with non-invasive
treatments that carry minimal or no side effects. Most people who use [them] do so for relief of self-limiting minor problems, to enhance emotional and physical well being, or as part of a wellness-oriented lifestyle. (p. 173)

When the therapies are used either together with, or instead of biomedicine, they are called complementary or alternative medicine, respectively (NCCAM, 2005). As a term that includes a wide array of healing philosophies, therapies and approaches, NCCAM (2005) has classified CAM into five categories: alternative medical systems; mind-body interventions; biologically based therapies; manipulative and body-based; an energy therapies (biofield therapies) (Table 1.1). For example, Traditional Chinese Medicine is categorised as an alternative medical system, and Yoga is a kind of mind-body interventions.

Table 1.1 Classification of CAM therapies by NCCAM

<table>
<thead>
<tr>
<th>Category</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative medical systems</td>
<td>Traditional Chinese medicine, Ayurveda, homeopathic medicine, chiropractic, naturopathic medicine, etc.</td>
</tr>
<tr>
<td>Mind-body interventions</td>
<td>Meditation, prayer, mental healing, art dance, music therapy, etc.</td>
</tr>
<tr>
<td>Biologically based therapies</td>
<td>Foods, herbs, vitamins, dietary supplements, aromatherapy, etc.</td>
</tr>
<tr>
<td>Manipulative and body-based</td>
<td>Chiropractic or osteopathic manipulation, and massage, etc.</td>
</tr>
<tr>
<td>Energy therapies (Biofield therapies)</td>
<td>Qi Gong, Therapeutic Touch, Electromagnetic Therapy</td>
</tr>
</tbody>
</table>

From the literature review it can be seen that there are no consistent definition distinctions between alternative and complementary medicine (Cassileth, 1996; Cassileth & Deng, 2004; Eisenberg, Kessler, Foster, Norlock, Calkins et al., 1993; Ernst, Pittler, Wider, & Boddy, 2007; Spiegel, Stroud, & Fyfe, 1998). Alternative therapies are often referred to as those therapies that are used as an alternative to conventional therapies, and which are not recognized as mainstream care. They tend to have unproven mechanisms that may not be underpinned by scientific evidence (NCCAM, 2005). This aspect is especially problematic in the area of oncology, as the
use of alternative therapies may delay treatment with conventional therapies, and thus diminish the possibility of remission and cure (Cassileth & Deng, 2004).

In contrast, complementary therapies or medicine relate to health care approaches that are used in conjunction with conventional medical practice (i.e. often common in Western biomedical systems) (NCCAM, 2005). They are considered supplementary to mainstream medicine, with the aim of providing care, but not cure, for the recipients and improving their quality of life. The therapies are supportive measures that can control symptoms, enhance well-being, or contribute to overall patient care (Cassileth & Deng, 2004). According to Cassileth (1999), when using the term “complementary and alternative” medicine (CAM), it is important to distinguish between the two words. Alternatives may be seen as literally “other therapies”, those that are promoted to treat diseases, being used instead of mainstream therapies. In contrast, “complementary or adjuvant therapies are used for symptom management and to enhance quality of life along with mainstream care (Cassileth, 1999). However, this distinction is not universally applied, especially in the USA, where the terms “CAM”, “alternative”, and “complementary” are often used interchangeably to describe a host of disparate activities and products (Cassileth & Deng, 2004). Generally speaking, and for the purpose of the current study, the term “complementary and alternative medicine” (CAM) refers to “a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of orthodox medicine” (NCCAM, 2005, p1).

1.2 Significance

This study is significant for a number of reasons. Firstly, the results will further our understanding of the factors related to the QOL of Taiwanese women with breast cancer. The individual factors and coping strategies, identified in relation to CAM use, as it affects QOL, will be clarified for this population. Gaining a greater understanding of the relationship between the demographic characteristics, clinical variables, symptom distress, depression and anxiety, internal health locus control, use of coping strategies, CAM use, and the QOL of Taiwanese women with breast cancer will provide oncology health professionals with much-needed information. Such information will help identify which women are at higher risk of achieving poorer
QOL. Additionally, the information may assist clinicians in designing interventions to enhance QOL and improve QOL outcomes. While such factors may be culturally specific to Chinese women with breast cancer in Taiwan, the findings have the potential to be applied to women from other cultural backgrounds. An increased awareness of the importance of these issues can assist healthcare professionals to provide more appropriate and effective care, including culturally sensitive nursing interventions for improving women’s coping abilities and enhancing their well-being or QOL.

Secondly, the findings of this study will provide important insights into the growing healthcare area as it moves towards the goal of enhanced patient safety regarding CAM use. While a number of studies have indicated the complementary nature of many CAM therapies, the majority of CAM has remained marginalised by conventional breast cancer care (Astin, Reilly, Perkins, & Child, 2006; Balneaves, Truant, Kelly, Verhoef, & Davison, 2007; Tovey & Broom, 2007). This marginalisation has occurred because of the lack of strong scientific evidence regarding the efficacy and safety of many CAM therapies (Cassileth & Deng, 2004; Ernst et al., 2007), and growing concerns regarding the possible risks associated with some therapies (Cui, Shu, Gao, Wen et al., 2004; Gerber, Scholz, Reimer, Briese, & Janni, 2006; Jacobson & Verret, 2001). For example, many herbal remedies have not been subjected to rigorous clinical trials and if used could interact with standard treatments and/or have adverse effects (Ernst et al., 2007). Consequently, it is not surprising that health professionals within conventional cancer care report some scepticism (Richardson, Masse, Nanny, & Sanders, 2004; Salmenpera, Suominen, & Vertio, 2003) and are hesitant to initiate discussions about CAM (Balneaves et al., 2007; Hann, Baker, & Denniston, 2003; Roberts et al., 2005; Yates et al., 2005). Importantly, nurses are in a position to encourage open communication so that patients are willing to share information about their CAM use. Within the context of the CAM discourse, health professionals are able to develop guidelines for CAM use in helping patients’ decision making. Additionally, the nurses’ involvement in the guideline development will help minimise the potential for adverse outcomes. Thus, the insights and findings of this study will assist in identifying future priorities for effectiveness research related to CAM. It may lead to the development of assessment and clinical decision making tools that will be appropriately to evaluate the use of
CAM. For the health education sector, the results will ensure the informed development of education materials, and clinical assessment documentation, as well as enable health professionals to assist patients with clinical decision making related to CAM use. The results will also assist nurse educators in developing specific training programs in the health sciences.

Thirdly, the study will increase the understanding of how coping strategies are used by Taiwanese women with breast cancer and how they adapt and live with their breast cancer. Furthermore, the study provides the opportunity for local trends in CAM use to be incorporated into nursing practice and education. Thus, the development of a core curriculum relating to CAM will provide a common foundation for oncology nurses, even if they have to attain more knowledge and training to gain accreditation in the use of CAM therapies. Further, health professionals will be better informed about the types of CAM used by Taiwanese women with breast cancer. For health services, the results of this study may inform health policy development related to the targeting of services and resources.

Finally, the results of this mixed-method study demonstrate the paradigmatic differences in the factors that influence women’s perceived QOL within the context of conventional medical cancer care. Importantly, a theoretical foundation is established for future studies, along with the expansion of theoretical knowledge and the development of a formal theory in respect to how people cope with cancer or chronic illness.

1.3 Aims

The current study had two aims. Firstly, it sought to identify and describe the predictors of QOL among Taiwanese women with breast cancer. Secondly, it endeavored to provide a comprehensive in-depth understanding of the role of CAM use by Taiwanese women coping with breast cancer.

1.4 Research Questions

This study focused on two research questions:
(1) To what extent do individual characteristics, clinical factors, symptom distress, anxiety and depression, health locus of control, coping, and CAM use predict QOL in Taiwanese women with breast cancer?

(2) What is the role of CAM in the well being of women with breast cancer?

1.5 Thesis Structure

The structure of the thesis consists of six chapters. Chapter One introduces an overview of the context and background in which the study was conducted. Such an overview is important given the negative impact and perception of breast cancer in Taiwan, where cancer is the most feared disease because of its health consequences. Additionally, the significance and aims of the study are identified and discussed.

Chapter Two presents the literature review, which critically appraises the relevant research literature related to QOL and CAM use. This review identified the crucial predictors of QOL in women with breast cancer, specifically regarding CAM use; it also describes important aspects of women’s QOL that may be affected by breast cancer.

Chapter Three details the methodological approach used to conduct the study. The rationale for using a mixed-method approach is offered. Phase One uses a predictive survey, which explores the relationships between individual factors and the outcomes of perceived QOL of Taiwanese women with breast cancer. Phase Two uses in-depth, semi-structured interviews to explore the role of CAM use from women’s perspectives. The chapter also details the information related to the conceptual framework, the study population, the procedures of data collection and data analysis, and the ethical issues inherent in the conduct of the study.

Chapter Four presents the survey results of Phase One. First, the demographic and clinical characteristics of the samples are described; second, scale results are detailed; third, the bivariate correlation analyses are presented; and finally, based on results of the bivariate analyses, the predictors of QOL are identified through the use of multiple regression models.
Chapter Five describes the qualitative findings of Phase Two. It presents the women’s perspectives of CAM use as a helpful strategy with which to cope with breast cancer. Within the three dimensions of CAM use, various perceptions were integrated to illustrate women’s experiences with their use of CAM.

Chapter Six discusses the study results of Phases One and Two in relation to the contemporary literature on QOL for women with breast cancer. The outcome of the study and the factors contributing to the women’s perceived QOL are explicated, along with a discussion of the role that CAM use plays in helping Taiwanese women to cope with breast cancer, with reference to the literature. Finally, the conclusions are presented, and the recommendations for nursing practice, education and further research are identified.

1.6 Summary

Breast cancer is a common form of cancer in women. Being diagnosed and living with breast cancer involves a series of stressful life events that impact negatively on multiple aspects of women’s QOL. QOL has become an increasingly important concept in the evaluation of treatments and interventions for breast cancer. Traditionally, medical and health decisions have been made based largely on the potential for survival and longevity rather than QOL. In Taiwan, breast cancer ranks as the second highest incidence of all cancers, and is the fourth leading cause of cancer death for women. Over the last decade, the high survival rate for women with breast cancer has meant that Taiwanese women have had to develop effective coping strategies to manage the multiple health challenges associated with the Western biomedical treatments.

Since coping is highly specific to the personal and situational constitution, cultural and contextual factors are believed to play an important role, especially for Chinese patients’ QOL. It is unclear to what extent personal and environmental variables, specifically treatment-related stressors and coping with CAM use, can predict QOL for Taiwanese women with breast cancer. Very little research has examined the relationship between coping strategies including CAM use and QOL in women with breast cancer, particularly in terms of the mixed methods approach.
For these reasons, it is important to study the relationship between the demographic characteristics, the medical variables, symptom distress, depression and anxiety, internal health locus control, use of coping strategies, CAM use, and the QOL of Taiwanese women with breast cancer. It is expected that the findings will provide oncology health professionals with much-needed information, and greater understanding to identify which women are at a higher risk for poorer QOL. Therefore, it is imperative to gain a deeper understanding of QOL and CAM use in women with breast cancer in the Taiwanese context. The following chapter provides a review of the literature.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of the theoretical and research literature on quality of life (QOL), the use of coping strategies, and the use of complementary and alternative medicine (CAM), among women with breast cancer. It presents a critical analysis of the literature related to those factors that influence QOL in women with breast cancer, including the use of CAM. The theory of stress, appraisal and coping (Lazarus & Folkman, 1984) provides the framework within which the key elements related to personal characteristics, use of coping, CAM use, and perceived QOL among women with breast cancer are critically examined.

2.2 Stress and Coping

Studies have shown that the diagnosis of breast cancer and treatment related side-effects are major stressors in women’s lives (Carlsson, Arman, Backman, & Hamrin, 2005; Carver, Smith, Petronis, & Antoni, 2006; Culver, Arena, Antoni, & Carver, 2002; Hack & Degner, 2004; Lehto, Ojanen, & Kellokumpu-Lehtinen, 2005). Indeed, these studies identified that a woman’s ability to appraise and cope with stress is one of the most important determinants of their well-being. Using Lazarus and Folkman’s theory (1984), outcomes (i.e. quality of life, adjustment) that occur in response to a stressor (i.e. receiving breast cancer diagnosis) are influenced by the attributes of the individual (i.e. personality, demographics), the individual’s cognitive appraisal (i.e. personal resources, personal belief), and the coping strategies the individual uses to manage the situation. Therefore, the way a woman copes with the diagnosis of breast cancer depends largely upon her appraisal of whether the diagnosis poses a threat, a challenge or potential harm/loss, or some combination of these and the coping strategy she uses. Appraisal and coping are always influenced by personal characteristics, and previous research report that younger age (Avis et al., 2005; Cimprich, Ronis, & Martinez-Ramos, 2002; Janz et al., 2007; King, Kenny, Shiell, Hall, & Boyages, 2000), lower educational levels and income (Janz et al., 2007; Uzun,
Aslan, Selimen, & Koc, 2004), living alone (King et al., 2000), and use of passive coping strategies (Avis et al., 2005; Culver et al., 2002; Karakoyun-Celik et al., 2009; Kershaw, Northouse, Kritpracha, Schafenacker, & Mood, 2004; Lehto et al., 2005; Li & Lambert, 2007) have been associated with poorer perceived QOL among women with breast cancer.

Lazarus and Folkman’s (1984) theory of Stress and Coping encompasses four concepts: stress, appraisal, response, and outcomes. Stress is defined as a dynamic process, emerging from the relationship between the person and the environment, which is appraised by the person as taxing or exceeding his or her resources, and endangering his or her well-being. Appraisal is the cognitive process of categorising an encounter, and its various facets, with respect to its significance for well-being. It is affected by personal factors (i.e. commitments and beliefs) and situational factors (i.e. the characteristics of the stressors and temporal factors). Further, appraisal comprises three cognitive processes: primary appraisal, secondary appraisal, and reappraisal. A primary appraisal of a stressful situation will distinguished whether the stressor will be a harm/loss, threat, or challenge. With the identification of a harm/loss stressor, some damage to the person will have already been sustained. The identification of a threat concerns the harms or losses that have not yet taken place, but are anticipated. In contrast the identification of a challenge appraisal focuses on the potential for gain or growth inherent in an encounter; a challenge is characterised by pleasure emotions. Secondary appraisal is a complex process; it relates to the process of an evaluation of the vailable coping options and resources (Lazarus & Folkman, 1984).

Coping is defined as “constantly changing cognitive and behavioural efforts to manage these specific external and/or internal demands” (Lazarus & Folkman, 1984). In the context of this model, a coping process reflects changes in coping that are made over time or occasions. Coping is dynamic and changeable as transactions between a person and the environment are altered (Lazarus & Folkman, 1984). The process of coping consists of three main features: (a) what the person actually thinks or does is assessed, (b) what the person actually thinks or does is examined within a specific context, and (c) changes in coping thoughts and acts as a stressful encounter unfolds are examined. The dynamics and change that characterise coping as a process is a

Lazarus and Folkman (1984) emphasised that the coping function needs to be measured separately from the coping outcome. The coping function refers to the purpose a coping strategy serves, while the coping outcome refers to the effect that a strategy has. There are two types of the coping strategy: problem-focused coping and emotion-focused coping. Problem-focused coping is directed at managing or altering the problem causing the distress or regulating the goal-directed behaviour; emotion-focused coping is directed at regulating the individual’s emotional response to the problem. In their later work, Folkman and Lazarus (1988) classified coping strategies into eight types: confrontive coping, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem solving, and positive reappraisal. These strategies are comprised of either problem-focused or emotion-focused coping functions. However, Carver, Scheier, and Weintraub (1989) have argued that the problem-focused versus the emotion-focused distinction is too simplistic. They also assert that the coping strategies can be directed either actively towards or actively away from the stressor.

Additionally, Carver et al. (1989) postulate that there are likely to be individual differences in the individual’s tendency to engage or disengage from one’s goals, as observed through the coping responses that an individual employs when stress occurs. The way that an individual responds, or copes, with a stressor that threatens their goals is indicative of their tendency to active (engage) or avoid (disengage) strategies in relation to their goals. This active/avoidance approach distinction cuts across the problem-focused versus the emotion-focused distinction. Thus, the coping responses can be distinguished into two dimensions; one represents the emotion-focused versus the problem-focused dimension, while the other represents the active versus avoidance approach. The active approach-oriented coping responses directs the individual towards their problem or emotions, whereas the avoidance approach-oriented coping responses directs the individual away from their problem or emotions.

Other coping theorists have similarly distinguished the various coping responses
along these two dimensions (Kershaw et al., 2004; Yang, Brothers, & Andersen, 2008). Although, theoretically, coping responses have been categorised in different ways, the meaning of these different conceptualizations is similar. Active, adaptive, favourable, problem-focused, and active approach coping all refer to strategies where individuals accept and actively attempt to deal with their situation. Active coping includes strategies such as active problem solving, seeking emotional support, and planning (Kershaw et al., 2004; Yang et al., 2008). Avoidance coping and maladaptive coping primarily refer to strategies where individuals try to avoid dealing with problems by cognitively and physically distancing themselves from the situation. Avoiding coping strategies includes denial, behavioural disengagement, and alcohol/drug use (Kershaw et al., 2004; Yang et al., 2008). In their conceptualisations, active coping is viewed as generally positive, in contrast to avoidant coping, which is viewed as generally negative. However, Lazarus and Folkman (1984) emphasise that one strategy is not necessary good or bad; rather it depends on the situation and the outcome that follows its particular use.

In summary, Lazarus and Folkman’s Stress-Coping Model provides a comprehensive picture of the elements involved in the process of coping and the individual’s cognitive and behavioural responses to the stressful situation. This theoretical model incorporates the concept of cognitive appraisal (the evaluative cognitive processes that intervene between the stress encounter (breast cancer) and the outcome (QOL). Through cognitive appraisal, the individual evaluates the significance of what is happening and how it will affect his/her well-being.

2.3 Quality of Life (QOL)

Quality of life (QOL) is an increasingly important concept in the evaluation of treatments and interventions within the context of health care. Traditionally, medical and health decisions were based largely on the potential for survival and longevity. As knowledge and treatment options have increased, new ways of making treatment choices have developed. QOL has now become as salient an issue in the decision-making process as the length of an individual’s life (Ferrans, 1990). Such interest in QOL has seen an expansion in the definition of QOL. Indeed, the concept of QOL has become broadly defined as the importance of an individual’s overall
experience of life satisfaction and their sense of well-being (Andresen & Meyers, 2000; Cella & Nowinski, 2002; Ferrans, 1996; Haas, 1999; Meeberg, 1993; Ventegodt, Andersen, & Merrick, 2003). The World Health Organization Quality of Life (WHOQOL) group highlights and defines the subjective and multidimensional nature of QOL as, “...an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns” (WHOQOL, 1995, p. 1405). This definition has served as the foundation for the development of multiple definitions of QOL.

While definitions of QOL are various, two key aspects of QOL are often employed in defining the construct: subjectivity and multidimensionality (Aaronson, 1993; Cella & Nowinski, 2002; Felce, 1997; Moons, Budts, & De Geest, 2006; Schipper, Clinch, & Powell, 1996). Subjectivity refers to understanding QOL from the individual’s own perspective rather than being based on objective medical, physiological, or functional measures (Aaronson, 1993; Cella & Nowinski, 2002; Felce, 1997; Moons et al., 2006; Schipper et al., 1996). Such subjectivity may include their perception of illness, or treatment, their expectations of self, and their appraisal of risk/harm (Aaronson, 1993; Cella & Nowinski, 2002; Felce, 1997; Ferrans, Zerwic, Wilbur, & Larson, 2005; Moons et al., 2006; Schipper et al., 1996). Indeed the answers given to questions such as, “What is your quality of life?” or “What does quality of life mean to you?” are highly subjective and personal, and may change, depending on the time frame, mood, location, and values held by individuals (McDowell & Newell, 1996).

Multidimensionality, in contrast, assesses the multiple domains of an individual’s functioning (Aaronson et al., 1993; Cella & Nowinski, 2002; Felce, 1997; Ferrans et al., 2005). Generally, the multidimensional nature of the concept is that it is a widespread pattern that includes some form of physical, social, emotional, and functional component (Aaronson et al., 1993; Ferrans et al., 2005; Ferrell, Grant, Funk, Otis-Green, & Garcia, 1997; Northouse et al., 1999). Also some researchers have included a spiritual dimension (Ferrell, Grant, Funk, Otis-Green, & Garcia, 1998; Wyatt & Friedman, 1996), while others have kept the dimension of spirituality distinctly separate, defining it as a correlate of QOL (King et al., 2000; Shapiro et al., 2001). Although QOL is widely accepted as a relevant outcome of health care, there is no general agreement on either its definition or its measurement (Carr & Higginson,
The concept of QOL is broadly defined as an overall experience of life satisfaction (Felce, 1997; Haas, 1999), while health-related quality of life (HRQOL), is often used synonymously with subjective health status, that is, with a more precise impact of the disease, the impairment and/or the treatment (Carr & Higginson, 2001). Importantly, many researchers studying medical populations have narrowed the concept further by defining and assessing a number of predefined core domains. For example, the European Organisation for Research and Treatment of Cancer (EORTC) has operationalised HRQOL in cancer diseases in terms of functional status, cancer and treatment-specific symptoms, psychological distress, social interaction, financial impact and overall QOL (Aaronson et al., 1993). However, according to Carr and Higginson (2001), health related quality of life is the gap between an individual’s expectations of health and their experience of it. Thus the perception of quality of life varies between individuals and is also dynamic within them. Consequently individuals with different expectations will report that they have a different quality of life, even when they have the same clinical condition. For example, those whose health has changed may still report the same level of quality of life when measures are repeated (Carr & Higginson, 2001). Within the current study the subjective and multidimensional concept of QOL is referred to as the patients’ subjective view of their current well-being; it includes the following aspects: physical, role, social, emotional, and cognitive functioning, as well as the symptoms produced by the disease or its treatment (Aaronson, 1993).

2.4 Factors Influencing Quality of Life (QOL) in Women with Breast Cancer

Ranges of factors have been identified as affecting QOL in women with breast cancer. These include: demographic factors (e.g. age, education, household income); clinical factors (e.g. disease stage, time since diagnosis, and surgery modality); physical factors (e.g. symptom distress); and psychological factors related to anxiety and/or depression, internal health of control, use of coping strategy, and CAM use. Each of these groups of factors will be reviewed in the following section.
2.4.1 Demographic Factors

The association between demographic factors, clinical factors, and QOL in women with breast cancer have been already examined, however, the findings appear inconsistent. Many previous studies identified that age was a significant factor in predicting breast cancer patients' perceived QOL among various domains (Ahn et al., 2007; Avis et al., 2005; Bloom, Stewart, Chang, & Banks, 2004; Cimprich & Ronis, 2003; Engel et al., 2003; Ganz, Greendale, Petersen, Kahn, & Bower, 2003; Ganz et al., 2002; Hopwood, Haviland, Mills, Sumo, & Bliss, 2007; Janz et al., 2005; King et al., 2000; Kroenke et al., 2004; Lu et al., 2008; Lu et al., 2007). Ten studies have shown increasing age (i.e. 60 years or older) as a negative predictor of QOL in the physical domain and suggested that older breast cancer patients experience more persistent problems with physical functioning after breast cancer diagnosis than younger women (Ahn et al., 2007; Avis et al., 2005; Bloom et al., 2004; Cimprich & Ronis, 2003; Engel et al., 2003; Ganz et al., 2002; Hartl et al., 2009; Hopwood et al., 2007; Lu et al., 2008; Lu et al., 2007). Furthermore, a few studies showed that older age was correlated with worsening psychological functioning (Cui, Shu, Gao, Cai et al., 2004; Hopwood et al., 2007; Lu et al., 2007). However, seven studies have shown that women in the younger age bracket (i.e. 50 years or younger) had a higher risk of psychological morbidity than women in the older age bracket (Avis et al., 2005; Engel et al., 2003; Ganz et al., 2003; Hopwood et al., 2007; Janz et al., 2005; King et al., 2000; Kroenke et al., 2004). These studies concluded that, compared with older breast cancer patients, younger patients have more disruption to their daily activities, and are more concerned about their careers and work (Avis et al., 2005; Bloom et al., 2004; Ganz et al., 2003; Janz et al., 2005). Further confusing this picture, several studies have shown that age was not related to QOL (Andritsch, Dietmaier, Hofmann, Zloklikovits, & Samonigg, 2007; Hartl et al., 2003; Lehto et al., 2005; Rabin, Heldt, Hirakata, & Fleck, 2008).

An explanation for why different studies find different associations between age and client outcomes is that age definitions vary across studies and the effects of age on breast cancer patients' QOL appear to be unclear. Furthermore, comorbid conditions in older breast cancer patients may compound the physical effects of breast cancer diagnosis and treatment (Cui, Shu, Gao, Cai et al., 2004; Ganz, Guadagnoli et al.,
which may be a confounding factor in accurately predicting QOL. Thus, age alone is rarely the most significant predictive factor for QOL among women with breast cancer.

Previous studies have found that a higher educational level was significantly associated with better QOL related to the physical domain (Ashing-Giwa & Lim, 2009; Janz et al., 2005; Mehnert et al., 2006), the mental domain (Ashing-Giwa & Lim, 2009), and the social domain (Cui et al., 2004; Engel et al., 2003; Janz et al., 2005; King et al., 2000), as well as overall QOL (Awaddalla et al., 2007; Lu, W. et al., 2008; Lu et al., 2007; Uzun et al., 2004). However, one study found that educational level was inversely correlated with overall QOL (Cimprich et al., 2002). Conversely, five studies did not find educational level as a predictor of QOL (Ganz et al., 2002; Nagel, Schmidt, Strauss, & Katenkamp, 2001; Rabin et al., 2008; Safaee, Moghimi-Dehkordi, Zeighami, Tabatabaee, & Pourhoseingholi, 2008; Vacek, Winstead-Fry, Secker-Walker, Hooper, & Plante, 2003). Thus, it appears that the evidence of educational level in predicting QOL among women with breast cancer is weak.

Higher income was strongly associated with better QOL in four studies (Ashing-Giwa & Lim, 2009; Casso, Buist, & Taplin, 2004; Lu et al., 2007; Shimozuma, Ganz, Petersen, & Hirji, 1999); however, two studies found there was no significant association (Leak et al., 2008; Lehto et al., 2005). These two studies suggest that psychological factors, such as coping or spiritually, were more significantly associated with QOL rather than the demographic factors including income (Leak et al., 2008; Lehto et al., 2005). Thus, it appears that the relationship between income and QOL in women with breast cancer is tenuous.

Several studies have shown that being married is associated with good QOL in women with breast cancer, particularly in physical well-being (Cimprich et al., 2002) and psychological well-being (Broeckel, Jacobsen, Balducci, Horton, & Lyman, 2000; King et al., 2000; Parker et al., 2007; Shapiro et al., 2001). Indeed, women who had a partner and a shared living situation reported a better overall QOL than those of women living alone (Awaddalla et al., 2007; Cui et al., 2004; King et al., 2000; Parker et al., 2007; Shapiro et al., 2001). However, one study (Conde et al., 2005) found an
inverse relationship between QOL and marital status, suggesting that the quality of the
marital relationship, prior to the breast cancer diagnosis, should be considered as an
influencing factor. The social support provided by the spouse may also influence QOL
in women with breast cancer. Researchers have reported the importance of the spouse
in providing emotional support to the women, especially in the process of their
adjustment to breast cancer (Awadalla et al., 2007; Danhauer, Crawford, Farmer, &
Avis, 2009; Landmark & Wahl, 2002; Mehnert et al., 2006; Wong-Kim, Sun, Merighi,
& Chow, 2005). However, spouses may be a source of stress or support, depending on
the quality of relationship between the couple that may mediate patient’s perceived
QOL (Lehto et al., 2005). Thus, social support within a marital relationship may well
be a confounding influence on QOL for breast cancer patients. Although five studies
have shown that social support of the spouse and family might relate to higher
perceived QOL in married breast cancer patients (Cui et al., 2004; King et al., 2000;
Shapiro et al., 2001; Parker et al., 2007), others found that there was no significant
relationship between marital status and overall QOL (Andritsch et al., 2007; Cimprich
et al., 2002; Ganz et al., 2002; Schou, Ekeberg, Sandvik, Hjermstad, & Ruland, 2005;
Uzun et al., 2004). Thus, the influence of marital status and spousal support on
perceived QOL in women with breast cancer remains unclear.

2.4.2 Clinical Factors

The staging of the breast cancer, which ranges from an early stage (eg. Stage 0) to an
advanced stage (eg. Stage IV), is an important predictor of survival (Smigal et al.,
2006). Commonly, it is assumed that women with advanced breast cancer may
experience more debilitating symptoms than in the earlier stages, and consequently,
experience poorer QOL (Cui et al., 2004; Engel et al., 2003; Janz et al., 2005). In
studies that have examined the relationship between QOL and stages of breast cancer,
results were inconsistent. Surprisingly, most studies found that disease stage was not
significantly associated with QOL (Engel et al., 2003; Ganz et al., 2002; Janz et al.,
2005; Lu et al., 2007; Rabin et al., 2008; Vacek et al., 2003). However, two other
studies found that women with advanced stage reported poorer QOL in relation to the
social well-being domain (Cui et al., 2004; Hartl et al., 2003). In contrast, Arndt and
colleagues found the tumour stage was the strongest determinant of QOL; however,
the observed variance within different aspects of QOL was very small (i.e. <
10% (Arndt, Stegmaier, Ziegler, & Brenner, 2006). These studies suggested that despite the excellent prognosis for women with early stage breast cancer, its diagnosis is stressful, and may result in a pattern of psychological morbidity for these women similar to that experienced by women with invasive disease. Therefore, the association of disease stage and QOL in women with breast cancer is unclear and needs to be examined further.

The recurrence of breast cancer is an extremely difficult experience for patients and their families (Northouse et al., 2002). Numerous studies have examined the influence of recurrence on QOL among breast cancer patients. The significant findings of impaired QOL included poorer physical well-being (Avis et al., 2005; Cui et al., 2004; Mehnert et al., 2006), psychological well-being (Lu, W. et al., 2008; Mehnert et al., 2006), emotional well-being (Avis et al., 2005; Cui et al., 2004), social well-being (Lu et al., 2007; Mehnert et al., 2006; Northouse et al., 2002), and overall QOL (Cui et al., 2004; Lu et al., 2009; Northouse et al., 2002). Longitudinal studies suggest that there is a decrease in QOL at the time the recurrence is diagnosed (Kenne Sarenmalm, Ohlen, Jonsson, & Gaston-Johansson, 2007; Lu, W. et al., 2008; Oh et al., 2004; Walker, Schwartzberg, Stepanski, & Fortner, 2009; Yang et al., 2008), followed by improvements over the next few months (Kenne Sarenmalm et al., 2007), often to pre-recurrence levels (Bull et al., 1999; Kenne Sarenmalm et al., 2007; Lee et al., 2007; Northouse et al., 2002). In contrast, cross-sectional studies report high levels of psychiatric morbidity several months after recurrence (Burgess et al., 2005; Okamura, Yamawaki, Akechi, Taniguchi, & Uchitomi, 2005). In comparing the disruption in QOL relative to disease-free samples of breast cancer patients, some studies find significantly greater difficulties among recurrent breast cancer patients (Cui et al., 2004; Lu et al., 2009; Northouse et al., 2002; Okamura et al., 2005), whereas others find no differences between these two groups (Casso et al., 2004; Oh et al., 2004). Despite the inconsistent results of these studies, from a clinical perspective it is not surprising that recurrent breast cancer influences the quality of patient’s lives.

Many studies compared the effect of breast-conserving surgery (BCS) and mastectomy on QOL, because both surgical options have shown equivalent long-term survival rates in early stage breast cancer (Fisher et al., 2002; Parker et al., 2007; Veronesi et al., 2002). Studies focused on surgery have reported few treatment-related
differences in QOL between BCS and mastectomy with the exception of less impact on body image with BCS (Chang et al., 2007; Engel, Kerr, Schlesinger-Raab, Sauer, & Holzel, 2004; King et al., 2000; Rowland et al., 2000; Shimozuma et al., 2002). Some studies have shown that women who received BCS had fewer overall psychosocial adjustment problems (Montazeri et al., 2008; Vos, Garssen, Visser, Duivenvoorden, & de Haes, 2004) and better sexual adjustment over time (Hartl et al., 2003; Nissen et al., 2001), while others report less fear of recurrence with mastectomy (King et al., 2000; Lam, Fielding, Ho, Chan, & Or, 2005; Wang et al., 2008). The impact of mastectomy on body image may be reduced in women who undergo breast reconstruction. It has been reported that cosmetic and psychosocial results are better with BCS (Hartl et al., 2003; Kenny et al., 2000; Suen, Chow, & Kwong, 2008).

Some investigators reported that there were no differences in QOL but that mastectomy with reconstruction was associated with greater mood disturbance (Nissen et al., 2001). Findings have been mixed in studies that addressed reconstruction. Ganz et al. (2003) found no significant differences in QOL between mastectomy only and mastectomy with reconstruction; while Nissen et al. (2001) found that those who received breast reconstruction reported lower scores on physical, emotional, and functional well-being compared to those who received mastectomy only (Nissen et al., 2001). However, one study found that mastectomy was a significant indicator of poorer QOL across various domains (Rabin et al., 2008), although the sample size was relatively small (N = 73).

In contrast, two Chinese studies have found that there were no significant difference between the treatment of mastectomy and BCS on overall QOL (Chang et al., 2007; Lu et al., 2008) and various domains including physical, social, and psychological aspects (Lu et al., 2009) among Chinese breast cancer survivors. Furthermore, they found the high proportion of Chinese women chose mastectomy rather than BCS. They concluded that Chinese women with breast cancer were more concerned about the recurrence of disease than about body image and considered mastectomy as a protective treatment against recurrence (Chang et al., 2007; Lu et al., 2009). Also, they found that psychological stress was positively associated with BCS over time. This finding was similar to Nissen et al. (2001) who found that women who underwent BCS had greater mood disturbances. Previous studies indicated that so few
differences could be found in psychosocial or health-related outcomes among the surgical modalities after breast cancer diagnosis. Hence, a woman’s primary surgery may be less important in determining her subsequent QOL after breast cancer than other factors, such as age, exposure to adjuvant therapies, and other health problems.

Chemotherapy and radiotherapy are the primary adjuvant treatments for breast cancer. Studies have reported a range of acute and late side effects of chemotherapy and radiotherapy that may have the potential to affect patients’ QOL. Numerous longitudinal studies have shown that adjuvant chemotherapy was associated with decreased overall QOL (Browall et al., 2008; Casso et al., 2004; Ganz et al., 2002), and various functioning over time, such as physical function (Arndt et al., 2006; Browall et al., 2008), social function (Arndt et al., 2006; Browall et al., 2008), role function (Arndt et al., 2006; Browall et al., 2008; Ganz et al., 2002; King et al., 2000; Schou et al., 2005), and cognitive function (Bender et al., 2006; Browall et al., 2008; Tchen et al., 2003). Few studies indicated that chemotherapy was associated with increased social function (Bloom et al., 2004) or overall QOL (Lehto et al., 2005). Conversely, several studies found that adjuvant chemotherapy was not significantly related to QOL among short-term and long-term breast cancer survivors over time (Ahn et al., 2007; Avis et al., 2005; Cimprich et al., 2002; Cui, Shu, Gao, Cai et al., 2004; Engel et al., 2003; Fehlauer, Tribius, Mehnert, & Rades, 2005; Hartl et al., 2009; Hartl et al., 2003; Nagel et al., 2001; Rabin et al., 2008; Vacek et al., 2003). Nevertheless, some researchers have indicated that past chemotherapy was an indicator of current QOL among breast cancer survivors (Broeckel et al., 2000; Ganz et al., 2002).

Previous studies have examined the effects of radiotherapy on QOL in women with breast cancer during treatment and after its completion, although findings are inconsistent. Whelan and colleagues (2000) found that women who underwent radiotherapy reported poorer QOL than women not receiving radiotherapy at 1 and 2 months (Whelan, Levine, Julian, Kirkbride, & Skingley, 2000); however, another study found no difference between these groups at 3, 6, 12 months after surgery (Rayan et al., 2003). Conversely, one study found an improvement in QOL from the start of radiotherapy to 2 months after its completion (Wengstrom, Hagmark, Strander, & Forsberg, 2000), whereas another study found radiotherapy to have no
effect on QOL at 6 weeks after the completion of treatment (Back et al., 2005). These studies present differing results and no conclusion can be derived on the effects of radiotherapy on QOL of women with breast cancer. Analysis of these studies suggests that the influence of adjuvant treatments on QOL may change with different time periods in women with breast cancer, such as active phase of treatment versus rehabilitation period. Thus, its influence on QOL remains uncertain and needs to be further examined.

The time since diagnosis seems to be a predictor of QOL and the patients’ status of development influences the QOL. Numerous studies have found that the number of years since diagnosis were associated with better overall QOL (Cimprich et al., 2002; Kornblith et al., 2003), physical function (Ahn et al., 2007; Mehnert et al., 2006), psychological function (Cimprich et al., 2002), role function (Ahn et al., 2007), emotional function (Ahn et al., 2007), and social function (Cimprich et al., 2002). These studies suggested that women with breast cancer who had received their diagnosis less than five years reported greater problems in physical function and mental health function than did those who were more than five years past diagnosis. However, one study found that women who had one year or less time since diagnosis had higher overall QOL than women who had more than a year since diagnosis (Öge, Ozkan, & Baltalarli, 2007). In contrast, other studies showed that time since diagnosis was not significantly correlated to QOL (Avis et al., 2005; Casso et al., 2004; Conde et al., 2005; Ganz et al., 2002; Rabin et al., 2008). Therefore, the time since diagnosis in predicting QOL is still unclear.

In summary, several demographic and clinical factors have been examined in order to better understand the QOL of women with breast cancer, however their influence on QOL remains unclear. In spite of the fact that QOL for breast cancer survivors is relatively good (Avis et al., 2005; Casso et al., 2004; Conde et al., 2005; Ganz et al., 2002; Rabin et al., 2008), there is little doubt that many breast cancer patients still experience substantial complaints as a result of the cancer or its treatment, such as symptom distress, which might develop psychological distress and influence QOL. These potential predictors will be reviewed in the next section.
2.4.3 Physical Factors—Symptoms and Symptom Distress

Several studies found that breast cancer patients report a number of symptoms and these symptoms persist after breast cancer treatment, including problems with fatigue (Arndt et al., 2006; Bower et al., 2000; Byar et al., 2006; de Jong, Courten, Abu-Saad, & Schouten, 2002; Donovan et al., 2004; Hartl et al., 2003; Janz et al., 2007; King et al., 2000), pain (Arndt et al., 2006; Boehmke & Dickerson, 2005; Browall et al., 2008; Byar et al., 2006; Kenne Sarenmalm et al., 2008), lymphedema (Beaulac, McNair, Scott, LaMorte, & Kavanah, 2002; Eversley et al., 2005; Ridner, 2005), menopausal symptoms (Glaus et al., 2006; Gupta et al., 2006; Schultz, Klein, Beck, Stava, & Sellin, 2005), and sleep disturbance (Byar et al., 2006; Janz et al., 2007; Schultz et al., 2005). However, most of these studies focused on individual symptoms or a unique subset of symptoms (i.e. fatigue and pain) rather than examining the relative impact of a woman’s collective experience of symptom distress on QOL.

McCorkle and Young (1978) defined symptom distress as the degree of discomfort reported by patients in relation to their perception of the symptoms being experienced. Further, symptom distress refers to the level of discomfort associated with alterations in function, sensation, or appearance related to an illness. Such distress can arise from the diagnosis of a disease, its progress, or the side effects of its treatment. Some researchers have characterised symptom distress as the extreme physical or mental anxiety or suffering that results from the experience of symptom’s occurrence and/or the perception of feeling states (Heidrich, Egan, Hengudomsub, & Randolph, 2006; Knobf, 2007). Symptom distress is believed to alter the individual’s cancer experience and their quality of life (Boehmke, 2004).

Few studies have examined the association of breast cancer patients’ symptom distress with their perceived QOL. These results indicated that patients’ experience of symptom distress had a significant impact across a number of aspects of QOL (Arndt et al., 2006; Janz et al., 2007; Leak et al., 2008). In particular, higher levels of fatigue were associated with substantial reduction across various domains of QOL among patients following completion of primary treatment (Ahn et al., 2007; Arndt et al., 2006; Bower et al., 2000; Janz et al., 2007). Fatigue also emerged as the strongest
predictor of poorer QOL in breast cancer survival (Ahn et al., 2007; Arndt et al., 2006; Janz et al., 2007; Leak et al., 2008). Ganz et al. (2004) found that symptoms, including muscle stiffness, breast sensitivity, aches and pains, tendency to take naps, and difficulty concentrating, were common among breast cancer patients after completing the treatment. These symptoms were significantly associated with poor physical functioning and emotional well-being (Ganz et al., 2004). Similarly, a Taiwanese study found that fatigue, arm weakness, insomnia, and anxiety were the most commonly reported symptoms in Taiwanese breast cancer patients. These symptoms were negatively associated with women’s perceived overall QOL (Cheng, Lai, Chang, & Wu, 2002).

Women receiving adjuvant therapy for breast cancer have indicated that fatigue is one of the most common and distressing symptoms (Arndt et al., 2006; Bower et al., 2000; Byar, Eilers, & Nuss, 2005; de Jong et al., 2002; Donovan et al., 2004; Janz et al., 2007). The prevalence of fatigue among breast cancer patients indicated that up to 99% experience some level of fatigue during the course of radiation therapy and/or chemotherapy (Jacobsen et al., 1999), and more than 60% rate their level of fatigue as moderate to severe (Arndt et al., 2006; Janz et al., 2007). Although fatigue is considered one of the most common symptoms in breast cancer patients, its effect on impaired QOL cannot be explained precisely. Researchers now recognise that some symptoms may be interrelated even though they may not share the same etiology (Beck, Dudley, & Barsevick, 2005; Dodd, Miaskowski, & Paul, 2001).

Fatigue in women with breast cancer has been linked most frequently to pain (Bower et al., 2000; Eversley et al., 2005); depression (Badger et al., 2004), sleep disturbance (Bower et al., 2000), and premature menopause (Browall et al., 2008). Bower and colleagues (2000) found the women who experienced more fatigue rated their various aspects of QOL at a lower level. Approximately, one third of breast cancer survivors reported more severe fatigue associated with higher levels of depression, pain, and sleep disturbances. However, fatigued women were more bothered by menopausal symptoms and were more likely to have received chemotherapy (with or without radiation therapy) than non-fatigued women. Depression and pain were identified as the strongest predictors of fatigue (Bower et al., 2000). The nature of the complex interactions among these symptoms and treatments and QOL remain unclear.
Additionally, Kenne-Sarenmalm et al. (2008) identified that fatigue, pain and depression were important contributors to distress in women with recurrent breast cancer over time. Fatigue, pain, and depression were significantly independent of each other in their ability to predict distress. Furthermore, an important finding was the impact of distress on QOL, suggesting that distress may have a mediating role in the women’s perceived QOL (Kenne-Sarenmalm et al., 2008).

The goal of cancer treatment is to provide a cure, increase survival, and maintain QOL. Unfortunately the treatment of cancer is often accompanied by side effects that have a negative impact on QOL. Intensive cancer therapies used to treat breast cancer can produce severe and sometimes life-threatening side effects; an inability to tend to self-care needs, and often total dependence on caregivers (Ganz et al., 2004). McCorkle and Young (1987) suggest that distress resulting from symptoms and side effects of breast cancer treatments are critical factors in a patient’s emotional and social adjustment. It is generally assumed that the very presence of symptom relief is invariably accompanied by improved QOL. Some researchers proposed that the experience of cancer and the occurrence of symptom distress associated with cancer may change an individual’s criteria for, and evaluation of QOL, which is defined relative to the situation of any individual (Heidrich et al., 2006; Kenne Sarenmalm et al., 2007; Knobf, 2007). Although impairment of various functions and occurrence of symptoms influence patients’ QOL, what may be more important is the extent to which deficits and symptoms cause distress to the patient.

2.4.4 Psychological Factors — Anxiety and Depression

The diagnosis of the disease, importance of fears and concerns regarding death and disease recurrence, impairment of body image, and alteration in femininity, sexuality and attractiveness are factors that can cause unexpected psychological distress even years after diagnosis and treatment in women with breast cancer (Ahn et al., 2007; Deshields, Tibbs, Fan, & Taylor, 2006; Mehnert & Koch, 2008; Schreier & Williams, 2004). Psychological distress in breast cancer patients is mostly related to depression, anxiety, and low emotional functioning. Almost all studies have shown that psychological distress contributed to impaired QOL especially emotional functioning,
social functioning, mental health function and overall QOL (Ahn et al., 2007; Badger et al., 2004; Deshields et al., 2006; Grabsch et al., 2006; Schreier & Williams, 2004; Wong & Fielding, 2007; Yen et al., 2006). The prevalence rate of anxiety and depression among breast cancer patients ranged from 30% (Grabsch et al., 2006; Mehnert & Koch, 2008) to 50% (Burgess et al., 2005; Deshields et al., 2006; Knobf, 2007; Osborne, Elsworth, & Hopper, 2003). Although different prevalence rates of breast cancer patients with depression and anxiety have been reported in previous studies, these may depend on the stage of disease and the methods used to assess the psychological distress (Osborne et al., 2003; Vachon, 2006). The Hospital Anxiety and Depression scale (HADS) (Zigmond & Snaith, 1983) has been used extensively in the last two decades. While the diagnostic sensitivity and specificity of the scale seems to vary according to the patient sample (Hall, A'Hern, & Fallowfield, 1999), it has been used both as an initial screening instrument (used with cut-off points) and as a research tool (used as a continuous scale) (Herrmann, 1997). Several studies using the HADS have reported the prevalence of anxiety and depression in breast cancer patients based on the cut-off scores > 10 as recommended by the authors of the scale (Zigmond & Snaith, 1983). The prevalence of anxiety ranged from over 10% (Hopwood et al., 2007; Osborne et al., 2003) to 48% (Montazeri et al., 2000). The prevalence of depression ranged from 3% (Hopwood et al., 2007; Osborne et al., 2003) to 20% (Montazeri et al., 2000) among post-treatment breast cancer patients.

Several studies have identified that anxiety and depression, rather than demographic and clinical factors, are predictive of QOL among breast cancer patients (Ahn et al., 2007; Andritsch et al., 2007; Browall et al., 2008; Lehto et al., 2005; Rabin et al., 2008; Yen et al., 2006). For example, Browall and colleagues (2008) found that women who received chemotherapy reported an increase in levels of depression and a decrease in social function. They suggested that emotional distress such as anxiety and depression were found to be more robust predictors of QOL than the demographic variables in women with breast cancer. Higher anxiety scores had a negative impact on psychological functioning and overall QOL (Browall et al., 2008). Similarly, a Taiwanese study, Yen and colleagues (2006) compared QOL, depression and stress between women with malignant breast cancer and those with benign breast tumours. They found that depression was significantly associated with poor QOL on physical and psychological aspects for both groups (Yen et al., 2006).
Because of the impact of anxiety and depression on cancer patients’ QOL, a great deal of attention has been paid to the factors related to anxiety and depression. In a longitudinal study, Deshields et al. (2006) evaluated 84 women at the end of radiation therapy and at 3 and 6 months later. Average depression scores decreased over the 6 month follow-up and five patterns were identified based on end of treatment and follow-up scores: never depressed, stay depressed, recover, become depressed and vacillate (none of other patterns). Women in the ‘never depressed’ and recover groups had significantly lower anxiety and better QOL outcomes, with greatest improvements seen in the recover group. A major limitation of this study was the lack of baseline (pre-treatment) data for comparison, but the findings were similar to other research findings (Schreier & Williams, 2004; Wong & Fielding, 2007). Additionally, Schreier and Williams (2004) indicated that those women receiving adjuvant breast cancer therapy had higher scores on the state anxiety scale reported poorer QOL at both the start of treatment and one year post initial treatment. Badger et al. (2004) also found that depression burden had a negative impact on psychological adjustment and overall QOL at the initial phase of treatment when women were beginning to experience side effects from their adjuvant therapy. Thus, these studies suggested that the phase of treatment was a significant factor associated with women’s anxiety and depression.

Feeling anxious follows patterns of high stress associated with transition periods in the breast cancer trajectory (Schreier & Williams, 2004; Wong & Fielding, 2007). Anxiety is high awaiting therapy, decreases somewhat in the supportive environment with health care providers during treatment, and often increases at the end of therapy (Bender et al., 2005). A longitudinal study conducted by Bender et al. (2005) found that 80% of women after breast cancer surgery and 73% of women completing adjuvant therapy reported feeling anxious. Similarly, 45% to 55% of breast cancer survivors reported feeling anxious in the first 6 months after adjuvant chemotherapy (Browall et al., 2008; Deshields et al., 2006; Grabsch et al., 2006). These data support previous research findings and have established the critical need for assessment to identify women who may have clinically significant anxiety or depressive symptoms versus those who are experiencing normative responses (Badger et al., 2004; Bender et al., 2005; Browall et al., 2008; Deshields et al., 2006; Grabsch et al., 2006; Rabin et al., 2008; Schreier & Williams, 2004). Early detection and intervention may result in
meaningful improvements in a woman’s mental health function, adjustment, and overall QOL.

2.4.5 Psychological Factors—Health Locus of Control

The health locus of control has been identified as a possible psychological factor related to the psychological adjustment or well-being of breast cancer patients (Bettencourt, Talley, Molix, Schlegel, & Westgate, 2008; Naus, Price, & Peter, 2005; Taylor, Lichtman, & Wood, 1984). Health locus of control is defined as the beliefs an individual has over the control of their health (Wallston, Stein, & Smith, 1994; Wallston, Wallston, & DeVellis, 1978), namely a person’s belief that personal, internal factors, or situational, external factors, can control their health. Wallston et al. (1994) postulate that the health locus of control orientation is mediated by an individual’s behaviour, which is an “indirect determinant of health status” (p. 535). The health locus of control belief system was extended from the concept of the locus of control (Rotter, 1966). According to Rotter (1966), the concept of locus of control focuses on an individual’s perception of relationships between their behaviour and the events that follow a behaviour (Rotter, 1966). Thus those with an internal locus of control believe that their actions control their lives, whereas those with an external control believe that exterior forces, such as fate, control their lives. Consequently the belief that control can determine how a person will react to social, physical, and emotional stressors may serve as a coping strategy in a life crisis (Lazarus & Folkman, 1984). Specifically, those with an internal locus of control appear to adjust to stressful events more successfully.

Both the health locus of control and the locus of control are composed of an internal or external orientation, however the health locus of control orientation is composed of internal, powerful others, and chance factors. As a result individuals who have an internal health locus of control orientation believe their own actions are the source or cause of their health status. Whereas individuals who have an external health locus control orientation believe that their health status is more related to external forces than to their own action (Wallston, 1978; Wallston et al., 1994). Within the external health locus of control, Wallston et al. (1994) distinguished between attributions made
to ‘powerful other’ people (such as family, friends or health care providers) and those made to fate, luck, or chance. The saliency of such a belief system (i.e. health controlled by self, powerful others, or chance factors) becomes apparent because it invariably plays an integral role in contributing to cancer patients’ perceptions of their QOL.

Previous studies have shown that health locus of control is associated with QOL or life satisfaction in cancer patients (Bettencourt et al., 2008; De Valck & Vinck, 1996; Naus et al., 2005; Taylor et al., 1984). Additionally, internal control over health was related to cancer adjustment in some studies (Bettencourt et al., 2008; Naus et al., 2005; Taylor et al., 1984), but not in others (De Valck & Vinck, 1996; Wagner, Armstrong, & Laughlin, 1995). Recently, Bettencourt and colleagues examined psychological well-being among rural and urban breast cancer patients. Their results showed that higher levels of internal health locus of control were associated with better psychological adjustment for breast cancer patients, regardless of location (Bettencourt et al., 2008). Naus et al. (2005) found that an internal locus of control orientation predicted lower levels of depression and appeared to be more adaptive for breast cancer survivors. Similarly, Taylor et al. (1984) found that breast cancer patients with an external locus of control, regarding the cause of their disease, were maladjusted to their illness, while patients who believed that their disease was under control (by themselves or by their doctor) showed no adjustment problems. Further, many breast cancer patients reported having a high degree of personal control over their cancer (i.e. an individual can change their health status or prevent the recurrence), despite the fact that their medical records revealed a poor prognosis. This belief in personal control over cancer was positively associated with psychological adjustment. In contrast, two other studies (Bourjolly, 1999; Friedman, Baer, Lewy, Montague, & Smith, 1989) have revealed no relationships between different types of health locus of control and psychosocial functioning for breast cancer patients. Thus, the relationship between health locus of control and QOL is not yet fully understood.

Previous studies have shown that breast cancer patients with an internal locus of control engage in more information-seeking behaviour and positive attitudes toward the disease than patients with an external locus of control (Bettencourt et al., 2008; Naus et al., 2005). Additionally, perceiving internal control over health appears to have benefits for psychological well-being for women with breast cancer (Bettencourt
et al., 2008). However, the relationship between health locus control beliefs and emotional responses to breast cancer might be moderated by contextual variables, such as cultural background. It would be different in patients with different cultural backgrounds that they may hold different health locus of control beliefs. These beliefs are related to their need for information and reaction to the diagnosis. Lazarus and Folkman (1984) point out that culture influences people’s locus of control beliefs and explain that these beliefs influence coping and emotional response to stress. Consistent with this, cultural differences between the Chinese women and Western women may influence their beliefs about the internal locus of control beliefs over their health. Thus, this present study posited that internal health locus of control would be a potential factor in predicting QOL among Taiwanese women with breast cancer.

2.4.6 Psychological Factors — Use of Coping

Coping refers to behavioural and cognitive ways through which individuals attempt to deal with situations they perceived as exceeding their own resources (Lazarus & Folkman, 1984), or blocking their path towards their desired goal (Carver et al., 1993). The coping strategies can be as varied as the stressors that prompt them. From the previous conceptual definition, Lazarus and Folkman (1984) distinguished between two primary categories of coping: emotion-focused and problem-focused. These categories describe the efforts required to either alter the source of the stress in the environment or to alleviate the personal emotional stress induced by the stressor. Emotion-focused coping is an attempt to manage internal demands and conflicts, such as stressful emotions. It involves such coping strategies as: distancing, self-control, escape-avoidance, and positive reappraisal. Problem-focused coping is an attempt to manage external demands or reduce the conflict between an individual and the individual’s environment. It includes strategies such as: managing external aspects of a stressor, seeking instrumental support, accepting responsibility, and planful problem-solving.

In addition to emotion-focused coping and problem-focused coping, coping strategies have been classified into two other groups: engagement and disengagement coping (Roesch et al., 2005). Engagement coping strategies are those that change one’s
emotions or thoughts about stressors or ones that involve effortful behaviour to reduce the stressor. These include active coping (i.e. attempting to find a solution for the problem), positive reframing (i.e. viewing the problem in a more positive way), acceptance, seeking support, and having a “fighting spirit” (Cordova et al., 2003). Such strategies have been associated with positive outcomes, such as better QOL (Ransom, Jacobsen, Schmidt, & Andrykowski, 2005) and less psychological distress (Carver et al., 1993; Cohen, 2002; Cordova et al., 2003; Heim, Valach, & Schaffner, 1997). In contrast, disengagement coping strategies include those emotions, cognitions, or behaviours that attempt to lessen the stressor through avoidance or escape, including emotional, cognitive, or behavioural distancing and denial. Disengagement coping strategies have been associated with poorer QOL (McCaul et al., 1999; Ransom et al., 2005) and more psychological distress (Culver et al., 2002; Holland & Holahan, 2003; Kershaw et al., 2004). Although there are various types of coping strategies referred to in the literature, there is considerable overlap and similarity. For example, positive re-appraisal and self-control (types of emotion focused coping), planful problem-solving and seeking information (types of problem-focused coping) could be regarded as active coping strategies. Distancing and escape-avoidance coping (types of emotion-focused coping) may be considered as types of avoidance coping (Roesch et al., 2005). However, Lazarus and Folkman (1984) argue that one strategy is not good or bad; indeed it depends upon the situation and the outcome that follows its particular use.

A wide range of strategies have been used by women to cope with breast cancer, such as prayer (palliative) (Gall & Cornblat, 2002), seeking social support (supportive) (Anagnostopoulos et al., 2004; Danhauer et al., 2009; Manning-Walsh, 2005), positive yielding (acceptance) (Culver et al., 2002; Holland & Holahan, 2003; Kershaw et al., 2004; Wonghongkul, Moore, Musil, Schneider, & Deimling, 2000), negative yielding (resignation or passivity) (Shapiro et al., 2001), escape-avoidance (Reynolds et al., 2000), and CAM therapies (Boon et al., 2000; Carlsson et al., 2005; Fasching et al., 2007). Anagnostopoulos et al. (2004) reported that negative emotional coping was the strategy least preferred by Grecian women with breast cancer, while Wonghongkul et al. (2000) identified escape-avoidance and acceptance of responsibility as the methods least used by American breast cancer survivors. Culver et al. (2002) conducted a comparative study to examine coping and distress among three ethnic groups of
women in the early stage of breast cancer. They found a number of ethnically specific coping strategies. Hispanic women reported more emotional venting and self-distraction, while African Americans reported very low levels of venting, reflecting their reported low levels of distress, and non-Hispanic Whites reported turning to humour. These findings were consistent with other studies (Carver et al., 1993; Kenne Sarenmalm et al., 2007; Koopman et al., 2001; Reddick, Nanda, Campbell, Ryman, & Gaston-Johansson, 2005), where distress was consistently related with reported avoidance coping (denial, self-distraction, and venting). Examples of good “coping” to lower distress were sparse. Although ethnic differences emerged for some coping strategies identified, the extent of the differences should not be overstated. Indeed, what may be most notable about the coping outcome was how few differences there were.

Numerous studies have examined the relationship between coping strategies and QOL or adjustment among women with breast cancer. Some studies have shown that women with breast cancer used more positive reappraisal (Avis et al., 2005; Holland & Holahan, 2003), active coping (i.e. acceptance, planning) (Carver et al., 1993; Kershaw et al., 2004; Sears, Stanton, & Danoff-Burg, 2003; Stanton et al., 2000; Yang et al., 2008), problem-focused coping (Ransom et al., 2005), or emotional expression (Classen, Koopman, Angell, & Spiegel, 1996; Lehto, Ojanen, Dyba, Aromaa, & Kellokumpu-Lehtinen, 2006; Stanton et al., 2000) have better QOL than those who used more passive coping strategies such as avoidance or minimising importance of their cancer. In contrast, one study indicated that neither active coping nor avoidant coping strategies were associated with QOL prospectively, however greater use of avoidant coping was associated with poorer QOL at baseline (McCaul et al., 1999).

While studies have found that a positive association between use of active coping strategies and QOL in women with breast cancer, some studies suggest that avoidant coping facilitates adjustment. The literature on coping and breast cancer has typically addressed conflicting views of the value of adopting active, problem-solving coping versus the value of denial and avoidant coping. For example, Glanz and colleagues reviewed the literature and concluded that avoidant coping and denial can be especially beneficial during the active treatment stage (Glanz, Rimer, Lerman, &
McGovern Gorchov, 1992). They reasoned that during active treatment, patients have less control over their care, and avoidance would therefore be a reasonable strategy to cope with the treatment’s side effects. These findings were consistent with later studies by Heim et al. (1997) and Greer (2000). Indeed, Greer (2000) reported that denial (positive avoidance) was associated with a better disease outcome up to 15 years post-diagnosis, and suggested that avoidant thinking following active treatment can also facilitate coping. Such findings support Lazarus and Folkman’s (1984) notion that avoidant coping strategies are not always maladaptive, and that the influence of coping on psychological well-being depends on the situation and the characteristics of the individual. In contrast to this positive role for avoidant coping style, some theorists suggest that denial may offer relief, but at a cost. While acceptance of one’s situation may be a necessary precedent to more active coping (Carver et al., 1993), denial may prevent the making of thoughtful decisions and may demand extra effort in and of itself (Stanton, Danoff-Burg, & Huggins, 2002).

The current literature review reveals that the use of coping strategies does influence breast cancer patients’ perceived QOL or does help them to adjust to the disease, although the results are complicated and sometimes contradictory. The literature review also highlights a lack of information in relation to the coping strategies used by Chinese women with breast cancer, and specifically how these strategies influence the outcome in relation to their perceived QOL. Consequently there is an urgent need to assess how Chinese women cope with breast cancer and the positive or negative influences their coping strategies have on QOL outcomes.

2.5 Use of Complementary and Alternative Medicine (CAM)

CAM therapies have been particularly popular among women with breast cancer (Adler, Wrubel, Hughes, & Beinfield, 2009; Ashikaga, Bosompra, O’Brien, & Nelson, 2002; Boon, Olatunde, & Zick, 2007; Cui, Shu, Gao, Wen et al., 2004; Kremser et al., 2008; Lengacher et al., 2006; Molassiotis, Scott et al., 2006; Shen et al., 2002). The prevalence of CAM use by breast cancer patients varies, with reports from the USA indicating that 48 % to 70 % of breast cancer patients use at least one type of CAM (Nahleh & Tabbara, 2003). In Australia, a recent study showed that 87.5% of women with breast cancer (N = 367) had used CAM (Kremser et al., 2008). In Europe, a
study consisting of 282 breast cancer patients from 11 European countries, found that 44.7% of participants had used CAM since their diagnosis of cancer (Molassiotis, Fernandez-Ortega et al., 2005). In China, Cui and colleagues (2004) evaluated the prevalence and patterns of CAM use among 1065 Chinese women with breast cancer. The results found that the prevalence of use CAM (98%) or traditional Chinese medicine (86.4%) among Chinese breast cancer patients by far exceeds those 44%-87% reported from the USA and European countries. In Taiwan, the prevalence of CAM use amongst cancer patients reported in a number of studies ranges from 51% to 82% (Chang & Li, 2004; Hsin, Chiu, Hu, Cheng, & Chen, 1996; Lin, 1999; Liu et al., 1997). Chang and Li (2004) found that 70% of Taiwanese female cancer patients had used CAM compared with 48% of male cancer patients in the study. The predominate group of cancer patients in this study was breast cancer (22%), followed by the gastrointestinal tract cancer (12%) and cervical cancer (12%). These statistics support the idea that a considerable number of women in general and Taiwanese women in particular who have been treated for breast cancer use some form of CAM.

Studies have shown the reasons for CAM use by women with breast cancer classified into three categories or dimensions (a) physical: such as to boost the immune system, to manage symptoms distress from the disease or its treatment, and to prevent a cancer recurrence (Boon et al., 2000; Carlsson et al., 2005; Cui, Shu, Gao, Wen et al., 2004; DiGianni et al., 2002; Henderson & Donatelle, 2004; Lengacher et al., 2006; Molassiotis, Scott et al., 2006); (b) psychological: such as a means of coping with anxiety when facing an incurable life-threatening disease (Burstein et al., 1999; Canales & Geller, 2003; Rees et al., 2000; Richardson et al., 2000); (c) social: such as providing a feeling of control over life (Baum et al., 2006; Carlsson et al., 2005; Henderson & Donatelle, 2003), dissatisfaction with conventional medical care (Lengacher et al., 2006; Montazeri, Sajadian, Ebrahimi, Haghighat, & Harirchi, 2007; Shumay, Maskarinec, Gotay, Heiby, & Kakai, 2002) and aiding conventional medical treatment (Baum et al., 2006; Carlsson et al., 2005; Carpenter, Ganz, & Bernstein, 2008; DiGianni et al., 2003; Helyer et al., 2006; Maskarinec, Shumay, Kakai, & Gotay, 2000; Nagel, Hoyer, & Katenkamp, 2004; Nahleh & Tabbara, 2003).

The use of CAM therapies has been regarded as being helpful as a coping strategy among women with breast cancer to improve QOL (Fasching et al., 2007; Henderson
& Donatelle, 2004; Targ & Levine, 2002). Studies have evaluated QOL correlates of CAM therapies among breast cancer patients, but the relationship between CAM use and QOL is complex. Two longitudinal studies have showed that breast cancer patients who initiated CAM use reported poorer QOL, diminished mental health, and greater physical symptoms than nonusers at baseline. However, QOL levels had improved for both CAM users and nonusers although there was no significant differences between both groups in QOL scores after a one year follow up (Burstein et al., 1999; Carlsson et al., 2004).

Conversely, several cross-sectional studies found differences in QOL between CAM users and nonusers in breast cancer patients (Buettner et al., 2006; Carlsson, Arman, Backman, & Hamrin, 2001; Carpenter et al., 2008; Cui et al., 2006; Fasching et al., 2007; Ganz et al., 2002; Maskarinec et al., 2000; Paltiel et al., 2001). Several studies reported that CAM users had lower QOL across various domains including physical function (Paltiel et al., 2001), emotional function (Buettner et al., 2006; Carpenter et al., 2009; Carlsson et al., 2001; Maskarinec et al., 2000; Paltiel et al., 2001), role function (Carlsson et al., 2001; Paltiel et al., 2001), social function (Carlsson et al., 2001; Paltiel et al., 2001), and overall QOL (Buettner et al., 2006; Carlsson et al., 2001). Additionally, two studies showed that CAM users expressed more symptoms and financial difficulties (Carlsson et al., 2001; Maskarinec et al., 2000). In general, most of these studies concluded that breast cancer patients’ use of CAM was correlated to diminish emotional function or mental health (Buettner et al., 2006; Carpenter et al., 2009; Carlsson et al., 2001; Ganz et al., 2003).

A few studies identified the specific type of CAM use was associated with QOL (Buettner et al., 2006; Ganz et al., 2002). For example, Ganz et al. (2002) found patients who used St. John’s Wort reported lower psychological well-being and more emotional distress than those who had not. The other study found that lowest QOL scores were associated with the use of energy healing among breast cancer patients (Buettner et al., 2006). Conversely, two studies reported that CAM users had better QOL and life satisfaction than nonusers among breast cancer patients (Cui et al., 2006; Fasching et al., 2007), particularly, the positive effect in the psychological and social well-being domains (Cui et al., 2006). For instance, Cui et al. (2006) found that Ginseng use after cancer diagnosis was positively associated with QOL scores, with
the strongest effect in the psychological and social well-being in Chinese breast cancer patients. While studies have shown the association between CAM use and QOL, five studies found no significant associations between patients’ perceived QOL and CAM use (Alferi, Antoni, Ironson, Kilbourn, & Carver, 2001; Balneaves, Kristjanson, & Tataryn, 1999; Montazeri, Sajadian, Ebrahimi, & Akbari, 2005; Moschen et al., 2001). Comparisons among these are challenging, because the major problem with many studies is the variability of the definitions of CAM and the group of different CAM therapies under one or a few broad categories. As a result, the correlation between use of CAM and QOL among breast cancer patients remains uncertain.

Most of CAM use and QOL studies have been conducted in Western countries, the results may not be generalised to non-Western countries. Particularly, there is geographic and cultural diversity with regard to the prevalence and patterns of CAM utilisation, the reasons for use, and the characteristics of users (Abdullah et al., 2003; Burstein et al., 1999; Cui, Shu, Gao, Wen et al., 2004; DiGianni et al., 2002; Kremser et al., 2008). For example, Cui and colleagues (2004) showed that “treating cancer” was cited as the most common intention of using Chinese herbal medicine by patients and reported that the majority of patients had benefited from the use of Chinese herbal medicine. The differences between Western and Chinese breast cancer patients with regard to use of CAM are partially attributable to differences in socio-cultural and medical systems (Cui et al., 2004). On the other hand, this study also found that Chinese breast cancer patients did not abandon the conventional medical treatment while using traditional Chinese medicine or other CAM. These results reinforce the belief that cancer patients tend to actively seek both conventional medical treatments and CAM where both are available, and that CAM use should be seen as an indication of an active coping strategy (Cui et al., 2004).

Studies have highlighted the need to better understand the impact of breast cancer on patients’ perceived QOL and how it may relate to their coping with cancer by using CAM. Montbriand (1995) suggested that the use of CAM may be a signal that a patient is experiencing problems (e.g. unresolved stress and anxiety) that have been ignored or inadequately addressed by the primary healthcare team. This may reflect a need not only to improve communication between the patient and the health
professionals provide primary conventional medical care, but also to provide patients with an integrated, supportive approach that may include complementary practices having the potential to mitigate the side effects of allopathic therapies.

CAM use is usually focused on health and improving well-being rather than on disease management, and its use requires active participation in management of the disease by the patients rather than passive acceptance of treatment. These two factors are very appealing to patients with breast cancer and allow a highly individualized, patient-centred healing process (Verhoef, Hilsden, & O'Beirne, 1999). CAM use takes on a special significance among those diagnosed and treated for breast cancer, and further exploration of their CAM use will help identify what therapies and practices outside of conventional medicine are perceived to be most important to their long-term recovery. Therefore, if women with breast cancer use CAM to enhance their QOL, their experience of utilisation, reasons for using CAM, and the effect of CAM use should be explored.

2.6 The Links between QOL, culture, and CAMs and the Chinese meaning of QOL

Quality of life (QOL) in different cultures should also be considered, because culture and ethnicity can influence every aspect of the experience of health and illness, as perceptions of QOL are embedded in cultural beliefs about what constitutes normality and health (Marshall, 1990). In the longstanding traditions of Chinese culture, the concept of QOL is embedded in its philosophy and traditional medicine (Zhan, 1992). Traditional Chinese cultural beliefs about health and illness are deeply influenced by the teachings of Confucius, Taoism, and Buddhism (Chen, 1996), and are quite different from Western cultural beliefs. Confucianism has played an important role in forming Chinese character and behavior. Its primary purpose is to achieve harmony, the most important social value. This is achieved by everyone having well defined roles and acting towards others in a proper way (Chen, 1996). Buddhism teachings also emphasise “face” or dignity. An individual's wrongdoing causes immediate family to lose face (Chen, 1996). Patients may not admit or realize they have health problems such as cancer, or especially mental health problems, as they may bring shame upon their family (Zhan, 1992). Other important teachings and beliefs include
the concept of “karma”. Emphasis is on selflessness, cleanliness, emotional calm, and conformity (Chen, 1996). "Tao," or Way, is the major concept of Taoism (Chen, 1996). Taoism teaches that human beings should be in harmony with nature, that is, Tao (Chen, 1996). The theory of "Yin" and "Yang," is a central tenet of Taoism and forms the very root of the Chinese way of life. Yin and Yang, are opposite halves of the whole (good and evil, hot and cold, strength and weakness, health and illness etc) and they make life's richness and variety possible as well as its infinite potential for good and ill. According to this tradition quality of life (QOL) is possible only if Yin and Yang are balanced (Zhan, 1992) and these ideas dominate concepts of health and illness in traditional Chinese thought (Chen, 1996).

Within the context of Yin and Yang, Chinese people tend to view health holistically, where the ultimate goal is to harmonize with nature (Chen, 1996). Thus, the Chinese emphasise self-care and proper food intake (Mo, 1992). For instance, cancer was considered a dormant disease that could be triggered by breathing polluted air or eating frozen, preserved, or raw food (Mo, 1992). Many Chinese people subscribe to the belief that an imbalance between yin and yang causes illness; for the Chinese, the focus of healing and treating illnesses is to take herbs and culturally specific foods to combat the disease. These herbs or foods are often described as having hot (yang) or cold (yin) properties that serve to correct imbalances between yin and yang (Mo, 1992). There is evidence that these cultural beliefs play an important role for Chinese women with breast cancer. For instance, a qualitative study (Simpson, 2005) found that Chinese breast cancer patients referred to an imbalance of energy and function which contributed to a weak body predisposing them to breast cancer. Diet was also identified as playing a role in maintaining balance and good functioning (Simpson, 2005). The study concluded that Chinese women with breast cancer integrated the cultural beliefs about diet and traditional Chinese medicine to manage illness symptoms and prevent recurrence (Simpson, 2005). Therefore, for people of Chinese heritage, the alternative or complementary treatments they choose usually are based in traditional Chinese medicine.
2.7 Summary

Lazarus and Folkman’s (1984) stress-coping theory has provided a comprehensive understanding of the elements involved in the process of coping and individual’s cognitive and behavioural responses to the stressful situation. It is also elicits the transaction between the stressors, the environment and the individual in elucidating the differences of coping responses over time. CAM has been described as a coping behaviour employed by women with breast cancer. The descriptive nature of past research, however, has hindered attempts to determine the interrelationships among individual factors (i.e. demographic characteristics, clinical characteristics, and psychological characteristics) and CAM use as a recognised coping strategy in women with breast cancer. Previous studies have shown research-based evidence that provides some support for individual factors affecting QOL in women with breast cancer; however, a limited number of studies were found that explored the interrelationship among these concepts within the context of Taiwanese breast cancer patients.

Since most of the studies were conducted within Western populations, it is difficult to generalise the results to the Chinese population. Indeed it is recognised that patients’ individual factors and cultural background may facilitate different coping strategies, especially with regard CAM use and perceived QOL. The stress-coping theoretical model (Lazuras & Folkman, 1984) has been used as the conceptual framework to guide the current study, which will examine these individual factors, within the context of Taiwanese women with breast cancer. The following chapter will describe the methodology used for the study.
CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the methodology used in Phase One and Phase Two of the study to meet the research aims. It details the conceptual framework, study designs, sampling procedures, survey instruments, data collection procedures, interview questions, analytic techniques, and the ethical conduct of the research. The theory of stress, appraisal and coping (Lazarus & Folkman, 1984) informed the overall study. The study was situated within the pragmatic paradigm of inquiry. Methodologically, the research approach that was employed was a Priority-Sequence Model of QUANTITATIVE→ qualitative (Morgan, 1998). The importance of a mixed methods approach and the contribution of each method’s strengths in underpinning this study is described in this chapter.

3.2 Mixed Methods Research Approach

By definition, mixed methods is a procedure for collecting, analysing, and “mixing” or integrating both quantitative and qualitative data at some stage of the research process within a single study for the purpose of gaining a better understanding of the research problem (Creswell & Plano Clark, 2007; Teddile & Tashakkori, 2009). Commonly, the quantitative method (design used with numerical data) uses a deductive research process to understand variations and generalisation among the elements of the phenomenon of study. The qualitative method (design used with text data) is an inductive research process that generalises the concepts to form themes and theoretical frameworks (Teddile & Tashakkori, 2009). Both of these methods are not linked to a particular paradigm of inquiry or philosophy (Sandelowski, 1995; Sandelowski, 2000). Questions about the relative position of quantitative and qualitative methods reflect the continuing debate between the partisans of these dominant, yet disparate approaches to research (Creswell & Plano Clark, 2007; Guba & Lincoln, 1994). Many scholars (e.g., Guba & Lincoln, 1994) have named and
described paradigms of inquiry as a ‘worldviews’ that signals distinctive ontological (view of reality) and epistemological (view of knowing and the relationship between knower and to-be known), methodological (view of method of inquiry), and axiological (view of what is valuable) positions. Indeed, Sandelowski (2000a) pointed out “paradigms of inquiry are best understood as viewing positions: ways, and places from which, to see” (p. 247). Because different paradigms may entail contradictory view positions, combinations at the paradigm level are not true combinations, merges, or reconciliations of worldviews (Guba & Lincoln, 1994; Sandelowski, 2000a; Teddlie & Tashakkori, 2009). That is, mixed methods studies are not mixtures of paradigms, but rather paradigms are reflected in what techniques researchers choose to combine, and how and why they desire to combine them (Sandelowski, 2000a).

Of those who consider the paradigmatic underpinnings of inquiry; at one end of the continuum is the “purist” stance, which assumes an “incompatibility thesis” (Guba & Lincoln, 1994; Sandelowski, 2000a; Teddlie & Tashakkori, 2009). Purists consider that the attributes of a paradigm form a “synergistic set” that cannot be evocatively segmented or separated, and therefore proscribe the use of mixed methods (Greene, Caracelli, & Graham, 1989). Paradigm purists have further contended that there is incompatibility between research methods, since the philosophies that motivate quantitative and qualitative paradigms are diametrically opposed in terms of their epistemological, ontological, and methodological underpinnings (Teddile & Tashakkori, 2009). Alternatively, pragmatists espouse that not all research problems can be resolved with the use of single method, that every method has its limitations, and that multiple methods are often needed.

In contrast to the purists’ stance, pragmatists consider the question more important than either the method they use or the worldview that is supposed to support the method. Pragmatism takes various forms. For many, knowledge claims arise out of actions, situations and consequences rather than antecedent conditions, such as in postpositivism (Creswell & Tashakkori, 2007). A pragmatic position assumes that paradigm attributes are logically independent, and can be mixed and matched in accordance with method choices, to achieve the combination that most effectively responds to the question that underpins the research (Creswell & Tashakkori, 2007; Greene, 2006). Thus, paradigmatic considerations are secondary in relation to the
research questions that are being answered (Creswell & Tashakkori, 2007; Greene, 2006). The pragmatic researcher, therefore, is not required to reconcile theoretical, conundrums, but instead address the practical issues related to the research. Pragmatists reject the “incompatibility thesis” and embrace both quantitative and qualitative perspectives. Additionally, they recognise that, at the method level, there is compatibility, and, to this end, focus on methods as opposed to philosophical and epistemological underpinnings (Creswell & Tashakkori, 2007; Greene, 2006). Consequently, pragmatism offers multiple methods, diverse worldviews, and different assumptions that permit the use of different forms of data collection and analysis in the same study to uncover new knowledge (Creswell & Tashakkori, 2007; Greene, 2006).

Numerous studies have shown that the breast cancer experience is not simply a biomedical phenomenon. It is a daily life experience embedded within a multifaceted and complex social context. This study used a pragmatic stance to understand the social reality of the world of Taiwanese women with breast cancer. Accordingly, this research was intended to accomplish two aims. First, a deductive process was directed to test predictions that were developed from theory and previous research. Second, an inductive process was used to illustrate a picture of the participant’s experience and of seeking the meaning of that experience. Therefore, in this study, the primary focus was on the particular methods that yielded the findings, rather than underlying philosophies. Those interested in combining the technical aspects of different methods believe that it is possible without violating central paradigmatic assumptions (Creswell & Tashakkori, 2007; Greene, 2006; Morse, 2003). Nevertheless, if dissimilar methods are combined, then technical issues for integrating quantitative and qualitative methods should be considered.

Morgan (1998) described assorted designs for combining qualitative and quantitative methods that use a Priority Sequence Model. In the Priority Sequence Model, quantitative and qualitative methods are used sequentially. Creswell and Tashakkori (2007) described this design as two phase design. The essence of this approach is based on an effort to integrate the complementary strengths of different methods through a division of labour. According to Morgan (1998), this division of labour is achieved through two basic decisions:
1. Priority decision that pairs the principal method with a complementary method; and
2. Sequence decision that determines whether the complementary method precedes or follows the principal method.

The priority decision determines the extent to which either the qualitative or the quantitative method will be the principal tool for gathering the study’s data (Morgan, 1998). Through the selection of a principal data collection method, the researcher is able to use the strengths of the method that are most important to the aims of the study. Subsequently, the sequencing decision is based on the selection of a contrasting complementary method which offers a different set of strengths that will enhance the research design’s overall ability to meet the project’s goal. Both the strategy of assigning priority to one method and the strategy of assigning sequencing of the two methods have been discussed in the literature in relation to combining quantitative and qualitative methods (Creswell & Tashakkori, 2007; Greene, 2006; Morse, 2003).

Morse (2003) asserts that the priority assigned to each method is determined by the overall aims of the study. This is based on the deductive or inductive direction of the research. This current research design was primarily underpinned by the deductive theoretical drive that aimed to test the hypotheses and to confirm the distribution of a phenomenon. The combination of a ‘QUANTITATIVE → qualitative’ design to this study was based on the premise that the knowledge provided by the initial larger quantitative survey study would guide the researcher’s decisions in the smaller qualitative study (Morgan, 1998). While the larger survey phase used a deductive theoretical direction to confirm specific assumptions, the smaller qualitative study was aimed to gain a greater understanding of the phenomenon of interest with an inductive process.

**Rationale for Using Mixed Methods**

The rationale for mixing both kinds of methods and data within this study is trying to understand QOL in women with breast cancer. Both quantitative and qualitative methods may provide unique contribution to enhance understanding, because QOL is subjective but can also be measured. That is, two different perspectives will be gained.
When used in combination, quantitative and qualitative methods complement each other and allow for a more robust analysis, taking advantage of the strengths of each (Teddlie & Tashakkori, 2009). The major advantage of mixed methods approach is that it enables the researcher to gain a more comprehensive approach to evaluation by enhancing both the ability to capture adequate information about the phenomena under study and the validity of data interpretation (Creswell & Tashakkori, 2007; Teddlie & Tashakkori, 2009). Further, complex social phenomena require different kinds of research methods to make richer and deeper inferences (Greene, 2006). Using purely quantitative or qualitative research inquiry is less likely to gain a better understanding about these complexities because the different assumptions from mixed methods research provide the opportunity to reflect a variety of views.

According to the study of Greene et al. (1989), there are five purposes for mixed methods including triangulation, complementarity, expansion, development, and initiation. A complementarity approach was chosen for the purposes of this mixed method study. That is, when quantitative and qualitative methods are used to measure overlapping, but distinct facets of the phenomenon under investigation (Greene, 2006). In a complementarity approach, the researcher seeks “elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method” (Greene et al., 1989, p 259). It means that overlapping and different facets of a phenomenon may emerge.

The justification for using this QUANTITATIVE → qualitative model in the current study was that there was very little information in relation to predictors of QOL among Taiwanese women with breast cancer. In particular, little is known about the use of CAM as a coping strategy and its influence on women’s QOL in the Taiwanese context. In order to address these issues, the QUANTITATIVE → qualitative model study was conducted in two phases. Phase One involved a predictive study which included a pilot study and a cross-sectional predictive survey to examine the factors that predicted women’s perceived QOL, and the relationships between personal variables, such as symptoms distress, anxiety, depression, use of coping strategies, CAM use, and the outcome variable QOL in Taiwanese women with breast cancer. Navon (1999) suggested that quantitative studies limit explanations of human behaviour and experience but qualitative research provides a more complex
understanding of human behaviour and experience by not identifying individuals as problematic. Consequently, in the current study, Phase Two consisted of a qualitative study which was chosen to gain a deeper understanding of using CAM from Taiwanese women’s perceptions. In the longstanding traditions of Chinese culture, the concept of QOL is embedded in its philosophy and traditional medicine (Zhan, 1992). This cultural background also influences Chinese patients’ health-seeking behaviours, personal expectation for health and life, the meaning attached to physical symptoms, response to stress, and selection of medical care. Previous studies have shown that CAM use was associated with QOL in breast cancer patients (Fasching et al., 2007; Henderson & Donatelle, 2004; Targ & Levine, 2002). Although the survey study (Phase One) aimed to identify predictors of QOL among Taiwanese women with breast cancer, all instruments were based on a Western concept. The findings might not be able to capture women’s QOL within the Chinese context. Thus, the qualitative study was conducted to get better understanding of the phenomenon with respect to women’s use of CAM and what role CAM use played in women’s daily life. Details of the quantitative and qualitative methods employed are given in the following sections.

3.3 Phase One

Phase One used a predictive survey including a pilot study and a cross-sectional survey to describe interrelationships amongst independent variables (e.g. demographic and medical characteristic, symptom distress, anxiety and depression, internal health locus control, use of coping strategy, and CAM use), and QOL in Taiwanese women with breast cancer. This design permitted description of the association of two or more variables, that is, a tendency for variation in one variable to be related to variation in another (Polit & Beck, 2004). Although previous studies have examined the associations between QOL and various factors in women with breast cancer (Avis et al., 2005; Bloom et al., 2004; Carver et al., 2006; Cui et al., 2004; Engel et al., 2003), the findings of this research is inconsistent. Additionally, QOL issues in cancer care have rarely been tested in developing countries where a rising incidence of breast cancer has been noted (Chie et al., 2002; Cui et al., 2004; Lu et al., 2009). Thus, the aim of this quantitative phase was to determine the unique contribution of each of these hypothesised predictors to QOL within a Taiwanese context.
The design was predictive and not experimental. There was no control over the independent variable. That is, in experimental designs the researcher actively manipulates an independent variable and observes its effect on some outcome (dependent variable), thus being able to establish a cause-and-effect relationship (Polit & Beck, 2004). Surveys identify that there is an association between the construct variables; however, causal relationships cannot be drawn from correlation designs (Babbie, 2004; Polit & Beck, 2004). Potential threats to internal validity that arise when using a correlational design means that there may be competing explanations for the obtained results.

3.3.1 Conceptual Framework

The conceptual framework for Phase One of this study was informed by Lazarus and Folkman’s (1984) stress, appraisal, and coping theory. According to Lazarus and Folkman’s stress and coping theoretical model, outcomes that occur in response to a stressor (i.e. receiving breast cancer) are influenced by the attributes of the individual (i.e. personality trait, demographics), the individual’s cognitive appraisal, and the coping strategies the individual uses to manage the situation. The concept of cognitive appraisal is described as the “evaluative cognitive processes that intervene between the stress encounter (i.e. breast cancer) and the outcome (i.e. QOL)” (Lazarus & Folkman, 1984). Through cognitive appraisal, a woman evaluates the significance of what is happening and how it will affect her well-being. Appraisal may be affected by personal characteristics and personal resources, which may include a woman’s demographic, clinical, physical, and psychological characteristics. The way a woman copes with the diagnosis of breast cancer depends largely upon her appraisal of whether the diagnosis poses a threat, a challenge or potential harm/loss, or some combination of these and the coping strategy she uses. Appraisal and coping processes are influenced by characteristics of the person and the environment (Lazarus & Folkman, 1984). The response is referred to as coping, and the outcome is referred to as QOL.
The conceptual framework, depicted in Figure 3.1, describes this predicted relationship. Diagnosis and treatment of cancer is a life-altering, stressful event that may lead to feelings of hopelessness and loss of control (Henderson & Donatelle, 2003; Montbriand, 1995; Moschen et al., 2001). This sense of loss of control may consequently add to physical and psychological discomfort. Self-reported QOL is one way investigators have measured this concept (Lazarus & Folkman, 1984). Previous research has suggested that demographic factors such as age (Ahn et al., 2007; Avis et al., 2005; Bloom et al., 2004; Cimprich & Ronis, 2003; Engel et al., 2003; Ganz et al., 2002; Hartl et al., 2009; Hopwood et al., 2007; Lu, W. et al., 2008; Lu et al., 2007); clinical factors such as the stage of disease (Cui et al., 2004; Engel et al., 2003; Janz et al., 2005); physical factors such as treatment-related symptoms and symptom distress (Arndt et al., 2006; Bower et al., 2000; Byar et al., 2006; de Jong et al., 2002; Donovan et al., 2004; Hartl et al., 2003; Janz et al., 2007; King et al., 2000); psychological factors, such as anxiety and depression (Ahn et al., 2007; Badger et al., 2004; Deshields et al., 2006; Grabsch et al., 2006), and use of a coping strategy (or strategies) (Ransom et al., 2005) may affect women’s perceived QOL as they deal with their breast cancer.

Another important variable is CAM use. CAM therapies have been particularly popular among women with breast cancer (Adler et al., 2009; Ashikaga et al., 2002; Boon et al., 2007; Cui, Shu, Gao, Wen et al., 2004; Kremser et al., 2008; Lengacher et al., 2006; Molassiotis, Scott et al., 2006; Shen et al., 2002). The use of CAM therapies has been regarded as being helpful as an active coping strategy among women with breast cancer to improve their QOL (Henderson & Donatelle, 2004). These studies have demonstrated that CAM users among women with breast cancer tend to be individuals who perceive limitations in allopathic medicine and, therefore, feel the need to take charge of their health care. Also, it is known through the coping behaviours of breast cancer patients that users of CAM tend to cope with their disease in active, problem-focused manner (Moschen et al., 2001). According to Lazarus and Folkman’s (1984) theoretical model, a problem-focused coping style is an attempt to manage external demands or reduce the conflict between an individual and the individual’s environment. Therefore, the present study focused on the premise that use of CAM represents a positive form of coping that may reduce women’s stress and influence QOL through enhancing their perceived control. In this study, QOL was
conceptualised as a multidimensional concept that referred to women’s subjective view of their current well-being such as physical, role, social, emotional, and cognitive functioning (Aaronson, 1993).

Both the Stress-Coping model and previous research contributed to the development of the conceptual framework for Phase One. The conceptual framework guiding this study proposed that these factors predict perceived QOL in Taiwanese women with breast cancer. The influence of several demographic and clinical characteristics were examined in relation to age, educational level, income, marital status, disease stages, time since diagnosis, surgery modality, adjuvant treatments, and recurrence of disease. Additionally, physical characteristics regarding symptom distress, psychological characteristics including anxiety and depression, health locus of control, the use of coping strategies, and CAM use were examined. There was theoretical and empirical support to suggest that these variables were important factors associated with adjustment outcomes to breast cancer. These variables were investigated to identify predictors of QOL in Phase One. Phase Two used qualitative methods to gain a deeper and richer understanding of the role that CAM use played in the lives of these women, and how CAM use influenced women’s life quality.
Figure 3.1 Conceptual Framework of Phase One Study

Predictors

**Demographic Characteristics:**
- Age
- Educational level
- Marital status
- Income

**Clinical Characteristics:**
- Disease stage
- Recurrence of disease
- Time since diagnosis
- Surgery modality
- Adjuvant treatments

**Physical and Psychological Characteristics:**
- Symptom distress
- Anxiety and depression
- Internal health locus control
- Coping

Outcomes

**Quality of Life:**
- Physical functioning
- Role functioning
- Emotional functioning
- Cognitive functioning
- Social functioning
- Global health status/quality of life
- Fatigue
- Nausea and vomiting
- Pain

Complementary and Alternative Medicine
3.3.2 Hypothesis

From the literature and the conceptual framework the following hypothesis was tested in this phase:

\[ H_0: \text{Demographic characteristics, clinical characteristics, physical and psychological characteristics, and CAM use predict QOL in Taiwanese women with breast cancer.} \]

3.3.3 Operational Definitions

**Predictor Variables**

Demographic characteristics were measured by self-report and included age, educational level, marital status and annual household income. Clinical characteristics were measured by self-report and included disease stage, time since diagnosis, surgery modality, and adjuvant treatments, such as chemotherapy and/or radiotherapy. Physical and psychological characteristics were measured by four scales including: Symptom Distress Scale (SDS) (McCorkle & Young, 1978); Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snathith, 1983); Internal Health Locus Control (IHLC) (Wallston et al., 1978); and Brief Coping Orientations to Problems Experienced Scale (Brief COPE) (Carver, 1997). Use of CAM was measured by an eight-item descriptive questionnaire (Swisher et al., 2002). More details about these tools are provided later in the chapter.

**Outcome Variables**

QOL, was measured by the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire-Cancer version 3 (EORTC QLQC-30) (Aaronson et al., 1993). It is composed of five functional scales (physical function, role function, cognitive function, emotional function, social function), a single scale for global health/QOL, three symptom scales (fatigue, pain, nausea and vomiting) and six individual symptom items (insomnia, dyspnoea, appetite loss, constipation, diarrhea, and financial difficulties) (Aaronson et al., 1993). All scales except the individual symptom items were used as outcomes in hypothesis testing. The three
symptom scales contained items reflected in the Symptom Distress Scale (SDS), therefore the SDS was not used as a predictor in these particular analyses. That is both the SDS and the EORTC QLQC-30 measured some of the same symptoms, therefore a strong correlation would have been expected. All survey instruments are detailed under the instrument section of this chapter.

3.3.4 Setting and Sample Selection

Phase One used a convenience sample of outpatients from a large general hospital with oncology/haematology clinics in an urban area of eastern Taiwan. The hospital was chosen because it was the only large general hospital serving a population of approximately 350,000 in eastern Taiwan. Also, it is a university-affiliated teaching hospital. Many people go to this hospital to seek various kinds of advanced or special diagnostic tests or treatments that are unavailable anywhere else around eastern Taiwan. At the time of the study, it had approximately 1200 in-patient beds. According to the National Cancer Registry of Taiwan (Department of Health, 2008), the total number of cases of breast cancer patients at this hospital was 374 from 2000 to 2005.

Patients were recruited to participate if they met the following eligibility criteria: (a) female; (b) diagnosed with breast cancer within five years; (c) at least 18 years of age and were able to provide informed consent without proxies; (d) aware of their own diagnosis of breast cancer in order to avoid any unforeseeable risks (physical, psychological, social, or economic) or discomfort; (e) being treated or had completed breast cancer treatments; (f) no documented or observable psychiatric or neurological disorders that will interfere with study participation (e.g. dementia, psychosis); (g) able to communicate in Chinese or Taiwanese local languages; and (h) willing to participate in the study. Exclusion criteria for the patients were: (a) previously diagnosed with cancer or chronic illness; and (b) life limiting illness.

3.3.5 Sample Size

To estimate the sample size of this study, guidelines suggested by Cohen (1988) were used. Correlation and multiple regressions were used for statistical analysis in this
study. According to Cohen (1988), a power of .80 is posited as a conventional power; also, an alpha of 0.05 (two-tailed) is recommended as a convention for significance. The accepted definition of a medium effect size in the context of 5 or 10 sets of independent variables is .15 (Cohen, 1988). A medium effect size was considered acceptable for this study because of the nature of the research design and evidence of previous studies. Thus, the sample size needed to detect an effect size of .15 with an 80 % probability at alpha .05 (two-tailed) was 139 cases. It was expected that survey responses may have missing data, potential dropouts, or unusable surveys. Thus, a sample size of 40% more than 139 (i.e. 195) was aimed for Phase One study.

3.3.6 Sample Recruitment

The oncologists and/or nurses of the clinics screened the participants according to the inclusion criteria. Potential participants were identified from the patients’ schedule for treatment at the oncology and haematology outpatient clinics of the hospital. The hospital staff then invited potential participants to speak to the researcher about the study. All potentially eligible patients attending the clinics, who expressed interest in the study, were approached in person (face-to-face) by the researcher and were provided with an explanation of the study. Information sheets explaining the study, including contact details of the researcher (Appendix A), and a consent form were given to participants by the researcher (Appendix B). Participants were recruited over a seven-month period (from January 2007 to July 2007).

3.3.7 Limitations to the Sample

The following limitations associated with using a convenience sample have been identified. First, the sample drawn may not necessarily represent the target population (Polit & Beck, 2004). This may also result in the risk of sampling bias. As the sample population of this study was drawn from one hospital, there are limitations on the degree to which they may be generalised beyond hospital site where the study was conducted. Consequently, participants in this group may not represent the target population from which they were recruited. Second, the sample size was calculated on estimates of effect size, thus it is possible that this calculation may be inaccurate. Finally, an insufficient sample size is unlikely to support multivariate statistical
3.3.8 Data Collection Procedures

Ethical approval was sought from the Human Research Ethics Committee of Griffith University and the Institutional Review Board of participating hospital (Appendix C). The researcher attended the outpatients’ department five days a week during the data collecting period. The data were collected by face-to-face survey interview (Polit & Beck, 2004). The oncologists and nurses initially identified the women who met the eligibility criteria and agreed to be approached to participate in the study. The survey was administered by the researcher who approached participants while in the outpatients’ clinic. All participants were informed of the purposes of the research and data collection processes. They were informed that they could withdraw from the study at any time, and this would not affect the healthcare services they receive and insurance in any way. Written informed consent was obtained before conducting the study. The survey took approximately 30-40 minutes to complete. Participants were able to ask questions related to the study at any stage during and/or following the study period.

3.3.9 Data Collection Instruments

A package of questionnaires was used for collecting the survey data. It included structured instruments that comprised a demographic profile sheet, five scales, and a number of individual items. A consent form and an information sheet were attached to the front of each questionnaire, and included a brief description of the purpose of this study, confidentiality assurance, and benefits of participation. All of the instruments used in the survey were written in Chinese (English and Chinese versions are included as Appendix D).

Table 3.1 details the instruments used. Four instruments used in this study have previously been translated into Chinese included the Symptom Distress Scale (SDS), Hospital Anxiety and Depression Scale (HADS), Internal Health Locus Control (IHLC), and The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire-Cancer (EORTC QLQ-C30). These instruments have
been used in previous studies of the Taiwanese population, with varying reliability and validity reported. Another two English instruments, Brief Coping Orientations to Problems Experienced Scale (Brief COPE) and CAM Use questionnaire, were first used in a Taiwanese setting. When adapting an instrument from one language to another, it is essential to assure cross-cultural equivalence (Jones, Lee, Phillips, Zhang, & Jaceldo, 2001). The cross-cultural translation process (Brislin, 1986; Jones et al., 2001), is an important consideration early in a translation effort and is used to increase the conceptual equivalence between the original version scale and translated version (Polit & Beck, 2004). Thus, several steps were used in the translation.

**Translation of the instrument**

First, the translation process began with forward translation. Forward translation should be undertaken by one (Brislin, 1986) or two (Jones et al., 2001) bilingual persons to translate the original source language to the target language. In order to enhance the clarity of translation, two bilingual individuals, who were Chinese speakers and health-related professionals translated the CAM use questionnaire and Brief COPE scale. Both translators were blinded to the underlying construct to be measured (Brislin, 1986). In order to reach better equivalency in the process, these two translators were selected because they had experience in translating CAM use questionnaire and were interested in the area of study. To integrate the two translated versions, the researcher and the two translators discussed the results of the forward translation versions. No difficulties in the forward translation were encountered for the 8-item CAM use questionnaire.

Second, two other individuals, blinded to the English version and the underlying construct, translated the Chinese version back into English. Back-translation is the most respected translation process for achieving semantic equivalence in translating scales (Brislin, 1986). These two back translators were bilingual senior lecturers teaching English literature at one of the universities in Taiwan. One back translator had a doctoral degree, and the other held a masters degree. Both translators were not health care professionals. No major difficulties in the back translation were encountered for the 8-item CAM use questionnaire.
Finally, after completion of the translation process, an expert committee was arranged to re-examine the Chinese version of the CAM use questionnaire and Brief COPE scale. The researcher and the translation experts met to discuss the disparities between the forward and back translations. This discussion was primarily to ensure that the translation process retained the concept accordance that could be validated in different cultural contexts (Brislin, 1986). Thus, a comparison was made between the wording of original items and their back-translated counterparts to detect any possible alterations resulting from the translation (Polit & Beck, 2004). The checking of the scale translations indicated that conceptual and semantic equivalence of two versions matched prior to them being employed in this study. Additionally, in order to ensure equivalence between the Chinese and English versions, the discussion focused on the perception of CAM and coping in a different culture.

In the forward translation of Brief COPE, two items were found to be different to describe in Chinese, because they were more abstract statements. Those items were in relation to “I’ve been trying to see it in a different light, to make it seem more positive” and “I’ve been making fun of this situation”. After further discussion, the researcher and translators reached agreement on the Chinese wording of these items. Thus, the Chinese version of Brief COPE was developed. No major difficulties were encountered in the back translation of Brief COPE, except the item “I’ve been making fun for this situation”. This item had semantic difference because it was affective in nature and thus its description was somewhat a cultural barrier. Also, this item was judged to lack the original meaning when it was translated to Chinese and back-translated to English. It caused difficulties because the term “making fun” was an English language idiom. The back translation resulted in divergent semantic meaning. The agreement of appropriate Chinese wording of this item was reached after the discussion.
Table 3.1 Scales of the Survey Instrument

<table>
<thead>
<tr>
<th>Section &amp; Item numbers in this study</th>
<th>Questionnaires /Scales</th>
<th>Source</th>
<th>Number of items</th>
<th>Reported alpha</th>
<th>Chinese version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 2</td>
<td>SDS*</td>
<td>McCorkle &amp; Young (1978)</td>
<td>13</td>
<td>.70 to .85</td>
<td>Huang (2000)</td>
</tr>
<tr>
<td>Items 11-23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section 3</td>
<td>HADS *</td>
<td>Zigmond &amp; Snaith (1983)</td>
<td>14</td>
<td>HADES-A α = .68 to .93</td>
<td></td>
</tr>
<tr>
<td>Items 24-37</td>
<td></td>
<td></td>
<td></td>
<td>HADES-D α = .67 to .90</td>
<td>Chen et al. (1999)</td>
</tr>
<tr>
<td>Items 38-43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section 5</td>
<td>Brief COPE*</td>
<td>Carver (1997)</td>
<td>28</td>
<td>α = .52 to .82</td>
<td>Developed by the researcher</td>
</tr>
<tr>
<td>Items 44-71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section 6</td>
<td>CAM use</td>
<td>Swisher et al. (2002)</td>
<td>8</td>
<td>N/A</td>
<td>Developed by the researcher</td>
</tr>
<tr>
<td>Items 72-80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Section 7</td>
<td>EORTC QLQ-C30*</td>
<td>Aaronson et al. (1993)</td>
<td>30</td>
<td>α = .52 to .89</td>
<td>Chie et al. (2003)</td>
</tr>
<tr>
<td>Items 81-111</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The title of instruments is abbreviated.

**Demographics and Clinical Items**

The demographic and clinical items were constructed by the researcher in English and translated into Chinese. These 10 items were reviewed by five Taiwanese experts including three oncology nursing specialists and two nursing lecturers for content, consistency, and wording clarity. There were no amendments required. These 10 items were developed so that that sample could be adequately described. There were specific items related to personal demographic data including age in years, level of education, marital status, annual family income, and religion. Additional questions were asked to confirm the clinical characteristics of eligible participants. These questions included stage of breast cancer, time since diagnosis, surgery modality, adjuvant treatments, and recurrence of breast cancer. In the survey form, demographic and clinical items made up items 1 to 10 (Appendix D, Section 1).
Symptom Distress Scale (SDS)

The Symptom Distress Scale (McCorkle & Young, 1978) is comprised of 13 items. In this study, this scale was used to measure the degree of discomfort reported by patients in relation to the perception of symptoms or side effects experienced from surgical and adjuvant treatment for breast cancer. The symptoms listed on the scale include nausea, loss of appetite, insomnia, pain frequency, pain severity, fatigue, bowel patterns, loss of concentration, changes in appearance, trouble breathing, poor outlook, and coughing (McCorkle & Young, 1978). Responses use a 5-point Likert-type scale, from 1 (no problem with a particular item) to 5 (the worst possible problem). The total symptom distress score is calculated by summing the participant responses of the 13 items with a potential range of 13 (low level of distress) to 65 (high level of distress). A score less than 25 indicates mild symptom distress; 25 or greater indicates moderate symptom distress, and 33 or greater indicates severe symptom distress (McCorkle & Young, 1978). There were no reversed scores for this scale.

The SDS has been widely used in studies involving cancer patients, and its reliability and validity have been established (Boehmke, 2004; Leak et al., 2008; McCorkle & Quint-Benoliel, 1983; Northouse, Laten, & Reddy, 1995). Cronbach’s alpha coefficients were found to be 0.83 for adult lung cancer (McCorkle & Benoliel, 1983), and 0.80 to 0.82 for breast cancer (Boehmke, 2004; Leak et al., 2008; Northouse et al., 1995). In order to establish content validity, the original items were presented to individuals with cancer. Revisions were made based on feedback from patients (McCorkle & Young, 1978). The Chinese version of SDS was translated by Wang and colleagues (2005). Reliability of the Chinese version of SDS was tested with 20 Taiwanese terminal-stage cancer patients, and the Cronbach’s alpha was .70. Content validity was evaluated by six experts, and the Content Validity Index was .90 (Wang, Lee, Chang, & Lin, 2005). Scale items made up item numbers 11 to 23 (Appendix D, Section 2).
Hospital Anxiety and Depression Scale (HADS)

The Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) is a 14-item scale that provides a brief measure of both anxiety (7-items) and depression (7-items) as two distinct subscales. In this study, the degree of psychological distress of Taiwanese women with breast cancer was measured using this scale. The HADS scale has been developed for specific use in medically ill patients. It has also been found to be reliable for detecting states of depression and anxiety in hospital medical outpatient clinic settings (Zigmond & Snaith, 1983). Respondents rate statements on a 4-point scale to indicate how they felt in the past week. The seven items in each of the anxiety and depression subscales are scored from 0 to 3 resulting in subscale scores that range from 0 to 21 (Zigmond & Snaith, 1983). The scores for each subscale are summed, giving a maximum of 21. Two cut-off points were suggested by the original authors: Scores 0-7 represent a non-case, scores 8-10 represent a possible case and scores > 10 represent significant distress related to anxiety or depression (Zigmond & Snaith, 1983). Higher scores indicate greater anxiety or depression.

Studies have shown the HADS to be a reliable instrument for assessment of anxiety and depression in breast cancer patients, with high internal consistency (Cronbach’s alphas > .80) (Arving, Glimelius, & Brandberg, 2008; Browall et al., 2008; Osborne, Elsworth, Sprangers, Oort, & Hopper, 2004). Bjelland and colleagues (2002) reviewed the literature on the construct validity of the HADS. They found 19 studies reporting factor analysis of HADS, most using principal component analysis. The results showed most factor analyses demonstrated a two-factor solution in accordance with the HADS subscales for Anxiety (HADS-A) and Depression (HADS-D), respectively (Bjelland, Dahl, Haug, & Neckelmann, 2002). The Chinese version of HADS has been used in studies of Taiwanese patients with cancer and myocardial infarction and reported Cronbach’s alphas ranging from .82 to .91 for the anxiety subscale, and from .77 to .79 for the depression subscale (Chen et al., 1999; Chiou, Potempa, & Buschmann, 1997). Scale items made up item numbers 24 to 37 (Appendix D, Section 3).
In order to assess the participant’s beliefs about their control over their health, six items measuring ‘internality’ was used from the Multidimensional Health Locus of Control Scale-Form C (MHLC-C) (Wallston et al, 1994). Internal health locus control is defined conceptually as the extent to which a person believes health is a function of one’s own behaviour (Wallston et al., 1978). The MHLC-C is a “disease specific version” which was adapted from Forms A/B of the MHLC (Wallston et al., 1978). It may also be used in place of the traditional Forms A/B when studying people with an existing health condition. This occurs by replacing the word “condition” in each item with whatever condition (i.e., pain, cancer, diabetes etc). The MHLC-C comprises of four subscale scores: internality, chance, doctors, and powerful others. The score on each subscale is the sum of the each item on the subscale.

Lazarus and Folkman (1984) point out that culture influences people’s locus of control beliefs and explain that these beliefs influence coping and emotional response to stress. Consistent with this, cultural differences between the Chinese women and Western women may influence their beliefs about the internal locus of control beliefs over their health. For this reason, the internal health locus of control (IHLC) would be a potential factor in predicting QOL among Taiwanese women with breast cancer. Additionally, Wallston (1998) suggests that MHLC is perfectly appropriate to measure one or two of the separate dimensions (e.g., internality and/or chance) without measuring the other one(s). Therefore, only six-items of the IHLC-internality subscale were used in this study to gather patients’ perceived health locus of control information. The IHLC-internality subscale was rated from 1 (strongly disagree) to 6 (strongly agree), and total scores range from 6 to 36, with higher scores representing greater control.

The following psychometric data were provided by Wallston et al. (1994). The MHLC-C was administered to participants in who had arthritis and chronic pain. Factor analysis supported the scale’s unidimensionality. Cronbach’s alpha was greater than .70 on a combined sample of 588 and reliably yielded a four-factor solution. Cronbach’s alpha for the IHLC-internality subscale was .76. The MHLC-C has been translated and validated in various Taiwanese studies. Lin and colleagues used the
Chinese version of MHLC-C in a study of 205 colon cancer patients. They reported that the Cronbach’s alpha coefficient of IHLC-internality was .81 and the content validity of index was .85 (Lin, Liu, & Wang, 1996). For this survey, scale items made up item numbers 38 to 43 (Appendix D, Section 4).

**Brief Coping Orientations to Problems Experienced Scale (Brief COPE)**

The Brief COPE, an abbreviated version of the Coping Orientation to Problems Experienced Inventory (Carver, Scheier, & Weintraub, 1989), was used to measure a range of coping strategies. It was developed by Carver (1997). This coping measure was based on two theoretical models: the Lazarus and Folkman’s (1984) theory, and the Carver and Scheier (1990) model of behavioural self-regulation. The Brief COPE contains fourteen subscales (two item each) and measures 14 conceptually different coping reactions: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, humour, planning, acceptance, use of religion, and self-blame. For each item, respondents indicated the extent to which they experienced the response that the item describes, during the period of time specified in the instructions. Response choices used a four-point scale ranging from 0 (‘I haven’t been doing this at all’), to 3 (‘I have been doing this a lot’). Higher scores indicate more frequent use of the coping strategy.

The Brief COPE has been used to examine use of coping strategies in women with breast cancer from various ethnic groups. In these studies, Cronbach’s alpha coefficients ranged from .63-.99 (Culver et al., 2002; Kershaw et al., 2004). Because of being unable to access a Taiwanese version of the Brief COPE, the original English version was translated into Chinese using the process of described above. As the Brief COPE was originally written in English, each instrument item was examined for face validity by five panel experts and the appropriateness of use on a Taiwanese patient population. For this survey, scale items made up item numbers 44 to 71 (Appendix D, Section 5).
**CAM Use Questionnaire**

An eight-item descriptive CAM use questionnaire was used. It was based on the one developed by Swisher et al. (2002); however, in this study, it was partly modified to be culturally appropriate. The questionnaire examined; (1) the time of starting CAM use (before the diagnosis of cancer, since diagnosis, and currently), (2) the types of CAM use, (3) the frequency of using CAM therapies in last 12 months, (4) monthly expenditure on CAM therapies or remedies, (5) reason for using CAM, (6) sources of information, (7) experience of any ill effects or side effects, and (8) perception of effectiveness with selected therapies. Participants were allowed to choose from a list of identified CAM as well as to specify any form of CAM not mentioned. Twenty-four specific CAMs included acupuncture, aromatherapy, art therapy, botanic dietary supplement products, physical movement, Chinese medicine, chiropractic, coenzyme Q 10, Feng Shui, Qi Gong, herbal medicine, hypnotherapy, massage, meditation, music therapy, organic diet, prayer, relaxation, reflexology, Tai Chi, vitamins, and Yoga. In this study, the herbal medicine refers to as row herbs, particularly Chinese herbal medication, such as Dang Gui, Gin Seng. These herbal medications are often boiled in water. The botanic dietary supplements refer to supplement the diet and contain one or more dietary ingredients. Also, the botanic dietary supplement products are intended to be taken by mouth as a pill, capsule, tablet, or liquid, such as soy products, garlic oil extract.

The English questionnaire was accessed and permission obtained for use in this study from Swisher et al (2002) (personal communication, July 2006). Following standard forward and back-translation procedures as described above, the English questionnaire was translated into Chinese. In order to reduce the overall time burden of the survey protocol, some items related to type of CAM use, the first time of CAM use, and the frequency of CAM use were modified. These were open-ended questions in the original version but were revised to be checklists in the Chinese version. This made it easier for participants to respond these items. The English questionnaire has been used in women with gynaecologic cancers (Molassiotis, Browall et al., 2006; Swisher et al., 2002), breast cancer (Molassiotis et al., 2006), and other cancer populations (Molassiotis, Fernandez-Ortega et al., 2005; Molassiotis, Margulies et al., 2005; Molassiotis, Panteli et al., 2006). For this survey, these items made up item
numbers 72 to 80 (Appendix D, Section 6).

**The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire-Cancer (EORTC QLQ-C30)**

The European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire-Cancer version 3 (EORTC QLQ-C30) (Aaronson et al., 1993) was used to measure patients’ QOL. This 30-item self-rating questionnaire is a multidimensional quality of life instrument designed to be cancer-specific and applicable across cultural settings (Browall, 2008; Chie et al., 2003; Lee et al., 2007). The questionnaire is composed of five functioning scales, a single scale for global QOL, three symptom scales and six individual symptom items (Aaronson et al., 1993). Table 3.2 details the content of EORTC QLQ C-30. The instrument primarily measures the patient’s perception of deviation from an optimal state of functioning. For example, questions such as “During the past week, have you felt weak?” are answered with responses ranging from 1 (not at all) to 4 (very much). Twenty-eight items use a four-point Likert scale. The global quality of life/health status scale employs a 7-point Likert scale, with 1 being very poor, to 7 being excellent. Items on the multi-item EORTC QLQ-C30 functional scales, global quality of life/health status scale, and symptom scales are averaged. For consistency, all subscales and single item questions are then linearly converted to a 0 to 100 scale. For scales evaluating global health/QOL and functioning, a higher score represents higher level of functioning and health. For scales evaluating symptoms, a higher score indicates more problems and higher level of symptoms.

Previous studies showed that the EORTC QLQ-C30 had high internal consistency, good inter-scale correlation, and discriminative validity (Aaronson et al., 1993; McLachlan et al., 1999; Schou, et al., 2005). The reliability of the EORTC QLQ-C30 scales in previous studies has been assessed in breast cancer patients, with the Cronbach’s alpha coefficients ranging from 0.52 to 0.89 for all dimensions (Aaronson et al., 1993; Hartl et al., 2003; Schou, et al., 2005). The Chinese version has been used in Taiwanese women with breast cancer, and reported good test/retest reliability of Cronbach’s alphas. All Cronbach’s alpha coefficients of the Chinese version EORTC
QLQC-30 were $\geq .70$ except that of physical functioning (.68) and cognitive functioning (.53) (Chie et al., 2003). The known-groups analysis was used to assess construct validity, and indicated that expected differences between patients in active chemotherapy and followed-up group (Chie et al., 2003). For this survey, scale items made up item numbers 81 to 110 (Appendix D, Section 7).

Table 3.2 EORTC QLQ C-30 Dimensions, Scales and Items

<table>
<thead>
<tr>
<th>Dimensions, Scales and Items</th>
<th>Number of items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Functional Dimension</strong></td>
<td></td>
</tr>
<tr>
<td>Physical function scale</td>
<td>5</td>
</tr>
<tr>
<td>Role function scale</td>
<td>2</td>
</tr>
<tr>
<td>Emotional function scale</td>
<td>4</td>
</tr>
<tr>
<td>Cognitive function scale</td>
<td>2</td>
</tr>
<tr>
<td>Social function scale</td>
<td>2</td>
</tr>
<tr>
<td><strong>Global QOL Dimension</strong></td>
<td></td>
</tr>
<tr>
<td>Global health status/QOL scale</td>
<td>2</td>
</tr>
<tr>
<td><strong>Symptom Dimension</strong></td>
<td></td>
</tr>
<tr>
<td>Fatigue scale</td>
<td>3</td>
</tr>
<tr>
<td>Nausea and vomiting scale</td>
<td>2</td>
</tr>
<tr>
<td>Pain scale</td>
<td>2</td>
</tr>
<tr>
<td>Dyspnoea</td>
<td>1</td>
</tr>
<tr>
<td>Insomnia</td>
<td>1</td>
</tr>
<tr>
<td>Appetite disturbance</td>
<td>1</td>
</tr>
<tr>
<td>Constipation</td>
<td>1</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>1</td>
</tr>
<tr>
<td>Financial difficulties</td>
<td>1</td>
</tr>
</tbody>
</table>

### 3.3.10 Validity and Reliability of the Instruments

Content validity that included the judgments of panel experts was used to validate the scales. Content validity is concerned with the degree to which an instrument has sampling adequacy of items for the construct that is measured (Polit & Beck, 2004). The content validity index (CVI), an appropriate indicator of validity, is based on a comparative evaluation of CVI and alternative index (Polit, Beck, & Owen, 2007). A CVI value can be computed for each item on a scale (I-CVI) and for the overall scale (S-CVI) (Polit et al., 2007).

Polit and Beck (2004) point out that two approaches can be used to calculate scale-level CVIs (S-CVIs). One approach is to calculate the percentage of items on
the scale for which all judges agreed on content validity, which is called S-CVI/UA (universal agreement). The other approach is to compute the S-CVI by averaging the I-CVIs that is referred to as S-CVI/Ave (Polit and Beck, 2004). Polit and Beck (2004) suggest this averaging approach and a value of .90 as the standard for establishing excellent content validity. Validation of a scale should be done with a minimum of three experts, but a large group is preferable (Polit & Beck, 2004).

In this study, the content validity of only the Brief COPE scale and CAM use questionnaire needed to be established, as only these two instruments were used for the first time in Chinese translation and in a Taiwanese setting, in this study. To validate the Chinese version of these two instruments, content validity was measured by the judgements of a panel of five experts. These five panel members were asked to rate each item for relevance and determine the appropriateness of each question in the Taiwanese context. These five panel members included two research experts with nursing doctoral qualifications and three oncology nursing specialists with master’s qualifications.

First, to calculate an item-level CVI (I-CVI), experts are asked to rate the relevance of each item, usually on a 4-point scale. With regard to item relevance, the interrater agreement index for each item was computed and a formal content validity index (CVI) was calculated across the experts’ ratings of each item’s relevance (Polit & Beck, 2004). The procedure required experts to rate items on a four-point scale (1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = highly relevant). An example of this format is provided in relation to the Brief COPE scale in Appendix E. Then, for each item, the I-CVI was computed as the number of experts giving a rating of either 3 or 4, divided by the number of the experts. That is, the proportion in agreement about the relevance of each item was calculated. The average I-CVI for the Chinese version of CAM use was 1. The average I-CVI for the Chinese version of the Brief COPE ranged from 0.9 to 1. Next, the S-CVI/Ave of the Chinese version Brief COPE and CAM use was calculated. The CVI of instruments are detailed in Table 3.3. The majority of items were rated as quite or very relevant. A S-CVI/Ave of .90 or greater is acceptable (Polit et al., 2007); therefore, content validity was supported.
Table 3.3 Content Validity Index of the Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Content Validity Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief COPE Scale</td>
<td></td>
</tr>
<tr>
<td>Acceptance</td>
<td>1.0</td>
</tr>
<tr>
<td>Active coping</td>
<td>1.0</td>
</tr>
<tr>
<td>Behavioural disengagement</td>
<td>0.9</td>
</tr>
<tr>
<td>Denial</td>
<td>0.9</td>
</tr>
<tr>
<td>Emotional support</td>
<td>1.0</td>
</tr>
<tr>
<td>Humour</td>
<td>0.9</td>
</tr>
<tr>
<td>Instrumental support</td>
<td>1.0</td>
</tr>
<tr>
<td>Planning</td>
<td>1.0</td>
</tr>
<tr>
<td>Positive reframing</td>
<td>1.0</td>
</tr>
<tr>
<td>Religion</td>
<td>1.0</td>
</tr>
<tr>
<td>Self-blame</td>
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</tr>
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<td>Self-distraction</td>
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</tr>
<tr>
<td>Substance use</td>
<td>0.9</td>
</tr>
<tr>
<td>Venting</td>
<td>0.9</td>
</tr>
<tr>
<td>CAM use</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Pilot study**

The pilot study aimed to evaluate the clarity and overall flow of the questionnaire, the appropriateness and the feasibility of the scales and procedures, and the time required to complete the survey. Following the evaluation of content validity by the panel of experts, the scales were pilot tested with a convenience sample of 30 Taiwanese women with breast cancer who were recruited from a support group by the student researcher. Prior to conducting the pilot study, the student researcher randomly selected a support group and got permission for conducting the pilot study from the supervisor who organised the support group. Next, the researcher contacted the social worker who was responsible for the support group to identify eligible patients. All eligible patients in the support group were approached in person by the student researcher at an agreed time, and asked to consent to being interviewed. The data were collected by face-to-face survey interview, which was the same data collection method as the formal study. The pilot sample data were not included in the large survey. The participants of the pilot study met the same inclusion and exclusion criteria as those who were recruited into the formal survey in Phase One. The researcher encouraged participants to complete all questions. Opportunities for questions to be answered were provided.
More than half of the women stated that it was easy to answer questions related to the separate sections of the survey. Each section was presented separately, which included the instructions and title of each section was highlighted in a different font and size. Also, the clarity of the translation of the scales was conceptually and semantically ascertained by the pilot study. Importantly, pilot participant comments resulted in modifications to layout and response options. For example, it became apparent the frequency of CAM use presented across the layout format (from left to right- daily, weekly, monthly, and once in a while) was not user friendly and appropriate when most women responded “once in a while”. For this reason, the response opinions were presented in the reverse (from left to right- once in a while, monthly, weekly, and daily). The questionnaires were revised and re-tested after the modifications. Ten women participated in the retest. They pointed out that no further modifications were needed after the retesting. Thus, the questionnaires were used for the formal survey study of Phase One. The pilot study data were not added to the study results. Analysis of pilot study indicated that no other amendments were required.

**Pilot Study Findings**

In this pilot study, participants’ ages ranged from 42 to 58 years, with an average age of 46.5 years (SD = 5.5). The majority were high school educated, married, Buddhists not currently employed. The mean time since diagnosis was 34.5 months (SD = 9.35). Most of the women reported having had breast surgery (n = 25), with the majority reporting having had a mastectomy (n = 23). With regard to adjuvant treatment, six (20%) of the women reported receiving chemotherapy or radiation therapy only, five (16.7%) receiving all types of adjuvant treatment, and 13 (43.3%) receiving chemotherapy and hormone therapy. A total of 22 of the 30 (73.3%) women reported that they were CAM users before or/and after the diagnosis. On average, it took participants 40 minutes to complete the questionnaire. No missing data was found.

Internal consistency of the scales was checked by calculating the reliability coefficient from the pilot study data. According to Polit and Beck (2004), greater stability in measurement is associated with higher coefficients. A reliability coefficient above .70 usually is considered acceptable (Polit & Beck, 2004). Overall, the result of the pilot study indicated that the reliabilities of five scales were considered acceptable with a
range of Cronbach’s alpha values from .75 to .92.

3.3.11 Data Analysis

Analysis occurred in three stages: (1) data entry and cleaning, (2) descriptive statistics, and (3) hypothesis testing. Firstly, survey data were coded with a number and the patients’ names were filed separately from the surveys. These data were directly entered into the statistical program, Statistical Package for the Social Sciences (SPSS Version 15.0) for Windows. No calculations or reverse score entries were performed during data entry to minimise errors. Further, there were no missing values in the survey data. According to Pilot and Beck (2004), data cleaning involves two types of checks. Initially, a check for outliers was carried out. Outliers are values that lie outside the normal range of values for other cases. By examining the frequency distribution for each value, the incorrectly entered data were identified and corrected. Survey data were reviewed for completeness and consistency within a single data form and among data forms. The accuracy of data entry was assured by comparing the computerised data with the original data for a random sample (10%) of the database. Twenty participants (about 10% of participants) were double checked for the accuracy, and three errors were found in the data entry points. That is, a total of 2200 data points with 0.14% error were found.

Secondly, descriptive statistics were used to summarise sample characteristics, clinical data, scale results, and reliability for scales. These included frequencies, the mean and standard deviations. Total scale scores and sub-scale scores on measures were summed. Internal consistency as a measure of reliability was tested using Cronbach’s Alpha coefficients for all scales and subscales.

Finally, inferential statistics were used to test the hypothesis. First, bivariate correlations were performed to determine the association between the potential predictors and dependent variables (QOL) (Hair, Anderson, Tathan, & Black, 2006). Pearson’s correlation coefficient ($r$) was used to describe the strength and direction of a linear relationship between each potential predictor scale and the dependent variables on scale of −1 to +1. If correlations were evident (either in a positive or negative direction) and statistically significant ($p < .05$), then these variables were included in a
standard multiple regression equation in the second phase of inferential analysis.

The second inferential phase was standard multiple regression using a model-building approach as described by Hair et al. (2006) to quantify the unique contribution of each of the potential predictors on the QOL scales, the dependent variables. The general objective of regression is to identify the fewest independent variables necessary to predict the dependent variable, in which each independent variable predicts a substantial and independent segment of the variability in the dependent variable (Tabachnick & Fidell, 2001). Therefore, a model-building approach was used to describe the relationships between the independent variables and QOL in the multiple regression phase of analyses (Hair et al., 2006). A structured three-phase approach was used to achieve a parsimonious regression model. Normality, linearity, homoscedasticity and independence of residuals are aspects that refer to the distribution of scores and the nature of the underlying relationship between variables (Tabachnick & Fidell, 2001). Residuals (i.e. differences between obtained and predicted dependent variable scores) are normally distributed about the predicted dependent variable scores. The residuals should have a straight line relationship with predicted dependent variable scores, and equal variance of the residuals in the predicted dependent variable scores is similar in all predicted scores (Tabachnick & Fidell, 2001).

In the first phase of model-building, potential predictors and dependent variables including functioning scales, symptom scales, and global health status/QOL were statistically significant at bivariate level and then entered simultaneously into an initial standard multiple regression equation. Accordingly, those variables that were not correlated with QOL were excluded from this initial regression analysis. The initial regression model was evaluated in relation to each independent variable’s relative contribution in the prediction of QOL.

Those variables that did not significantly contribute to QOL as evidenced in the $p$ values (> .05) and $t$-statistic ($\leq 2$) were excluded in the next phase of regression analysis (Hair et al., 2006). For the final phase of analysis, in order to obtain a parsimonious model, only those variables that made significant contributions in the prediction of QOL were included in the re-run regression. Variables that were weakly
correlated and did not contribute to the variance in QOL in the initial analyses were excluded in the parsimonious models (Hair et al., 2006). The model evaluation was based on the following criteria: (a) sample size, (b) the significance of the t-value (≥ 2), (c) the statistical significance of the p values (< .05), and (d) the difference between R square and adjusted R squared which was the smaller the differences, the better fit of the data with the model (Hair et al., 2006).

The level of statistical significant was indicated by a p-value of .05 or less and two-tailed test was used for all of the statistical analysis. The results of these varied statistical tests are reported in the “Chapter Four Phase One Results”.

3.4 Phase Two

A high proportion (74%) of women reported using CAM in the survey study. Moreover, the survey results showed that some types of CAM therapy greatly increased in use after treatments for cancer. In order to better understand these findings, a further investigation into women’s use of CAM was conducted in the qualitative phase. Specifically, there was a need to explore the experience of CAM use from within the context of women’s health needs and decision-making processes, perceived QOL, and from the perspective of the breast cancer patients themselves within Taiwanese culture. An understanding of women’s use of CAM experiences is particularly relevant in regard to non-Western therapies as they are grounded in different beliefs. Thus, the QUANTITATIVE → qualitative priority sequence model was used to explore their experience regarding CAM use in the complex phenomenon within the Taiwanese social context.

3.4.1 Design

To address the aim, a qualitative exploratory descriptive design was employed in Phase Two of the study. The purpose of qualitative descriptive research is to describe a phenomenon or an experience. This method is often used when little is known about a phenomenon (Burns & Grove, 2001; Maxwell, 2005; Sandelowski, 2000). Researchers use qualitative descriptive methods when they want to portray what an
experience is like from the participants’ perspective. Similar to many other qualitative research methods, researchers read and re-read the data, looking for patterns and themes among the participants’ experiences. Researchers use the participants’ own words to illustrate the themes they extract from the qualitative data they collect. Qualitative descriptive research does not always follow a specific qualitative research tradition, because the purpose is pure description (Polit & Beck, 2004; Sandelowski, 2000a). The approach of qualitative descriptive research is not to interpret participants’ experiences in depth but to provide a broad overview of a phenomenon or an experience. Qualitative methodologists argue that researchers should not denigrate the value of qualitative description but, rather, recognize that the method is extremely valuable when description is the goal, particularly when little is known about a phenomenon (Sandelowski, 2000a).

Qualitative description underpins the concept of naturalistic inquiry (Sandelowski, 2000b). In qualitative descriptive studies, language is a vehicle of communication, not itself an interpretive structure that must be read (Maxwell, 2005). Yet, such surface readings should not be considered superficial, or trivial and worthless. Theoretically, qualitative descriptive studies tend to draw from the general tenets of naturalistic inquiry. Two tenets describe the naturalistic domain; investigating phenomena as they occur naturally, and driving research outcomes inductively (Lincoln & Guba, 1985). That is, in any naturalistic study, there is no manipulation of variables to study, and no a priori commitment to any one theoretical view of a target phenomenon (Sandelowski, 2000b). Thus, a qualitative descriptive design (Sandelowski, 2000b) was deemed appropriate for this study as the aim was to provide a ‘comprehensive summary of an event in the everyday terms of those events’ (p.336) in relation to the Taiwanese women’s experiences of CAM use during their cancer journey. That is, the aim of this qualitative descriptive research was to provide a comprehensive in-depth understanding of the role of CAM use by Taiwanese women coping with breast cancer.

3.4.2 Participants

In order to get cases deemed information-rich regarding women’s experiences of CAM use, purposive sampling was used to recruit 16 women. The participants were
recruited from the participants who completed the Phase One survey and who were willing to discuss their experiences using CAM. All of these women had used at least three types of CAM therapies since the cancer diagnosis. The women also had experienced a range of treatment options, including surgery, chemotherapy, and radiotherapy.

The number of participants interviewed during this phase was based on data saturation (Strauss & Corbin, 1998) that was achieved through repetition and confirmation of information obtained by participants. The purposeful sampling approach was not aimed at obtaining a representative sample, but rather to capture the diversity of experiences related to the use of CAM. The depth of narrative data gathered from the women was more important than the number of participants (Strauss & Corbin, 1998), sampling continued until data saturation was achieved.

### 3.4.3 Data Collection Procedures

Ethical approval was sought from the Human Research Ethics Committee of Griffith University and the Institutional Review Board of the participating hospital. Participants who met the study inclusion criteria were invited to be interviewed. Before data collection, the purpose and processes of the study were explained to potential participants. Women who were willing to participate were required to sign the consent form (Appendix B). Moreover, the women who agreed to participate in Phase Two, the in-depth interviews, were asked to provide their contact number when they participated in Phase One allowed the researcher to contact them. During this contact, the researcher had arranged interview times with interested women. All individual interviews were scheduled for a date, time, and location convenient for the participants. The interview setting was chosen by the participants. Semi-structured interviews took place largely in participants’ homes; only two interviews were conducted in participants’ offices. Interviews were tape-recorded with the women’s permission.

Data collection in the qualitative study included a demographic data sheet and interview responses guided by a semi-structured interview. The demographic data sheet was derived from the structured instrument of Phase One. The semi-structured
interview guide was designed to elicit the participants’ descriptions of the reasons of using CAM, the influences on CAM decision making, and the role CAM use played in helping them to cope. The interview guide (Appendix F) was developed from a literature review based on experiences of women coping with breast cancer regarding use of CAM. A number of questions were used to guide and maintain continuity during the interview. Interview questions included “Please can you tell me about when you first started to use a CAM?”, “How do you choose CAM?”, and “Why do you think the CAMs have helped you?”.

3.4.4 Data Analysis

Qualitative content analysis technique (Krippendorff, 1980) was used to analyse the data. Qualitative content analysis is an appropriate technique in textual investigation providing a systematic approach to organising and integrating information (Polit & Beck, 2004; Silverman, 2005). Content analysis allows the researcher to test theoretical issues to enhance understanding of the data (Elo & Kyngas, 2008). Through content analysis, it is possible to extract words into content-related categories. It is assumed that when classified into the same category, words, phrases and the like share the same meaning creating category which is the core feature of qualitative content analysis. A category is a group of content that shares a commonality (Krippendorff, 1980). Patton (1987) describes categories as internally homogeneous and externally heterogeneous. Elo and Kyngas (2008) emphasise that categories must be exhaustive and mutually exclusive. This means that no data related to the purpose should be excluded due to lack of a suitable category. Furthermore, no data should fall between two categories or fit into more than one category. Additionally, the constant comparison approach (Strauss & Corbin, 1998) was used to assist in identifying the categorisations. All the data relevant to each category were identified and examined using a process called constant comparison, in which each item is checked or compared with the rest of the data to establish analytical categories (Strauss & Corbin, 1998).

A category refers mainly to a descriptive level of content and can thus be seen as an expression of the manifest content of the text. A category often includes a number of sub-categories or sub-subcategories at varying levels of abstraction. The
sub-categories can be sorted and abstracted into a category or a category can be divided into sub-categories (Graneheim & Lundman, 2004). Initially, data were sorted into three broad domains reflecting the interview questions, and the subcategories were identified using content analysis. These subcategories were then grouped according to similarities into categories. While collecting data, each word or line was examined to label the participants’ meaning. Mostly the actual words used by the participants were assigned to subcategories in developing the categories. This helped to maintain the participants’ own, rather than the researcher’s meanings for the use of CAM. The coding process was described as below.

First, interview data were transcribed soon after each interview while the interview was still fresh in the researcher’s mind. All interviews were tape-recorded and verbatim transcribed by the researcher. Each interview on average took six hours to transcribe in its original language. Transcriptions were rechecked against the original data (tape) for word-by-word accuracy and to provide a better understanding of the participants’ description. Interview data were grouped within three a priori domains of inquiry: Reasons for CAM use, Influences on decision making in CAM use, and Effect of CAM use. These three a priori domains were identified from literature regarding the experience of CAM use in women with breast cancer. Within each domain, data were given code names. These code names included a prefix for the domain and an identifier for the question topic. For example, within the Reasons for CAM use section, participants were asked, “Why did you start using CAM?” The code developed for this question was RE_CAM. In each interview transcript, the code was applied to the section of text that included both the interviewer’s question and the participant’s response. Data from related questions could be easily consolidated and extracted from the full data set for further analysis.

Second, coding was carried out line by line, and comparative analysis of the excerpts was performed. The researcher read through all the transcripts and underlined sections of text, phrases, sentences or paragraphs that related to women’s CAM use that included the reasons of use, the influences of choosing CAM, and the effect of CAM use during their cancer journey. Within the line by line coding, transcripts were divided into ‘meaning units’, that is, the constellation of statements that relate to the same central meaning (Miles & Huberman, 1994.), and then the ‘meaning units’ were
Third, a constant comparison approach (Strauss & Corbin, 1998) within and across interviews was undertaken to identify the potential analytic categories. The researcher first reviewed all coding units to examine similarities and differences, then to form a pattern of categories based on common elements. Next, the researcher took each segment of data in turn to compare with other segments of data and establish its relevance to other similar categories. As units of data became more focused and refined between and among interviews, they were sorted into categories according to their “best fit” (Lincoln & Guba, 1985). Constant comparison continued as categories were sorted into domains. The coding process was iterative, and categories and subcategories evolved (added, deleted and merged) as re-readings were completed and analyses progressed.

Finally, to ensure that the categories were exclusive and grounded in the data, the researcher read the data once more. Some necessary modifications to the categories were made at this point (Morse & Field, 1995). Thus, all categories and domains were checked repeatedly against the data to ensure they all made sense and were illustratable in the whole context. To establish inter-transcript reliability, two Taiwanese University nursing lecturers who were familiar with qualitative research carried out a second review of the coding data. At this stage, 16 Chinese transcripts were then translated into English by a professional bilingual (English and Chinese) translator. Further, to enhance validity of the analysis, two researcher’s supervisors read selected English translations of the transcriptions to discuss emerging categories. The researcher (fluent in Chinese and English) then checked the translation for equivalence of meaning, to enhance the validity of the data (Twinn, 1997). Some of the original categories were refined or deleted to yield the final version of the categories (Holloway & Wheeler, 2002). Regular meetings were held with the researcher’s supervisors acting as co-researchers to discuss and reconsider emerging categories and subcategories. Inconsistencies were dealt with by re-evaluating the initial transcripts and following discussion, decisions were made by agreement (DeSantis & Ugarriza, 2000).
3.4.5 Establishing Trustworthiness

In addressing the issue of trustworthiness in this phase of the study, four assessment criteria suggested by Lincoln and Guba (1985) for contributing rigor in qualitative research were used. The four assessment criteria include: credibility, dependability, confirmability, and transferability.

**Credibility**

In this study, credibility was enhanced through prolonged engagement, debriefing, and member checking (Lincoln & Guba, 1985). Prolonged engagement was achieved by the continuous interaction with the women with breast cancer during the eight months spent in conducting the cross-sectional survey phase, and in the four months spent interviewing various participants. The credibility of the findings was increased by continuous reflection and validation of the researcher’s understanding about the phenomenon, building of trusting relationships with these women, and identification of the essence of the phenomenon after exposure to a diversity of situations. Member checks are one of the most robust mechanisms of assuring credibility in qualitative inquiry; it involves seeking the participants’ views on the honesty and consistency of the research findings (Guba & Lincoln, 1989; Holloway & Wheeler, 2002). Debriefing was done during regular email communications and meetings with the researcher and two supervisors as acting co-researchers. Member checks were done by returning to participants to verify the emerging categories as reflecting to their experiences of CAM use. This was accomplished by either a brief e-mail or a telephone contact with participants; 12 of 16 interview participants were reached and they all validated that the categories were reflective of their experiences. These processes enabled the researcher to approach this study from multiple perspectives and to create a more thorough analysis.

**Dependability and Confirmability**

In this study, dependability was assured by documenting the audit trail that was reported in the thesis document. Details of the process of data collection and analysis and the findings from transcripts, the table, and verbatim quotes, are presented in this
thesis. In developing codes, memos were written that linked the proposed codes to some pieces of the data (Rice & Ezzy, 2001). Rice and Ezzy (2001) asserted that memos are “small pieces of analysis that derive from the interaction of raw material with your creative sensitivities” (p.295). Memos assisted the researcher to conceptualise the relationship between various codes and processes during the interview and analysis phases. Confirmability was achieved by sharing the coding data with informants and experts in oncology and qualitative methodology. Tobin and Begley (2004) asserted that triangulation in qualitative inquiry offers ‘completeness’. That is, completeness allows researchers to recognise the multiple realities, not only confirms existing data but provides a deeper and more comprehensive picture (Tobin & Begley, 2004). During the interview period, the researcher continued to discuss the coding data with the informants and two nursing scholars in order to clarity and confirm the analysis of coding data and their reactions to these, until a comprehensive picture of the women’s use of CAM was gained.

Transferability

Transferability relates to uses of conceptual transference of study findings to other similar naturalistic settings (Lincoln & Guba, 1985). Transferability of findings to other naturalistic settings was addressed through selection of informants based on their knowledge of the phenomenon under study. As a result, the naturalist cannot specify the external validity of an inquiry; s/he can provide only the thick description necessary to enable someone interested in making a transfer to reach a conclusion about whether transfer can be contemplated as a possibility (Lincoln & Guba, 1985). Transferability or applicability was promoted by comparing findings of this study to other studies. The sample, sample selection process, and study sites were examined for uniqueness versus commonality. Efforts were made to provide rich description of the findings with illustration by quotations so as to enhance the decision making for application if necessary.

3.5 Ethical Considerations

Ethical approval to conduct this two-phased study was given by the participating
hospital and Griffith University (NRS/41I06/HR) (Appendix B). The ethical conduct of this study was underpinned by the three ethical principles based on “the Belmont Report” (Polit & Beck, 2004). The three principles include beneficence, human dignity, and justice. All of these three principles were addressed in the information sheet (Appendix A) that was enclosed as the first page of each questionnaire package. Application of the principle of beneficence in this study was evident in the information participants were given about the study. For instance, information about freedom from harm, freedom from exploitation, and risk versus benefit were provided. Participants were informed that they would not be exposed to any serious or permanent harm. No potentially dangerous technical procedures or experiments have been used in this study. The questionnaire and interviews were thoughtfully developed and selected with careful consideration of the phrasing of each of the questions. To emphasize the participant’s protection from exploitation, participants were assured that any information would not affect their medical benefits in the future and that any information given will not be used against them in any way.

The risk-benefit ratio of this study was also considered. Participants were informed of some of the long term benefits provided by this study, particularly the potential to improve quality of life in women with breast cancer. While participants were informed that there may be no immediate benefit to them directly, the knowledge provided by the participants may help others who experience the same problems. Results will inform nurses’ understanding of health needs regarding CAM use in breast cancer patients. The potential risks to participants involved may have been in relation to the anxiety associated with completing the survey and the interview. However, participants were informed of the minimal risk of answering the questionnaires and interviews used in this study, the questionnaires and conversations were selected with the greatest of care in terms of words and phrases used. During the interviews, the researcher was careful to monitor shifts in the conversation that might indicate that the participant was getting distressed, and in such cases, participants were referred to the hospital’s counselling service. A mental health professional was available to give advice and provide counselling services to any participant if any signs of increased psychological disturbance were detected or reported by the participants as a result of participating in the study.
Second, the principle of respect for human dignity was considered (Polit & Beck, 2004). The right to self-determination, the right to full disclosure of participants, and the right to informed consent were upheld in this study. Participants were informed of their right to decide to be a volunteer. Participants were informed that they had the right to refuse to answer any questions on the questionnaire and interview, and could withdraw from the study at any time. A full description of the nature of study, the participants’ right to refuse, and risks and benefits were provided before participating. The necessary information was provided, including the purpose of this study, the type of data to be collected, the time of commitment, the selection of participants, the potential benefit, the right to withdraw at any time, and the privacy and confidentiality of participants.

Finally, the principle of justice, which includes the right to fair treatment and right to privacy, also guided the conduct of this study (Polit & Beck, 2004). All participants were assured that whether or not they agreed to participate, their health care and health services would not be affected. The participants’ privacy and confidentiality was assured. To protect the confidentiality of participants, the survey forms were labelled with a numerical case identification number. Participants were advised that any information they provided was confidential and, that quantitative results would be reported only in aggregate form, and in the qualitative phase, the participants and hospital would be anonymous. They were also informed that participation in the study would not affect their current therapy or any benefits to which they are normally entitled. Participants were not paid to participate in this study. Only the researcher had access to data. Research data related are stored on the researcher’s password protected computer, and the completed survey forms stored in a locked cabinet with restricted access for seven years after completion of this study.

3.6 Summary

This mixed method study employed a QUANTITATIVE→qualitative priority sequence design which was aimed to answer the research questions. Clearly, quantitative and qualitative methods have a different set of strengths that can be capitalised on using various combinations which most appropriately address the
research question. From the pragmatist position, it is the research question that determines the choice and combination of methods used to yield the findings, not an underlying philosophy or theory. In this mixed methods study, the complementarity approach was chosen to enhance, enrich and illustrate the results from one method with the results from the other method, and resulted in a two phased study.

Phase One used a predictive survey study which included a pilot study and a cross-sectional survey. The predictive survey identified the predictors of the outcome, perceived QOL in Taiwanese women with breast cancer. The survey study used a convenience sample of outpatients from a large general hospital in eastern Taiwan. A package of questionnaire was used for collecting the survey data. The package of questionnaire was structured instruments that comprised a demographic profile sheet, five scales, and a number of individual items. The survey data were analysed by descriptive statistic and inferential statistics. Descriptive statistics were used to summarise sample characteristics, clinical data, scale results, and reliability for scales. These included frequencies, the mean and standard deviations. Total scale scores and sub-scale scores were summed. Inferential statistics were used to test the hypothesis. Bivariate correlations were first performed to determine the association between the potential predictors and dependent variables (QOL). Further, a standard multiple regression used a model-building approach to quantify the unique contribution of each of the potential predictors on the QOL scales, the dependent variables. Therefore, a model-building approach was used to describe the relationships between the independent variables and QOL in the multiple regression phase of analyses (Hair et al., 2006).

Phase Two, the qualitative study, involved in-depth, semi-structured interviews to explore the role of CAM use in Taiwanese women with breast cancer. This phase was conducted in order to gain a deeper understanding of CAM use among Taiwanese women with breast cancer. The objectives of this qualitative research were to explore women’s experiences of using CAM as a coping strategy and the perspective of CAM use for Taiwanese women with breast cancer. Qualitative content analysis technique (Krippendorff, 1980) was used to analyse the data. Through content analysis, it is possible to extract words into content-related categories. Additionally, the constant comparison approach (Strauss & Corbin, 1998) was used to assist in identifying the categorisations. A category often includes a number of sub-categories or
sub-subcategories at varying levels of abstraction. The sub-categories can be sorted and abstracted into a category or a category can be divided into sub-categories (Graneheim & Lundman, 2004). In this qualitative study, data were sorted into three broad domains reflecting the interview questions, and the subcategories were identified using content analysis. These subcategories were then grouped according to similarities into categories. The following chapter presents the results of Phase One, the predictor survey.
4.1 Introduction

Phase One of this study was a predictive study conducted using cross-sectional survey. The aim of this survey was to identify predictors, and in particular CAM use as a predictor, of quality of life (QOL) among Taiwanese women living with breast cancer. Findings from the survey and results of the statistical analyses are presented in this chapter. Demographic and clinical characteristics of the sample, women’s perceived symptom distress, anxiety, depression, internal health locus of control, use of coping strategy, CAM use, and QOL are described. In addition, the reliability of each scale is reported. In order to examine the relationship among the potential predictors and dependent variables, bivariate analyses were performed by using Pearson’s correlation coefficient. A model-building approach using standard multiple regression was subsequently employed to identify the independent significant predictors of QOL.

4.2 Sample Characteristics

4.2.1 Demographics Characteristics

The participants of this study were recruited from one oncology/haematology outpatient department attached to a teaching hospital located in eastern Taiwan. A total of 240 women were invited but 44 declined to participate. In total, 196 women completed the survey administered by face-to-face interview, resulting in a response rate of 81.7%. The mean age of participants was 52.8 ± 9.3 years and ranged from 24 to 80 years. Details of the demographic characteristics of the women are displayed in Table 4.1. The majority were high school educated, married, and Buddhists. The mean income was gave to Taiwanese amount and equivalent to Australian dollars $23,235.74 ± $8,017.04 per annum.
Table 4.1: Demographic Characteristics of Sample (N = 196)

<table>
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<th>Characteristic</th>
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<th>Percent (%)</th>
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</tr>
<tr>
<td>Catholic</td>
<td>6</td>
<td>3.1</td>
</tr>
<tr>
<td>Income per annum (New Taiwanese Dollar)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; NT$ 300,000 (&lt;AUD$ 13,333)</td>
<td>50</td>
<td>25.5</td>
</tr>
<tr>
<td>NT$ 300,001-500,000 (AUD$ 13,334-22,222)</td>
<td>45</td>
<td>23.0</td>
</tr>
<tr>
<td>NT$ 500,001-700,000 (AUD$ 22,223-31,111)</td>
<td>39</td>
<td>19.9</td>
</tr>
<tr>
<td>&gt;NT$ 700,000 (&gt;AUD$ 31,111)</td>
<td>62</td>
<td>31.6</td>
</tr>
</tbody>
</table>

*1 Australian Dollar = 22.5 New Taiwanese Dollar

4.2.2 Clinical Characteristics

Table 4.2 shows clinical characteristics of the participants. At the time of data collection, over 40% (n = 80) of participants had been diagnosed in the past two to three years, and 51% (n = 100) of women were diagnosed with Stage II. The mean time since initial diagnosis was 27.9 months ± 11.7 months. The vast majority of women indicated that they had no recurrence of the disease. Almost all of the women reported having had breast surgery, with almost three quarters reporting having had a mastectomy. With regard to adjuvant treatment, the vast majority of the women had received chemotherapy, and just over one third reported having received radiotherapy. A total of 144 women reported that they were CAM users before or/and after the
cancer diagnosis.

Table 4.2: Clinical Characteristics of Sample (N = 196)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time since diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 1 year</td>
<td>34</td>
<td>17.3</td>
</tr>
<tr>
<td>&gt; 1-2 years</td>
<td>38</td>
<td>19.4</td>
</tr>
<tr>
<td>&gt; 2-3 years</td>
<td>80</td>
<td>40.8</td>
</tr>
<tr>
<td>&gt; 3-4 years</td>
<td>39</td>
<td>19.9</td>
</tr>
<tr>
<td>&gt; 4 years</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Stage of disease</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 0</td>
<td>9</td>
<td>4.6</td>
</tr>
<tr>
<td>Stage I</td>
<td>52</td>
<td>26.5</td>
</tr>
<tr>
<td>Stage II</td>
<td>100</td>
<td>51.0</td>
</tr>
<tr>
<td>Stage III</td>
<td>28</td>
<td>14.3</td>
</tr>
<tr>
<td>Stage IV</td>
<td>7</td>
<td>3.6</td>
</tr>
<tr>
<td><strong>Type of surgery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No surgery</td>
<td>11</td>
<td>5.6</td>
</tr>
<tr>
<td>Mastectomy</td>
<td>142</td>
<td>72.5</td>
</tr>
<tr>
<td>Lumpectomy</td>
<td>43</td>
<td>21.9</td>
</tr>
<tr>
<td><strong>Recurrence of disease</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>30</td>
<td>15.3</td>
</tr>
<tr>
<td>No</td>
<td>166</td>
<td>84.7</td>
</tr>
<tr>
<td><strong>Type of adjuvant treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemotherapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>164</td>
<td>83.7</td>
</tr>
<tr>
<td>No</td>
<td>32</td>
<td>26.3</td>
</tr>
<tr>
<td>Radiotherapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>75</td>
<td>38.3</td>
</tr>
<tr>
<td>No</td>
<td>121</td>
<td>51.7</td>
</tr>
<tr>
<td>Hormone therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>130</td>
<td>66.3</td>
</tr>
<tr>
<td>No</td>
<td>66</td>
<td>33.7</td>
</tr>
<tr>
<td><strong>CAM use</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>144</td>
<td>73.5</td>
</tr>
<tr>
<td>No</td>
<td>52</td>
<td>26.5</td>
</tr>
</tbody>
</table>

*CAM = complementary and alternative medicine.

### 4.2.3 Physical and Psychological Characteristics

Physical and psychological characteristics were measured by four scales including: Symptom Distress Scale (SDS) (McCorkle & Young, 1978); Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983); Internal Health Locus Control (IHLC) (Wallston et al., 1978); and Brief Coping Orientations to Problems Experienced Scale (Brief COPE) (Carver, 1997). The following section provides the
results of the descriptive analysis of these scales.

**Symptom Distress Scale (SDS)**

According to McCorkle and Young (1978), a SDS score less than 25 indicates mild symptom distress, 25 or greater indicates moderate symptom distress, and 33 or greater indicates severe symptom distress (McCorkle & Young, 1978). The possible range of scores is from 13 to 65. Higher scores indicated a greater degree of distress caused by the symptoms. The mean score on the SDS was 19.9 ± 7.5, which indicates that, overall, the women experienced mild distress. A histogram showing the frequency of scores in relation to experienced mild, moderate and severe symptom distress is displayed in Figure 4.1. The majority of the women had an SDS score below 25, indicating they had mild symptom distress. Approximately 12% of the women had moderate symptoms with a score of 25 or more, 5% demonstrating severe symptom distress. The results of this study shown the symptoms most frequently experienced by the women were fatigue (60.7%), insomnia (54.6%), and pain severity (47.4%). However, the most reported distressful symptom was insomnia, followed by fatigue, pain severity, and pain frequency. For this survey, Cronbach’s alpha coefficient of SDS was .85, which indicated adequate internal consistency.
Hospital Anxiety and Depression Scale (HADS)

Frequencies of the HADS-Anxiety and HADS-Depression are presented in Figure 4.2 and Figure 4.3. The range of scores is from 0 to 21 with scores of 11 or more indicating a probable case of psychological morbidity (Zigmond & Snaith, 1983). Higher scores represent greater anxiety or depression. The results of this study indicated the majority of women reported that they were within the normal range of anxiety and depression. The mean scores of anxiety and depression on HADS were $5.08 \pm 3.80$ and $4.12 \pm 3.14$, respectively. However, it should be noted that 10.2% of women were in the probable case of anxiety and 3.1% were in the probable case of depression. Overall, the perceived degree of psychological distress of the women in this study was low. In this survey, the Cronbach’s alpha was .81 for HADS-Anxiety, and .85 for HADS-Depression.

![Figure 4.2 Histogram of the Frequency of Hospital Anxiety Subscale (N = 196)](image-url)
Figure 4.3 Histogram of the Frequency of Hospital Depression Subscale (N = 196)

Internal Health Locus of Control (IHLC)

The Internal Health Locus of Control (IHLC) subscale, a six-item measuring ‘internality’, was used to assess the participant’s beliefs about their control over their health. The possible range of scores is from 6-36, with higher scores indicating more internal health locus of control. The majority of women (86.2%) agreed that their physical well-being depends on how well they take care of themselves. Approximately 70% of the women believed they were directly responsible for their health. A mean total score of IHLC reported by the women was 26.4 ± 5.1, with a range of 15-36. The results of this study showed that the sample group had a high internal health locus of control. In the current study, the Cronbach’s alpha coefficient of IHLC was .83, which is acceptable.
Coping strategies among Women with Breast Cancer

The Brief COPE scale (Carver, 1997) was used in this study to measure coping strategies. There are 14 scales each with two items that estimate a variety of cognitive coping strategies (Carver, 1997). Most of women (91.9%) reported that their preferred coping strategy was acceptance and 95.9% indicated that they had never used alcohol or drugs to help them cope (Appendix G). The means and standard deviations were summed for each subscale of the items and are detailed in Table 4.3. The results indicated the two most frequently used coping strategies were acceptance (M = 6.47, SD = 1.20) and active coping (M = 6.12, SD = 1.30). The two least frequently used coping strategies were behavioural disengagement and substance (alcohol or drugs) use (M = 2.10, SD = 0.44). In the current study, all of the subscales had adequate reliability with Cronbach’s alphas of .71 to .79 (Table 4.3).

Table 4.3: The Means, Standard Deviations and Cronbach’s Alphas Coefficient of Brief COPE (N = 196)

<table>
<thead>
<tr>
<th>Subscale (Possible range 2-8)</th>
<th>Mean*</th>
<th>SD</th>
<th>Cronbach’s Alpha Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance</td>
<td>6.47</td>
<td>1.20</td>
<td>.77</td>
</tr>
<tr>
<td>Active coping</td>
<td>6.12</td>
<td>1.30</td>
<td>.73</td>
</tr>
<tr>
<td>Positive reframing</td>
<td>5.87</td>
<td>1.45</td>
<td>.72</td>
</tr>
<tr>
<td>Emotional support</td>
<td>5.73</td>
<td>1.39</td>
<td>.74</td>
</tr>
<tr>
<td>Instrumental support</td>
<td>5.67</td>
<td>1.26</td>
<td>.74</td>
</tr>
<tr>
<td>Planning</td>
<td>5.59</td>
<td>1.41</td>
<td>.75</td>
</tr>
<tr>
<td>Use of humour</td>
<td>5.19</td>
<td>1.38</td>
<td>.76</td>
</tr>
<tr>
<td>Self-distraction</td>
<td>5.06</td>
<td>1.51</td>
<td>.79</td>
</tr>
<tr>
<td>Religion</td>
<td>4.76</td>
<td>1.61</td>
<td>.73</td>
</tr>
<tr>
<td>Venting</td>
<td>4.12</td>
<td>1.18</td>
<td>.78</td>
</tr>
<tr>
<td>Self-blame</td>
<td>3.46</td>
<td>1.34</td>
<td>.77</td>
</tr>
<tr>
<td>Denial</td>
<td>2.91</td>
<td>1.39</td>
<td>.75</td>
</tr>
<tr>
<td>Behavioural disengagement</td>
<td>2.47</td>
<td>0.98</td>
<td>.76</td>
</tr>
<tr>
<td>Substance use</td>
<td>2.10</td>
<td>0.44</td>
<td>.71</td>
</tr>
</tbody>
</table>

*Response selections range from “1 = I haven’t been doing this at all” to “4 = I have been doing this a lot”.


4.2.4 Use of CAM among Women with Breast Cancer

Women reported using multiple types of CAM before and after the diagnosis of cancer. Almost 74% of the women (n = 144) in this study reported that they used some form of CAM therapy; 17.9% of women used CAM before the diagnosis and 55.6% had used CAM since the diagnosis. Table 4.4 details the frequency of different types of CAM use before diagnosis, since diagnosis, and during the study period. Results indicated that 22 different CAM therapies had been used before the diagnosis of cancer, 23 types had been used since the diagnosis, and 24 different types of CAM were currently being used. The most common types of CAM in current use were Chinese medicine (36.1%), herbal medicine (20.8%), and prayer (18.8%). All types of CAM were increased in use by women after the diagnosis of cancer, especially the use of dietary supplement products, relaxation, massage, physical activities, and music therapy.
Table 4.4: Frequencies and Percentages of Different Types of CAM Use (n = 144)

<table>
<thead>
<tr>
<th>Type</th>
<th>Before diagnosis n (%)</th>
<th>Since diagnosis n (%)</th>
<th>Currently n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese medicine</td>
<td>15 (10.4)</td>
<td>46 (31.9)</td>
<td>52 (36.1)</td>
</tr>
<tr>
<td>Herbal medicine</td>
<td>22 (15.3)</td>
<td>27 (18.8)</td>
<td>36 (25.0)</td>
</tr>
<tr>
<td>Prayer</td>
<td>18 (12.5)</td>
<td>24 (16.7)</td>
<td>27 (18.8)</td>
</tr>
<tr>
<td>Vitamins</td>
<td>15 (10.4)</td>
<td>24 (16.7)</td>
<td>26 (18.1)</td>
</tr>
<tr>
<td>Tai Chi</td>
<td>13 (9.0)</td>
<td>20 (13.9)</td>
<td>25 (17.4)</td>
</tr>
<tr>
<td>Qi Gong</td>
<td>10 (6.9)</td>
<td>13 (9.0)</td>
<td>18 (12.5)</td>
</tr>
<tr>
<td>Physical activities or exercises</td>
<td>11 (7.6)</td>
<td>19 (13.2)</td>
<td>22 (15.3)</td>
</tr>
<tr>
<td>Massage</td>
<td>10 (6.9)</td>
<td>10 (6.9)</td>
<td>15 (10.4)</td>
</tr>
<tr>
<td>Botanic supplement products</td>
<td>1 (0.7)</td>
<td>7 (4.9)</td>
<td>13 (9.0)</td>
</tr>
<tr>
<td>Organic diet</td>
<td>10 (6.9)</td>
<td>11 (7.6)</td>
<td>12 (8.3)</td>
</tr>
<tr>
<td>Juicing</td>
<td>4 (2.8)</td>
<td>8 (5.6)</td>
<td>12 (8.3)</td>
</tr>
<tr>
<td>Acupuncture</td>
<td>5 (3.5)</td>
<td>8 (5.6)</td>
<td>11 (7.6)</td>
</tr>
<tr>
<td>Yoga</td>
<td>5 (3.5)</td>
<td>8 (5.6)</td>
<td>10 (6.9)</td>
</tr>
<tr>
<td>Meditation</td>
<td>4 (2.8)</td>
<td>8 (5.6)</td>
<td>9 (6.3)</td>
</tr>
<tr>
<td>Reflexology</td>
<td>1 (0.7)</td>
<td>6 (4.2)</td>
<td>8 (5.6)</td>
</tr>
<tr>
<td>Relaxation therapies</td>
<td>1 (0.7)</td>
<td>6 (4.2)</td>
<td>6 (4.2)</td>
</tr>
<tr>
<td>Music therapy</td>
<td>2 (1.4)</td>
<td>6 (4.2)</td>
<td>6 (4.2)</td>
</tr>
<tr>
<td>Coenzyme Q10</td>
<td>1 (0.7)</td>
<td>1 (0.7)</td>
<td>4 (2.8)</td>
</tr>
<tr>
<td>Chiropractic</td>
<td>2 (1.4)</td>
<td>4 (2.8)</td>
<td>3 (2.1)</td>
</tr>
<tr>
<td>Aromatherapy</td>
<td>1 (0.7)</td>
<td>1 (0.7)</td>
<td>2 (1.4)</td>
</tr>
<tr>
<td>Art therapy</td>
<td>1 (0.7)</td>
<td>2 (1.4)</td>
<td>2 (1.4)</td>
</tr>
<tr>
<td>Feng Shui</td>
<td>0</td>
<td>0</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>Hypnotherapy</td>
<td>0</td>
<td>1 (0.7)</td>
<td>1 (0.7)</td>
</tr>
</tbody>
</table>

Note: Using all data from CAM users (n = 144), recognising that multiple forms were permitted.
Women spent an average of NT$ 6,895.83 monthly (SD = $5,932.27) on CAM therapies, the equivalent of AUD$ 306.5 (SD = $263.7). However, there were great variations among the women’s expenditure with a range of NT$ 2,000 to $40,000 dollars (AUD$ 88.9 to $1,777.8) per month. Table 4.5 details women’s expenditure on CAM per month. Results demonstrated that over 50% of women agreed with their expenditure on CAM as good value; however, 41% of women were not sure and 2.8% disagreed that the cost of using CAM represented good value.

Table 4.5: Frequency of Women’s Expense on Complementary and Alternative Medicine in Monthly (n = 144)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; NT$ 5,000 (AUD$ 222.2)</td>
<td>111 (77.1)</td>
</tr>
<tr>
<td>NT$ 50,001-10,000 (AUD$ 222.3- $ 444.4)</td>
<td>14 (9.7)</td>
</tr>
<tr>
<td>NT$ 10,001-15,000 (AUD$ 444.5- $ 666.7)</td>
<td>9 (6.3)</td>
</tr>
<tr>
<td>NT$ 15,001-20,000 (AUD$ 666.8- $ 888.9)</td>
<td>5 (3.5)</td>
</tr>
<tr>
<td>NT$ 20,001-25,000 (AUD$ 889- $ 111.1)</td>
<td>3 (2.1)</td>
</tr>
<tr>
<td>&gt; NT$ 25,000 (AUD$ 111.1)</td>
<td>2 (1.4)</td>
</tr>
</tbody>
</table>

Note: 1 Australian Dollar = 22.5 New Taiwanese Dollar

Table 4.6 shows the most frequently reported reason that contributed to women using CAM was to increase their body’s ability to fight the cancer (70.8%). The least frequent reason for CAM use cited by women was “to do everything to fight the disease” (12.5%). However, there were inconsistent results with the reasons for using CAM and the experienced benefits reported by the women. From Table 4.6 it can be seen that only 40% of women believed their use of CAM was effective in improving their body’s ability to fight the cancer, although it was the main reason for women using CAM. There was an increase in the proportion of women (69.4%) who reported CAM was effective in enhancing their emotional well-being, sense of hope and optimism, compared with the second highest reason for CAM use reported. Additionally, some women stated that they had not experienced or were unsure the
benefits from CAM use (8.3% and 17.4%, respectively). Two women (1.4%) reported that they experienced side effects of symptom of diarrhoea from using CAM, and both were using Chinese medicine as herbal remedies.

Table 4.6: Reasons for Using CAM and Perceived Benefits (n = 144)

<table>
<thead>
<tr>
<th>Reasons for use</th>
<th>As Expectations n (%)</th>
<th>As Experienced Benefits n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase the body’s ability to fight cancer</td>
<td>102 (70.8)</td>
<td>58 (40.3)</td>
</tr>
<tr>
<td>To improve physical well-being</td>
<td>98 (68.1)</td>
<td>82 (56.9)</td>
</tr>
<tr>
<td>To improve emotional well-being and to increase hope and optimism</td>
<td>74 (51.4)</td>
<td>100 (69.4)</td>
</tr>
<tr>
<td>“Help, no hurt”</td>
<td>51 (35.4)</td>
<td>0</td>
</tr>
<tr>
<td>To counteract ill effects</td>
<td>47 (32.6)</td>
<td>42 (29.2)</td>
</tr>
<tr>
<td>To directly fight the cancer with CAM</td>
<td>22 (15.3)</td>
<td>14 (9.7)</td>
</tr>
<tr>
<td>To do everything to fight the disease</td>
<td>18 (12.5)</td>
<td>0</td>
</tr>
<tr>
<td>No benefit</td>
<td>0</td>
<td>12 (8.3)</td>
</tr>
<tr>
<td>Unsure</td>
<td>0</td>
<td>25 (17.4)</td>
</tr>
</tbody>
</table>

Note: Using all data from CAM users (n = 144), recognising that multiple responses were permitted.

Table 4.7 describes the frequency of information sources in relation to CAM use among the women. The most common sources of information about CAM were friends (45.8%) and family (23.6%). It should be noted that a few of women reported that they received information about use of CAM from physicians (3.5%) and nurses (1.4%).

Table 4.7: Sources of CAM Information (n = 144)

<table>
<thead>
<tr>
<th>Source of CAM information</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends</td>
<td>66</td>
<td>45.8</td>
</tr>
<tr>
<td>Family</td>
<td>34</td>
<td>23.6</td>
</tr>
<tr>
<td>The media</td>
<td>27</td>
<td>18.8</td>
</tr>
<tr>
<td>Religious contacts</td>
<td>5</td>
<td>3.5</td>
</tr>
<tr>
<td>Medical doctor</td>
<td>5</td>
<td>3.5</td>
</tr>
<tr>
<td>Other women</td>
<td>4</td>
<td>2.8</td>
</tr>
<tr>
<td>Nurse</td>
<td>2</td>
<td>1.4</td>
</tr>
<tr>
<td>Internet</td>
<td>1</td>
<td>0.7</td>
</tr>
</tbody>
</table>

4.3 Quality of Life among the Women with Breast Cancer

The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C-30) (Aaronson et al., 1993) was used to measure
women’s perceived QOL. Higher scores in the functional scales and global QOL scale represent better QOL. Conversely, lower scores in the symptom and financial scales indicate better QOL. Table 4.8 summarises the mean, standard deviation (SD) and Cronbach’s alpha coefficient of each scale including functional scales, symptom scales, and global health status/QOL. The results indicated that women had fairly good levels of overall global QOL and excellent role functioning. The symptom scales in general showed a low degree of symptoms. The worst symptom experiences reported by the women were sleep disturbance and fatigue. Cronbach’s alphas for the QOL functional dimensions and multi-item symptom scales were primarily > .71, which showed the adequate reliability (Table 4.8).

Table 4.8: The Mean Scores, Standard Deviation and Cronbahn’s Alpha Coefficient of EORTC QLQ-C30 (N = 196)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean*</th>
<th>SD</th>
<th>Cronbach’s Alpha Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional scales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical function</td>
<td>86.67</td>
<td>13.16</td>
<td>.74</td>
</tr>
<tr>
<td>Role function</td>
<td>90.14</td>
<td>18.77</td>
<td>.84</td>
</tr>
<tr>
<td>Emotional function</td>
<td>84.78</td>
<td>16.19</td>
<td>.83</td>
</tr>
<tr>
<td>Cognitive function</td>
<td>84.02</td>
<td>17.20</td>
<td>.72</td>
</tr>
<tr>
<td>Social function</td>
<td>85.63</td>
<td>18.46</td>
<td>.83</td>
</tr>
<tr>
<td>Global health status/QOL</td>
<td>71.9</td>
<td>19.61</td>
<td>.91</td>
</tr>
<tr>
<td>Symptom scales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td>18.71</td>
<td>17.66</td>
<td>.87</td>
</tr>
<tr>
<td>Nausea and vomiting</td>
<td>5.10</td>
<td>13.90</td>
<td>.71</td>
</tr>
<tr>
<td>Pain</td>
<td>15.39</td>
<td>19.17</td>
<td>.76</td>
</tr>
<tr>
<td>Symptom items</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyspnoea**</td>
<td>8.84</td>
<td>16.57</td>
<td>N/A</td>
</tr>
<tr>
<td>Insomnia**</td>
<td>22.45</td>
<td>25.83</td>
<td>N/A</td>
</tr>
<tr>
<td>Appetite disturbance**</td>
<td>6.12</td>
<td>14.60</td>
<td>N/A</td>
</tr>
<tr>
<td>Constipation**</td>
<td>8.16</td>
<td>16.23</td>
<td>N/A</td>
</tr>
<tr>
<td>Diarrhea**</td>
<td>5.10</td>
<td>14.60</td>
<td>N/A</td>
</tr>
<tr>
<td>Financial difficulties**</td>
<td>12.07</td>
<td>21.78</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Higher scores of Functional scales and Global QOL represent the better QOL. Lower score of symptom scales and financial difficulty indicate the better QOL.
** Single item for the assessment of symptoms.

4.4 Relations between Independent Variables and QOL

This study sought to identify the relationships between women’s demographic characteristics, clinical characteristics, symptom distress, anxiety and depression, internal health locus of control, coping strategies, CAM use and QOL. Relationships
between variables at the bivariate and multivariate levels were tested using the statistical assumptions as described by Polit and Beck (2004) and Hair et al. (2006). Testing for linearity, scores for the independent variables were normally distributed for each value of the dependent variables, and visa versa. These were plotted using the standardized regression residuals of the independent variables with the score of the dependent variables. Scatter plots for all independent and dependent variables tracked closely along the residual line indicating that the homoscedasticity assumption was met (Hair et al., 2006).

First, simple bivariate correlation analyses were performed to determine statistically significant correlations among the independent variables (i.e. demographic and clinical variables) and all scales of the EORTC QLQ-C30. However, because the SDS measured the same symptoms as EORTC QLQ-C30’s three symptom outcome scales including fatigue, nausea and vomiting, and pain, the SDS was not used to perform bivariate correlations with the three symptom outcome scales as the expected results bias. Pearson’s correlation coefficients were performed to determine the strength and direction of relationships among variables. Next, the independent variables that correlated with EORTC QLQ-C30 were entered into initial standard multiple regression equation. Again, the SDS was not used in the multiple regression for the symptom scales. Finally, only selected variables that provided a statistically significant contribution were included in the final model. In this way, a model-building approach was used to build parsimonious models (Hair et al, 2006).

### 4.4.1 Correlations between Independent Variables and Functional Outcome Scales

Table 4.9 displays the results of the correlations between the independent variables and the functional outcome scale of the EORTC QLQ-C30. Twelve independent variables were significantly correlated with physical function, such as age and educational level. Significant correlations ranged from -.07 to -.37. Younger women reported poorer physical function. Women with higher educational levels and income had better physical function. It should be noted that there were moderate correlations between women’s anxiety and depression and physical function. Women with a higher degree of anxiety and depression had poorer physical functional outcome. However,
women’s greater use of coping strategies such as active coping, positive reframing, emotional coping and humour were correlated with better physical function. Additionally, women’s use of CAM was statistically significant correlated with better physical function, although the correlation was weak.

Eight independent variables were significantly correlated to role function. Significant correlations ranged from -.17 to -.35. More educated and higher income women were likely to have better role function. Importantly, women’s greater degree of symptom distress, anxiety and depression were significantly associated with worse role functional outcome. Greater use of coping strategies, such as active coping, positive reframing and humour were related to better role function.

Six independent variables were significantly correlated to emotional function. Significant correlations ranged from -.07 to -.59. Again, the symptom distress, anxiety and depression were statistically significant related to emotional function. Particularly, the symptom distress was strongly correlated to role function. Women with greater symptom distress, anxiety and depression reported lower emotional functioning. Moreover, greater use of venting and self-blame were associated with decreased emotional function. In contrast, greater use of humour was correlated to better emotional function.

Ten independent variables were significantly correlated to cognitive function. Significant correlations ranged from -.19 to -.37. The higher level of symptom distress, anxiety and depression were correlated to decreased cognitive functional outcome. Furthermore, women’s greater use of denial was related to worse cognitive function. However, there were positive correlations between some coping strategies and cognitive function, such as the use of active coping, positive reframing and emotional support.

Nine independent variables were significantly correlated with social function. Significant correlations ranged from -.14 to -.40. There were inverse relationships between women’s symptom distress, anxiety and depression and social function. Also, greater use of self-distraction, self-blame, denial, and behaviour disengagement were
correlated to decreased levels of social function. In contrast, use of CAM and humour were positively associated with good social function.

4.4.2 Correlations between Independent Variables and Global Health Status/QOL

Table 4.9 displays the results of the correlations between the independent variables and the global health status/QOL scale. Sixteen variables were significantly correlated to global health status/QOL. Significant correlations ranged from .02 to -.41. Educational level and income were positively correlated to global health status/QOL. However, recurrence of disease was negatively associated with global health status/QOL. Moreover, women’s greater degree of symptom distress, anxiety and depression were significantly related to lower level of global health status/QOL. There were positive correlations between use of coping strategy and global health status/QOL, such as use of acceptance, active coping, and planning coping. Women’s use of CAM and internal health locus control were weakly correlated to global health status/QOL.
<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Physical Function</th>
<th>Role Function</th>
<th>Emotional Function</th>
<th>Cognitive Function</th>
<th>Social Function</th>
<th>Global health status/QOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.07*</td>
<td>.01</td>
<td>.11</td>
<td>-.03</td>
<td>.01</td>
<td>-.01</td>
</tr>
<tr>
<td>Educational level</td>
<td>.22**</td>
<td>.17*</td>
<td>-.04</td>
<td>.08</td>
<td>.08</td>
<td>.15*</td>
</tr>
<tr>
<td>Marital status</td>
<td>-.03</td>
<td>-.09</td>
<td>-.12</td>
<td>-.19</td>
<td>-.21</td>
<td>.01</td>
</tr>
<tr>
<td>Income</td>
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<td>.20**</td>
<td>.07</td>
<td>.10</td>
<td>.07</td>
<td>.20**</td>
</tr>
<tr>
<td>Disease stage</td>
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<td>-.08</td>
<td>.00</td>
<td>-.07</td>
<td>-.03</td>
<td>-.12</td>
</tr>
<tr>
<td>Time since diagnosis</td>
<td>.06</td>
<td>.11</td>
<td>.01</td>
<td>-.03</td>
<td>.04</td>
<td>.05</td>
</tr>
<tr>
<td>Surgery modality</td>
<td>.10</td>
<td>.10</td>
<td>-.05</td>
<td>.04</td>
<td>.08</td>
<td>10</td>
</tr>
<tr>
<td>Adjuvant treatments</td>
<td>.01</td>
<td>.01</td>
<td>-.07</td>
<td>-.05</td>
<td>-.05</td>
<td>-.11</td>
</tr>
<tr>
<td>Recurrence of disease</td>
<td>-.09</td>
<td>-.10</td>
<td>-.06</td>
<td>-.00</td>
<td>-.10</td>
<td>-.15*</td>
</tr>
<tr>
<td>SDS</td>
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<td>-.28**</td>
<td>-.33**</td>
<td>-.33**</td>
<td>-.34**</td>
<td>-.28**</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-.21**</td>
<td>-.28**</td>
<td>-.50**</td>
<td>-.37**</td>
<td>-.40**</td>
<td>-.37**</td>
</tr>
<tr>
<td>Depression</td>
<td>-.35**</td>
<td>-.35**</td>
<td>-.26**</td>
<td>-.28**</td>
<td>-.28**</td>
<td>-.41**</td>
</tr>
<tr>
<td>IHLC</td>
<td>.13</td>
<td>.10</td>
<td>.03</td>
<td>-.02</td>
<td>-.06</td>
<td>.18*</td>
</tr>
<tr>
<td>CAM use</td>
<td>.01*</td>
<td>-.03</td>
<td>-.10</td>
<td>-.01</td>
<td>.14*</td>
<td>.02*</td>
</tr>
<tr>
<td>Self-distraction</td>
<td>.06</td>
<td>.11</td>
<td>-.07</td>
<td>.05</td>
<td>-.17*</td>
<td>.14*</td>
</tr>
<tr>
<td>Active coping</td>
<td>.18**</td>
<td>.15*</td>
<td>.05</td>
<td>.19**</td>
<td>.05</td>
<td>.23**</td>
</tr>
<tr>
<td>Denial</td>
<td>-.05</td>
<td>-.01</td>
<td>-.12</td>
<td>-.22**</td>
<td>-.19**</td>
<td>.02</td>
</tr>
<tr>
<td>Substance use</td>
<td>-.13</td>
<td>.01</td>
<td>-.12</td>
<td>-.11</td>
<td>-.12</td>
<td>-.05</td>
</tr>
<tr>
<td>Emotional support</td>
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<td>.10</td>
<td>.05</td>
<td>.22**</td>
<td>.04</td>
<td>.22**</td>
</tr>
<tr>
<td>Behaviour disengagement</td>
<td>-.12</td>
<td>-.08</td>
<td>-.10</td>
<td>-.05</td>
<td>-.15*</td>
<td>.01</td>
</tr>
<tr>
<td>Venting</td>
<td>-.05</td>
<td>-.08</td>
<td>-.19**</td>
<td>-.10</td>
<td>-.17</td>
<td>-.03</td>
</tr>
<tr>
<td>Instrumental support</td>
<td>.16*</td>
<td>.11</td>
<td>.11</td>
<td>.22**</td>
<td>.06</td>
<td>.21**</td>
</tr>
<tr>
<td>Positive reframing</td>
<td>.17*</td>
<td>.18**</td>
<td>.09</td>
<td>.25**</td>
<td>.08</td>
<td>.25**</td>
</tr>
<tr>
<td>Self-blame</td>
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<td>-.01</td>
<td>-.25**</td>
<td>-.11</td>
<td>-.27**</td>
<td>-.05</td>
</tr>
<tr>
<td>Planning coping</td>
<td>.14*</td>
<td>.08</td>
<td>.01</td>
<td>.21**</td>
<td>-.03</td>
<td>.29**</td>
</tr>
<tr>
<td>Humour</td>
<td>.20**</td>
<td>.26**</td>
<td>.23**</td>
<td>.19**</td>
<td>.18**</td>
<td>.24**</td>
</tr>
<tr>
<td>Acceptance</td>
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<td>.10</td>
<td>.07</td>
<td>.08</td>
<td>.13</td>
<td>.24**</td>
</tr>
<tr>
<td>Religion</td>
<td>.00</td>
<td>-.02</td>
<td>-.12</td>
<td>.01</td>
<td>-.01</td>
<td>.04</td>
</tr>
</tbody>
</table>

* p ≤ .05; ** p ≤ .01
4.4.3 Correlations between Independent Variables and Symptom Scales of EORTC QLQ-C30

Table 4.10 displays the results of the correlations between the independent variables and the three symptom scales of the EORTC QLQ-C30. Significant correlations ranged from -.01 to .34. Age was negatively correlated to fatigue and nausea and vomiting. Younger women experienced more fatigue, nausea and vomiting. A greater degree of anxiety was correlated to more fatigue, nausea and vomiting, and pain. Greater use of some coping strategies was related to more symptoms. For example, greater use of denial and self-blame were correlated to more fatigue and pain. Notably, women who did not use CAM experienced more fatigue, although the correlation was weak.

Table 4.10: Bivariate Relationships between Independent Variables and Symptom Outcome Scales

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Fatigue</th>
<th>Nausea and Vomiting</th>
<th>Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.20**</td>
<td>-.16*</td>
<td>.03</td>
</tr>
<tr>
<td>Educational level</td>
<td>.09</td>
<td>-.01</td>
<td>-.18**</td>
</tr>
<tr>
<td>Marital status</td>
<td>.09</td>
<td>.10</td>
<td>.07</td>
</tr>
<tr>
<td>Income</td>
<td>-.02</td>
<td>-.14*</td>
<td>-.21**</td>
</tr>
<tr>
<td>Disease stage</td>
<td>.03</td>
<td>.03</td>
<td>.14*</td>
</tr>
<tr>
<td>Time since diagnosis</td>
<td>.07</td>
<td>-.03</td>
<td>.03</td>
</tr>
<tr>
<td>Surgery modality</td>
<td>.07</td>
<td>-.03</td>
<td>.03</td>
</tr>
<tr>
<td>Adjuvant treatments</td>
<td>.02</td>
<td>-.02</td>
<td>-.07</td>
</tr>
<tr>
<td>Recurrence of disease</td>
<td>.01</td>
<td>.13</td>
<td>.00</td>
</tr>
<tr>
<td>Anxiety</td>
<td>.30**</td>
<td>.16*</td>
<td>.34**</td>
</tr>
<tr>
<td>Depression</td>
<td>.21**</td>
<td>.06</td>
<td>.10</td>
</tr>
<tr>
<td>IHLC</td>
<td>.05</td>
<td>.00</td>
<td>-.03</td>
</tr>
<tr>
<td>CAM use</td>
<td>-.15*</td>
<td>-.04</td>
<td>-.11</td>
</tr>
<tr>
<td>Self-distraction</td>
<td>.17*</td>
<td>.08</td>
<td>.00</td>
</tr>
<tr>
<td>Active coping</td>
<td>-.07</td>
<td>-.01</td>
<td>.10</td>
</tr>
<tr>
<td>Denial</td>
<td>.18**</td>
<td>.08</td>
<td>.14*</td>
</tr>
<tr>
<td>Substance use</td>
<td>.18**</td>
<td>.05</td>
<td>.12</td>
</tr>
<tr>
<td>Emotional support</td>
<td>-.02</td>
<td>-.00</td>
<td>-.03</td>
</tr>
<tr>
<td>Behaviour disengagement</td>
<td>.16*</td>
<td>-.00</td>
<td>.06</td>
</tr>
<tr>
<td>Venting</td>
<td>.14*</td>
<td>.10</td>
<td>.05</td>
</tr>
<tr>
<td>Instrumental support</td>
<td>-.10</td>
<td>-.02</td>
<td>-.04</td>
</tr>
<tr>
<td>Positive reframing</td>
<td>-.05</td>
<td>-.06</td>
<td>-.14*</td>
</tr>
<tr>
<td>Self-blame</td>
<td>.26**</td>
<td>.06</td>
<td>.14*</td>
</tr>
<tr>
<td>Planning coping</td>
<td>.00</td>
<td>.01</td>
<td>-.09</td>
</tr>
<tr>
<td>Humour</td>
<td>.00</td>
<td>-.06</td>
<td>.08</td>
</tr>
<tr>
<td>Acceptance</td>
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<td>-.04</td>
<td>-.08</td>
</tr>
<tr>
<td>Religion</td>
<td>.04</td>
<td>.07</td>
<td>-.03</td>
</tr>
</tbody>
</table>

* p ≤ .05; ** p ≤ .01
4.5 Predictors of QOL in Women with Breast Cancer

An initial standard multiple regression analysis was conducted to determine magnitude of the interactions of independent variables in relation to the correlation matrix, Beta weights and their significance level \(t\)-value and \(p\)-value (Hair et al., 2006). All independent variables that were significantly correlated with the five functional dimensions and global QOL in the bivariate analyses, were included in these initial regressions. Collinearity was identified by an examination of the correlation matrix for the independent variables with the suggested limit of \(r = .90\) and higher (Hair et al. 2006). However, assessing for multicollinearity also needs to take into consideration the tolerance value and the variance inflation factor (VIF) to investigate the amount of variability of each selected independent variable that was not explained by the other independent variables. Multicollinearity would be present in a tolerance level of less than .10 or a VIF value of above 10 (Hair et al. 2006).

In assessing each multiple regression model, partial/part correlations, \(R^2\) squared/adjusted \(R^2\) squared, and standard error were also examined. The partial correlations indicate the increase of predictive effects of each predictor variable. The total \(R^2\) squared for the model does not equal all of the squared part correlation values because the part correlations represent only the unique contribution of each variable, with any overlap or equal variance partialled out (Hair et al., 2006). Variables that were weakly correlated and did not contribute statistically to the variance in the initial analyses QOL at the multivariable level were not included in the parsimonious model.

4.5.1 Predictors of Functional Dimensions on EORTC QLQ-C30 in Women with Breast Cancer

Predictors of Physical Function

For the predictors of physical function, 12 independent variables were included in the initial multiple regression analysis. As shown in Table 4.11A, in the initial regression analysis, examination of Beta weights and significance levels for each independent variable indicated the type of relationship (positive or negative) and strength of the relationship of each to physical function on QOL. This was then used to determine which independent variables were the most influential at a statistically significant
level. Only depression made the significant contribution in the prediction of physical function, as presented by the highest Beta coefficient ($\beta = -.257$, $t$-value = -3.261; $p < .001$) (Table 4.11A). In the initial multiple regression model, 12 independent variables were entered into the equation, $R^2 = .192$ (adjusted $R^2 = .139$, $F (12, 183) = 3.622$, $p < .001$. The initial model indicated that ten variables accounted for 18.2% of the sample group variance in QOL.

Part correlation coefficients are also displayed in Table 4.11A and B, and indicate the strength of the relationship between physical function and each separate independent variable when the predictive effects of the other independent variables in the regression model were controlled for (Hair et al., 2006). The correlation matrix for the independent variables was examined to identify potential collinearity. The correlations were within a range of $r = .01$ to .79, which were not highly correlated with each other and less than the suggested $r = .90$ (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of .10, consistent with the absence of serious levels of multicollinearity. This finding was also supported by a VIF value of 2.9 for each independent was well below a VIF of 10 (Table 4.11A & B).

Based on initial examination of the $t$-value, $p$-value and the coefficients (Beta weights), another standard multiple regression analysis was calculated to obtain a parsimonious model (Table 4.11B). The parsimonious model shows the result of the re-run regression analysis with the exclusion of the variables of educational level, income, anxiety, and coping variables. There was only one variable included in the parsimonious model. The best predictor for physical function on QOL was depression (Table 4.11B). This model structure indicated that depression accounted for 12.8% of the sample group variance in physical function on QOL, $R^2 = .128$ (adjusted $R^2 = .124$), $F (1, 194) = 28.536$, $p < .001$. 
### Table 4.11: Initial Multiple Regression and Parsimonious Multiple Regression Model of Independent Variables on Physical Function Scale

#### (A) Initial model for physical function

<table>
<thead>
<tr>
<th>Variables</th>
<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
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<td>-.08</td>
<td>-3.34</td>
<td>.053</td>
<td>-.04</td>
<td>-.04</td>
<td>.78</td>
<td>1.65</td>
</tr>
<tr>
<td>Educational level</td>
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<td>-.04</td>
<td>-5.01</td>
<td>.617</td>
<td>-.03</td>
<td>-.03</td>
<td>.61</td>
<td>1.63</td>
</tr>
<tr>
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<td>.775</td>
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<td>.10</td>
<td>.76</td>
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<tr>
<td>CAM use</td>
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<td>.270</td>
<td>.10</td>
<td>.10</td>
<td>.76</td>
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<td>-.07</td>
<td>.84</td>
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<td>-.26</td>
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<td>.001</td>
<td>-.23</td>
<td>-.23</td>
<td>.70</td>
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<tr>
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<td>.221</td>
<td>.04</td>
<td>.04</td>
<td>.48</td>
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<td>Positive reframing</td>
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<td>-.08</td>
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<td>.29</td>
<td>.775</td>
<td>.02</td>
<td>.02</td>
<td>.34</td>
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<tr>
<td>Instrumental support</td>
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<td>.05</td>
<td>.42</td>
<td>.673</td>
<td>.03</td>
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<td>.01</td>
<td>.01</td>
<td>.51</td>
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<td>.389</td>
<td>.06</td>
<td>.06</td>
<td>.63</td>
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</table>

#### (B) Parsimonious model for physical function

<table>
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<tr>
<th>Variables</th>
<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
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<td>&lt; .001</td>
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<td>1.00</td>
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</table>
Predictors of Role Function

For the predictors of role function, eight independent variables were included in the initial multiple regression analysis since these bivariate correlations were significant. Table 4.12A details the predictors of role function in the initial regression model. Depression made the strongest unique contribution in the prediction of role function, as evidenced by the highest Beta coefficient ($\beta = -.246$, $t$-statistic = -3.356; $p < .001$)(Table 4.12A). The initial model indicated that eight independent variables accounted for 26.4% of the sample group variance in role function, $R^2 = .264$ (adjusted $R^2 = .214$), $F (8, 187) = 7.653, p < .001$.

Part correlation coefficients are displayed in Table 4.12A and B, and indicate the strength of the relationship between role function and each separate independent variable when the predictive effects of the other independent variables in the regression model were removed (Hair et al., 2006). It was necessary to reassess the model in relation to variable combinations and their effects on collinearity (Hair et al., 2006). The correlation matrix for the independent variables was examined to identify potential collinearity. The correlations were within a range of $r = .03$ to .64, which were not highly correlated with each other and less than the suggested $r = .90$ (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of .10, consistent with the absence of serious levels of multicollinearity. The tolerance value and VIF are detailed in Table 4.12A and B. The findings were supported by tolerance levels of greater than .10 and lower VIF values than the threshold value of 10 (Hair et al. 2006).

Based on initial examination of the Beta values, $t$-statistic, and $p$-value, another standard multiple regression analysis was performed to achieve model parsimony. A total of three variables were entered into the parsimonious model (Table 4.12B). Two variables, symptom distress and depression were negatively significant in the prediction of role function. Use of humour was a significant positive predictor of role function. In the parsimonious model, three independent variables were entered into the equation, $R^2 = .222$ (adjusted $R^2 = .210$), $F (3, 192) = 18.247, p < .001$. This model structure indicated that symptom distress, depression, and humour accounted for 22.2% of the sample group variance in role function on QOL.
<table>
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<tr>
<th>Variables</th>
<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
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<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
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<td>Income</td>
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<td>.06</td>
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<td>-.22</td>
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<td>1.12</td>
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<td>Anxiety</td>
<td>2.06</td>
<td>-.08</td>
<td>-1.17</td>
<td>.240</td>
<td>-.08</td>
<td>-.07</td>
<td>.78</td>
<td>1.27</td>
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<tr>
<td>Depression</td>
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<td>-.24</td>
<td>-3.35</td>
<td>.001</td>
<td>-.23</td>
<td>-.21</td>
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<td>Active coping</td>
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<td>.02</td>
<td>.02</td>
<td>.57</td>
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<tr>
<td>Positive reframing</td>
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<td>-.06</td>
<td>.45</td>
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<td>2.36</td>
<td>.019</td>
<td>.17</td>
<td>.15</td>
<td>.64</td>
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</table>

(B) Parsimonious model for role function

<table>
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<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
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<td>SDS</td>
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<td>-4.15</td>
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<td>-.28</td>
<td>-.265</td>
<td>.99</td>
<td>1.01</td>
</tr>
<tr>
<td>Humour</td>
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<td>.009</td>
<td>.18</td>
<td>.167</td>
<td>.88</td>
<td>1.13</td>
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</table>
Predictors of Emotional Function

For the predictors of emotional function, six independent variables were included in the initial multiple regression analysis. The details of the findings are presented in Table 4.13A. The initial multiple regression model indicated that anxiety and venting were negatively significant in the prediction of emotional function. It can be concluded that, from the initial model, anxiety, depression, coping in relation to humour, venting and self-blame, and symptom distress (SDS) accounted for 44.9% of the variance in emotional function for the sample group which constitutes moderate level of prediction, \( R^2 = .449 \) (adjusted \( R^2 = .434 \)), \( F (5, 190) = 30.598, p < .001 \).

Part correlation coefficients are displayed in Table 4.13A and B, and indicate the strength of the relationship between emotional function and each separate independent variable when the predictive effects of the other independent variables in the regression model were removed. It was necessary to reassess the model in relation to variable combinations and their effects on collinearity. The correlation matrix for the independent variables was examined to identify potential collinearity. All correlations were within a range of \( r = .03 \) to -.59, which were not highly correlated with each other and less than the suggested \( r = .90 \) (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of .10, consistent with the absence of serious levels of multicollinearity. The tolerance value and VIF are detailed in Table 4.13A and B. The findings were supported by tolerance levels of greater than .10 and lower VIF values than the threshold tolerance value of 10 (Hair et al. 2006).

Based on initial examination of the Beta values, \( t \)-statistic, and \( p \)-value, another standard multiple regression analysis was performed to achieve model parsimony. A total of four variables were entered in this parsimonious model (Table 4.13B). Anxiety was the most significant negative predictor of emotional function, as presented by the highest Beta coefficient at a statistically significant level (Table 4.13B). The results indicated that anxiety, coping in relation to humour and venting, and SDS accounted for 43.8% of the variance in emotional function for the sample group, which constitutes a moderate level of prediction, \( R^2 = .438 \) (adjusted \( R^2 = .426 \)), \( F (4, 191) = 37.165, p < .001 \).
Table 4.13: Initial Multiple Regression and Parsimonious Multiple Regression Model of Independent Variables on Emotional function Scale

(A) Initial model for emotional function

<table>
<thead>
<tr>
<th>Variables</th>
<th>Std error</th>
<th>$\beta$</th>
<th>$t$-value</th>
<th>$p$-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
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<td>&lt; .001</td>
<td>-.51</td>
<td>-.45</td>
<td>.84</td>
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<tr>
<td>Depression</td>
<td>3.07</td>
<td>-.21</td>
<td>-2.97</td>
<td>.056</td>
<td>-.08</td>
<td>-.07</td>
<td>.87</td>
<td>1.12</td>
</tr>
<tr>
<td>Humour</td>
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<td>.17</td>
<td>3.03</td>
<td>.003</td>
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<td>.16</td>
<td>.87</td>
<td>1.13</td>
</tr>
<tr>
<td>SDS</td>
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<td>.010</td>
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<tr>
<td>Venting</td>
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<td>-.17</td>
<td>-3.05</td>
<td>.003</td>
<td>-.21</td>
<td>-.16</td>
<td>.88</td>
<td>1.13</td>
</tr>
<tr>
<td>Self-blame</td>
<td>0.69</td>
<td>-.11</td>
<td>-1.19</td>
<td>.050</td>
<td>-.14</td>
<td>-.10</td>
<td>.89</td>
<td>1.12</td>
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</table>

(B) Parsimonious model for emotional function

<table>
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<tr>
<th>Variables</th>
<th>Std error</th>
<th>$\beta$</th>
<th>$t$-value</th>
<th>$p$-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
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<td>&lt; .001</td>
<td>-.52</td>
<td>-.46</td>
<td>.85</td>
<td>1.17</td>
</tr>
<tr>
<td>Venting</td>
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<td>-.19</td>
<td>-3.53</td>
<td>.001</td>
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<td>-.19</td>
<td>.92</td>
<td>1.08</td>
</tr>
<tr>
<td>SDS</td>
<td>0.12</td>
<td>-.17</td>
<td>-2.97</td>
<td>.003</td>
<td>-.21</td>
<td>-.16</td>
<td>.89</td>
<td>1.11</td>
</tr>
<tr>
<td>Humour</td>
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<td>2.94</td>
<td>.004</td>
<td>.20</td>
<td>.16</td>
<td>.87</td>
<td>1.13</td>
</tr>
</tbody>
</table>
For the predictors of cognitive function, ten independent variables were included in the initial multiple regression analysis. The details of the findings are presented in Table 4.14A. The initial multiple regression model indicated that symptom distress (SDS), anxiety, and denial coping were most significant in the prediction of cognitive function on the functional dimension of QOL. The initial model indicated that ten independent variables accounted for 29.5% of the variance in cognitive function for the sample group, $R^2 = .295$ (adjusted $R^2 = .253$), $F (11, 184) = 6.991, p < .001$.

Part correlation coefficients are displayed in Table 4.14A and B, and indicate the strength of the relationship between cognitive function and each separate independent variable when the predictive effects of the other independent variables in the regression model were removed. It was necessary to reassess the model in relation to variable combinations and their effects on collinearity. The correlation matrix for the independent variables was examined to identify potential collinearity. All correlations were within a range of $r = .09$ to -.37, which were not highly correlated with each other and less than the suggested $r = .90$ (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of .10, consistent with the absence of serious levels of multicollinearity. The tolerance value and VIF are detailed in Table 4.14A and B. The findings were supported by tolerance levels of greater than .10 and lower VIF values than the threshold tolerance value of 10 (Hair et al. 2006).

Based on initial examination of the Beta values, $t$-statistic, and $p$-value, another standard multiple regression analysis was performed to achieve model parsimony. A total of three variables were entered in this parsimonious model (Table 4.14B). This result indicated that symptom distress (SDS), anxiety, and denial coping accounted for 21.6% of the variance in cognitive function for the sample group, $R^2 = .216$ (adjusted $R^2 = .204$), $F (3, 192) = 17.635, p < .001$. Anxiety was the most significant negative predictor of cognitive function, as presented by the highest Beta coefficient at a statistically significant level (Table 4.14B).
Table 4.14: Initial Multiple Regression and Parsimonious Multiple Regression Model of Independent Variables on Cognitive Function Scale

(A) Initial model for cognitive function

<table>
<thead>
<tr>
<th>Variables</th>
<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS</td>
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<td>-3.50</td>
<td>.001</td>
<td>-.25</td>
<td>-.21</td>
<td>.87</td>
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<tr>
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<td>-.14</td>
<td>-.11</td>
<td>.75</td>
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<td>.02</td>
<td>.01</td>
<td>.47</td>
<td>2.09</td>
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<tr>
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<td>0.22</td>
<td>.820</td>
<td>.02</td>
<td>.01</td>
<td>.39</td>
<td>2.55</td>
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<td>Emotional support coping</td>
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<td>.05</td>
<td>.35</td>
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<td>.01</td>
<td>.33</td>
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<td>Planning coping</td>
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<td>.08</td>
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<td>1.78</td>
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<td>-.01</td>
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<td>-.22</td>
<td>-.19</td>
<td>.90</td>
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(B) Parsimonious model for cognitive function

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<th>Variables</th>
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<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
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<tbody>
<tr>
<td>Anxiety</td>
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<td>-4.31</td>
<td>&lt; 0.001</td>
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<td>-.27</td>
<td>.90</td>
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Predictors of Social Function

For the predictors of social function, nine independent variables were included in the initial multiple regression analysis. The details of the findings are presented in Table 4.15A. The initial multiple regression model indicated that anxiety, depression, and symptom distress (SDS) were most negative significant in the prediction of social function on the functional dimension of QOL. From the initial model that nine independent variables accounted for 33.1% of the variance in social function for the sample group, $R^2 = .331$ (adjusted $R^2 = .279$), $F (14, 181) = 6.394$, $p < .001$.

Part correlation coefficients are displayed in Table 4.15A and B, and indicate the strength of the relationship between social function and each separate independent variable when the predictive effects of the other independent variables in the regression model were removed. It was necessary to reassess the model in relation to variable combinations and their effects on collinearity. The correlation matrix for the independent variables was examined to identify collinearity. All correlations were within a range of $r = -.03$ to .40, which were not highly correlated with each other and less than the suggested $r = .90$ (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of .10, consistent with the absence of serious levels of multicollinearity. The tolerance value and VIF are detailed in Table 4.15A and B. The findings were supported by a tolerance level of greater than .10 and a lower VIF value than the threshold tolerance value of 10 (Hair et al. 2006).

Based on initial examination of the Beta values, $t$-statistic, and $p$-value, another standard multiple regression analysis was performed to achieve model parsimony. A total of five variables were entered into this parsimonious multiple regression model (Table 4.15B). Anxiety was the most significant negative variable in the prediction of social function, as presented by the highest Beta coefficient at a statistically significant level (Table 4.15B). These results indicated that anxiety, symptom distress (SDS), depression and coping behaviour regarding humour and self-distraction accounted for 28.7% of the variance in social function for the sample group, $R^2 = .287$ (adjusted $R^2 = .268$), $F (5, 190) = 15.275$, $p < .001$. 
Table 4.15: Initial Multiple Regression and Parsimonious Multiple Regression Model of Independent Variables on Social Function Scale

<table>
<thead>
<tr>
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<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
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<td>.010</td>
<td>-.19</td>
<td>-.15</td>
<td>.80</td>
<td>1.23</td>
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<tr>
<td>Anxiety</td>
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<td>-.22</td>
<td>-3.25</td>
<td>.001</td>
<td>-.23</td>
<td>-.19</td>
<td>.75</td>
<td>1.31</td>
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<td>-.13</td>
<td>.74</td>
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<td>.13</td>
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<td>.046</td>
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<td>.12</td>
<td>.18</td>
<td>1.26</td>
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<tr>
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<td>-1.64</td>
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<td>-.04</td>
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(A) Initial model for social function

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<th>p-value</th>
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<th>Part</th>
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<th>VIF</th>
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<td>.002</td>
<td>-.22</td>
<td>-.19</td>
<td>.87</td>
<td>1.13</td>
</tr>
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<td>-.14</td>
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<td>.044</td>
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<td>.12</td>
<td>.80</td>
<td>1.24</td>
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</table>
4.5.2 Predictors of Global Health Status/QOL on EORTC QLQ-C30 in Women with Breast Cancer

For the predictors of global health status/QOL, 16 independent variables were included in the initial multiple regression analysis since these bivariate correlations were significant. In the initial regression analysis, examination of Beta weights and significance levels for the 16 independent variables indicated the relative contribution of each to the dependent variable of financial difficulties, to determine which independent variables were the most influential. The details of the findings are presented in Table 4.16A. The initial multiple regression model indicated that depression was the most significant negative predictor of global QOL, as presented the highest Beta coefficient (Table 4.16A). It can be extrapolated from the initial model that 15 independent variables accounted for 29.9% of the variance in global QOL for the sample group, \( R^2 = .379 \) (adjusted \( R^2 = .316 \)), \( F (18, 177) = 6.003, p < .001 \).

Part correlation coefficients displayed in Table 4.16A and B, and indicate the strength of the relationship between global QOL and each separate independent variable when the predictive effects of the other independent variables in the regression model were partialled out. The correlation matrix for the independent variables was examined to identify potential collinearity. All correlations were within a range of \( r = -.41 \) to .06, which were not highly correlated with each other and less than the suggested \( r = .90 \) (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of .10, consistent with the absence of serious levels of multicollinearity. The tolerance value and VIF are detailed in Table 4.16A and B. The findings were supported by tolerance levels of greater than .10 and VIF values below the threshold tolerance value of 10 (Hair et al. 2006).

Based on initial examination of the Beta values, \( t \)-statistic, and \( p \)-value, another standard multiple regression analysis was performed to achieve model parsimony. A total of four variables were entered into this parsimonious model (Table 4.16B). These results indicated that anxiety, depression, symptom distress, and planning coping accounted for 31.9% of the variance in the global QOL for the sample group, \( R^2 = .319 \) (adjusted \( R^2 = .304 \)), \( F (4, 191) = 22.321, p < .001 \).
Table 4.16: Initial Multiple Regression and Parsimonious Multiple Regression Model of Independent Variables on Global Health Status/QOL Dimension

<table>
<thead>
<tr>
<th>Variables</th>
<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
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<td>.386</td>
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<td>.09</td>
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<td>.174</td>
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<td>.09</td>
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<td>Recurrence of disease</td>
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</tr>
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<td>-.26</td>
<td>-.21</td>
<td>.81</td>
<td>1.23</td>
</tr>
<tr>
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<td>.015</td>
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<tr>
<td>Depression</td>
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<td>-3.79</td>
<td>&lt; 0.001</td>
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<td>-.22</td>
<td>.69</td>
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<td>.679</td>
<td>.03</td>
<td>.025</td>
<td>.46</td>
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<tr>
<td>Active coping</td>
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<td>.01</td>
<td>.01</td>
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<td>Positive reframing</td>
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<td>Emotional support coping</td>
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<td>.429</td>
<td>.05</td>
<td>.04</td>
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<td>Instrumental support</td>
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<td>.01</td>
<td>.31</td>
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<tr>
<td>Planning coping</td>
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<td>.16</td>
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<td>.007</td>
<td>.14</td>
<td>.11</td>
<td>.46</td>
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</tr>
<tr>
<td>Humour</td>
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<td>.647</td>
<td>.03</td>
<td>.02</td>
<td>.59</td>
<td>1.68</td>
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<tr>
<td>Self-distraction</td>
<td>0.909</td>
<td>.01</td>
<td>0.16</td>
<td>.869</td>
<td>.01</td>
<td>.01</td>
<td>.72</td>
<td>1.38</td>
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Continued

<table>
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<tr>
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<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
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<td>-4.74</td>
<td>&lt; 0.001</td>
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<td>.220</td>
<td>3.59</td>
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<td>-3.67</td>
<td>.001</td>
<td>-.23</td>
<td>-.20</td>
<td>.90</td>
<td>1.103</td>
</tr>
<tr>
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<td>-.17</td>
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<td>-.18</td>
<td>-.15</td>
<td>.79</td>
<td>1.255</td>
</tr>
</tbody>
</table>
4.5.3 Predictors of Symptom Dimensions on EORTC QLQ-C30 in Women with Breast Cancer

Predictors of Fatigue

For the predictors of fatigue, ten independent variables were included in the initial multiple regression analysis. The details of the findings are presented in Table 4.17A. The initial multiple regression model indicated that age, anxiety, and depression were significant in the prediction of fatigue (Table 4.17A). The initial model indicated that ten independent variables accounted for 23.2% of the variance in fatigue for the sample group. These ten independent variables were entered into the equation, $R^2 = .232$ (adjusted $R^2 = .191$), $F (10, 185) = 5.594$, $p < .001$.

Part correlation coefficients are displayed in Table 4.16A and B, and indicate the strength of the relationship between fatigue and each separate independent variable when the predictive effects of the other independent variables in the regression model were removed (Hair et al., 2006). It was necessary to reassess the model in relation to variable combinations and their effects on collinearity (Hair et al., 2006). The correlation matrix for the independent variables was examined to identify potential collinearity. All correlations were within a range of $r = .08$ to $r = .51$, which were not highly correlated with each other and less than the suggested $r = .90$ (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of .10, consistent with the absence of serious levels of multicollinearity. The tolerance value and VIF are detailed in Table 4.17A and B. The findings were supported by tolerance levels of greater than .10 and lower VIF values than the threshold tolerance value of 10 (Hair et al. 2006).

Based on initial examination of the Beta values, $t$-statistic, and $p$-value, another standard multiple regression analysis was performed to achieve model parsimony. A total of three variables were included in this parsimonious model (Table 4.17B). Anxiety was the most significant variable in the prediction of fatigue. This parsimonious model, $R^2 = .156$ (adjusted $R^2 = .143$), $F (3, 192) = 11.828$, $p < .001$, indicated that age, anxiety, and depression accounted for 15.6% of the sample group variance in fatigue.
Table 4.17: Initial Multiple Regression and Parsimonious Multiple Regression Model of Independent Variables on Fatigue of Symptom Dimensions of QOL

(A) Initial model for fatigue

<table>
<thead>
<tr>
<th>Variables</th>
<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.12</td>
<td>-.16</td>
<td>-2.49</td>
<td>.013</td>
<td>-.18</td>
<td>-.16</td>
<td>.92</td>
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<tr>
<td>CAM use</td>
<td>2.65</td>
<td>.11</td>
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<td>.080</td>
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<td>.11</td>
<td>.93</td>
<td>1.06</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.88</td>
<td>.22</td>
<td>3.24</td>
<td>.001</td>
<td>.23</td>
<td>.20</td>
<td>.85</td>
<td>1.17</td>
</tr>
<tr>
<td>Depression</td>
<td>2.75</td>
<td>.15</td>
<td>2.16</td>
<td>.032</td>
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<td>.13</td>
<td>.84</td>
<td>1.18</td>
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<tr>
<td>Self-distraction</td>
<td>0.83</td>
<td>.08</td>
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<td>.257</td>
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<td>.07</td>
<td>.81</td>
<td>1.22</td>
</tr>
<tr>
<td>Religion coping</td>
<td>0.77</td>
<td>-.04</td>
<td>-0.63</td>
<td>.525</td>
<td>-.04</td>
<td>-.04</td>
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<td>Venting</td>
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<td>.06</td>
<td>.05</td>
<td>.84</td>
<td>1.18</td>
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<tr>
<td>Self-blame</td>
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<td>.118</td>
<td>.11</td>
<td>.10</td>
<td>.77</td>
<td>1.29</td>
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<tr>
<td>Denial</td>
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<td>.09</td>
<td>1.31</td>
<td>.190</td>
<td>.09</td>
<td>.08</td>
<td>.85</td>
<td>1.16</td>
</tr>
<tr>
<td>Behaviour disengagement</td>
<td>1.19</td>
<td>.06</td>
<td>0.99</td>
<td>.321</td>
<td>.07</td>
<td>.06</td>
<td>.94</td>
<td>1.064</td>
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</table>

(B) Parsimonious model for fatigue

<table>
<thead>
<tr>
<th>Variables</th>
<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>1.91</td>
<td>.26</td>
<td>3.74</td>
<td>&lt;.001</td>
<td>.26</td>
<td>.24</td>
<td>.88</td>
<td>1.13</td>
</tr>
<tr>
<td>Age</td>
<td>0.12</td>
<td>-.22</td>
<td>-3.33</td>
<td>.001</td>
<td>-.23</td>
<td>-.22</td>
<td>.99</td>
<td>1.00</td>
</tr>
<tr>
<td>Depression</td>
<td>2.77</td>
<td>.14</td>
<td>2.01</td>
<td>.046</td>
<td>.14</td>
<td>.13</td>
<td>.87</td>
<td>1.13</td>
</tr>
</tbody>
</table>
Predictors of Nausea and Vomiting

For the predictors of nausea and vomiting, three independent variables were included in the initial multiple regression analysis since these bivariate correlations were weakly significant. In the initial regression analysis, examination of Beta weights and significance levels for the three independent variables indicated the relative contribution of each to the dependent variable of nausea and vomiting, to determine which independent variable was the most influential. The details of the findings are presented in Table 4.18A. The initial multiple regression model indicated that age, income, anxiety in the prediction of nausea and vomiting. The initial model demonstrated that three independent variables accounted for 6.8% of the variance in nausea and vomiting for the sample group. These three independent variables were entered into the equation, $R^2 = .068$ (adjusted $R^2 = .054$), $F(3, 192) = 4.676$, $p = .004$.

Part correlation coefficients are displayed in Table 4.18A and B, and indicate the strength of the relationship between nausea and vomiting and each separate independent variable when the predictive effects of the other independent variables in the regression model were controlled for. It was necessary to reassess the model in relation to variable combinations and their effects on collinearity. The correlation matrix for the independent variables was examined to identify potential collinearity. All correlations were within a range of $r = .03$ to $.47$, which were not highly correlated with each other and less than the suggested $r = .90$ (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of .10, consistent with the absence of serious levels of multicollinearity. The tolerance value and VIF are detailed in Table 4.18A and B. The findings were supported by tolerance levels of greater than .10 and VIF values below the threshold tolerance value of 10 (Hair et al. 2006).

Based on initial examination of the Beta values, $t$-statistic, and $p$-value, another standard multiple regression analysis was performed to achieve model parsimony (Table 4.18B). Age and anxiety were the significant predictors of nausea and vomiting (Table 4.18B). This parsimonious model, $R^2 = .057$ (adjusted $R^2 = .048$), $F(2, 193) = 5.885$, $p = .003$, indicated that age and anxiety accounted for 5.7% of the variance in the nausea and vomiting for the sample group.
Table 4.18: Initial Multiple Regression and Parsimonious Multiple Regression Model of Independent Variables on Nausea and Vomiting of Symptom Dimensions

(A) Initial model for nausea and vomiting

<table>
<thead>
<tr>
<th>Variables</th>
<th>Std error</th>
<th>$\beta$</th>
<th>$t$-value</th>
<th>$p$-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
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<td>-2.54</td>
<td>.012</td>
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<td>-.17</td>
<td>.99</td>
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<td>-.10</td>
<td>.98</td>
<td>1.01</td>
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</table>

(B) Parsimonious model for nausea and vomiting

<table>
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<tr>
<th>Variables</th>
<th>Std error</th>
<th>$\beta$</th>
<th>$t$-value</th>
<th>$p$-value</th>
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<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>1.49</td>
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<td>2.45</td>
<td>.015</td>
<td>.17</td>
<td>.17</td>
<td>.99</td>
<td>1.00</td>
</tr>
<tr>
<td>Age</td>
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<td>-.17</td>
<td>-2.45</td>
<td>.015</td>
<td>-.17</td>
<td>-.17</td>
<td>.99</td>
<td>1.00</td>
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</table>
**Predictors of Pain**

For the predictors of pain, seven independent variables were included in the initial multiple regression analysis since these bivariate correlations were weakly significant. In the initial regression analysis, examination of Beta weights and significance levels for the seven independent variables indicated the relative contribution of each to the dependent variable of pain, to determine which independent variable was the most influential. The details of the findings are presented in Table 4.19A. The initial multiple regression model indicated that only anxiety was significant in the prediction of pain, as presented by the Beta coefficient \( \beta = .261, t\text{-value} = 3.770; p < .001 \). The initial model indicated that seven independent variables accounted for 18.8% of the variance in pain for this sample. In the initial model, seven independent variables were entered into the equation, \( R^2 = .188 \) (adjusted \( R^2 = .158 \)), \( F (7, 188) = 6.228, p < .001 \).

Part correlation coefficients are displayed in Table 4.19A and B, and indicate the strength of the relationship between pain and each separate independent variable when the predictive effects of the other independent variables in the regression model were removed. The correlation matrix for the independent variables was examined to identify potential collinearity. All correlations were within a range of \( r = .29 \) to \( .43 \), which were not highly correlated with each other and less than the suggested \( r = .90 \) (Hair et al., 2006). The tolerance value for each independent variable was above maximum tolerance value of \( .10 \), consistent with the absence of serious levels of multicollinearity. The tolerance value and VIF are detailed in Table 4.19A and B. The findings were supported by tolerance levels of greater than \( .10 \) and VIF values below the threshold tolerance value of \( 10 \) (Hair et al. 2006).

Based on initial examination of the Beta values, \( t\)-statistic, and \( p\)-value, another standard multiple regression analysis was performed to achieve model parsimony (Table 4.19B). Anxiety was the best predictor of pain (Table 4.19B). This parsimonious model, \( R^2 = .112 \) (adjusted \( R^2 = .107 \)), \( F (1, 194) = 24.397, p < .001 \), indicated that anxiety accounted for 11.2% of the variance in the pain for the sample group.
Table 4.19: Initial Multiple Regression and Parsimonious Multiple Regression Model of Independent Variables on Pain of Symptom Dimensions

(A) Initial model for pain

<table>
<thead>
<tr>
<th>Variables</th>
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<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
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<td>-.11</td>
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<td>.269</td>
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<td>.07</td>
<td>.90</td>
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<td>.26</td>
<td>.24</td>
<td>.90</td>
<td>1.10</td>
</tr>
<tr>
<td>Positive reframing</td>
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<td>-.04</td>
<td>-.69</td>
<td>.491</td>
<td>-.05</td>
<td>-.04</td>
<td>.88</td>
<td>1.13</td>
</tr>
<tr>
<td>Self-blame</td>
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<td>.10</td>
<td>1.54</td>
<td>.123</td>
<td>.11</td>
<td>.10</td>
<td>.86</td>
<td>1.15</td>
</tr>
<tr>
<td>Denial</td>
<td>0.96</td>
<td>.11</td>
<td>1.68</td>
<td>.093</td>
<td>.12</td>
<td>.11</td>
<td>.88</td>
<td>1.12</td>
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</table>

(B) Parsimonious model for pain

<table>
<thead>
<tr>
<th>Variables</th>
<th>Std error</th>
<th>β</th>
<th>t-value</th>
<th>p-value</th>
<th>Partial</th>
<th>Part</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
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<td>.33</td>
<td>4.93</td>
<td>&lt;.001</td>
<td>.33</td>
<td>.33</td>
<td>1.00</td>
<td>1.00</td>
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</tbody>
</table>
4.6 Model Evaluations

In evaluating the initial and parsimonious models, sample size, R squared values, adjusted R squared values, \( p \)-values and t-statistics were considered. The sample size of this study in each model remained unchanged. There were expected decreases in the R square values from the initial models to the parsimonious models because fewer independent variables were included in the parsimonious models (Hair et al, 2006). With the removal of non-significant variables, the total variance decreased; however all predictors in the final models made a significant and unique contribution as predictors of QOL in this sample. The adjusted R squared values in each of the models changed less when comparing the differences in these values between the initial and parsimonious models. These smaller differences suggest that the parsimonious models do not over fit the data, hence are a more accurate indication of which independent variables contributed to the prediction of QOL in each model. Finally, the exclusion of non-significant predictors resulted in increases in \( t \)-statistics and Beta coefficients in the parsimonious models for functional dimensions and global QOL. Anxiety, depression, and symptom distress were frequent predictors in parsimonious models. Table 4.20 summaries the results.
Table 4.20 Summaries of Predictors of QOL and Their Explained Variances for Parsimonious Multiple Regression Models

<table>
<thead>
<tr>
<th>Scales of EORTC QLQ C-30</th>
<th>Predictors</th>
<th>Explained variance of the parsimonious model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical function</td>
<td>Depression</td>
<td>12.8%</td>
</tr>
<tr>
<td>Role function</td>
<td>Depression, Symptom distress, Humour</td>
<td>22.2%</td>
</tr>
<tr>
<td>Emotional function</td>
<td>Anxiety, Venting, Symptom distress, Humour</td>
<td>43.8%</td>
</tr>
<tr>
<td>Cognitive function</td>
<td>Anxiety, Symptom distress, Denial coping</td>
<td>21.6%</td>
</tr>
<tr>
<td>Social function</td>
<td>Anxiety, Symptom distress, Self-distraction, Depression, Humour</td>
<td>28.7%</td>
</tr>
<tr>
<td>Global QOL</td>
<td>Depression, Planning coping, Symptom distress, Anxiety</td>
<td>31.9%</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Anxiety, Age, Depression</td>
<td>15.6%</td>
</tr>
<tr>
<td>Nausea and vomiting</td>
<td>Anxiety, Age, Depression</td>
<td>5.7%</td>
</tr>
<tr>
<td>Pain</td>
<td>Anxiety</td>
<td>11.2%</td>
</tr>
</tbody>
</table>
4.7 Summary

The women with breast cancer who participated in this study were recruited from the east of Taiwan. The majority were high school educated, married, Buddhists not currently employed, and with a mean age of 53 years and an average household income of NT$546,040 (AUD$23,235.74) per annum. The time since diagnosis ranged from 25 months to 36 months with a mean of 28 months. Most women were diagnosed with Stage II, had had a mastectomy and had no recurrence of the disease. Approximately 74% of women reported that they were CAM users before and/or after the diagnosis. The symptoms most frequently experienced by the women were fatigue, insomnia, pain severity and pain frequency. The majority, were within the normal range of anxiety or depression, had a high level of internal health locus of control. However, 21.9% of women were in the borderline and probable cases of anxiety. Five frequently used coping strategies were acceptance, active coping, positive reframing, emotional support, and instrumental support.

The most common types of CAM used were Chinese medicine, herbal medicine, and prayer. Also, women spent an average of NT$ 6,895.83 (AUD$ 293.50) monthly on CAM therapies. The main reason for women using CAM was to increase their body’s ability to fight the cancer. The most common sources of information about CAM were from friends and family. However, there were inconsistent results with the reasons for using CAM and the experienced benefits reported by the women.

With regard to the various dimensions of QOL, the sample group had excellent role functioning and medium high level of global health status/QOL. There were numerous significant bivariate relationships between the independent variables and the dependent variables of QOL. Age was significantly correlated to physical function. There was a positive relationship between educational levels and physical function, role function, and global QOL. Recurrence of disease was weakly related to global health status/QOL in the sample group of this study. Additionally, women who used CAM had better physical functioning, social functioning, and global health status/QOL.
There were inverse relationships between women’s perceived symptom distress and various functional dimensions including role function, emotional function, cognitive function, and social function, and global health status/QOL. Women’s anxiety was negatively correlated with all dimensions of QOL, except the symptom of appetite disturbance. Women with greater levels of depression expressed poorer functioning, higher level of symptoms, and worse global health status/QOL. With regard to relationships between use of coping strategies and QOL, women who frequently used acceptance, active coping, positive reframing, emotional support, instrumental support, planning and humour, had better functioning and global health status/QOL.

The results showed that women’s perceived QOL were predicted by various independent variables including age, symptom distress, depression, anxiety, and use of coping strategies (i.e. humour, denial, self-distraction, and planning). Three independent variables in relation to symptom distress, anxiety and depression were most influential in the prediction of QOL. Additionally, use of particular coping strategies including planning coping, denial, humour, venting, and self-distraction made statistically significant contributions in the predictions of various aspects of QOL. Although CAM use did not make a significant contribution in predicting QOL among women with breast cancer in this study, 73.5% of women were CAM users. Therefore, it is important to explore these women’s perception regarding used of CAM using a qualitative approach. The results of the qualitative phase of this study are presented in the following chapter.
CHAPTER FIVE

FINDINGS FROM PHASE TWO

5.1 Introduction

The findings from Phase Two of the qualitative data analysis are presented in this chapter, namely the in-depth interviews undertaken to understand the women’s use of CAM. The aim was to explore the role CAM play in helping Taiwanese women cope with breast cancer. While CAM use was not significant in predicting QOL among this group of women in Phase One, findings of Phase Two provide the depth of insight into the role of CAM through the shared women’s stories. The findings encompass reasons for using CAM, influences on decision making in CAM use, and effects of CAM use among the women emerged from the data analysis. The details of the findings are presented in the following sections.

5.2 Participants

To explore the experience of CAM use among Taiwanese women with breast cancer, semi-structured interviews were conducted with 16 of the women who participated in Phase One. The age of the participants ranged from 24 to 67 years, with a mean age of 47.9 years (SD = 10.0). The majority were high school educated, married, Buddhist, currently employed, and with an average annual household income of NT$634,375. At the time of the data collection, most participants reported having had breast surgery; they had been diagnosed with Stage II cancer for 25 to 36 months. Most of the women reported having received all types of adjuvant treatment. Initially, the data were sorted into three broad domains, and the subcategories were identified using content analysis. These subcategories were then grouped according to similarities into further categories. Table 5.1 provides an overview of the findings, including the domains, categories, and subcategories.
<table>
<thead>
<tr>
<th>Domain</th>
<th>Categories</th>
<th>Subcategories</th>
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<tbody>
<tr>
<td>Reasons for using CAM</td>
<td>Dealing with emerging health problems through CAM use</td>
<td>Relieving symptoms</td>
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<tr>
<td></td>
<td></td>
<td>Boosting immunity</td>
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<td></td>
<td></td>
<td>physical recovery</td>
</tr>
<tr>
<td></td>
<td>Regaining balance in life</td>
<td>Modifying lifestyle</td>
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<td></td>
<td></td>
<td>Taking control to meet personal health needs</td>
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<tr>
<td></td>
<td>Fighting cancer to enhance health</td>
<td>Helping to fulfill social roles</td>
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<tr>
<td></td>
<td></td>
<td>Actively doing something</td>
</tr>
<tr>
<td>Influences on CAM use decisions</td>
<td>Family and friends’ influences</td>
<td>Family members’ sharing information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Friends’ suggestions</td>
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<tr>
<td></td>
<td>Communication with health care professionals</td>
<td>Medical doctors’ dismissive attitudes toward CAM</td>
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<tr>
<td></td>
<td></td>
<td>CAM professionals’ caring</td>
</tr>
<tr>
<td></td>
<td>Beliefs about CAM</td>
<td>Cultural background</td>
</tr>
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<td></td>
<td></td>
<td>Personal beliefs in the efficacy of CAM</td>
</tr>
<tr>
<td>Effects of CAM use</td>
<td>Living a normal life</td>
<td>Regaining normality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Being happy</td>
</tr>
<tr>
<td></td>
<td>Building strong social networks</td>
<td>Strengthening relationships with family and friends</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interacting with peers</td>
</tr>
</tbody>
</table>
5.3 Reasons for Women Using CAM

A wide-range of reasons were given for using CAM; these were divided into three categories: *dealing with emerging health problems through CAM use*; *regaining balance in life*; and *fighting cancer to enhance health*. Although all participants accepted Western biomedical treatments, there was some dissatisfaction with their conventional cancer care. Thus the women used various CAM therapies as complementary methods, instead of their conventional care, for comfort, for relief from existing health conditions, and for the side effects from Western biomedical treatments. Indeed some CAM use related to overcoming or preventing the damaging consequences of conventional cancer treatments, which often resulted in unwanted symptoms and lifestyle changes. Accordingly, the reasons offered for using CAM related to combating, ameliorating, and preventing the disease itself. The supporting data are presented in the following sections.

5.3.1 Dealing with Emerging Health Problems through CAM Use

During the current study the women shared their cancer treatment experiences and described how they had exhausted their treatment options. They indicated that Western medicine was not effective in relieving problematic health conditions, such as the side effects or symptoms. Some women reported that, although Western medicine had ‘cured’ the disease; it also destroyed their well-being. They had sought numerous options for dealing with their emerging health problems through the use of CAM. The label given to the first category, “*dealing with emerging health problems through CAM use*”, emerged from the textual data. Three subcategories were also identified: relieving symptoms, boosting immunity, and improving physical recovery. These subcategories are discussed below.

*Relieving Symptoms*

The women who suffered side effects from their Western biomedical treatments found the need to gain some relief from their symptoms. Some women were very specific about the kinds of symptoms for which they were seeking relief. For these women,
Western medicine was inadequate and its side effects were unacceptable. They have turned to CAM for relief and to improve their sense of physical well-being. Importantly some women reported an improvement in their personal health after using CAM therapies and experienced a more positive feeling of perceived well-being. One woman stated:

*I feel my body getting better, I think that the more I try, I will get better for my body. I have been taking lots of these things [dietary supplements]...I am taking mushroom extracts that contain nature components. Now, I have less nausea and vomiting and [a] better appetite. I just feel good.* (Ms E, 54-year-old, Stage II)

Other women described how their symptoms negatively affected their lives. A 67-year-old woman was experiencing swelling of her legs and arms that severely limited her movements. She explained that this was the reason for turning to CAM use:

*That was because after I completed the chemotherapy, my body didn’t get well, especially, my arms and legs. I can’t straighten my arms and legs. I went to see the doctor and he just said to me “I was the only one case that he met”. He prescribed the medications. However, the drugs didn’t help. My legs are still swelling and can’t walk. So, I am using Chinese medicine to relieve the swelling.* (Ms O, 67-year-old, Stage II)

Many women also gave specific examples for how CAM therapies helped them to relieve the symptoms. They expressed the deep desire for improving not only physical well-being but also psychological well-being by using CAM, as this comment typifies:

*While undergoing chemotherapy, my period had been stopped. Then I have menopause, insomnia, hot flush, and cold sweating, etc...Especially, you feel extremely uncomfortable once you had the surgery. This is why I practice Qi Gong regularly and actively, as well as learning relaxation techniques. In fact, I try to improve not only my physical well-being, but also psychological well-being. Physical and psychological well-being are like “one coin with two sides”. You can’t only focus on one side.* (Ms G, 50-year-old, Stage I)

From these viewpoints, CAM therapies have enabled women to reduce their physical and psychological symptoms. The CAM therapies chosen by the women appeared to be effective because the CAM made them “feel better”. That is, CAM improved their
inseparable sense of physical and psychological well-being (i.e. their QOL).

**Boosting Immunity**

Boosting immunity was the second subcategory to emerge with the use of to fight breast cancer (as broadly discussed in the literature). For the women in the current study, the term “boosting immunity” was understood not only in the context of physical function, but also related to an integral element of survival and a major component of maintaining well-being. The women believed that the harmful effects of conventional treatments damaged their whole body and their “immune system”. For example, a well-educated woman stated:

> *From my background of knowledge, I had studied microbiology and biology when I was studying my masters. I knew these things [nutrition supplemental products] could build up the killer cells in terms of the immune system. And it really boosts my immune system. It does work. My blood tests have been shown in the normal range since I had the chemotherapy. (Ms C, 48-year-old, Stage I)*

Another woman said:

> *I felt my body has changed since I have been taking a lot of the stuff [nutrition supplemental products] and become vegetarian. We know what we eat, if we haven’t got the right supply, we were not able to improve our body function. I mean that once you got chemotherapy, it destroyed your body. And we need to boost our body with natural things to repair the damage. The kinds of stuff build my body and immune system. I can feel it. My last blood test has shown everything is coming up.... So, if anything goes wrong with my body it’s the immune system that has to fix it. (Ms G, 50-year-old, Stage I)*

These women emphasised the deleterious effects of Western biomedical treatments, firmly believing that chemotherapy resulted in a build-up of toxins in their body. They sought CAM therapies as a natural way to repair such damage and to build up their immune system to maintain their well-being. In this context, the immune system played an essential role in stimulating the internal healing power of the body and in removing the toxins.
Improving Physical Recovery

The third subcategory was improving physical recovery. When referring to increasing their sense of well-being through using CAM, the women ensured that the CAM therapy achieved the therapeutic benefit for which it was prescribed. Some women reported that CAM therapies were “helpful”. These ideals of effective treatment appear to have motivated CAM use, as typified in this comment:

*My Chinese medicine doctor told me that the Chinese herbs what I am taking can adjust my body and clean out the heat from my body. I take it everyday and it works. Yes, it actually makes me feel better. ...... It [acupuncture] was amazing. It really helped me to go through the last three courses of chemotherapy. It was really helpful.* (Ms B, 48-year-old, Stage II)

A few of women reported that their use of CAM was effective for improving a specific physical function, which had become impaired because of Western conventional treatments. By improving their physical function, their physical recovery progressed. As one woman stated:

*I got a high dose for my chemotherapy, because of my young age. At the moment, my heart function was getting worse. So, I turned to use Chinese medicine to improve my heart function. After I used, I felt my heart function getting better. I can sleep well and feel the Chinese medicine can recuperate my body.* (Ms J, 24-year-old, Stage II)

It appears that the women believed CAM improved their physical recovery. CAM seems to be able to do something that conventional medicine has failed to achieve in relation to regaining some level of health and well-being. Within this context, improving physical recovery to enhance the quality of life was important in motivating the women to use CAM.

5.3.2 Regaining Balance in Life

The category, regaining balance in life was couched in terms of taking a holistic approach as a means of relieving the distress association of breast cancer and its treatment. Some women used CAM therapies as strategies not only to relieve physical
symptoms but also to relieve the psychological and spiritual stress caused by the disease and its treatment, and to regain their balance in life. These women perceived a reduction in stress and anxiety, felt better able to restore balance, modified their lifestyle, and satisfied their personal health needs through using CAM. The women considered that the health care outcomes had failed when the treatment expectations did not achieve their personal health needs. In such instances, women frequently used CAM, as it allowed some perceived control over the treatment itself, and thus women felt empowered through using such strategies to meet their health needs. Two subcategories emerged from the textual data: modifying life style; and taking control to meet personal health needs.

**Modifying Lifestyle**

The first subcategory that emerged reflected lifestyle; women attempted to improve their health outcomes by modifying their lifestyle, such as undertaking dietary changes and doing exercise. They believed that these changes were important to incorporate into their lifestyle. One woman stated:

*I just feel so happy and lucky, because I think the disease was warning me that I should look after myself. Now, I get up early and go walking in the early morning, and then I practice Tai Chi for an hour. I have readjusted my lifestyle after I got cancer. Go to bed early and get up early. You know that exercise is important for people’s life. Medication is not a good solution for human body, I believe the nature way for improving healthy life. So, I am doing the nature way. Practicing Tai Chi in the early morning makes me feel healthy.* (Ms P, 43-year-old, Stage I)

Another woman viewed cancer as the impetus to pay more attention to her health. She said:

*I didn’t do exercise regularly and had no time to practice, but after I got the cancer and just found that “disease” was reminding me should take care for myself. I really did not pay much attention to my health, so since I had the surgery and chemotherapy for my cancer, I have been trying to regulate my lifestyle, such as changing diet, doing exercise, and learning to relieve the stress. I feel I am doing well.* (Ms I, 45-year-old, Stage II)
For these women, the use of CAM demonstrated that they were paying more attention to their health. Further, to regain balance in their lives, the women used exercise and changed their diet as strategies to modify their lifestyle, which then played an essential role in preserving and improving their health.

**Taking Control to Meet Personal Health Needs**

“Taking control to meet personal health needs” was another subcategory to emerge. It was related to using CAM because biomedicine was a predominant necessity within the conventional health care system and, therefore, did not allow or recognise individual characteristics or preferences. Some women refused to place their full reliance on Western medicine, consequently their use of CAM represented a way in which they could regain control of some aspect of their health. Hence, the use of CAM allowed women to have freedom and to be more responsible for engaging in the management of their medical condition. The following comment exemplified taking control with CAM:

> If you only sit there and wait for the doctor’s prescriptions, you waste much time. Absolutely, no way…. I always keep an idea that is ‘the life belongs to myself, not someone else’, I have to take care for myself. Yes, I felt totally responsible for my body in terms of health, and the CAM therapy helped me to feel in control. (Ms C, 48-year-old, Stage I)

By taking control of the biomedical treatments, women’s use of CAM was based on their unique understanding of their health needs. They showed a sense of responsibility for their health and a belief that they were able to find the appropriate treatment for themselves. A woman stated:

> Although we have to rely on the doctors, in the end, we still have to rely on ourselves. Say, we have to deal with 80% of health problems by ourselves, and the [biomedical] doctors fix the rest of 20%. I knew my body needed much more than surgery, chemo or radiation. I believe that I am capable of doing something and enhancing my health, like I am using Qi Gong and Chinese medicine. (Ms D, 38-year-old, Stage IV)

Doing what was best reflected a reliance on CAM that was an important source of inner control that enabled these women to manage their personal health needs:
By doing the exercise and taking the dietary supplements, I felt I am healthier and happier than before I got the cancer. I won't quit. They keep my life staying healthy and pleasant. I have the confidence that I am doing right things for myself. The right things are the best for me. You have to be responsible for yourself; you can't wait for them [doctors] because they can't do so much. Everyone is individual and different. If you want the best you have to find out and get it, just like me keep doing these things [CAM regimens]. (Ms P, 43-year-old, Stage I)

Some women suggested that CAM use was a coping strategy not only to regain control but also to maintain the hope. By continuing to use CAM therapies the women were confident in meeting their health needs. They perceived the conventional biomedical treatments as limited and a failure in respect to controlling their cancer, and even in preventing its recurrence. Within the context of taking control, CAM use was essential for the women to create “a safe space”, reducing the sense of insecurity and uncertainty, and maintaining hope that was caused by the limitations of conventional health care.

5.3.3 Fighting Cancer to Enhance Health

The category, fighting cancer to enhance health, was epitomized by the way that the women described cancer as a trigger for using CAM. Many women demonstrated their strength and fighting will to face the cancer instead of having a fatalistic, self-defeating attitude. There were a variety of ways that these women fought the cancer, having an indomitable will to survive, and refusing to give in and surrender to the cancer. For these women, there was an implicit lack of faith in the ability of Western medicine to treat or cure their cancer. CAM offered them some relief and hope, thus helping to fulfill social roles, and actively doing something, emerged as subcategories.

Helping to Fulfil Social Roles

“Helping to fulfill social roles” was a subcategory that arose from the context of fighting the cancer. To fight the cancer, women reported that they used CAM therapy as a tool to enhance their health and regain a normal life. Their perception of living a normal life was conceptualised by their ability and responsibility to fulfill their social
roles and life goals. Some women suggested that through CAM, they attained better health because CAM therapy provided the energy needed to fulfill their social responsibilities. One woman commented:

*I am a single mother. I need to go back work and earn money to look after my children. I can't waste time being sick. If I am ill, who can look after my children? I have to fight the disease.* (Ms D, 38-year-old, Stage IV)

Another woman spoke of her desire to care for her children and fulfil her role as mother. She said:

*I have got to do something to fight the cancer and survive. Yeah, I had completed the treatment but I am still taking Chinese medicine. It may be useful for avoiding the recurrence of cancer...... I mean, I might have the cancer, but I want to do everything that other mums can do, just like take care my kids appropriately.* (Ms K, 42-year-old, Stage II)

Additionally, some women thought CAM helped them to avoid being a burden on their families. One woman stated:

*I am single. I don't want my parents to look after me for the rest of my life, if my cancer gets worse. So, I do what I can for fighting the cancer. My parents have gone through the suffering as I have. I want to repay them for their help. Yes, the best reward for my parents is showing that I am living with health. And I have to keep my job and financial security. So, I can do things helping me live healthily and fight the cancer, like the stuff I do.* (Ms B, 48-year-old, Stage II)

Another woman spoke of her determination to fight so that she could fulfil her role and obligations:

*In order to look after my kids and me, my husband took a six-month leave without pay. I wouldn't let my husband be fired by his company, if he couldn't return his work by six months. I have to be well, be healthy and be better. I wasn't going to sit back and just wait for the [Western biomedical] doctors tell me what to do. You know, I have to fight. That's why I use CAM to attain my health.* (Ms K, 42-year-old, Stage II)

These women demonstrated that CAM helped them to regain a normal life, and to resume and fulfill their social roles. They considered that CAM contributed to enhancing their health and well-being, enabling them to look after their family or maintain some form of paid work. In relation to their social roles, CAM was used as a tool to fight the cancer and regain a normal life, fulfilling their own needs, wants, and
desires, and envisaging a more important role within their lives. Hence, the reasons of CAM use were related to increasing the QOL.

**Actively Doing Something**

Another subcategory, “actively doing something”, related to women using CAM as a means of actively engaging in their own health and overcoming their passive reliance on Western biomedicine. Consequently, women considered the use of CAM as an appropriate health care decision when biomedicine could do no more. The following statement is an example of women using CAM as a way of demonstrating that they could actively undertake steps to alleviate their health concerns:

*I can’t wait for the doctor telling me to do something, because they [biomedical doctors] are not God. I need to do what is best for myself and keep doing them continually. I started to search from the internet and then I saw the Chinese medicine practitioners and then I took the Chinese herbs till now. I also take some kinds of dietary supplements products and practice Yoga everyday. I felt better and pleasant after I have done these. I proved to myself they [biomedical doctors] were wrong. I told myself “just keep going, don’t stop.” (Ms J, 24-year-old, Stage II)*

When exploring CAM therapies, women were willing to meet the challenges of facing a major health crisis. They suggested that their ability to take care of themselves, in spite of serious health issues, was inspired through CAM use. One woman said:

*I could do something more to help myself other than the things [biomedical drugs]. I didn’t know what the benefits for using that kind of stuff [dietary supplements] before I used them. However, I knew in my heart that there was something [CAM therapies] that could make me better. I do it so I don’t get really sick and am sure I won’t get worse. Yeah, I feel good and comfortable. I have been taking the stuff [dietary supplements] since I got surgery. You know, taking this kind of stuff [dietary supplements], you have to keep going. I mean it. I take this stuff everyday. I won’t stop using them. (Ms I, 45-year-old, Stage II)*

The women used CAM as a way of not passively accepting the conventional biomedical treatments that they felt were not meeting their health needs. The ability to choose CAM therapies allowed them to take action that they perceived to improve their health.
5.4 Influences on CAM Use Decisions

The second domain illustrates the influence on women’s decisions to use CAM and the various ways they made their decisions regarding CAM use. Some women highlighted that their decisions relied on their family or close friends, who were actively involved in their CAM decision making process. Further, their decision to use CAM was often influenced by their interactions with health care professionals (conventional or CAM). Additionally, cultural perceptions and personal beliefs seemed to influence the choice of CAM options amongst Taiwanese women with breast cancer. Three categories emerged from the data: *family members’ and friends’ influences*, *communications with health care professionals*, and *beliefs about CAM*.

5.4.1 Family Members’ and Friends’ Influences

The category, *family members’ and friends’ influences*, shaped how women’s use of CAM relied on family members’ provision of information and friends’ suggestions. The involvement of significant others in their decisions making presented an important way of offering support for the women during the illness experience. Two subcategories were identified: family members’ sharing information and friends’ suggestions.

*Family Members Sharing Information*

The subcategory “Family members sharing information” reflected the family members’ caring by sharing CAM information. The women consistently reported family members as being ‘sounding boards’, who provided both financial assistance and emotional support for CAM use. Many families had strong beliefs towards the use of CAM and those beliefs directly influenced and supported the women’s CAM decision making. As this woman stated:

*My sister is a pharmacist. She thinks that Chinese medicine is good for me. Also, she believes that Chinese medicine is a complementary method for recovering my body, especially after I got the surgery for my cancer. And she recommended that I should use Chinese medicine as a complementary therapy to repair my body. We discussed with my mother and then decided that I have to see the Chinese medicine doctor. So, I visit the Chinese medicine doctor regularly.* (Ms
The influence of family members in women’s decisions to use CAM was a demonstration of filial piety within the context of traditional Chinese culture. Thus, it is expected that children show their appreciation through caring and respecting their parents, especially when the parents are ill. Some women expressed the reality that their decision regarding CAM use depended on their children’s providing the information:

*My son and daughter searched the information about these kinds of things [CAM products] from some books and the Internet. They do really care about me. They can understand the English, but I can’t. I don’t know the dosage and can’t read the English descriptions, like the daily usage. And my son wrote down the usage and reminded me how to take them. So, I am doing what they [son and daughter] say to me.* (Ms O, 67-year-old, Stage II)

Other women emphasised that their family members’ involvement in their process of CAM decision making was based on sharing, gathering and reviewing information on CAM together. This involvement was typified by collaboration as the women and family members worked together in making the CAM decision. This woman stated:

*Actually, searching information from the Internet is easy. My sister surfs the Internet and blogs quite often, and then she provides the useful information to me. Also, my brother has the network with some oncologists because of his business, he usually discusses with these doctors. They search and provide the information to me. Sometimes, I searched the Internet to get information as well. We usually discuss about what kind of CAM products I should take. Luckily, I have lots of information from my sister and brother. Both of them [are] always concerned about my treatment, diet, and some CAM products. If they find some products [that] are helpful to me, they buy for me.* (Ms J, 24-year-old, Stage II)

In such cases, family members’ provision of information appeared to be directed towards encouraging the women to use the CAM therapy their family preferred. With the sharing of information about CAM, the involvement of the family members in CAM use directly influenced the decision making process by encouraging the women to make a decision to use a select CAM therapy. Moreover, the women truly believed that the family members’ sharing in their CAM decision making process was the strength that supported them to continue their journey. Another woman shared:

*When I was diagnosed with cancer, I was fearful and anxious. I told my husband*
that I would have the surgery, radiotherapy and chemotherapy. My husband said to me: “Whatever you need to do, we just do it.” And then, he searched the information about CAM from the Internet, media, and books. He shared the information with me. Interestingly, now we get up early and practice Qi Gong every morning. I understand that he really cares about me. [Laughing]… I think because of his caring that I am able to go through the tough task. (Ms H, 56-year-old, Stage I)

**Friends’ Suggestions**

Friends’ suggestions regarding the CAM decision making process directly impacted on the type of CAM used. For example, one 43-year-old woman stated:

A close friend came to visit me and suggested that I should take dietary supplementary products. She suggested that I should try the dietary supplementary products to reduce the side effects of the chemotherapy. And later she gave a pack of high protein capsules to me. Well, I listened to her and took them while I was undergoing the chemotherapy. (Ms A, 43-year-old, Stage II)

Some of the women tried CAM therapies without really knowing or understanding their value; however, based on advice from close friends, they thought they were worthwhile trying. Another woman described:

I attended the support group and gained more information from the group. I listened to the women how they chose and what they used. The information is overwhelming. Also, I talked to some close friends and they said to me “you just try.” So, I tried, even though I didn’t know what the benefits [were] for using that kind of stuff. (Ms P, 44-year-old, Stage I)

There were a few women who described having limited involvement in the CAM decision making process and the influence of their friends’ suggestions. In these situations, the women, perceived to be “scared” by their cancer experiences, were motivated to allow some of their close friends to take over their health care decision, and thus reduce the burden and ensure a CAM decision was made. This woman shared:

I was scared since I had been diagnosed with the cancer. I couldn’t sleep well and always had nightmares. I told my best friend about my fear. She is a Buddhist. One day, she gave a copy of Buddhism Bible to me and asked me if I was willing to pray the Buddha with her. Later, she conducted the prayer for me…. She told me that I should read the Buddhist Scripture everyday…. I feel
more peaceful. Now, we read the Buddhist Scripture together and prayer together once a week. (Ms C, 48-year-old, Stage I)

The influences of family members’ caring or friends’ other suggestions in the women’s CAM decision making process played an important role in moving the women toward CAM use.

5.4.2 Communication with Health Professionals

The category, communication with health professional, in relation to CAM use was described by women as consisting of listening, openness and mutual discussion, and it was seen as a challenge in the women’s CAM decision making process. The following text describes two subcategories that reflect the variability experienced when the women disclosed their CAM use with health professionals.

Medical Doctors’ Dismissive Attitudes toward CAM

Many women expressed their frustration and disappointment with conventional health care professionals’ failure to show an interest in discussing their CAM use. While the women attempted to initiate this discussion, their efforts were usually not reciprocated. A woman stated:

You know, if you expect that the [Western medicine] doctors provide any information about CAM, you will be frustrated. I tried to ask the doctor before, but no any reaction. I think the [Western medicine] doctors are not interested in this discussion. They wouldn’t like to spend time for discussing. Time is money for them. You know...(Ms D, 38-year-old, Stage IV)

Consequently, women had negative experiences when communicating with the conventional health professionals, because the medical encounters were considered unhelpful or simply a waste of time. Some women reported that the doctors belittled them and showed a lack of respect, especially when the doctors did not answer questions directly, as shown in this statement:

I asked the oncologist whether it was helpful for using the Chinese medicine to relieve the side effects. He didn’t look at me and just said that this kind of stuff is
not scientific. He looked at the computer and prescribed the same medication to me. I told him these medications were not helpful. He just kept saying that I have to take more medications and didn't talk about Chinese medicine again. I felt I am stupid. That's pretty damned rude I reckon. I don't want to just take the medications. I want information and hope to get advice from the doctor. Then, I went to see the Chinese medicine doctor. (Ms D, 38-year-old, Stage IV)

For this reason, some women decided not to disclose their CAM use to their treating physician because the advice they received about CAM was replaced with advice about not using CAM. As one woman said:

*I asked the oncologist if there were any solutions including CAM use to fix up my skin problem. My skin got burns and ulcers while I had radiation therapy. The oncologist told me this was ‘common’. I asked him whether I could use Chinese medicine to fix up my skin. He just said “don't use it”, but didn't explain the reason. I was so disappointed and wouldn’t ask anything again. (Ms M, 49-year-old, Stage I)*

Additionally, communications with non-CAM professionals demonstrated the paternalistic attitudes of Western medical practitioners. There was no consultation or evidence of working with the women to remedy the side effects caused by conventional medicine.

**CAM Professionals’ Caring**

The subcategory, “CAM professionals’ caring”, was portrayed by women in several ways. Women reported a difference between CAM professionals and conventional health care professionals regarding the discussion of their health problems and CAM decisions. The discussions with the CAM professionals were perceived as allowing the women to tell their own story by asking broad questions about their health condition. One woman stated:

*When I was having the second course of chemotherapy, I saw other women who were having the chemotherapy infusion and vomiting in the room. I was terrified …. Well, I wouldn’t let it happen to me and got to do something. I went to see the Chinese medicine doctor at the next day. I asked the Chinese medicine doctor if he could do something to solve the problems that I might encounter. He asked me whether I was willing to try acupuncture. Oh, bingo! It was the way that I had considered, but I didn’t mention to him. (Ms B, 48-year-old, Stage II)*
A 24-year-old woman shared a story that illustrated her discussion during the consultations with a CAM professional. She felt at liberty to discuss her health problems in contrast to her oncologist. She stated:

*The Chinese medicine doctor treated me as a whole person. He is not only interested in my disease, but also more interested in my lifestyle, such as my eating habits, sleeping duration, and work. (Ms J, 24-year-old, Stage II)*

These comments were in contrast with showed how the women viewed the consultations with conventional health care professionals and CAM professionals, with the latter being more focused on “the whole” person, not just on the disease. The woman stated:

*I go to see the Chinese medicine doctor once a week, even if I have to spend more than one hour waiting. My Chinese medicine doctor is always concerned with how I feel. I mean not only physically, but also emotionally and psychologically. I ask the question whatever I like to ask. He is so patience and willing to listen. He never turns me away. I like to take his suggestions. (Ms B, 48-year-old, Stage II)*

Some women noted that the CAM professionals cared for and encouraged them to remain hopeful and optimistic. One woman stated that one of her health problems was disregarded by the biomedical doctor; however, it was solved by the CAM professional. The interaction between the woman and the CAM professionals offered an optimistic view of her health. She said:

*I have been in and out of the hospital many times because of my ascites. I was told that the spread tumour caused the ascites. They [Western medicine doctors] wouldn’t like to treat me actively, because they thought I was in the terminal stage. I turned to see a Chinese medicine doctor and he spent much time to review all my history. He told me “let’s do something, and it will be different.” The Chinese medicine doctor told me that I have to take the Chinese herbs for couple of months. And then my situation would be different for sure. Well, I was so encouraged by the Chinese medicine doctor. Not just like the oncologists keeping telling me that I am dying. Six months later, my ascites was totally disappeared. (Ms L, 43-year-old, Stage IV)*

Most comments described how the conventional health professionals’ lacked the time and interest to talk in depth, and consequently had difficulty in making a connection with the patients. Such experiences left the women feeling unsupported during the
consultation. In contrast, a more explorative questioning style and lengthier appointments, typical of CAM professionals, enabled the women to open up, offering opportunities to talk, to be listened to, to be understood, and to be cared for, all of which helped the women to deal more positively with their health condition. The collaborations between the CAM professionals and the women represented a way of empowering the women in their CAM decision making process.

5.4.3 Beliefs about CAM

The category, beliefs about CAM, among Taiwanese women with breast cancer were shaped by their Chinese cultural background and their personal beliefs, in relation to Traditional Chinese Medicine and the efficacy of CAM. Within the context of Chinese medicine, the influence of women’s CAM decision making was attributed to their philosophical beliefs that governed the lives of women. Their beliefs about the efficacy of CAM were derived from their personal experiences and there were inconsistent views among the women using CAM. Two subcategories were included: cultural background and personal beliefs in the efficacy of CAM

Cultural Background

Many women expressed the link between of using Chinese medicine and their cultural background. Although the health care system in Taiwan has been transformed into a modern Western biomedical care model in the last decade, the traditional foundation of Chinese medicine is still integrated in women’s health care practices. A woman stated:

*I am Chinese and grew up with the traditional Chinese culture. Do you know the balance of “Yin” and “Yang”? I believe the Chinese medicine can readjust my body. Now, I am taking the Chinese medicine and more focus on what I eat the food as following the balance of “Yin” [coldness] and “Yang”[heat]. (Ms B, 48-year-old, Stage II)*

In the context of Chinese medicine, the balance of “Yin [coldness]” and “Yang [heat]” is important; it is the belief that the imbalance of “Yin” and “Yang” may cause disease. Chinese traditions and beliefs inform the ways in which people view CAM and
provide insights into how they view “health”. A woman said::

Yes, the Western medicine is used to cure the acute disease, but not for curing the chronic disease, such as cancer. Especially, when you underwent the Western [biomedical] treatments that destroyed your “Qi”. I practice Tai Chi to restore the “Qi” that helps me to get more energy. Tai Chi is not only a form of exercise, but also is a kind of regimen. You know, Chinese people conceptualised the health underpinned by three bases Jing [energy], Qi [mental status], and Shen [spirit]. So, these are key components of people’s health and all important for life. (Ms D, 38-year-old, Stage IV)

In Chinese medicine, the principle of pragmatic healing is based on the modification of therapy through clinical practice. This concept is reflected in the actions of women who used Chinese medicine and focused on what was wrong with the whole body rather than on specific parts of the body. As one woman stated:

I have been using Chinese medicine and practicing Qi Gong since I completed the chemotherapy. I believe that “Qi” [mental status] is most important for the human body. If you don’t have the “Qi”, you may become more ill. Yes, “Qi” is a kind of energy, but it is not just a physical format. From the viewpoint of Chinese medicine, restoring and readjusting the “Qi” is primary for cancer patients who had the chemotherapy. So, I practice Qi Gong to restore the “Qi” and use Chinese medicine to readjust my body. I can feel my body is energetic, not so weak as before. I think Chinese medicine can take care more about the human body. (Ms O, 67-year-old, Stage II)

From these women’s perceptions, their use of CAM was shaped by their philosophy of life, which was based on the importance of harmony within the body, and with the body and the environment. Women thought that Western medicine destroyed their “Qi” and caused weakness; thus they used Chinese medicine to harmonise their body. The belief in the importance of maintaining an internal and external balance of the body is a core principle of traditional philosophical beliefs that inform traditional Chinese health practices.

**Personal Beliefs**

Although all women in the current study demonstrated a commitment to the use of CAM, they still viewed Western medicine as the primary treatment for cancer. Some women believed that Western medicine was scientific and evidence-based, and therefore the only therapy for curing cancer. They made the comments about how they
perceived CAM and Western medicine:

*I think Western medicine is more scientific, so I accepted the Western biomedical treatments to cure my cancer. Yes, when you were stable for the condition, then you may consider using CAM for the maintenance.* (Ms H, 56-year-old, Stage I)

Another woman doubted the efficacy of Chinese medicine for curing cancer, even though she was using it. She said:

*Although I am using Chinese medicine, I still believe Western medicine can quickly kill the cancer cells. Chinese medicine is impossible to cure the cancer; it just can take care of health or comfort the symptoms.* (Ms K, 42-year-old, Stage II)

When women evaluated the effectiveness of CAM use, they became aware of the conflict that influenced their CAM decision making process. Also, it ran counter to scientific evidence about the benefits of CAM, as the following statement shows:

*Although some people said the Chinese medicine could cure the cancer, there was no scientific evidence. Mostly, they are word of mouth. It is conflicted and complex when people provide this kind of information to you. I believed Western medicine was able to cure my cancer rather than the others.* (Ms N, 57-year-old, Stage I)

Some women perceived CAM as beneficial because it was natural and safe; they attributed these characteristics to the perception that CAM was “effective”. Further, CAM was considered a helpful health regimen because it was harmless:

*If it [CAM] was harmful, you wouldn't keep using, right? I've never seen any bad from it. You can feel what bad or good is. So, it does help me.* (Ms E, 54-year-old, Stage II)

Another woman viewed CAM as natural as it used organic products. She showed a positive attitude toward CAM and felt satisfied. She said:

*I believe that [using CAM] are good for me. I believe that nutrition, particularly raw foods, are probably the most beneficial things that we can put into our body. Yes, I’m most definitely satisfied. I am positive to CAM use. They [organic products] did not hurt me. Because they are natural things from the ground, they are safe and organic. I mean the organic is that there are no chemicals added to them.* (Ms F, 60-year-old, Stage II)
These views express the perceptions involved in women’s use of CAM as a multi-facet belief system, namely, scientific evidence-based versus the philosophical belief system. The perceptions surrounding the beliefs systems in CAM use thus vary in how they influence women’s attitudes toward cancer and their behaviours in response to cancer. Yet, for the women in this study, this operated as a dynamic interaction rather than a static process.

5.5 The Effects of CAM Use

The third domain reflected the effects of CAM use, where women sought CAM as a way to improve their quality of life and enhance their health. In the context of QOL, the women’s use of CAM reconstructed the meanings of their lives, which were based on the value of the individual’s current life’s circumstances. Moreover, the importance of women’s regaining the social support from their families, friends, peer groups, and/or community, by sharing the experience of CAM use, emerged from data. Two categories were developed: living a normal life through using CAM and building strong social networks.

5.5.1 Living a Normal Life

The first category that emerged, living a normal life, was found to be the most common perception of QOL, namely that the women were able to live a normal life, which made them feel ‘good’. In relation to QOL, women’s use of CAM elucidated the meaning of life as they continually reviewed the value of their lives during the cancer journey. Two subcategories were identified: regaining normalities and being happy.

Regaining Normalities

Women relied on use of CAM to enhance their health and live as normally as possible, while maintaining normal reciprocal relationships. A normal life was described in relation to how an illness did little to change their existing lifestyle. Having a normal life also meant being able to participate in the same or similar activities they took part in before the breast cancer diagnosis or the current treatment. A woman commented:
What is the meaning of quality of life for me? It might be a tiny little thing that brings me back to everyday life. Little things that I was able to do before and then to realize that I’m still able to do those things. Getting out of hospital, no more chemotherapy, and radiation therapy. Spending time with my family, cooking, and taking care of my children, just enjoying my motherhood. With keeping using the Chinese medicine and the dietary supplement products, I have survived the cancer and able to do this. (Ms L, 43-year-old, Stage IV)

Many women suggested that, through CAM, they attained a QOL that enabled them to have the physical and mental resources to regain live a normal life. Also, the women showed their appreciation for such a life by increasing their capability to enjoy things more fully in their daily activities after using CAM. One woman said:

_I just try to get my life back after I got the cancer. I completed the whole treatment and I told myself I want to have a normal life without any more medications. So, I used CAM to help me stay healthy and give better energy. Life is short, that I can be glad I am having my life back. Now, I go back to work and more concern the quality rather than the quantity of life. Also, do some nice things for myself everyday and then enjoying them._ (Ms P, 44-year-old, Stage I)

**Being Happy**

Women were committed to using CAM because they believed in the importance of holistic and natural treatments for the whole person – not just the symptoms. Also, using natural methods or remedies rather than processed medicines were seen as pleasing in the context of the mind-body-spirit. A 49-year-old woman mentioned that she liked to listen to her preferred music while she was undergoing her radiotherapy. She used music as a diversion and a form of relaxation during the whole course of radiotherapy. She stated:

_I just pick up the music what my favorite, and then I feel that I am able to relax when I was lying on the machine table. Yes, they also provide the music for patients in the room, but I didn’t like the music that they provided. I like my favor music that I am familiar with. At that moment, the music took me go back my young era and let me forget I was having the treatment. You know, I always told myself “don’t be afraid of the treatment” and concentrated on the music…. Yes, I feel so happy when I listen to the music._ (Ms M, 49-year-old, Stage I)

One woman expressed the relief and happiness that she felt when she was dancing. She stated:
I was enjoying when I was shaking my body. And I have a group of people to talk to and they don’t think I am sick. Ha [laughing], you know, I am so pleasant and enjoy the dancing. I wouldn’t treat myself as a “sick person”. If you feel happy from the heart, you won’t get sick, isn’t it? (Ms E, 54-year-old, Stage II)

Another woman described how meditation improved her emotional well-being:

I used meditation to calm down my mind. And it was working. I felt so lonely while I was undergoing the chemo. My husband was busy for his work and needed to go to overseas for his business. So, he was not able to accompany me to go to the hospital. I had to go with myself. I always felt lonely, especially at the night. I needed to get a way out, because I was getting depressed. I tried the meditation to clear my thought and calm down my emotion. I felt I was getting better and better. (Ms K, 42-year-old, Stage II)

From these perspectives, the women’s reasons for using CAM focused on psychological and emotional well-being. The type of CAM used by the women demonstrated their perceived improvement in their psychological and emotional well-being, resulting in the sense of “being happy”. Also, they highlighted that CAM played a role as a “companion” on their cancer journey.

5.5.2 Building Strong Social Networks

In the current study, women’s use of CAM was not only a coping strategy to enhance their health and perceived quality of life, it also provided the impetus for the women to gain social support when confronting a life-threatening illness. The category, building strong social networks is illustrated within the context of social support; the relationships between the women and their CAM use were reformed by the connections with family, friends, and/or the community during the cancer journey. Two subcategories were identified: strengthening relationships with family and friends, and interacting with peers.

Strengthening Relationships with Family and Friends

The first subcategory, “strengthening relationships with family and friends”, addressed the importance many women felt when receiving emotional, and practical support from their family. Relying on family members’ for support, such as in providing information on CAM, helped the women to become determined to recover.
As the woman stated:

*Family's support is the most important for me to go through the journey. My sister and brother don't care for spending the money to buy the stuff for me. I have to recover. It is the only way that I can repay to them. Now, they still keep providing the stuff [CAM products] to me.* (Ms J, 24-year-old, Stage II)

Another form of support was the sharing CAM use with a spouse. The intimate relationship between the woman and the partner was reformed by practicing Qi Gong, as showing the statement:

*My husband has retired since I have the cancer. He liked to get more time with me, so he retired from his job. We practice Qi Gong together regularly. I think he cares more about my health than himself. We get closer with each other.* (Ms G, 50-year-old, Stage I)

For these women, their family members played a pivotal role in their social support networks; they strengthened women’s will to endure the cancer journey. By the sharing of beliefs about CAM and mutually using CAM, closer relationships were built between family members and the women. In contrast, some women gained support from close friends who were seen as an important motivating factor to convince the women to fully integrate the therapies into their lives to their health. A woman described her experiences in this regard:

*My friend bought and brought them [dietary supplements] to me. I do appreciate. I told her “don't spend money for me”. She said our friendship is more than that. You know, I was so touched. There is a word “a friend need in need is a friend indeed”.* (Ms A, 43-year-old, Stage II)

**Interacting with Peers**

Some women reported that they had learned about CAM through interacting with non-significant others, such as other cancer patients. These interactions developed through informal groups to support the women’s use of CAM in fighting cancer. Further, this support was given to the women in their daily lives. As one woman stated:

*You know, I was so anxious before I entered the chemo room. Yet, after I met some
other cancer patients and chatted with them in the room, I felt relieved. We did not know each other before we met in that room. They have been using different types of CAM, such as dietary supplements, mind-body intervention, or Chinese medicine… Some of them became my friends. (Ms C, 48-year-old, Stage I)

Additionally, the women like to get together, to talk, to share, and to encourage each other. As one of women from the support group commented:

_I met them [support group volunteers] at the hospital after I had surgery… Later on, I joined the support group and gained more information about how to take care my health. I not only got lots information about CAM use, but also met other women [breast cancer survivors] sharing the experiences with me. They shared how they recovered from the disease. When I talk to them, I feel relieved and learn more. Because we can share the feeling, we get to know each other. This is kind of support to me._ (Ms A, 43-year-old, Stage II)

Another woman experienced all the stages of the cancer journey, while gaining sustained wellness from her support group. She commented:

_I like to share my use of CAM experiences with other breast cancer patients. I got help from other women and they don’t expect that I have to repay to them. I like to help other women to overcome the cancer and jus do what they did for me. Thus, I attend and do some voluntary work for the support group. I found [that] helping people is pleasant._ (Ms I, 45-year-old, Stage II)

These women demonstrated that being willing and able to share their experiences and information, and gaining support from peers, especially other cancer patients, was a most important part of QOL. Within this context, being able to talk with peers provides strength and encouragement to the women in overcoming a life-threatening event, such as a cancer diagnosis. As one woman stated:

_We like to share with each other whatever is good or bad. It seems to me that we are sitting on the same boat and paddling to the destination. So, we understand each other and keep working together. I mean that all we want to have happy and healthy life._ (Ms G, 50-year-old, Stage I)

Another important source of social support was derived from their connection with the community. This connection confirmed that the relationship between the women and their CAM use expanded beyond the individual’s family and friends. This relationship was especially valuable considering the cohesion some women experienced when they shared their CAM use and confided in each other. In this way,
perceived CAM effectiveness was not the main concern for the women. Indeed, through such social interactions during their cancer journey, the women not only experienced a sense of doing something to enhance their health, but they also constructed social networks in terms of a support system with those who had similar experiences.

5.6 Summary

The findings of this qualitative study highlighted the complex interplay of reality presented in relation to CAM use among Taiwanese women with breast cancer. Various perceptions were integrated together and illustrated women’s use of CAM. All the women who participated in the current study were willing to share their unique experience and thoughts, from which subcategories and categories were generated. The categories that encompassed the women’s reasons for CAM use included: “dealing with emerging health problems through CAM use”, “regaining balance in life”, and “fighting cancer to enhance health”. The categories that illustrated the influences on women’s CAM decision making encompassed: “family members’ and friends’ influences”, “communication with health professionals”, and “belief about CAM”. The categories that typified the effects of CAM use were: “living a normal life” and “building strong social networks”.

Women offered reasons for using CAM, such as to alleviate, to comfort and to combat all side effects and symptoms that they suffered from the conventional biomedical treatments. Relieving symptoms, boosting immunity, and improving physical recovery were key elements for women using CAM, they perceived CAM as useful and safe. The findings in this aspect showed that CAM was used as a complementary method to Western biomedicine. Some women used CAM therapies as strategies not only to relieve physical symptoms but also to relieve the psychological and spiritual stress caused by the disease and its treatment, and to regain their balance in life. When health care outcomes had failed to meet their personal needs, the women considered using CAM. Choosing to use CAM allowed women to empower themselves by taking control over their cancer treatment and to meet their health needs. Thus, women were able to modify their lifestyle, which illustrated that the holistic approach was a long-term goal for the women’s use of CAM.
Many women demonstrated their fighting and survival will to face the cancer instead of expressing fatalistic attitudes. As such, CAM offered them some relief and hope. As the women suggested, active participation in their health care was essential to their survival and well-being. Passively accepting biomedical treatment was not an approach the women considered appropriate to their well-being. Using CAM to fight cancer, by actively doing something enabled the women to improve their chance of survival by improving their health. Consequently, CAM contributed to maintaining their health and well-being, which helped the women to fulfill their social roles and life goals.

The findings demonstrated that the women’s initial decision to use CAM was based on various influences, rather than entirely on their perceived effectiveness of CAM. Suggestions from family members, close friends and CAM health professionals also influenced their initial decisions to select CAM, as well as the particular modality that would be best for them. Relying on family members’ provision of information in relation to CAM, these showed that the family members cared, and also offered a valuable insight into how the women’s decision making in CAM use. These were supported best through CAM information sharing. Another influence that played a significant role in some women’s decisions to use CAM was the doctors’ dismissive attitudes toward CAM. Moreover, the quality of the patient-practitioner communication seemed to be less than the women expected. In contrast, the women suggested that the CAM health professionals showed a caring and open attitude in dealing with the women’s health problems. Indeed the CAM health professionals practised holistic care and were better able to meet their health needs, being willing to discuss the issue with the women. Hence, CAM appears to provide women with the satisfaction to initiate making decisions in relation to CAM use.

The cultural beliefs and personal values also orientated women’s use of CAM. Importantly, the current findings show the coexistence of the use of Western biomedicine and CAM by women on their cancer treatment journey. Various views expressed the women’s perceptions of CAM use as existing within a multi-faceted beliefs systems, such as scientific evidence-based versus philosophical belief systems.
Women suggested that the use of CAM helped them to live a normal life. Within this context, it was important that the women retained positive and good feelings about their lives and that they had the capacity to enjoy what they had in their life, despite of an unsure future. Social networks were also an important component of the interpretive process that surrounded the meanings of CAM use for women. These social networks included their connections with families, friends, and the community. The interactions with different social connections demonstrated that CAM use acted as a pathway to create a network for women to gain the appropriate support. Thus, while the quantitative component of the study showed no relationship between CAM use and QOL, the qualitative interview provided a depth of understanding about the connection between CAM use and QOL. The following chapter discusses these results in the context of the two phases of the study. The limitations of the study are also identified, along with recommendations for improved nursing practice, nursing education and nursing research.
CHAPTER SIX

DISCUSSION

6.1 Introduction

The aim of the current mixed methods study was to examine the influential factors of QOL in Taiwanese women with breast cancer. The first quantitative phase measured the predictors of QOL, including CAM use. The second qualitative phase explored the women’s perceptions of CAM use and the role CAM played in their wellbeing. In this chapter, the results of the study are discussed. First, the findings from Phase One will be discussed, beginning with the representativeness of the sample, followed by a consideration of the predictors of QOL, namely: demographic, clinical, physical, and psychological characteristics. Second, the Phase Two findings will be discussed, including reasons for CAM use, the factors influencing decision making related to CAM use, and the effects of CAM use for women. Third, the study’s contribution to understanding QOL will be examined. Finally, an overview of the study’s limitations, implications for nursing education and practice, and recommendations for future research will be presented.

6.2 Predictors of QOL in Taiwanese Women with Breast Cancer

In the first phase of this research, 196 Taiwanese women with breast cancer from one hospital, were surveyed. The survey measured several potential predictors of QOL. The results showed that age, symptom distress, anxiety, depression, and use of coping strategies (i.e. humour, venting, and denial) were significant predictors of QOL. This section discusses these results by first considering the sample and then each of the significant predictors.

6.2.1 Representativeness of the Phase One Sample

Two hundred and forty women with breast cancer were invited to participate in the study; 196 women responded to the survey. The response rate of 82% was high in this phase of the study, with only 44 of 240 women declining to participate. Indeed it was
similar to the 86% response rate reported in Chang et al. (2007) and much higher than 51% reported in Cheng et al. (2002). These previous studies surveyed Taiwanese women with breast cancer about QOL. The high response rate of the current study may be related to the recruitment strategy, in that women were invited to participate in the study by the health professionals who were caring for them. The health professionals, especially the physicians, are considered authoritative and are respected in Taiwan (Chang et al., 2007); this may have resulted in a greater willingness to participate.

While the participants were recruited from one hospital in an urban area of eastern Taiwan, the sample’s demographic characteristics were fairly similar to previous local studies (Chang et al., 2007; Cheng et al., 2002) conducted in metropolitan areas of northern and southern Taiwan. The current sample was predominantly middle-aged, married women with at least high school education and a fairly high household income. The other two studies involved, predominantly, middle-aged women, however, their average age of 49 was slightly younger than the average for women in the current study (52.8 years). The mean age of the current study sample was similar to that found in international studies of women with breast cancer, which was generally over 50 years (Arndt et al., 2006; Ganz, Guadagnoli et al., 2003; Hartl et al., 2003; Sammarco, 2001).

With regard to the clinical characteristics, the majority of the participants were diagnosed with Stage II breast cancer, had had mastectomy (72.5%), and had received adjuvant treatment. These clinical characteristics were similar to other local studies (Chang et al., 2007; Cheng et al., 2002). The current result confirms that mastectomy is common among Taiwanese women with breast cancer. The mastectomy rate in Chang et al.’s (2007) study was 71.4% and 85.4% in Cheng et al.’s (2002) study. According to the National Cancer Registry of Taiwan (Bureau of Health Promotion, Department of Health, 2008), the average national mastectomy rate was 83.7% in 2003. In addition to Taiwan, mastectomy is also common among other Asian countries. In China, one population-base study showed that a mastectomy rate was 95% (Lu et al., 2009). In Korea, Lee and colleagues (2007) reported that 70.8% of women with breast cancer chose to undergo a mastectomy. These rates of mastectomy differentiate Asian countries from many Western countries, where the mastectomy
rates are generally lower. For example, one American study showed that 56% of women with breast cancer had mastectomy (McCahill, Privette, Hart, & James, 2009). In the UK, Kirby and colleagues reported that 28% of breast cancer patients chose to have a mastectomy (Kirby, Basit, & Manimaran, 2008). In Australia, the average national rate of mastectomy was 40% in 2006 (Australian Institute of Health and Welfare [AIHW] & National Breast Cancer Centre). Previous studies have suggested that choice of mastectomy was related to the stage of disease (i.e. early stages) (Benedict, Cole, Baron, & Baron, 2001; Kirby et al., 2008; McCahill et al., 2009), patients’ socio-demographic characteristics (i.e. older age, less educational levels and income) (Benedict et al., 2001), and geographic area of residence (i.e. rural area) (Hampton, 2008). However, these results may not be reflected in this current study sample. A possible explanation may be related to Chinese women’s perspectives on mastectomy, which is considered a safer treatment than breast conserving surgery (BCS) in reducing the risk of the recurrence of cancer (Chang et al., 2007; Lam & Fielding, 2003). Furthermore, these findings may be related to differences in culture between Western and Asian countries, as cultural beliefs about body image, and breasts, in particular, are not as important in Asian cultures as in Western cultures (Kagawa-Singer, Wellisch, & Durvasula, 1997). As a result, concerns about the cosmetic results of surgery may not play a vital role in influencing treatment choices among Chinese women with breast cancer and may explain why the majority of Chinese women with breast cancer chose mastectomy instead of BCS. Thus, it appears that the demographics and clinical characteristics are similar to those in other Taiwanese studies, although the mastectomy rate is higher than that reported in other countries. Furthermore, in Taiwan the choice of the surgery type for treating breast cancer usually depends on the surgeons’ own decision and opinions (Wang et al., 2005).

### 6.2.2 Predictors of QOL

This section discusses the significant independent predictors of QOL based on multiple regression analysis. It was hypothesised that demographic characteristics, clinical characteristics, symptom distress, anxiety, depression, internal health locus of control, use of coping strategies, and CAM use would predict QOL in women with breast cancer. Three multi-item symptom scales of the EORTC QLQ-C30 (Aaronson
et al., 1993), including fatigue, pain, and nausea and vomiting contained items that were reflected in the Symptom Distress Scale (SDS) (McCorkle & Young, 1978). As symptoms are measured in the EORTC QLQ-C30 (Aaronson et al., 1993), being conceptualised as a component of QOL, the SDS (McCorkle & Young, 1978) was not used as a potential predictor of symptom scales of the EORTC QLQC-30 (Aaronson et al., 1993) in these multiple regression analyses.

Simultaneous multiple regressions identified that anxiety and depression predicted all EORTC QLQC-30 scales from a low of 5.7% of the outcome variance (nausea and vomiting) to a high of 43.8% of the variance (emotional function). Symptom distress was another negative significant predictor of QOL in a variety of functional dimensions. In addition to symptom distress, anxiety and depression, use of coping strategies, including humour, planning, venting, and denial were also significant predictive variables for the functional dimensions, excluding the physical function and global health status/QOL. Although there were associations between the demographic and clinical variables and QOL in the bivariate analysis, only age made a significant contribution to the QOL prediction on the symptom scales of fatigue, nausea and vomiting. Surprisingly, neither the clinical variables (i.e. stage of cancer and surgery modality) nor CAM use was significant predictors of EORTC QLQC-30 scales. However, it should be noted that there were statistically significant correlations between independent variables and dependent variables, but these correlations may not be clinically relevant. These predictors are discussed in the following sections.

**Demographic Characteristics**

The current study found that age, specifically younger age, was a significant factor predicting poorer QOL, however only on the symptom scales of fatigue, nausea and vomiting, from the multivariate regression analysis. While some studies have shown that younger age (i.e. 50 years or younger) was a risk factor in predicting poorer QOL and greater psychological morbidity (Ahn et al., 2007; Avis et al., 2005; Bloom, et al., 2004; Cimprich et al., 2002; Engel et al., 2003; Ganz et al., 2002; Ganz et al., 2003; Hopwood et al., 2007; Janz et al., 2005; King et al., 2000; Kroenke et al., 2004), it was somewhat surprising that age did not predict other aspects of QOL in the current study. One explanation for this finding may be that younger women receive more
aggressive treatments compared with the older women, which may result in more

treatment-related side effects (Janz et al., 2007). Another possible reason is that older

women may have more tolerance of the symptoms than the younger women, because

of their aging process (e.g. comorbidity), as others have noted (Cimprich et al., 2002;

Ganz et al., 2002; Janz et al., 2005; King et al., 2000). However, age was not a

predictor of functional dimensions and global health status/QOL in the current study.

Thus, age was found to be a weak predictive factor of QOL.

With the exception of age, no other demographic variables were significant predictors

of QOL in the current study. These findings are not consistent with previous research

findings. For example, previous studies have identified that educational level

(Ashing-Giwa & Lim, 2009; Janz et al., 2005; Mehnert et al., 2006), marital status

(Broeckel et al., 2000; Cimprich et al., 2002; Cui et al., 2004), and income

(Ashing-Giwa & Lim, 2009; Casso et al., 2004; Lu et al., 2007) influence QOL in

women with breast cancer. Additionally, some studies have reported that women with

a higher level of education and more income had better QOL due to a greater ability
to develop and access appropriate strategies and resources to enhance their QOL (Avis
et al., 2005; Bloom et al., 2004; Cui et al., 2004; Engel et al., 2003; Ganz et al., 2003;
Hopwood et al., 2007). However, the current study found educational level and
income were not significant influences on QOL in Taiwanese women with breast
cancer. This result may be explained by the fact that the current study sample was
recruited from an urban area and comprised predominately of well-educated women
with above-average income. Consequently the women may have been more able to
access various resources to enhance their perceived QOL. Additionally, it may reflect
the Taiwanese healthcare system where medical costs are covered mostly by National
Health Insurance (NHI).

One previous study has found married women had better QOL, compared with single
women (Awadalla et al., 2007). However, the current study found that there were no
associations between the marital status and QOL. A possible explanation is that single
women may have less of a family burden, which enables them to obtain better quality
of health care (Andritsch et al., 2007; Cimprich et al., 2002; Ganz et al., 2002).
However, living alone was a predictor of lower QOL in several other studies (Ganz et
al., 2003; Hopwood et al., 2007; Hartl et al., 2003; Lu et al., 2009; Vacek et al., 2003).
It is important to note that the influence of demographic factors was small and limited to the prediction of specific dimensions of QOL in some previous research (Arndt et al., 2006; Browall et al., 2008).

**Clinical Characteristics**

An unexpected finding from the current study was that no clinical characteristics (i.e. stage of disease, type of surgery, time since diagnosis, and adjuvant treatments) predicted QOL. Previous studies have identified the clinical factors, such as stage of disease (Cui et al., 2004; Hartl et al., 2003), type of surgery (Hartl et al., 2003; Kenny et al., 2000), and time since diagnosis (Cimprich et al., 2002; Kornblith & Ligibel, 2003) as predictors of QOL. However, the lack of association between the clinical characteristics and QOL found in the present study may be due to the relative homogeneity of the sample in relation to stage of disease. More than 70% of the women were diagnosed with the early stage of cancer (Stage 0 to Stage II), therefore, limiting variation in this variable.

Many studies have compared the effect of BCS and mastectomy on patients’ QOL. The majority have consistently reported no significant differences in QOL scores between these two groups (Cui et al., 2004; Ganz et al., 2002; Lu et al., 2009; Lu et al., 2007; Nissen et al., 2001). Consistent with previous studies, there were no significant associations between receiving BCS or mastectomy, and the overall QOL, including various domains of function, among the current sample. However, it should be noted that over 70% of the Taiwanese women had chosen mastectomy rather than BCS.

Additionally, other studies have reported that several side effects of adjuvant chemotherapy and radiotherapy can adversely affect patients’ QOL (Ganz et al., 2002; King et al., 2000; Lu et al., 2007; Whelan et al., 2000). However, compared with patients’ adaptation after diagnosis and surgery, the impact of adjuvant treatments on QOL appears to be transient and minor in this study group. This finding is consistent with previous research that reported that breast cancer patients’ QOL substantially improved within one to three years after completing treatment (King et al., 2000; Lu et al., 2007; Whelan et al., 2000). The mean length of time since diagnosis of this study group was about two years, so it would be expected that recovery from
Overall, the current study showed that the influences of demographic and clinical characteristics were limited in their predicting of QOL. As the EORTC QLQ-C30 (Aaronson et al., 1993) was developed primarily to monitor QOL in the context of clinical trials, it may be less sensitive to subtle persistent treatment-related effects several months after completion of therapy. In addition, other factors, such as psychological distress (Ahn et al., 2007; Deshields et al., 2006; Grabsch et al., 2006; Mehnert & Koch, 2008; Schreier & Williams, 2004), and coping behaviour (Avis et al., 2005; Lehto et al., 2005), may also be important determinants of QOL in women with breast cancer.

**Symptom Distress**

The Symptom Distress Scale (SDS) (McCorkle & Young, 1978) was used to measure the women’s degree of discomfort in relation to the perception of symptoms or side effects experienced from surgical and adjuvant treatment for breast cancer. The current study showed that women’s perceived symptom distress had a negative impact across almost all functional dimensions and global health status/QOL, except for physical function. It is not surprising that women with higher symptom distress had poorer function and lower overall QOL. These results are consistent with previous studies (Cheng et al., 2002; Bower et al., 2000; Eversley et al., 2005; Janz et al., 2007; Leak, et al., 2008). Although the current study did not examine the relationship between individual symptoms and QOL, the results clearly show that symptom distress is an important predictor of patients’ perceived QOL in this study. Furthermore, fatigue, sleep disturbance, and pain were the most common symptoms and most distressful symptoms reported by the women in this study. Similarly, Janz et al. (2007), in a population-based study (N = 1372), found that a majority of breast cancer patients experienced more persistent symptoms, including fatigue, sleep disturbance, and pain, resulting in a negative impact on their physical and mental well-being. Taken together, these findings support the view that specific symptoms may result in distress that impairs various functions and overall QOL. The present findings support the hypothesis that symptom distress is a significant predictor of QOL.
The current findings identified that symptom distress was associated with women’s psychological well-being (i.e. poor emotional function) and social well-being (i.e. worse social function, role function). Specifically, fatigue was the most distressful symptom experienced by the women in the study. Fatigue can co-occur with psychological distress such as anxiety and depression (Bennett, Goldstein, Lloyd, Davenport, & Hickie, 2004). Fatigue may be one of the most important untreated symptoms in breast cancer patients; previous research indicates that fatigue is a severe problem that is associated with a profound impact on QOL (Ahn et al., 2007; Arndt et al., 2006; Bower et al., 2000; Janz et al., 2007). In addition to fatigue, other symptoms including sleep disturbance and pain can reduce women’s ability to perform work; it can also affect their daily activities after primary breast cancer treatment (Arndt et al., 2006; Byar et al., 2006; Heidrich et al., 2006; Janz et al., 2007). The current findings support previous research that women’s symptom distress had a significant impact across a number of dimensions of QOL (Ahn et al., 2007; Arndt et al., 2006; Bower et al., 2000; Janz et al., 2007).

Further, the results of the current study indicate that, although symptom distress predicted QOL, women with breast cancer can experience relatively low levels of symptom distress. These low symptom distress levels could be reflective of the feelings and experiences of the women or the fact that the SDS (McCorkle & Young, 1978) did not capture the experience of women with breast cancer. However, it should be noted that a minority of (5%) women in the current study did experience severe symptom distress. That is, despite it being an average of two years after their primary treatment for breast cancer, some women still reported symptom distress for an extended period of time after survivorship. These results support previous research, which revealed that treatment-related symptoms, such as fatigue, insomnia, and pain, frequently persisted in breast cancer survivors (Ahn et al., 2007; Arndt et al., 2006; Bower et al., 2000; Janz et al., 2007).

**Anxiety and Depression**

The present study confirmed the hypothesis that relationships exist between the psychological characteristics (i.e. anxiety and depression) and QOL. Both anxiety and depression measured by the Hospital Anxiety and Depression Scale (HADS)
(Zigmond & Snaith, 1983), were most significant predictors of all functional dimensions, symptom dimensions, and global health status/QOL. These findings are consistent with previous studies (Ahn et al., 2007; Badger et al., 2004; Browall et al., 2008; Deshields et al., 2005; Grabsch et al., 2006; Mehnert & Koch, 2008; Rabin et al., 2008; Schreier & Williams, 2004; Wong & Fielding, 2007; Yen et al., 2006), which have identified anxiety and depression as significant contributors to impairment of various dimensions of QOL in breast cancer patients. In the multiple regression analysis, anxiety was the strongest independent predictor of poor emotional functioning, with the model prediction, just over 40% of variance of emotional function. Additionally, anxiety was a predictive factor of poor emotional, cognitive, and social function, and global health status/QOL. The greater anxiety was also predictive of more fatigue, nausea, vomiting, and pain. This result was supported by the stress-coping theoretical model which posits that emotional reactions to stressful life events may lead to anxiety, tension and depression (Lazarus & Folkman, 1984).

In the current study, depression was an independent predictor of poor physical, role, and social function, and global health status/QOL, as well as the symptom scale of fatigue. One possible interpretation is that depressive symptoms, including loss of interest, lack of energy, pessimism, anxieties, and undesired daily activities, influence women’s physical and psychological components of QOL. Other researchers suggest that depression and anxiety can affect interpersonal relationships (Badger et al., 2004; Grabsch et al., 2006), occupational performance (Badger et al., 2004; Deshields et al., 2006), perceptions of health (Ahn et al., 2007; Badger et al., 2004; Browall et al., 2008; Grabsch et al., 2006), and physical symptoms (Mehnert & Koch, 2008; Yen et al., 2006). Hence, these factors certainly can have an impact on an individual’s overall QOL.

While previous studies have shown a high proportion of psychological distress among breast cancer patients within the first year post diagnosis (Burgess et al., 2005; Montazeri et al., 2000; Osborne et al., 2003; Parker et al., 2007), the current study found that a small portion of women (i.e. 10%, 3.1%, respectively) met the criteria for clinical anxiety and depression, being identified as a ‘probable case’ (cut-off score = 11 on the HADS-A and HADS-D subscales). That is, 78.1% of women were in the non-case of anxiety and 86.2% were in the non-case of depression (cut-off score = 7.
on the HADS-A and HADS-D subscales), which indicated that women’s perceived levels of anxiety and depression did not reach clinically significant levels. These results may suggest that most Taiwanese women cope well with the disease and treatment at the average two years post diagnosis. Indeed, the results from the current study are in accord with previous research that significant decreases in anxiety and depression may occur in breast cancer patients during the year following surgery (Parker et al., 2007), and that the prevalence of anxiety and depression may not increase in long-term breast cancer survivors (i.e. up to five years) (Burgess et al., 2005). However, it should be noted there was still a small minority of women in the current study who remained persistently anxious and depressed. In Taiwanese society, stigma is commonly associated with mental illness and this may result in a delay to seek treatment for depression and anxiety (Yen et al., 2006).

Although low prevalence rates of anxiety and depression were found in the current study, this result may be related to the low sensitivity of the HADS (Zigmond & Snaith, 1983), as reported in other studies (Herrmann, 1997; Love, Kissane, Bloch, & Clarke, 2002). Particularly, the items of the HADS depression subscale have a narrow focus on the anhedonia symptoms rather than the depression symptoms (Love et al., 2001; Osborne et al., 2003); thus the scale may result in a substantial underestimate of depression. Furthermore, the current study excluded women who had documented psychiatric or neurological disorders. Therefore, a low prevalence of probable cases of anxiety and depression was not an unexpected result in the current study.

Use of Coping Strategies

The current study supports Lazarus and Folkman’s (1984) theory of stress and coping, that proposes the use of certain forms of coping are related to health outcomes, such as QOL. The Brief COPE (Carver, 1997) was used in the current study to measure the use of coping strategies; acceptance, active coping, and positive reframing were the three most frequently used coping strategies among the women, while alcohol and/or drugs were used least. This cohort of Taiwanese breast cancer patients appeared to positively appraise their stressful and threatening disease. They attempted to develop effective coping strategies to maintain their well-being, such as accepting reality, being proactive in improving their QOL, and viewing the problem in a more positive
way. These findings are similar to previous research findings regarding frequently used coping strategies, especially associated with good outcomes (Carver et al., 1993; Li et al., 2007; Stanton et al., 2002; Yang et al., 2008).

A major finding of the current study was, as hypothesised, the use of specific coping strategies accounting for significant amounts of variance in various domains of QOL. While previous studies have shown that coping was associated with QOL, few studies have identified that the use of specific coping strategies were predictive factors of QOL in women with breast cancer. The current results showed that a greater use of venting coping predicted poor emotional function. Although previous research has reported that emotionally expressive coping predicted improved QOL in breast cancer patients (Classen et al., 1996; Lehto et al., 2005; Stanton et al., 2000), it was not the case in the current study. These differences may be indicative of cultural differences in how women from various cultures express or vent emotional distress. While expressing emotions is believed to have positive effects on adjustment in women with breast cancer, excessive negative emotional expression, or venting, has been associated with poor outcomes, such as higher levels of distress (Culver et al., 2002) and lower levels of psychological QOL (Kershaw et al., 2004). The current study confirms that the use of venting has a negative impact on women’s emotional function. It is possible that greater use of venting may be related to persistent emotional preoccupation with negative aspects of the condition and may reduce women’s capacity for more adaptive strategies. Therefore, use of venting (i.e. expressing negative feelings), as conceptualised by Carver (1997), is characterised as a maladaptive strategy that was a significant predictor of poor emotional function in the present study.

In addition to venting, the use of denial was found to negatively predict cognitive function. Denial has often been considered an emotional-focused coping style (Lazarus & Folkman, 1984), or an avoidance coping strategy (Carver et al., 1989), and may be fairly common among breast cancer patients (Carver et al., 1993; Culver et al., 2002; Heim et al., 1993). While use of denial as a coping strategy has been associated with positive psychological functioning during short-term medical procedures (Manne et al., 1994), or during the early stages of a stressful transaction (Heim et al., 1993; Orr, 1986), the present result suggests that use of denial as a
coping strategy has a negative impact on cognitive function during the recovery period for women with breast cancer. Previous studies have consistently identified the use of denial as negatively associated with psychological functioning in breast cancer patients (Carver et al., 1993; Hack & Degner, 2004; Stanton & Snider, 1993). The use of denial, operationalised in the current study as a denial subscale of the Brief COPE (Carver, 1997), was considered to be an avoidance-based coping style that was associated with poor cognitive function.

The concept of denial, the opposite of acceptance, is the attempt to reject or avoid the reality of a stressful event (Carver et al., 1997). Therefore, it may be difficult to successfully use denial to avoid all thoughts and feelings when individuals have to face and deal with a life-threatening illness. The current study supports the stress and coping theory, which purports that emotion-focused forms of coping, such as denial or avoidance, can impair upon health by impeding adaptive health/illness-related behaviour (Lazarus & Folkman, 1984). Although the use of denial may benefit some patients at the time of the diagnosis (Heim, Augustiny, Schaffner, & Valach, 1993; Orr, 1986), there may be points in time along the disease trajectory where this is not the case. In the context of illness, denial is considered as ineffective coping if the individual fails to engage in appropriate problem-focused coping, such as seeking medical attention or medical treatment (Lazarus & Folkman, 1984). Therefore, denial may become maladaptive because individuals might benefit from exercising some active coping strategies to exercise control over their illness and treatment. The present data identified that the use of denial has a detrimental influence on cognitive functioning and seems to be an important factor for impaired QOL in women with breast cancer during the recovery period (Carver et al., 1993; Hack & Degner, 2004; Stanton & Snider, 1993).

The use of self-distraction was identified as a predictor of poor social function in the current study. In general, self-distraction is considered a maladaptive strategy as it focuses one’s thinking away from the stressor and it results in a lack of decision making and action (Carver, 1997). The current study supports previous research that determined the use of self-distraction as a maladaptive coping style in women with breast cancer, as evidenced by its negative impact on social functioning (Carver, 1997; Culver et al., 2002). It is possible that women who used self-distraction, such as
“daydreaming”, “sleeping”, and “watching TV”, as a coping strategy (Caver et al., 1997) to deal with stressors, including the cancer and treatment, may interfere with their family life and social activities. In relation to the concept of social function in the current study, family life and social activities were two main components of social function, as measured by the EORTC QLQ C-30 (Aaronson et al., 1993). Another possible explanation relates to the negative impact of self-distraction on family life and social activities that may result in a lack of a social support system, which may decrease women’s social function. This result suggests that the use of self-distraction as a coping strategy can be viewed as a maladaptive or an avoidant coping strategy that does not enable women to cope with breast cancer and therefore enhance their QOL.

An active coping style refers to strategies whereby individuals accept and actively attempt to deal with the stressor at hand (Carver, 1997). Consistently, the greater use of planning coping was predictive of better global health status/QOL. The present results confirm previous research that greater use of active-based coping strategies (i.e. planning) was significantly associated with better QOL in women with breast cancer (Avis et al., 2005; Culver et al., 2003; Holland & Holahan, 2003; Kershaw et al., 2004; Sears et al., 2003; Stanton et al., 2000). Indeed, it may be that some women like to think about how best to handle their health problems and make definitive plans, in that their active responses to the stressful situation, that enable them to control and engage the stressors. Accordingly, the current cohort of Taiwanese women appear most likely to have attempted to overcome their illness by planning productive activities and doing something beneficial for themselves. Further, when the outcomes of the treatment tend to be positive and the health problems are more controlled, women appear to be more satisfied with their overall health status and QOL. The present study indicated that the use of planning as a coping strategy is an effective way to promote women’s perceived health status and QOL (Avis et al., 2005; Culver et al., 2003; Holland & Holahan, 2003; Kershaw et al., 2004; Sears et al., 2003; Stanton et al., 2000). Therefore, this result suggests that the use of planning may increase women’s ability to manage their stressful situation and health problems by enhancing their overall QOL.

The use of humour was another predictor of QOL in the current study. Interestingly,
women’s greater use of humour predicted better role, emotional, and social function. These findings are similar to previous research that identified that the use of humour had a positive effect on breast cancer patients’ wellbeing (Carver, 1997; Culver et al., 2002; Johnson, 2002). Use of humour as a coping strategy was operationalised as “making jokes and fun” to deal with the stressful situation related to women’s disease and treatment (Carver, 1997). Women who were most likely to use humour to manage their health problems or stressful issues may appear to have more open-minded attitudes toward the stressors. It is possible that these attitudes may be related to the women’s personality (Johnson, 2002). In this circumstance, women seemed to be active in engaging in social activities and capable of performing work-related tasks. Plausibly, women are able to maintain their role functioning and social functioning, such as doing household jobs, working in paid employment, and enjoying family life. Furthermore, the greater use of humour may make women feel more relaxed, cheerful, and helpful and lessen the psychological distress (i.e. anxiety and depression), which in turn increases emotional function. These findings add insight into the positive impact of the use of humour on QOL, particularly in the psychological and psychosocial domains within the context of Taiwanese women coping with breast cancer.

In summary, symptom distress, anxiety and depression, and the use of specific coping strategies were predictors of various aspects of QOL. In general, the current findings are congruent with previous research and with the theory of stress and coping (Lazarus & Folkman, 1984). However, the associations between various demographics and clinical characteristics and QOL in women with breast cancer, found in other studies, were not found in the present study. Further, the hypothesis that CAM use would predict QOL was not supported either. The second phase of the qualitative study, therefore, sought to better understand CAM use in women with breast cancer.

6.3 CAM use in Women with Breast Cancer— A Taiwanese Context

Although the use of CAM was not predictive of QOL in the current survey, a high proportion of the sample (74%) used some form of CAM. The survey results showed that the majority of Taiwanese breast cancer patients used multiple CAM therapies as
adjuncts to Western medical treatments, such as surgery, chemotherapy, and radiotherapy. Particularly, Chinese medicine was the most common type of CAM used by the women. This may be attributed to the cultural background and health care system. Chinese medicine is generally accepted by the Taiwanese society and is partly covered by the National Health Insurance in Taiwan. Historically, Taiwanese people were reluctant to accept conventional medicine as the locals were sceptical of it (Chi, 1994). However, during the past decades, the health care system in Taiwan has been significantly transformed to a modern Western medical model by political development (Chi, 1994). Due to China’s secession of Taiwan to Japan in 1895, this resulted in many reforms in Taiwan’s health care system, including shifting the domination from Chinese medicine to Western conventional medicine, and eventually replacing CAM practitioners with Western physicians (Chi, 1994). However, since the time of the transfer of political power to the independent government within Taiwan in 1945, Traditional Chinese Medicine and Western medicine have both been acknowledged as integral to the Taiwanese healthcare system (Chi, 1994). During this period, the healthcare policy was modified by the government, allowing Chinese medicine to co-existence with Western conventional medicine. More recently, a commitment to the co-existence of approaches to healthcare was reflected in and reinforced through the 1995 national health insurance policy coverage of both Traditional Chinese Medicine and Western medicine (Chen et al., 2007). Thus, Taiwanese people have experienced differing healthcare cultures within different political environments. The legacy of this historical trajectory is that people interact with Traditional Chinese Medicine, Western medicine and a combination of both in contemporary Taiwan.

High CAM use has also been identified in previous research of Chinese breast cancer patients (Cui, Shu, Gao, Wen et al., 2004; Cui et al., 2006), with the use of CAM being viewed as a complementary treatment for cancer (Cui et al., 2004; Cui et al., 2006). In Phase Two, eight categories emerged within the three domains of women’s reasons for using CAM; the influences on CAM use decisions; and the effects of CAM use. These findings will be individually discussed in the following sections.
Reasons for Using CAM

Physical, psychological, and psychosocial reasons for using CAM were identified in the current qualitative study. The physical reasons related to the relief of symptoms caused by Western biomedical treatments; strengthening of the immunological system; and enhancement of physical recovery. These findings are consistent with previous research in a variety of countries (Boon et al., 2000; Carlsson et al., 2005; Cui et al., 2004; DiGianni et al., 2002; Henderson & Donatelle, 2004; Lengacher et al., 2006; Molassiotis et al., 2006). Although all women in the current study adopted Western biomedical treatment as their primary therapy for the cancer, their comments indicated a failure of conventional medicine to alleviate all their health problems and meet all their health needs. The impact of disease and its treatment on women may limit their ability to live normal lives and carry out routine daily activities. These limitations may motivate women to use CAM. Furthermore, most of the women in the study viewed CAM therapy as a way to increase their physical recovery; an important element of good life quality. These findings are consistent with the Phase One survey results that showed two of the most common reasons for using CAM were to increase their body’s ability to fight the cancer (70.8%) and to improve physical well-being (60.8%).

In relation to the psychological reasons for using CAM, the current findings demonstrate that the women attempted to regain balance in their life by using CAM. They identified CAM therapies as key resources to help them in deal with emotional stress and lifestyle adjustment. Within this perspective, CAM use was inherently linked to a holistic approach, including overall health and well being (Canales & Geller, 2003). In the current study, women emphasised that their reasons for using CAM were not only to relieve physical symptoms but also to reduce psychological and spiritual stress. This finding is congruent with previous research that identified CAM use was related to psychological symptoms and mental distress (Alferi et al., 2001; Burstein et al., 1999; Lengacher et al., 2006; Moschen et al., 2001). Women who started their initial use of CAM after diagnosis and treatment for breast cancer may have been undergoing greater distress, and thus, were using CAM therapies in an attempt to relieve emotional stress (i.e. anxiety and depression) and increase psychological wellbeing.
By using dietary changes and practising exercise (i.e. Tai Chi) to modify their lifestyle, women in the current study revealed a need to do something to gain control of their health that enabled them to achieve a sense of inner well being. This finding supports the results of earlier studies where CAM use was seen as a means to gain control over health and the effects of treatment (Boon et al., 2000; Lengacher et al., 2006; Moschen et al., 2001). Additionally, Burestein (2000) pointed out that CAM use is not often about cancer treatment but about feeling better and about having greater control over individual destiny. It seems the use of CAM was liberating to women, because the women felt that they could make changes in their lifestyle and take personal responsibility for meeting their health needs and well being. In this way, the women felt empowered by their management of their health care through using CAM. Within this context, CAM use appears to be a form of active coping to fight disease and enhance health. The use of CAM may have encouraged the women to be more active and participatory in their health. These current findings mirror past research that revealed that women used CAM as a holistic approach, addressing their psychological, emotional and spiritual needs (Moschen et al., 2001). Additionally the current findings also highlight that reasons for using CAM in this cohort of women are beyond the Western medicinal values which are underpinned by biological functions.

**Influences on CAM Use Decisions**

The findings of the current qualitative study revealed that family members and friends played a major role in women’s decisions to use CAM. This finding is consistent with previous research that has showed family members and friends to be significant and highly influential sources of information about the CAM decision making processes (Balneaves et al., 2007; Boon, Brown, Gavin, Kennard, & Stewart, 1999; Ohlen, Balneaves, Bottorff, & Brazier, 2006). The findings from this study showed that women received support, love, respect, and care from family members and friends through sharing CAM information, thus enabling the women to strengthen their social network in terms of support systems, and especially to deepen their intimacy with family members. In this way, CAM decisions may provide an important opportunity for women to do something with family members and friends with whom they are engaged in close relationships (Ohlen et al., 2006). Furthermore, unlike decisions about conventional cancer treatments, that are primarily guided by doctors, CAM
decision making seems to remain largely within the public domain, allowing others to be more involved in exploring and advising women about use of CAM options (Balneaves et al., 2007). Specifically, family members’ attitudes and beliefs toward CAM were shown to directly influence the women’s decision to use CAM (Balneaves et al., 2007; Boon et al., 1999). By providing information, families play an active role in women’s decisions surrounding CAM. This current finding highlights the role of significant others (i.e. family members, near friends) in influencing CAM use, shifting the continuum of decision making involvement away from expert health practitioners and closer to the individual and family.

Women in the current study attempted to initiate discussions with their doctors before they began using CAM. This suggests that, at least initially, healthcare providers, particularly oncologists, were viewed as valued and credible sources of CAM information for the women. The finding is consistent with the results of previous research, emphasising, from the patient’s perspective, that it is important to discuss CAM use with a medical doctor prior to commencement of therapy (Adler, 1999; Ashikaga et al., 2002; Astin et al., 2006; Boon et al., 2000; Shen et al., 2002). However, as the current participants stated, physicians’ dismissive attitudes discouraged them from continuing the discussion about CAM. The women voiced concerns that their physicians would be either unable to or unwilling to provide them with non-judgemental information on CAM. This finding is similar to previous research that has shown communication with conventional healthcare providers about CAM is frequently experienced as either unsupportive or not helpful by many patients (Adler, 1999; Ashikaga et al., 2002; Astin et al., 2006; Boon et al., 2000; Shen et al., 2002).

Compared to consultation with the Western medicine doctors, some women described the consultations with the CAM professionals as more focused on them as a whole person, with a history and a life outside the disease. The quantity and quality of the patient-practitioner communication seems to be an important influence on women’s decisions related to CAM use (Astin et al., 2006; Boon et al., 2000; Shen et al., 2002). Within the current study, the women who developed a trusting relationship with their CAM practitioners (i.e Chinese medicine doctors) were more likely to pursue CAM. This highlights another influence that played a significant role in some women’s
decisions to use CAM (Astin et al., 2006; Boon et al., 2000; Shen et al., 2002).

The current qualitative study found that personal beliefs and experiences, along with cultural background, shaped the CAM decision making, especially in selecting the form of CAM therapies. For example, many women believed in the use of Traditional Chinese Medicine (i.e. Qi Gong, Chinese herbal medicine) as a holistic health philosophy more than a cure treatment for the cancer. These are aspects of the women’s lives may be neglected by conventional healthcare professionals, even though they appear to be a strong influence on how decisions are made. Fundamentally, Traditional Chinese Medicine is concerned with the behaviour of “qi”.

All of the major modalities of Chinese medicine (acupuncture, herbal medicine, dietetics, Qi Gong) are employed to provoke the “qi” to reorder itself once the pathological processes have begun and, ideally, before the imbalance becomes clinically manifest (Beinfield & Kornold, 2003). With the influence of Chinese cultural beliefs, the decision to using this kind of CAM may relate to protect the women against the damaging effects of surgery, chemotherapy, and radiation. Furthermore, from these women’s perspectives, Chinese medicine may increase the possibility that they will suffer less during, and recover their health more quickly, after completing these therapies, enhancing their QOL.

**Effects of CAM Use**

The current qualitative study showed that women were determined to manage their daily life activities and work to regain normality through using some form of CAM, so that they can again take part in activities both on the physical and psychosocial level. In this way, the women seemed to be satisfied with their life, describing that they were more able to live a normal life and feel happy. This finding is in accord with the previous research that showed women who used CAM increased their perceived life satisfaction (Carlsson et al., 2004). Furthermore, the current qualitative data, reflected in Phase One of the present study, showed that a high proportion (69.4%) of women believed CAM use could enhance their emotional well-being, sense of hope and optimism. Additionally, women in this study, who used the mind-body-spirit CAM, including music, dance, prayer, and meditation, may have increased their sense of spirituality, which has been shown to be important in
managing psychological adjustment to cancer (Targ & Levine, 2002). Furthermore, it has been suggested that the use of CAM has a positive impact on a patient’s sense of hope (Targ & Levine, 2002) and optimism (Buettner et al., 2006) in the recovery process. Most women in the current study viewed the use of CAM in a positive manner, as useful and non-toxic, and believed using CAM therapies provided a change in lifestyle and quality, thus positively influencing the course of the disease.

The current study provides evidence that the support from the peer groups may have an effect on individuals’ use of CAM. Peer support can empower women to become more active in their treatment decisions (Spiegel, Bloom, Kraemer, & Gottheil, 1989). In the present study, the women’s interaction with their peer groups seemed to provide ideal opportunities for sharing information about CAM experiences. This finding mirrors previous research that showed that the use of CAM was correlated with the attendance of support groups (Boon et al., 2000; Cui et al., 2004; DiGianni et al., 2002). Overall, support groups are associated with positive outcomes such as increased QOL (Boon et al., 2000; Cui et al., 2004; DiGianni et al., 2002). The current study suggests that the use of CAM may be part of the positive support group experience.

6.4 Conceptualisation of Quality of Life in Taiwanese Women with Breast Cancer

Phase One used the EORTC QLQ C-30 to measure QOL. It emphasised the subjective health-related functioning referred to as health-related QOL (HRQOL). The HRQOL is a construct, developed from the health care providers’ perspective with the main dimensions of functioning, symptoms, and general health status. Further, the assessment of QOL, in relation to health, or HRQOL, has traditionally been based on a “pathological” model of health and dependency, and has focused on the measurement of physical and mental decline, impaired role and social functioning (Carr & Higginson, 2001). Thus, HRQOL is regarded as an effective measure in the process of health care, as it incorporates several domain measures and involves individuals’ perceptions of their health (Andresen & Meyers, 2000). Specifically, within the context of cancer clinical trials, there is evidence from previous studies that HRQOL independently predicts survival of patients with breast cancer (Albert et al., 2002; Kramer et al., 2000).
In addition to the functional status, satisfaction with life is another aspect in the conceptualisation of QOL that has often been discussed in the earlier literature (Andresen & Meyers, 2000; Cella & Nowinski, 2002; Haas, 1999; Meeberg, 1993; Ventegodt et al., 2003). Life satisfaction is the degree to which a person positively evaluates the overall quality of individual life (Moons et al., 2006). Conceptualising QOL as satisfaction with life clearly distinguishes QOL and health. Its appraisal is preceded by a cognitive evaluation of one’s personal life conditions. Thus, in this respect, satisfaction with life differs from happiness, which is more emotion driven (Cella & Nowinski, 2002; Haas, 1999; Meeberg, 1993; Moons et al., 2006; Ventegodt et al., 2003). Overall, satisfaction with life can be considered to be an indicator of QOL, because one indicates how satisfied one is with one’s life as whole (Ferrans, 1996; Moons et al., 2006; Zhan, 1992). Importantly, while the EORTC QLQ C-30 captures functional status, it does not measure satisfactions. This could be one reason why the qualitative findings did not identify an association between CAM and QOL. Yet, the qualitative findings clearly demonstrated that women used CAM to enhance their QOL and well being.

Happiness is viewed as another conceptualisation of QOL, which focuses on the personal emotional status or feelings rather than on health or functional status (Cella & Nowinski, 2002; Ferrans, 1996; Haas, 1999; Meeberg, 1993; Moons et al., 2006; Ventegodt et al., 2003). Happiness concerns the balance between positive feelings and negative feelings (Ferrans, 1996). It is a temporary and sometimes a short-term affective state that is influenced by many external and internal factors. However, happiness can fluctuate significantly over time and may change from day-to-day. With this conceptualisation, depressive symptoms and mood states are often measured as indicators of QOL (Moons et al., 2006). In this regard, the quantitative finding that depression was predictive of EORTC QLQ C-30 and the qualitative finding that CAM improved well being were consistent.

Although QOL is widely accepted as a relevant outcome of health care, there is no general agreement on either its definition or its measurement (Ferrans, 1996). QOL can be difficult to estimate quantitatively because it has a deep meaning as well as an intrinsic psychological dimension associated with the meaning of life and the essence of the person (Luoma & Hakamies-Blomqvist, 2004; Moons et al., 2006; Ventegodt et
al., 2003). While QOL in women with breast cancer has been extensively studied, this study has focused on HRQOL. Thus, the current study adds to our understanding of the broader concept of QOL by exploring CAM and well being.

In the longstanding traditions of Chinese culture, the concept of QOL is embedded in its philosophy and traditional medicine (Zhan, 1992). This concept emerged clearly from the qualitative data, related to women’s perspectives of using CAM. At the very root of the Chinese way of life are two principles, “Yin and Yang”, which makes possible a rich and varied life, as well as infinite potential for “good” and “ill” (Zhan, 1992). Findings from the Phase Two qualitative study highlighted the traditional ways of Chinese thinking, in that women’s conceptualisation of QOL reflected a holistic philosophy of health. That is, the way of living with harmony could be possible if Yin and Yang were balanced. The current findings suggest that the conceptualisation of QOL by Taiwanese women with breast cancer takes a holistic rather than a HRQOL perspective, which is favoured by clinicians and some researchers.

6.5 Limitations of the Study

While the current study has contributed to a better understanding of the predictors of QOL and the role of CAM use by Taiwanese women with breast cancer, it has several limitations. The limitations of Phase One the predictive survey study in relation to the research design, sampling, data collection processes, and instruments are first discussed section. Next, the limitations of the second phase of qualitative study are presented.

6.5.1 Phase One Survey Study

Design

The cross-sectional predictive survey design of Phase One cannot determine the temporal order of associations between predictors and outcomes. Therefore, no cause and effect relationship can be drawn from the results (Polit & Beck, 2004). The regression analyses provide evidence of the direction (i.e. positive or negative) and strength of a significant relationship between predictor variables and QOL, as well as
variance in predicting the outcome (QOL). However, the interrelation among independent variables, as well as the path of the relationships in affecting the outcome (i.e. temporal order), remains unknown. Future studies may consider using path analysis modelling to further examine and understand the relationships among these complex variables.

The cross-sectional design of this survey study does not allow for the observation of changes in QOL over time. It also does not reflect the changing process of coping with a stressful illness, such as breast cancer over time. Thus, these results cannot represent the process of women coping with breast cancer over time, which would require a longitudinal study.

**Sampling**

Although Phase One achieved a good response rate (81.7%), several limitations of the sample must be considered when interpreting its findings. First, the study used a small convenience sample of women with breast cancer from one hospital, and therefore, may not represent the general population of women with breast cancer in Taiwan. Second, the sample for this study was drawn from breast cancer patients living in the eastern Taiwan; thus, a generalisation of these findings to individuals in other geographic regions is limited. Third, participants were more educated than the norms of women with breast cancer. However, the demographic and clinical characteristics were similar to other studies of women with breast cancer in Taiwan.

Furthermore, a generalisation of the findings is also limited by the homogeneity of the sample. The current findings are limited to women with early stage breast cancer and to the period after completion of primary medical treatments. Applicability of the findings to men, people with other cancers, women with metastatic disease, and cancer patients at other points in the treatment trajectory will require further study. Finally, as the findings obtained in this study were specificity derived from Chinese/Taiwanese women with breast cancer, these results may not generalise to other ethnic groups.
Data Collection Processes

The data were collected by face-to-face survey interviews. Personal interview is regarded as the best method of collecting survey data because of the quality of information they yield (Polit & Beck, 2004). It should be noted that interviewer bias might occur during the data collection. Although all participants indicated their own responses on each scale item, bias may have been introduced by the way questions were asked. An effort was made not to lead participants’ responses that may result in a bias by using an interview schedule and specific prompts. In addition, all women were asked to participate at the time they were scheduled for their medical visit. This is a stressful period of time, which may have influenced their responses of the survey. Furthermore, the self-reporting data may have a social desirability bias (Holland & Holahan, 2003). Participants might have answered some items in the way that Taiwanese society expected, such as the use of coping strategies. Finally, the results may be limited by the women’s recall data regarding their experiences of using CAM and their use of coping strategies.

Instruments

There are some limitations of the instruments used in this study. First, the instruments were initially constructed within a Western conceptualisation of illness and QOL. It is possible that they were not completely appropriate for Taiwanese participants, although they had acceptable reliability and validity in this and other studies conducted in Taiwan. Particularly, it was the first time that the Brief COPE scale (Carver, 1997) was used in a Taiwanese sample with only face validity being established. Thus, it may have affected the accuracy of the measurement.

Second, the EORTC QLQ-C30 is a standardised and internationally validated cancer specific instrument; however, it is primarily designed for evaluation of QOL in randomised prospective clinical trials (Aaronson et al., 1993). This may raise an issue regarding the sensitivity of EORTC QLQ-C30, and whether it is suitable for measuring QOL during a recovery period after completion of the primary treatment in women with breast cancer. Furthermore, the EORTC QLQ-C30 actually focuses on the concept of health-related QOL, stressing health status and functioning (Janz et al.,
2005; Hopwood et al., 2007; Schou et al., 2005) and not the more broader definition of QOL including life satisfaction, happiness, and sense of well-being (Cella & Nowinski, 2002; Ferrans, 1996).

Finally, while the instruments selected for the present study were congruent with the study purpose, results from this study showed that predictive variables accounted for a relatively small portion of variances (up to 43.8%) in women’s perceived QOL. The remaining 60% of variance indicates the existence of unexplored predictive variables of QOL. Moreover, some of specific treatment-related symptoms for breast cancer, including lymphedema, paresthesia, and menopausal symptoms, were not assessed in this study. These symptoms may be experienced by women with breast cancer and influenced their perceived QOL.

6.5.2 Phase Two Qualitative Study

The qualitative study provides important information regarding Chinese women’s experiences of using CAM, however three major limitations should be noted. Firstly, while women were selected purposively to gain a wide variation in responses, it may be that they did not actually reflect the totality of experiences. That is, women who selected not to participate in this interviews may have perceptions in using CAM that differ dramatically from those who took part in the qualitative study. However, the findings of this qualitative study should been seen as providing a set of indications as to the possible experiences of those women with breast cancer, attempting to draw together a range of different therapeutic options. Furthermore, these qualitative findings may be conceptually transferable to other settings where participants use CAM. Secondly, using the semi-structure interview may have prevented participants from expanding on their ideas and experiences of CAM use. This may limit to capture the extent of the diversity of women’s experiences in using CAM. Finally, given that the recruitment occurred within a hospital setting, the experience of women who chose to forgo conventional cancer treatment in favour of CAM treatments was also not captured.

In summary, although this study has several limitations, its primary aim was to understand CAM’s influence on QOL in women with breast cancer. By using the
mixed methods, the study provided a more comprehensive understanding of QOL and the use of CAM in women with breast cancer. Indeed the findings add important information in relation to identifying potential targets for future interventions-coping strategies in women with breast cancer.

6.6 Recommendations

Despite the limitations of this study, its findings contribute to the body of knowledge in relation to a better understanding of breast cancer patients’ perceived QOL and use of CAM. It has raised several issues that are beneficial for nursing practice, nursing education and further nursing research.

6.6.1 Recommendations for Nursing Practice

In this study, symptom distress, anxiety and depression were the most influential factors on various dimensions of QOL in women with breast cancer at an average of two years after diagnosis. Moreover, the use of specific coping strategies was significantly associated with a variety of aspects of QOL. The qualitative findings indicated that the women’s perspectives on use of CAM were coherent with a context of holistic health philosophy rather than a biomedical value. These findings have clear clinical implications, as described next.

Upon completion of the primary treatment, women may decrease their contact with healthcare providers at a time when they are still in need of support and are at risk of adjustment difficulties (Ganz et al., 2004). The fact that demographic and clinical characteristics were not generally associated with functional dimensions of QOL suggests that assessments and interventions should be broadly considered across these subgroups. However, some younger women experienced more symptoms of fatigue, and nausea and vomiting. This younger demographic may be a target group for more specific interventions to address their unique needs and concerns by healthcare providers. Findings from this study underscore the need for healthcare providers to regularly screen and perform further assessments of the frequency, intensity, and distress of physical and psychological symptoms and their impact on QOL in women with breast cancer. Therefore, referral to psychological counselling and psychiatric
assessment should be available for the women. Further, early detection of anxiety and depression in women with breast cancer is needed.

Systematic assessment of the presence and severity of symptoms would be a reasonable first step. Without this assessment, interventions may not actually be important. Thus, once nurses and healthcare professionals identify problematic symptoms, various strategies should be implemented to address them. In particular, such interventions should be aimed at reducing the symptoms, such as fatigue, pain, and sleep disturbance, anxiety and depression. Furthermore, teaching behaviour self-management skills to manage the persistent effects of symptoms distress (Browall et al., 2008; Janz et al., 2007) may be essential.

Findings from this study suggest that the use of certain of coping strategies and CAM use can be integrated with conventional biomedical treatments in improving breast cancer patients’ well being. On the basis of the survey findings, interventions promoting the use of positive coping strategies, such as humour, and planning coping, may improve women’s role function, emotional function, social function and global health/QOL. Further, the current study suggests that interventions that explicitly discourage the use of negative coping strategies (i.e. denial, venting, and self-distraction), rather than only teaching positive coping strategies, may be beneficial. Consequently, coping skill-based psychosocial interventions (Ganz et al., 2004; Shapiro et al., 2001) or cognitive-behaviour therapy (Kissane et al., 2004; Spiegel et al., 2007) should be implemented in breast cancer patients in order to assist them re-examine their coping strategies, adjust to the problems of living and improve their QOL. Programs in teaching breast cancer patients to positively face problems, decrease negative beliefs, and cease negative rumination about their illness should be provided by healthcare professionals. These interventions could profit from the use of the stress and coping model (Lazarus & Folkman, 1984) that takes into account beliefs about stress and provides a theoretical basis for developing and testing such interventions. Empirically, these interventions may be helpful to enhance women’s coping abilities and QOL after the primary treatment for breast cancer.

The current findings show that over half of women with breast cancer had used CAM therapies since diagnosis and that their reasons for using CAM were multifaceted,
such as relieving symptoms, improving physical well-being, and taking control to meet health needs (Lengacher et al., 2006; Molassiotis et al., 2006). These findings implicate that the efficacy of conventional cancer treatments for symptoms and health problems might be challenged. Further, these findings appear to show that women’s use of CAM was a result of dissatisfaction with conventional cancer care. The findings from the qualitative study suggest that oncology health professionals, especially physicians and nurses who are in the primary position, should be aware of the CAM approaches prevalent in their patients. This awareness affords an opportunity to assist patients in making informed choices about CAM use and may pave the way to developing programs aimed at improving patients’ QOL. Therefore, the assessment of CAM use among women with breast cancer in the diagnosis stage may be an essential part of nursing practice. Oncology nurses should undertake the regular assessment of patients’ use of CAM and a history check on their CAM use. It is important for oncology nurses to take the opportunity to initiate the discussion with patients, oncologists, and CAM professionals about patients’ use of CAM to assist patients to avoid complications and/or adverse interactions with conventional cancer treatments. The qualitative study clearly shows that empathic and supportive communication with the patients regarding CAM use can strengthen the patient-professional relationship. Healthcare professionals should communicate openly using a nonjudgemental style about CAM, which may avoid disrupting the patient-professional relationship, encourage compliance with conventional treatments, and, most importantly, enable the monitoring of possible adverse reactions. Thus, the development of structured clinical guidelines for patient-professional communication about CAM is an important step towards improving the quality of care provided to women with breast cancer.

The current qualitative study reveals that patients’ family members played a major role on the women’s decision to use CAM. These findings suggest that family members need to be included in efforts aimed at improving communication with health care providers regarding patients’ decisions to use CAM. Although the current study shows that women used some forms of CAM with a low risk of adverse effects, such as yoga, prayer, and dietary supplements, to alleviate symptoms and increase well-being, there is the potential risk of interaction with some supplementary products. For example, high doses of antioxidants during chemotherapy can counteract the
effects of some chemotherapeutic agents (Gerber et al., 2006). One of the Chinese herbal ingredients, “Dong Quai”, has been shown to be tumorigenic (Gerber et al., 2006). Therefore, specific educational and support interventions, designed to assist patients and family members in relation to information gathering and decision-support strategies, are likely to be beneficial. Furthermore, patients need advice from health professionals who are likely to be in a better position to critically assess scientific evidence. To provide the scientific information regarding CAM, oncology nurses need to seek out evidence-based information and to critically evaluate CAM in relation to safety and appropriateness, which should be applicable within the nursing care plan after diagnosis and treatment.

Findings from the qualitative study showed that women’s perspective of CAM use was underpinned by a holistic approach rather than a biomedical view to QOL. These findings suggest that CAM based programs, such as mind-body-spirit interventions can be an appropriate way of helping women not only to recover from the disease but also to fulfil their psychosocial and spiritual needs. Therefore, in developing nursing care of breast cancer patients there is the need to focus on assisting patients to cope with not only the disease, but also the impact of cancer on their everyday life. Based on these findings, nursing administrators should consider integrating CAM into nursing policies and develop guidelines for their implementation. The use of CAM in women with breast cancer, and a supportive holistic approach, should be further developed within oncologic facilities that can enhance the quality of nursing care.

### 6.6.2 Recommendations for Nursing Education

Findings from this study provide a common foundation for developing nursing curriculum in relation to QOL, symptoms management, coping skills, and CAM use. For nursing students, the aim of nursing education is to prepare future nurses to be able to provide high quality and safe care to cancer patients (Yates et al., 2007). Based on the current findings, nursing curricula might include several components. Firstly, a clear understanding of QOL is important to nursing knowledge development because it guides the art of practice (Plummer & Molzahn, 2009). Gaining a holistic perspective is also important and should be contained in contemporary nursing theory. Secondly, the introduction of stress and coping theory should be part of the
curriculum of oncology nursing, which can increase nursing students’ knowledge regarding the associations between contextual factors and outcome among cancer patients. Thirdly, basic information in relation to coping strategies should be addressed. The current findings indicate the importance of nursing education concerning patients’ use of some particular coping strategies (i.e. use of humour and planning coping); these coping strategies are associated with good QOL in breast cancer patients. Finally, education about CAM should be included in the curricula of nursing students.

For oncology nurses, nursing education aims for the practical application of professional development, standards and advice relevant to clinical situations (Yates et al., 2007). Findings from this study suggest that continuing education programs should offer nurses training and education on assessment of symptom distress and CAM use. The findings also demonstrate that women use CAM to palliative physical and psychological symptoms after their primary cancer treatment, thus suggesting that oncology nurses should be knowledgeable about the various causes of symptoms and symptom distress. Appropriate continuing education about CAM would enable nurses to respond knowledgeably to any questions or concerns about CAM and treatment options. More extensive teaching of CAM would help to familiarise nurses with this practice. When nurses have a greater understanding of the value and effectiveness of CAM and how they can be incorporated effectively into health care, they will be more able to assess patients’ use and assist patients in making appropriate choices. Furthermore, concentration on the advancement of knowledge in CAM health care may enhance the practice of nursing and broaden the scope of nursing practice (Chu & Wallis, 2007).

Taiwanese nurses should be educated in ways that promote self-confidence and the ability to act as advocates for their clients, including information regarding the use of CAM. With a broad knowledge of the impact of conventional treatment on and the potential for CAM use in the health care system of Taiwan, nurses will gain confidence in their ability to make suggestions for patient care. Given continued academic and professional support, future nurse researchers of CAM modalities will make valuable contributions to clinical practice and the continued health care of our community.
6.6.3 Recommendations for Nursing Research

Based on the findings of this study, several recommendations are made. Firstly, additional survey studies need to be conducted in Taiwan with a larger sample, including various types of cancer and sites of settings, nationally to provide results, which can be generalised to a larger population. This will allow sub-group analysis and comparative studies between different cancer populations in relation to their perceived QOL. Also, it would be important to study the QOL in male cancer patients.

Secondly, the current study focuses on women with breast cancer in Taiwan, while environmental factors and the health care system may affect the perspective of health, illness, and QOL in Chinese women who are living beyond the geographical boundaries of Taiwan or have immigrated to other countries that do not have a primarily Chinese population (i.e. Australia). Future researchers may consider replicating the survey of this study in other geographical regions, such as Mainland China and Hong Kong. Findings of the future studies would inform healthcare providers, in particular nurses, as to whether the findings from the current study can be generalised to other geographical regions. This is important for healthcare providers who might apply the results to practice and develop culturally sensitive interventions to enhance patients’ QOL.

Thirdly, the current study provides evidence of the direction and strength of a relationship between a predictor variable and an outcome, as well as variance in predicting the outcome. However, the interrelation among independent variables as well as the path of the relationships in affecting the outcome remains unknown. Future studies may consider either clinical trials of CAM or the use of path analysis modelling to better examine and understand the interrelationships among the predictors of QOL. These approaches would add to the current findings by better showing a cause and effect relationship or by estimating the indirect effects of predictors on other predictor variables related to QOL in breast cancer patients. Further, the independent variables predicted only a small portion of outcome variances was found in this study. There remain other variables, such as personality trait (Carver et al., 2006; Schou et al., 2005), social support (Ganz et al., 2003; Lehto et al., 2005; Rabin et al., 2008), and uncertainty (Ferrell et al., 1998; Knobf, 2007),
which might help to better explain QOL in women with breast cancer. More breast cancer treatment-related symptoms, including lymphedema, paresthesias, and menopausal symptoms, should also be measured in future studies. This is important to identify which specific symptoms contribute to breast cancer patients’ distress and impair their perceived QOL. These unexplored variables might be appropriate for consideration in future research. Additionally, psychometric testing of the Chinese version instruments is warranted with other samples of Chinese women with breast cancer and different groups of Chinese cancer patients, in particular the Brief COPE (Carver, 1997). This study was the first to use the Brief COPE to measure the use of coping strategies in Taiwanese women with breast cancer. Moreover, exploratory factor analysis may be used to further test the construct validity of the Chinese Brief COPE.

Fourthly, the current study identified the predictors of QOL using a cross-sectional design, describing the relationships at one period in time. However, the effects of temporal influences on QOL have not been ascertained or measured. Thus, a longitudinal study is needed to explore changes in both the predictors and QOL over time. This would allow researchers to observe how changes in using coping strategies are related to changes in QOL, and how changes in either of these might be influenced by physical and psychological distress. Long-term prospective research is required to determine the risk factors for persistent physical and psychological distress in women with breast cancer. By understanding such information, nurses and other healthcare professionals can assist women to gain the maximum benefit from oncology supportive care.

Finally, as a high proportion of CAM use was found in this study, factors associated with CAM use among Taiwanese women with breast cancer should be examined in future studies. The qualitative findings highlighted that women’s use of CAM was underpinned by the holistic approach, which conceptualised their health and well being. Future researchers could evaluate patients’ use of CAM in the long term, and examine the effects of CAM for preventing recurrence and improving survival by conducting experimental studies. Additionally, as briefly mentioned, RCTs could be used to examine the effect of CAM on physical and psychological symptoms in women with breast cancer pre and post primary treatment. Such information would
assist healthcare professionals to get a full picture of CAM use and to provide supportive holistic care for cancer patients.

6.7 Conclusions

This study sought to identify the predictors of QOL and the role of CAM use in Taiwanese women with breast cancer. CAM use did not predict QOL in the quantitative component, but women described how it contributed to their well being in the qualitative study. To some extent these findings are consistent with previous research in the area. In the first phase, the survey findings emphasised that physical and psychological characteristics were more important than demographic and clinical characteristics in predicting QOL in women with breast cancer. Although the survey showed that women’s perceived levels of QOL were fairly good, there was a minority of women who continued to experience symptom distress, anxiety and depression at an average two-year post diagnosis. The negative association between symptom distress, anxiety and depression, and QOL observed in this study and other studies highlights the importance of identifying and treating this group of women. The findings suggest that nurses and other healthcare professionals need to inform women about to start treatment for breast cancer to expect certain symptoms and providing them with a plan for managing these symptoms would diminish symptom severity and symptom distress. Empowering women with knowledge and management strategies to reduce symptoms is essential to maintain reasonable functioning and QOL. Screening for anxiety and depression is important in the clinical setting. Identifying and treating the underlying factors that cause distressing symptoms, anxiety and depression is fundamental in the support of women during the recovery period.

This study supports the stress and coping model (Lazarus & Folkman, 1984), indicating that people adapt their coping strategies in response to problems which they encounter and that might affect adaptational outcomes in individuals. For instance, although this study showed patients report using more positive coping strategies, negative coping strategies, such as denial and venting of emotions, have turned out to have a stronger relationship with outcome variables. These results suggest that nurses and other healthcare professionals should pay more attention to patients’ venting emotions and denying the stress of the situation. Healthcare professionals, including
nurses, need to focus not only on improving patients’ active, problem-solving coping ability, but also decreasing their maladaptive coping strategies post their diagnosis.

The findings from the qualitative study suggest that CAM therapies promote well being. Thus post-treatment for breast cancer using CAM therapies may be a way of independently and proactively promoting their physical, psychological, and spiritual well being. Although the use of CAM remains somewhat questionable within the conventional health care system, some women are embracing a holistic philosophy of health needs and are incorporating this philosophy into their daily life through the use of CAM. These phenomena reflect the view that CAM use is associated with higher mind-body awareness, empowerment, more hopeful feelings, and active coping behaviours. Overall, women’s use of CAM encompasses the perceived benefits beyond the standard medical treatment for breast cancer.

As breast cancer survival rates continue to increase, women with breast cancer have to face various challenges and changes in their lives. This study provides a beginning understanding of the concept of QOL within a context of Chinese women with breast cancer through using CAM. Understanding the perspective of CAM use in women coping with breast cancer informs clinical practice and will assist conventional health professionals in providing compassionate and comprehensive cancer care and in supporting women in making informed treatment decisions. This is a role healthcare providers are well suited for, and clearly part of the mission of providing holistic care.
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Dear Madam,

We are conducting a study that explores the predictors of quality of life and the role of CAM use in Taiwanese women with breast cancer. The purposes of this study are: (1) to identify the individual factors that contribute to the quality of life in Taiwanese women with breast cancer, specifically regarding CAM use, (2) to understand what women’s experiences regarding CAM use.

We would like to request your assistance as a voluntary participant in this study. If you decide to take part in the study, please read and complete the questions enclosed in this package. In the package, you will be asked about personal and health status information. In addition, you will be asked to think about your situation and complete questions about your experience in symptom distress, anxiety and depression, internal health locus of control, use of coping, CAM use and your perceived QOL. This study involves only one time completion of the questionnaires. No further questionnaires will be sent to you by the research team.

Although this study does not provide money or direct benefits to you, it may help other breast cancer patients like yourself and provide important information for health professionals who work with breast cancer patients. Also, this information will be used to increase our knowledge of the treatment practices of women with breast cancer, including the use of CAM. We would like to emphasize that your participation is voluntary and that any information you provide will be kept confidential and anonymous. Your information is identified using a number code. Your name will never be placed on the package of questionnaires and not be used in the research report. All of the information you provide will be used for research purposes only. Your decision whether to complete the package of questionnaires will not affect your health services and insurance in any way.

If you have any questions about this study, please feel free to contact the researcher team at the number and address listed bellowed.

Ms. Fang-Ying (Sylvia) Chu – Principal researcher, PhD candidate, Griffith University, School of Nursing Gold Coast campus, PMB 50, GCMC 9726. Tel: 886-3-8572158*635 (Taiwan), Tel: Int + 617 5552 9191, Email: s.chu@griffith.edu.au

Professor Marianne Wallis – Nursing Education & Research Unit, Gold Coast Hospital, 108 Nerang Street, Southport 4215, Qld. Ph: Int + 617 5519 8728. Fax: Int + 617 5519 8310. Email: Marianne_Wallis@health.qld.gov.au
APPENDIX A

Information Sheets (Chinese version)

個案參與研究說明書

本教學研究案名稱：探討乳癌患者生活品質之預測因子與使用輔助另類療法情形

我們誠摯邀請您參與本教學研究案，本教學研究案會以面對面訪談方式請您回答
問題內所有問題，訪談時間約需三十至六十分鐘。您將會被問及個人相關基本資料
含疾病治療資料，也會問及您個人使用輔助另類醫療療法的原因與經驗，另外
重要的是我們會想了解您對疾病所採取的因應型態與您所認知的生活品質之情形。
想提醒您的是參與本教學研究案為自願性質，您可以決定參與或不參與，也
可以在本教學研究案進行的期間內終止您的參與，不論您參與與否，皆不會影響
到您個人的醫療照護或保險。

研究目的:
此調查研究目的要瞭解有關於女性婦科癌症患者與乳癌患者使用輔助與另類
醫療之情形，以及使用輔助與另類醫療與生活品質之關係，希望藉由您的參與研
究，將您的經驗分享與我們，使的本研究之研究結果能對國內女性癌症患者使用
輔助與另類醫療有較具體的認識，也能讓國內醫療專業人員及健康照護政策制定
者能建立安全有效性之相關的醫療照護，以促進癌症患者之生活品質，而達到全
人化之照護。

潛在性的益處:
雖然參與本研究並不會讓您個人有直接的受益或金錢上的獲得，但是因為您的參
與可以提供重要的訊息，也可以幫助其他的癌症患者增進其自我照護之能力而改
善生活品質，也可以讓醫療專業人員及國家健康政策制定者重視輔助與另類醫療
於臨床照護的發展。

潛在性的危險:
本教學研究案並不會使用任何對於您個人身心有害之工具也不會讓您曝露於危
險的環境中，但是在於訪談的過程中有些討論或問題可能會讓您個人的情緒產生
不適。若有這樣的情況發生，研究者會立即終止進行訪談，若您需要有心理上的
專業諮詢與支持，研究者會遵從您個人之需求，將您轉介給心理諮詢專業人士，
以紓解您個人情緒之不適感，除了上述情況，本教學研究案並不預期有其他任何
危險性。

保密措施:
為保障參與本研究個案之權益與隱私之相關措施敘述如下：
(1) 告知本研究案之研究目的與相關之研究問題
(2) 告知個案無論參與本研究與否並不影響個案目前與未來的醫療照護。
(3) 告知個案在研究進行中有權利隨時停止參與本研究。
(4) 為避免確認個人之基本資料，所有參與本研究之個案資料皆以數字編碼鍵
    檔。
(5) 告知個案參與本研究為自由意願，需要回答問題或訪談時間約需 30 分鐘至 1
    小時做。
(6) 所有的研究資料只有提供研究者做為學術研究之用不做其他用途。
(7) 所有的研究資料皆以匿名方式呈現。
(8) 所有的研究資料皆會鎖在隱密安全之處，並保存 5 年。
(9) 參與本研究之個案有權利索閱本研究結果報告書之摘要。本研究於結案後所有相關的研究資料皆會銷毀。

在這項研究計劃中有關於您個人的所有資料及身分將不會被公開，有關您個人的資料僅作於學術研究之用不做其他用途，為了避免確認出個人資料，問卷資料皆以數字編碼鍵檔，且所有的與本研究相關的資料皆會受到研究者嚴密保護。再次提醒您，參與本研究為自由意願，並且於本研究進行中，您有權利隨時終止您的參與，若您決定是否參與本研究，皆不會影響您目前及未來的醫療照護。雖然參與本研究並不會讓您個人有直接的受益或金錢上的獲得，但是因為您的參與可以提供重要的訊息，也可以幫助其他的癌症患者增進其自我照護之能力而改善生活品質，也可以讓醫療專業人員及國家健康政策制定者重視輔助與另類醫療在台灣的發展。感謝您的參與及支持此研究計劃，此項研究完成後其結果預定發表於國內外期刊或研討會，若您對本研究計劃有任何問題，歡迎您與我們（研究者）聯絡，聯絡資料如下：

感謝您的參與及支持此研究計劃，此項研究完成後其結果預定發表於國內外期刊或研討會，若您對本研究計劃有任何問題，歡迎您與我們（研究者）聯絡，聯絡資料如下：
慈濟技術學院護理系朱芳瑩老師
聯絡地址：花蓮市建國路二段 880 號 970
聯絡電話：(03) 8572158 轉 635 電子信箱：sylvia@tccn.edu.tw
再次感謝您的參與及支持，並對佔據您些許的時間致上深深的歉意。
APPENDIX B

Consent Form (English Version)

Project Title: Predicting Quality of Life in Women with Breast Cancer and The role of Complementary and Alternative Medicine

I have read the Information Form and understand that:

1. This research is to investigate the predictors of quality of life and understand the use of complementary and alternative medicine in women with breast cancer;
2. My participation may involve being asked to fill out the questionnaire and/or formal in-depth interviews regarding my experience for using complementary and alternative medicine;
3. The questionnaire is anonymous and will take approximately 30 minutes to complete;
4. Participation in a formal in-depth interview may take from 30-60 minutes and will be audiotaped and transcribed in note form by the researcher;
5. My participation is voluntary and I may request to withdraw at anytime without any explanations.
6. No loss of benefit, treatment or penalty will occur as a result of withdraw;
7. Any reports or publication resulting from this study will be reported in general term to ensure that all identifiers will be removed, and will be replaced with pseudonyms;
8. The data will be kept confidential at all times and in locked filing cabinet at the University for a period of 5 years before being destroyed; and
9. A report of the study’s findings will be made available to me.

I have read the Information Sheet and the Consent Form. I agree to participate in this study and give my consent freely. I understand that the study will be carried out as described in the information statement, a copy of which I have retained. I realise that whether or not I decide to participate is my decision and will not affect my healthcare service. I also realise that I can withdraw from the study at any time and I do not have to provide any reasons for doing so. I have had all questions answered to my satisfaction.

...........................................                      .................
Participant Signature                                    Date

...........................................                      .................
Investigator Signature                                    Date
APPENDIX B

Consent Form (Chinese version)

個案參與同意書

本教學研究案名稱：探討乳癌患者生活品質之預測因子與使用輔助另類療法情形

我已經閱讀過此研究案說明書也了解參與此研究之個人相關權益：

(1) 我已知本研究案之研究目的與相關之研究問題。

(2) 我已知無論參與本研究與否並不影響我目前與未來的醫療照護。

(3) 我已知在研究進行中有權利隨時停止參與本研究。

(4) 我已知為避免確認我個人之基本資料，所有我的個人資料皆以數字編碼編

(5) 我已知參與本研究為自由意願，需要回答問題或接受訪談時間約需 30 分鐘

(6) 我已知研究資料只有提供研究者做為學術研究之用不做其他用途。

(7) 我已知所有的研究資料皆以匿名方式呈現。

(8) 我已知所有的研究資料皆會鎖在隱密安全之處，並保存 5 年。

(9) 我已知參與本研究有權利索閱本研究結果報告書之摘要，本研究於結案後所

有相關的研究資料皆會銷毀。

我已經非常明白此研究之目的，也知道我個人的權益。我同意參與此研究並且同
意研究者對參與者所採取的各種保密措施；我也了解不論我是否有參與此研究並不
會影響我個人的醫療照顧品質，並知道我個人的相關資料除為做為研究用途並
不會對外公開，而且若有任何問題都有權利詢問此研究案之研究者，直到我得到
滿意的回覆。

.................................................                      .............................................

參與者簽名                                                                 日期

.................................................                      .............................................

研究者簽名                                                                 日期

我也同意分享我個人使用輔助另類療法的經驗，並參與有關此方面之深度訪談。

.................................................                      .............................................

參與者簽名                                                                 日期

.................................................                      .............................................

參與者簽名                                                                 日期
APPENDIX C

Ethical Approval from Griffith University

ETHICAL CLERANCE CERTIFICATE

This certificate generated on 09-10-2007.

This certificate confirms that protocol “Taiwanese women coping with Breast cancer: The role of complementary and alternative medicine (‘G U Protocol Number NRS/41I06/HREC) has ethical clearance from the Griffith University Human Research Ethics Committee (HREC) and has been issued with authorisation to be commenced.

The ethical clearance for this protocol runs from 18-12-2006 to 31-08-2007.

The named members of the research team for this protocol are:

Prof Marianne Wallis
Miss Sylvia Chu

The research team has been sent correspondence that lists the standard conditions of ethical clearance that apply to Griffith University protocols.

The HREC is established in accordance with the National Statement on Ethical Conduct on Research Involving Humans. The operation of this Committee is outlined in the HRECS Standard Operating Procedure which is available from www.gu.edu.au/or/ethics.

Pleased do not hesitate to contact me if you have any further queries about this matter.

Dr Gary Allen
Manager, Research Ethics
Office for Research
Bray Centre, Nathan Campus
Griffith University
Phone: 3735 5585
Facsimile: 3735 7994 Email: g.allen@griffith.edu.au
APPENDIX C
Ethical Approval from Hospital

The Protection of Human Subjects Institutional Review Board
Tzu-Chi University and Hospital

Expedited Approval

Date: January 27, 2007

To: Shu-Ling Chen, Fang-Ying Chu
Department of Nursing, Tzu Chi College of Technology

From: Ming-Hwang Shyr, M.D., Ph.D
Chairman, Institutional Review Board

Subject: Approval of the Project Entitled "A survey of utilization of complementary and alternative medicine among women with gynecologic cancer and breast cancer in the east and north of Taiwan"

The Institutional Review Board has recommended the approval of your protocol, identified above, for a period of 6 months and 5 days, and has determined that human subjects will be at risk.

Approval of your research project is, therefore, granted until July 31, 2007. By the end of this period you may be asked to inform the Board on the status of your project. If this has not been completed, you may request renewed approval at that time.

You are reminded that a change in protocol in this project requires its resubmission to the Board. Also, the principal investigator must report to the Chair of the Institutional Review Board promptly, and in writing, any unanticipated problems involving risks to the subjects or others, such as adverse reactions to biological drugs, radio-isotopes or to medical devices.
APPENDIX D

Questionnaire (English Version)

Questionnaire

Section 1: Demographic and clinical profile sheet (1-10)

Instruction: The following questions ask for some information about you, such as your age, your level of education, your employment and your health status, etc. Please either fills in the number or word required or ticks the box.

1. Age: ______ years

2. What is the highest level of education that you have received? (Please tick applicable boxes)
   - Primary school or less (6 years or less)
   - Junior high school (9 years)
   - Senior high school (12 years)
   - College / university (16 years)
   - University above (18 years or more)

3. What is your average annual family income? New Taiwan Dollar, $NT__________

4. What is your marital status? (Please tick applicable boxes)
   - Married
   - Single (never married)
   - Widowed
   - Divorced

5. What is your religion? (Please tick applicable boxes)
   - No religion preference
   - Buddhism
   - Taoism
   - Protestant
   - Catholic
   - Other (please specify) ______________
6. At the present time, what is working status?

☐ Employed
☐ Unemployed
☐ Retired
☐ Other (please specify) ____________

7. How long have you been diagnosed with breast cancer?

☐ Within 6 months
☐ Six months to twelve months
☐ Twelve months to eighteen months
☐ Eighteen months to twenty-four months
☐ Twenty-four months to thirty months
☐ Thirty months to thirty-six months
☐ More than thirty-six months

8. What is the stage of your disease?

☐ Stage I
☐ Stage II
☐ Stage III
☐ Stage IV

9. Have you had a recurrence of breast cancer?  ☐ 1. Yes  ☐ 2. No

10. Do you receive adjunct Western biomedical treatment for breast cancer?

☐ Yes
☐ No

(If yes, please check all that apply)

☐ Mastectomy
☐ Lumpectomy
☐ Radiotherapy
☐ Chemotherapy
☐ Hormone therapy
☐ Other (please specify) ____________
Section 2: Symptom Distress Scale (11-23 SDS)

Instruction: Below are 5 different numbered statements. Think about what each statement says, then place a circle around the one statement that most closely indicates how you have been feeling lately. The statements are ranked from 1 to 5, where number one indicates no problems and number five indicates the maximum amount of problems. Numbers two through four indicate you feel somewhere in between these two extremes. Please circle one number on each card.

11. Nausea (A)
   □ I seldom feel any nausea at all
   □ I have nausea once in a while
   □ I have nausea fairly often
   □ I have nausea half the time at least
   □ I have nausea continually

12. Nausea (B)
   □ When I do have nausea, it is very mild
   □ When I do have nausea, it is mildly distressing
   □ When I have nausea, I feel pretty sick
   □ When I have nausea, I usually feel very sick
   □ When I have nausea, I am as sick as I could possibly be

13. Appetite
   □ I have my normal appetite and enjoy good food
   □ My appetite is usually, but not always, pretty good
   □ I don’t really enjoy my food
   □ I have to force myself to eat my food
   □ I cannot stand the thought of food

14. Insomnia
   □ I sleep as well as I always have
   □ I occasionally have trouble getting to sleep and staying asleep
   □ I frequently have trouble getting to sleep
   □ I have difficulty getting to sleep and staying asleep almost every night
   □ It is almost impossible for me to get a decent night’s sleep
15. Pain (1)
- [ ] I almost never have pain
- [ ] I have pain once in a while
- [ ] I have pain several times a week
- [ ] I am usually in some degree of pain
- [ ] I am in some degree of pain almost constantly

16. Pain (2)
- [ ] When I do have pain, it is very mild
- [ ] When I do have pain, it is mildly distressing
- [ ] When I do have pain, it is usually fairly intense
- [ ] The pain I have is very intense
- [ ] The pain I have is almost unbearable

17. Fatigue
- [ ] I seldom feel tired or fatigued
- [ ] There are periods when I am rather tired or fatigued
- [ ] There are periods when I am quite tired and fatigued
- [ ] I am usually very tired and fatigued
- [ ] Most of the time, I feel exhausted

18. Bowel
- [ ] I have my normal bowel pattern
- [ ] My bowel pattern occasionally causes me some discomfort
- [ ] My present bowel pattern occasionally causes me considerable discomfort
- [ ] I am usually in considerable discomfort because of my present bowel pattern
- [ ] I am in almost constant discomfort because of my bowel pattern

19. Concentration
- [ ] I have my normal ability to concentrate
- [ ] I occasionally have trouble concentrating
- [ ] I occasionally have considerable trouble concentrating
- [ ] I usually have considerable difficulty concentrating
- [ ] I just can’t seem to concentrate at all
20. Appearance

☐ My appearance has basically not changed
☐ Occasionally I am concerned about the worsening of my physical appearance
☐ I am not often concerned that my appearance is worsening
☐ Most of the time I am concerned that my physical appearance is worsening
☐ The worsening of my physical appearance is a constant, preoccupying concern

21. Breathing

☐ I usually breathe normally
☐ I occasionally have trouble breathing
☐ I often have trouble breathing
☐ I can hardly ever breathe as easily as I want
☐ I almost always have severe trouble with my breathing

22. Outlook

☐ I am not worried or frightened about the future
☐ I am slightly worried but not frightened about things
☐ I am worried and frightened about things
☐ I am very worried and frightened about things
☐ I am terrified by thoughts of the future

23. Cough

☐ I seldom cough
☐ I have an occasional cough
☐ I often cough
☐ I often cough, and occasionally have severe coughing spells
☐ I often have persistent and severe coughing spells

Section 3: Hospital Anxiety and Depression Scale (24-37 HADS)

Instruction: The following questions are asking about how you have been feeling in the past week, on the average. Please choose one response from the four given for each item. You should give an immediate response and be dissuaded from thinking too long about your answers.
24. I feel tense or wound up:
   □ Most of the time
   □ A lot of the time
   □ From time to time, occasionally
   □ Not at all

25. I still enjoy the thing I used to enjoy:
   □ Definitely as much
   □ Not quite as much
   □ Only a little
   □ Hardly at all

26. I get sort of frightened feeling as if something awful is about to happen:
   □ Very definitely and quite badly
   □ Yes, but not too badly
   □ A little, but it doesn’t worry me
   □ Not at all

27. I can laugh and see the funny side of things
   □ As much as I always could
   □ Not quite so much now
   □ Definitely not so much now
   □ Not at all

28. Worrying thoughts go through my mind:
   □ A great deal of the time
   □ A lot of the time
   □ From time to time, but not too often
   □ Only occasionally

29. I feel cheerful:
   □ Not at all
   □ Not quite so much now
   □ Definitely not so much now
   □ Most of the time
30. I can sit at ease and feel relaxed:

- Definitely
- Usually
- Not often
- Not at all

31. I feel as if I am slowed down:

- Nearly all the time
- Very often
- Sometimes
- Not at all

32. I get a sort of frightened feeling like ‘butterflies’ in the stomach:

- Not at all
- Occasionally
- Quite often
- Very often

33. I have lost interest in my appearance:

- Definitely
- I don’t take so much care as I should
- I may not take quite as much care
- I take just as much care as ever

34. I feel restless as if I have to be on the move:

- Very much indeed
- Quite a lot
- Not very much
- Not at all

35. I look forward with enjoyment to things

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all
36. I get sudden feelings of panic:

- [ ] Very often indeed
- [ ] Quite often
- [ ] Not very often
- [ ] Not at all

37. I can enjoy a good book or radio or TV program:

- [ ] Often
- [ ] Sometimes
- [ ] Not often
- [ ] Very seldom

**Section 4: Internal Locus Control Scale (38-43 IHL C)**

**Instructions:** Each item below is a belief statement about your medical condition with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item we would like you to circle the number that represents the extent to which you agree or disagree with that statement. The more you agree with a statement, the higher will be the number you circle. The more you disagree with a statement, the lower will be the number you circle. Please make sure that you answer **EVERY ITEM** and that you circle **ONLY ONE** number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly disagree</th>
<th>Moderately disagree</th>
<th>Slightly disagree</th>
<th>Slightly agree</th>
<th>Moderately agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>38. If I become sick, I have the power to make myself well again.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>39. I am directly responsible for my health.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>40. Whatever goes wrong with my health is my own fault.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>41. My physical well-being depends on how well I take care of myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>42. When I feel ill, I know it is because I have not been taking care of myself properly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>43. I can pretty much stay healthy by taking good care of myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Section 5: Brief COPE Scale (44-71)

**Instructions:** These items deal with ways you’ve been coping with the stress in your life since you found out you were going to have to have this situation. There are many ways to try deal with problems. These items ask what you’ve been doing to cope with this one. Obviously, different people deal with things in different ways, but we are interested in how you’ve tried to deal with it. Each item says something about particular way of coping. We want to know what extent you’ve been doing what the item says. How much or how frequently. Don’t on the basis of whether it seems to be working or not—just whether or not you’re doing it. Use these response choices. Try to rate each item separately in you mind from the others. Make your answers as true FOR YOU as you can.

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Medium amount</th>
<th>A lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>44. I’ve been turning to work or other activities to take my mind off things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>45. I’ve been concentrating my efforts on doing something about the situation I’m in.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>46. I’ve been saying to myself “this isn’t real.”</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>47. I’ve been using alcohol or other drugs to make myself feel better.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>48. I’ve been getting emotional support from others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>49. I’ve been giving up trying to deal with it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>50. I’ve been taking action to try to make the situation better.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>51. I’ve been refusing to believe that it has happened.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>52. I’ve been saying things to let my unpleasant feelings escape.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>53. I’ve been getting help and advice from other people.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>54. I’ve been using alcohol or other drugs to help me get through it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>55. I’ve been trying to see it in a different light, to make it seem more positive.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Item</td>
<td>Not at all</td>
<td>A little bit</td>
<td>Medium amount</td>
<td>A lot</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------</td>
<td>--------------</td>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>56. I’ve been criticizing myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>57. I’ve been trying to come up with a strategy about what to do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>58. I’ve been got comfort and understanding from someone.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>59. I’ve been giving up the attempt to cope.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>60. I’ve been looking for something good in what is happening.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>61. I’ve been making jokes about it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>62. I’ve been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>63. I’ve been accepting the reality of the fact that it has happened.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>64. I’ve been expressing my negative feelings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>65. I’ve been trying to find comfort in my religion or spiritual beliefs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>66. I’ve been trying to get advice or help from other people about what to do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>67. I’ve been learning to live with it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>68. I’ve been thinking hard about what steps to take.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>69. I’ve been blaming myself for things that happened.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>70. I’ve been praying or meditating.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>71. I’ve been making fun of the situation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Section 6 CAM use (72-80)

Instruction: This section of the survey asks you some specific questions about the time of CAM used (before the diagnosis of cancer, since diagnosis and currently), the frequency of CAM use, monthly expenditure on CAM therapies or remedies, reason for using CAM, sources of information, satisfaction with selected therapies and perception of effectiveness.

72. Did you use any CAM therapies in the last 12 months?  Yes: ☐  No: ☐

(If your answer is “yes”, please respond the following questions.)

73. Please circle the number that BEST describes the time when you start to employ any of these CAM therapies.

<table>
<thead>
<tr>
<th>Item</th>
<th>The time you start using CAM therapies</th>
<th>Before being diagnosed</th>
<th>Since diagnosed</th>
<th>Currently using</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acupuncture</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Aromatherapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Art therapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Colour therapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Feng Shui</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Herbalism</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Homeopathy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Hypnotherapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>Massage</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Meditation</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>Music therapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Naturopathy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>Osteopathy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>Prayer</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>Psychotherapy and counseling</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>Relaxation therapies</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>Reflexology</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18</td>
<td>Tai Chi</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>Vitamins</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>Therapeutic touch</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>Yoga</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>22</td>
<td>Other, Specify:</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
74. Please circle the number that **BEST** describes the frequency of your use any of these CAM therapies in last 12 months.

<table>
<thead>
<tr>
<th>The frequency of your use of CAM</th>
<th>Very occasionally</th>
<th>At least once a month</th>
<th>At least weekly</th>
<th>At least daily</th>
<th>More than once daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Acupuncture</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2 Aromatherapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3 Art therapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4 Colour therapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5 Feng Shui</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6 Herbalism</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7 Homeopathy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8 Hypnotherapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9 Massage</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10 Meditation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11 Music therapy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12 Naturopathy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13 Osteopathy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14 Prayer</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15 Psychotherapy, counselling</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16 Relaxation therapies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17 Reflexology</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18 Tai Chi</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19 Vitamins</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20 Therapeutic touch</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21 Yoga</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22 Other, Specify: ...........</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
75. How much do you currently spend on CAM therapies in one month?

☐ 1. < $ NT 5000
☐ 2. $ NT 5000-10000
☐ 3. $ NT 10000-15000
☐ 4. $ NT 15000-20000
☐ 5. $ NT 20000-25000
☐ 6. $ NT 25000-30000
☐ 7. $ NT 30000-35000
☐ 8. >$ NT 35000

76. Do you believe you receive good value from what you spend on CAM?

☐ Yes  ☐ No  ☐ Maybe

77. Please give the reasons you use or have used CAM since you were diagnosed with cancer. (Check all that apply)

☐ 1. To directly fight the cancer with CAM
☐ 2. To increase the body’s ability to fight cancer
☐ 3. To improve physical well-being
☐ 4. To improve emotional well-being, provide hope, social support, increase optimism, etc.
☐ 5. To counteract ill effects from the cancer or medical treatment
☐ 6. “Might help, can’t hurt”
☐ 7. Desire to do everything possible to fight the cancer
☐ 8. Other, Specify

78. What benefits have you actually experienced from CAM? (Check all that apply)

☐ No benefit
☐ A direct decrease in the cancer to CAM
☐ An increase the body’s ability to fight cancer
☐ An improve physical well-being
☐ An improve emotional well being, provide hope, social support, increase optimism, etc
☐ A decrease in side effects from the cancer or medical treatment
☐ Other, Specify
79. Have you experienced any ill effects or side effects, which you attribute to CAM therapies? If yes, please specify ill effects and from what type of CAM.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Type of CAM</th>
<th>Ill or side effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

80. From which of the following have you learned about CAM therapies?

- No one, never heard of it until today
- The media (TV, magazines, newspapers)
- Internet
- Friends
- Family
- Religious contacts
- Practitioners of CAM
- Medical doctor
- Nurse
- Other, Specify
**Section 7: EORTC QLQ-C30 (version 3, 81-110)**

**Instruction:** We are interested in some things about you and your health. Please answer all of the questions yourself by circling the number that best applies to you. There are no "right" or "wrong" answers. The information that you provide will remain strictly confidential.

Please fill in your initials:
Your birthdate (Day, Month, Year):
Today's date (Day, Month, Year):

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>A little</th>
<th>Quite a Bit</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>81. Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>82. Do you have any trouble taking a long walk?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>83. Do you have any trouble taking a short walk outside of the house?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>84. Do you need to stay in bed or a chair during the day?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>85. Do you need help with eating, dressing, washing yourself or using the toilet?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**During the past week**

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>A little</th>
<th>Quite a Bit</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>86. Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>87. Were you limited in pursuing your hobbies or other leisure time activities?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>88. Were you short of breath?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>89. Have you had pain?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>90. Did you need to rest?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>91. Have you had trouble sleeping?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>92. Have you felt weak?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>93. Have you lacked appetite?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
**During the past week**

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>A little</th>
<th>Quite a Bit</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>94. Have you felt nauseated?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>95. Have you vomited?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>96. Have you been constipated?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>97. Have you had diarrhea?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>98. Were you tired?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>99. Did pain interfere with your daily activities?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>100. Have you had difficulty in concentrating on things, like reading a newspaper or watching television?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>101. Did you feel tense?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>102. Did you worry?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>103. Did you feel irritable?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>104. Did you feel depressed?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>105. Have you had difficulty remembering things?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>106. Has your physical condition or medical treatment interfered with your family life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>107. Has your physical condition or medical treatment interfered with your social activities?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>108. Has your physical condition or medical treatment caused you financial difficulties?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**For the following questions please circle the number between 1 and 7 that best applies to you**

109. How would you rate your overall health during the past week?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very poor</td>
<td>Excellent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

110. How would you rate your overall quality of life during the past week?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very poor</td>
<td>Excellent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D

Questionnaire (Chinese Version)

第一部份：個人基本資料、疾病與治療狀況(1-10 題)
以下幾項問題是詢問您個人基本資料、疾病與治療狀況，例如年齡、教育程度、工作職業等等，請您填寫或勾選合適的答案。

年紀：
请您勾選以下合適您的最高教育程度:
- □ 小學
- □ 初中
- □ 高中
- □ 高職
- □ 專科
- □ 大學肄業
- □ 大學(含二技與四技)
- □ 碩士
- □ 博士
- □ 其他，請說明：________

3. 請您勾選以下合適您的婚姻狀態:
- □ 已婚
- □ 同居
- □ 單身未婚
- □ 喪偶
- □ 分居
- □ 離婚

4. 請您勾選以下合適您的宗教信仰:
- □ 無任何宗教信仰
- □ 佛教
道教
基督教
天主教
其他，请说明：_____________

5. 请问您目前的职业：
有（类别）请说明：_____________(□ 全职，□ 半职，□ 不固定)
□ 无
□ 退休人员

6. 请问您平均全部（家庭）年所得，请勾选以下合適的答案：
□ 台幣 10 萬元以上至 20 萬元以下
□ 台幣 20 萬元以上至 30 萬元以下
□ 台幣 30 萬元以上至 40 萬元以下
□ 台幣 40 萬元以上至 50 萬元以下
□ 台幣 50 萬元以上至 60 萬元以下
□ 台幣 60 萬元以上至 70 萬元以下
□ 台幣 70 萬元以上至 80 萬元以下
□ 台幣 80 萬元以上至 90 萬元以下
□ 台幣 90 萬元以上至 100 萬元以下
□ 台幣 100 萬元以上

7. 请问您被诊断为癌症有多久时间：
□ 6 個月之內
□ 6 個月以上至 12 個月以下
□ 12 個月以上至 18 個月以下
□ 18 個月以上至 24 個月以下
□ 24 個月以上至 30 個月以下
□ 30 個月以上至 36 個月以下
□ 36 個月以上
8. 請問您目前的疾病分期為:
   □ 第一期
   □ 第二期
   □ 第三期
   □ 第四期

9. 請問您的疾病是否有複發之情況?
   □ 是
   □ 否

10. 請問您的手術治療方式?
    ______________________

    請問您手術後的附屬性西醫治療：
    □ 化學療法
    □ 放射療法
    □ 荷爾蒙治療
    □ 尚未開始
    □ 拒絕接受
    □ 其他，請說明：_________________________
第二部分：生理症状困扰情况（11-23 題）
以下共列有 13 種病患常經歷的症狀，每一種症狀依其困扰您的程度分為 5 種等級
（1-5）。1 表示沒有問題，5 表示非常嚴重困扰您，2、3、4 則表示介於輕微困扰至嚴重困扰之間的程度。為了解體現您目前的状况，請您參考每一項等級下面的說明，圈選出最能代表您現在身體狀況的項目，謝謝您的參與！

<table>
<thead>
<tr>
<th>項目</th>
<th>沒有該症狀</th>
<th>輕微</th>
<th>中度</th>
<th>嚴重</th>
<th>非常嚴重</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.噁心</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12.嘔吐</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13.食慾影響</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14.失眠</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15.疼痛強度</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16.疼痛頻率</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17.疲憊</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18.排便情形（指大便狀況/排便是不是有問題）</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19.精神集中程度（指無法集中精神）</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20.外觀（指您的外觀改變）</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21.呼吸困難</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22.焦躁不安</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>23.咳嗽</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

第三部分：焦慮與憂鬱狀況（24-37 題）
此部份主要是為了解您的心理感受之狀況，以下總共 14 個感受敘述每一敘述有 4 個選擇。請仔細閱讀每一個情況之描述並選出最合適您過去一週的感受之狀況請不要
要花太多時間思考您立即的反應可能比長久時間之思考後的反應要來的正確。

24.我會覺得緊張或精神緊繃

☐ 總是如此
☐ 經常如此
☐ 偶而如此
☐ 一點也不會
25. 目前我仍然享受我過去所享受的事物
- 當然是如此
- 完全不是如此
- 偶而如此
- 不曾如此

26. 我有一種可怕的感覺，好像有某些不好的事即將要發生
- 確實如此，而且是非常糟糕的感覺
- 是的，但不是那麼糟糕的感覺
- 有點這樣的感覺，但不會困擾我
- 一點也不會有這樣的感覺

27. 看到有趣的事我會笑
- 和我生病以前一樣，一直也是如此
- 已經不像生病以前一樣，但仍經常如此
- 和生病以前不一樣，很少如此
- 一點也不會如此

28. 「擔心」的想法一直瀰漫在我的腦海
- 大多數時間會如此
- 許多時間會如此
- 有時候會如此
- 極少時候會如此

29. 我感覺到開心愉快
- 一點也不覺得
- 不常覺得
- 有時候覺得
- 經常覺得
30. 我可以輕鬆自在地坐著
- 的確如此
- 經常如此
- 有時如此
- 一點也不會

31. 我感到自己的生活步調慢下來了
- 總是如此
- 經常如此
- 有時如此
- 一點也不會

32. 我有種害怕的感覺
- 一點也不會有這種感覺
- 偶爾會有這種感覺
- 經常會有這種感覺
- 總是覺得如此

33. 我對自己的外表失去興趣
- 的確是這樣
- 我極少關心自己的外表
- 我不太關心自己的外表
- 我過去一樣關心外表

34. 我感覺自己坐立不安，必須一直動而無法休息
- 的確是這樣
- 有的時候是這樣
- 不常這樣
- 一點也不會這樣
35. 我對有興趣的事物充滿期待
- □ 像過去一樣如此
- □ 比起過去較少如此
- □ 比起過去很少如此
- □ 幾乎沒有辦法和過去一樣如此

36. 我會突然有恐慌的感覺
- □ 總是如此
- □ 經常如此
- □ 不常如此
- □ 未曾如此

37. 我能享受一本好書、好音樂或好的電視節目
- □ 經常如此
- □ 有時如此
- □ 不常如此
- □ 極少如此

第四部分：健康控制重心(38-43 題)
這部分的問題是想了解您對健康的看法，每一題目皆描述一個情況，請您依照自己真實的感受，在 6 個選項中選擇適合於您的答案。這答案無關對錯，只是想了解您個人的看法，您的看法可能是由非常不同意至非常同意，請勿需花太多時間思考，只需根據您的看法圈選。

<table>
<thead>
<tr>
<th>項目</th>
<th>非常不同意</th>
<th>不同意</th>
<th>中等</th>
<th>同意</th>
<th>非常同意</th>
</tr>
</thead>
<tbody>
<tr>
<td>38. 如我___，我___自己___健康的能___。</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. 我對自己的健康___有___的___。</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40. 我的健康___問題時，我___是自己___的___。</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41. 我是___健康在於我___照___自己___。</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42. 我___了，我___是由於我沒有好好照___自己___。</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43. 由好好照___自己___，我___有健康___。</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
第五部分：因應方式型態(44-71 題)
这部分的问卷是想了解自从您罹患癌症後，發現您必須面對生活周遭裡所産生的壓力，您個人如何處理這些壓力的方法。問卷中的項目包括很多不同的因應壓力的方法，每個人因應壓力的方法都皆不同。我們想藉由以下的問題來了解您是如何嘗試使用這些因應的方法，希望您能針對以下的問題回答，然後我們想知道您使用這些因應方法的程度有多少，例如：使用的頻率或使用的強度。回答這些問題並無標準答案，也勿思考這些因應的方法是否有效，請直接回答您是否使用這些因應方法。每個問題之間並無相關性，所以請您盡量確實回答以下之問題。

<table>
<thead>
<tr>
<th>項目</th>
<th>從未如此</th>
<th>偶而如此</th>
<th>時常如此</th>
<th>總是如此</th>
</tr>
</thead>
<tbody>
<tr>
<td>44. 我將重心轉移到工作或從事其他的活動</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>45. 我專注並努力處理我目前所面臨的情境</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>46. 我對自己說「這困境是無意的」</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>47. 我用喝酒或藥物讓自己感覺愉快</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>48. 我得到來自於其他的人、事、物給予我情緒上的支持</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>49. 我欣然嘗試處理問題</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>50. 我付諸行動來設法改善情況</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>51. 我接受現實這困境已經發生</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>52. 我對自己說些話讓我的不愉快感覺可以逃離</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>53. 我得到其他人的幫助與建議</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>54. 我用喝酒或藥物來協助我經歷難關</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>55. 我嘗試著以正向的態度看見不同的光明面</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>56. 我評判我自己</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>57. 我設法找到有關於如何因應之策略或方法</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>58. 我從他人處得到慰藉與理解</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>59. 我欣然克服困難之企圖心</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>60. 我尋找目前正在發生的美好事物</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>61. 我一笑置之</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>62. 我從事活動以抗紓或生命的太多，例如：看電影、看電視、閱讀、做目錄、睡覺或是購物</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>63. 我接受已經發生的事實</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>64. 我表達我負面的情緒</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>65. 我設法在我的宗教信仰或心靈上找到慰藉</td>
<td>1</td>
<td>2</td>
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<tr>
<td>66. 我設法從他人處得到有關解決事情的忠告或協助</td>
<td>1</td>
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<td>3</td>
<td>4</td>
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<td>67. 我學習如何與它共存</td>
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<td>68. 我努力思考著後續要如何處理</td>
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<td>69. 我實質上自己有時讓這情況發生</td>
<td>1</td>
<td>2</td>
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<tr>
<td>70. 我禱告(拜拜)或靜坐</td>
<td>1</td>
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<td>4</td>
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<tr>
<td>71. 我讓情境變的有趣</td>
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</tbody>
</table>
第六部分：輔助與另類醫療療法之使用 (72-80 題)
這部分的問題是想詢問您個人開始使用輔助與另類醫療療法的時間、頻率、每月之
費用、使用的原因、相關訊息之來源，與使用後的個人滿意度及感受。

72. 您過去一年裡曾經使用過輔助與另類醫療療法嗎？是：□ 否：□
(若是，請您繼續回答以下之問題)

73. 請針對以下各樣式之輔助與另類醫療療法圈選出最接近您開始使用的時段:

<table>
<thead>
<tr>
<th>項目</th>
<th>診斷前</th>
<th>診斷後</th>
<th>已在使用中</th>
<th>才開始使用</th>
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<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>藝術治療</td>
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<td>中醫</td>
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</tr>
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<td>整脊療法</td>
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<td>4</td>
</tr>
<tr>
<td>色彩療法</td>
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<tr>
<td>草本植物/草藥</td>
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</tr>
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<td>催眠療法</td>
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<td>按摩</td>
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</tr>
<tr>
<td>冥想/打坐</td>
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<td>音樂治療</td>
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</tr>
<tr>
<td>自然療法</td>
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<td>禪告/拜拜</td>
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<td>太極拳</td>
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<tr>
<td>治療性接觸</td>
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<td>2</td>
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</tr>
<tr>
<td>離他命療法</td>
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<td>2</td>
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<td>瑜珈</td>
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<tr>
<td>其他. 請說明:</td>
<td></td>
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</tbody>
</table>
74. 請針對以下各樣式之輔助與另類醫療療法，圈選出最符合您使用的頻率。

<table>
<thead>
<tr>
<th>項目/使用的頻率</th>
<th>從未使用</th>
<th>偶而</th>
<th>每月</th>
<th>每週</th>
<th>每天</th>
<th>每天一\次以上</th>
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<tr>
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</tbody>
</table>

納入整體評估

選擇您認為最能反映您目前使用頻率的選項。
75. 請問您平均每月花費多少錢在目前使用中的輔助與另類醫療療法？

□ 1. 少於台幣五千
□ 2. 台幣五千至一萬
□ 3. 台幣一萬至一萬五
□ 4. 台幣一萬五至兩萬
□ 5. 台幣兩萬至兩萬五
□ 6. 台幣兩萬五至三萬
□ 7. 台幣三萬至三萬五
□ 8. 多於台幣三萬五

76. 請問您認為您所花費於輔助與另類醫療療法之費用是否值得？

□ 是    □ 否    □ 或許

77. 自從您被診斷為癌症後，請勾選出以下適合您個人使用或曾經使用輔助與另類醫療療法之原因？（可複選）

□ 可直接抗癌
□ 可增強身體的免疫力以對抗癌症
□ 可改善生理良好狀態
□ 可改善心理良好狀態、提供希望、社會支持、與增進樂觀感受
□ 可消解癌症疾病反應或西醫治療所產生的不適症狀
□ 或許有幫助但也無害處
□ 想嘗試任何可能的方法來對抗癌症
□ 其他原因，請說明：__________________________

78. 請勾選出下列適合您個人因使用輔助與另類醫療療法中所得到之實際益處？（可複選）

□ 無任何益處
□ 有直接降低癌症反應
□ 有增強身體的免疫力以對抗癌症
□ 有改善生理良好狀
79. 請問您個人是否感受任何不良反應或副作用，是由於您使用任何形式的輔助與另類醫療療法？如果是『是』，請說明何種不良反應與來自於何種形式的輔助與另類醫療療法。

<table>
<thead>
<tr>
<th>輔助與另類醫療療法之型態</th>
<th>不良反應或副作用</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

80. 請問您從何處學習到有關輔助與另類醫療療法？

- 以前從未聽說，直到今天才聽說。
- 大眾媒體：電視、報紙、雜誌等。
- 電腦網路。
- 朋友們告知或介紹。
- 家人或親戚們告知或介紹。
- 宗教團體或宗教上的接觸。
- 輔助與另類醫療療法的執業者。
- 西醫醫師。
- 護理人員。
- 其他，請說明：__________________________
第七部分：生活品質(81-110 題)
我們很希望瞭解有關您的健康生活品質狀況。請您親自回答以下所有的問題，圈選最合適的答案。答案中沒有「對」或「錯」。您所提供的資料將完全保密。

受訪者代碼：________________(由研究者依照順序編列或用姓名譯音英文縮寫)
您的生日：____年____月____日
今天的日期：____年____月____日

<table>
<thead>
<tr>
<th>項目</th>
<th>完全沒有</th>
<th>有一點</th>
<th>相當多</th>
<th>非多多</th>
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在過去一星期內（過去七天內）

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<th>非多多</th>
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<tr>
<td>在過去一星期內（過去七天內）</td>
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<td>96. 您曾便秘嗎？</td>
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<td>98. 您疲倦嗎？</td>
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<td>99. 疼痛干擾您的日常活動嗎？</td>
<td>1 2 3 4</td>
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<tr>
<td>100. 您曾否難將注意力集中在一些事情上，如看報紙或看電視？</td>
<td>1 2 3 4</td>
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<td>101. 您覺得緊張嗎？</td>
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<td>102. 您感到憂慮嗎？</td>
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<tr>
<td>103. 您覺得容易發怒嗎？</td>
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<tr>
<td>104. 您覺得情緒低落嗎？</td>
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<tr>
<td>105. 您曾感到記憶困難嗎？</td>
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<tr>
<td>106. 您的身體狀況或醫療過程是否曾干擾您的家庭生活？</td>
<td>1 2 3 4</td>
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<tr>
<td>107. 您的身體狀況或醫療過程是否曾干擾您的社交活動？</td>
<td>1 2 3 4</td>
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<tr>
<td>108. 您的身體狀況或醫療過程是否曾造成您財務上的困難？</td>
<td>1 2 3 4</td>
<td></td>
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</tbody>
</table>

以下問題，請在 1 到 7 之間圈選最適合您的答案。

您如何評定過去一星期內（過去七天內）您整體的健康？

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<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>非常差</td>
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<td>極好</td>
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</tbody>
</table>

您如何評定過去一星期內（過去七天內）您整體的生活品質？

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<thead>
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<th>1</th>
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<tr>
<td>非常差</td>
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<td>極好</td>
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</table>
APPENDIX E

Content Validity Form

Please review the tool and rate each item for relevance in assessing the use of coping strategies among Taiwanese women with breast cancer. This form is used to examined the clarity and appropriateness of each item and determined if the items for each tool adequately represented the content addressed by the instruments. A 4-point scale with 1 for not relevant, 2 for somewhat relevant, 3 for quite relevant, and 4 for very relevant. Items listed below were included in the preliminary version of Brief Coping Orientations to Problems Experienced Scale (Brief COPE). These items ask the breast cancer patients’ belief statement about their medical condition with which they may agree or disagree. Each statement is a scale which ranges from Not at all, A little bit, Medium amount, A lot.

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Medium amount</th>
<th>A lot</th>
<th>Not relevant</th>
<th>Somewhat relevant</th>
<th>Quite relevant</th>
<th>Very relevant</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I’ve been turning to work or other activities to take my mind off things. 我將重心轉移到工作或是從事其他的活動</td>
<td>從未如此</td>
<td>偶而如此</td>
<td>時常如此</td>
<td>總是如此</td>
<td>非常不適當</td>
<td>不適當</td>
<td>尚可</td>
<td>非常適當</td>
<td>意見</td>
</tr>
<tr>
<td>2. I’ve been concentrating my efforts on doing something about the situation I’m in. 我專注並努力處理我目前所面臨的情境</td>
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<tr>
<td>3. I’ve been saying to myself “this isn’t real.” 我對自己說“這情境不是真實的”</td>
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<tr>
<td>4. I’ve been using alcohol or other drugs to make myself feel better. 我用喝酒或其他藥物讓自己感覺愉快</td>
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<tr>
<td>Item</td>
<td>Not at all</td>
<td>A little bit</td>
<td>Medium amount</td>
<td>A lot</td>
<td>Not relevant</td>
<td>Somewhat relevant</td>
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<tr>
<td>5. I’ve been getting emotional support from others. 我得到來自於其他人、事、物給予我情緒上的支持</td>
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<tr>
<td>6. I’ve been giving up trying to deal with it. 我放棄嘗試處理問題</td>
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<tr>
<td>7. I’ve been taking action to try to make the situation better. 我付諸行動來設法改善情況</td>
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<tr>
<td>8. I’ve been refusing to believe that it has happened. 我拒絕相信這情境已經發生</td>
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<td>9. I’ve been saying things to let my unpleasant feelings escape. 我對自己說些話讓我的不愉快感覺可以逃離</td>
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<tr>
<td>10. I’ve been getting help and advice from other people. 我得到其他人的幫助與建議</td>
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<tr>
<td>11. I’ve been using alcohol or other drugs to help me get through it. 我用喝酒或藥物來協助我經歷難關</td>
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<tr>
<td>12. I’ve been trying to see it in a different light, to make it seem more positive. 我嘗試著以正向的態度看見不同的光明面</td>
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<td>5. 我得到來自於其他人、事、物給予我情緒上的支持</td>
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<td>6. 我放棄嘗試處理問題</td>
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<td>7. 我付諸行動來設法改善情況</td>
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<td>8. 我拒絕相信這情境已經發生</td>
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<td>9. 我對自己說些話讓我的不愉快感覺可以逃離</td>
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<td>10. 我得到其他人的幫助與建議</td>
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<tr>
<td>11. 我用喝酒或藥物來協助我經歷難關</td>
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<tr>
<td>12. 我嘗試著以正向的態度看見不同的光明面</td>
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<td>Item</td>
<td>Not at all</td>
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<td>Medium amount</td>
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<td>Not relevant</td>
<td>Somewhat relevant</td>
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<tr>
<td>13. I’ve been criticizing myself.</td>
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<td>我評判我自己</td>
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<tr>
<td>14. I’ve been trying to come up with a strategy about what to do.</td>
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<td></td>
<td>我設法找到有關於如何因應之策略或方法</td>
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<tr>
<td>15. I’ve been got comfort and understanding from someone.</td>
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<td>我從他人處得到慰藉與瞭解</td>
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<td>16. I’ve been giving up the attempt to cope.</td>
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<td>我放棄克服困難之企圖心</td>
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<td>17. I’ve been looking for something good in what is happening.</td>
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<td></td>
<td></td>
<td>我尋找目前正在發生的美好事物</td>
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<tr>
<td>18. I’ve been making jokes about it.</td>
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<td>我一笑置之</td>
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<td>19. I’ve been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.</td>
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<td>我從事些活動以免想的太多，例如：看電影、看電視、閱讀、做白日夢、睡覺或是購物</td>
</tr>
<tr>
<td>Item</td>
<td>Not at all</td>
<td>A little bit</td>
<td>Medium amount</td>
<td>A lot</td>
<td>Not relevant</td>
<td>Somewhat relevant</td>
<td>Quite relevant</td>
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<td>20. I've been accepting the reality of the fact that it has happened.</td>
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<td>21. I've been expressing my negative feelings.</td>
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<td>22. I've been trying to find comfort in my religion or spiritual beliefs.</td>
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<tr>
<td>23. I've been trying to get advice or help from other people about what to do.</td>
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<tr>
<td>24. I've been learning to live with it.</td>
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<td>25. I've been thinking hard about what steps to take.</td>
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<tr>
<td>26. I've been blaming myself for things that happened.</td>
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<td>27. I've been praying or meditating.</td>
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<tr>
<td>28. I've been making fun of the situation.</td>
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APPENDIX F

General Interview Guide

(1) Please can you tell me about when you first started to use a CAM?

(請您告訴我您是如何開始使用輔助另類療法?)

- Why did you start using CAM? (您為什麼會想要開始使用輔助另類療法)
- Which CAM do you use most? (那一種型態的方法您最常用？)

(2) How did you make decision for using CAM? (您如何決定使用輔助另類療法)

- Where did you get information resource from? (您從哪裡得到資訊來源?)
- How did you choose CAM? (您如何選擇輔助另類療法?)

(3) How did CAMs help you? (您覺得輔助另類療法如何幫助您?)

- What has worked well? (您覺得哪些療法對您有助益?)
- What has not worked well? (有哪些療法是讓您覺得沒任何幫助的呢?)
- How long have you been used for? (您使用這些療法大概有多久?)
- What specific types of CAM have you used? (可否談一下您曾經使用過的特殊療法)
- What did you feel when you use? (請談一下您在使用這些療法時的感受?)
- How often do you use CAMs? (可否談一下您使用的頻率及次數?)
- What did you feel after you use? (您使用後的感覺如何呢?)
- How did you satisfy with your CAM? (您對這些您使用過的療法滿意度如何?)
APPENDIX G

Table 1. Frequencies and Percentages on Brief COPE

Table 1: Frequencies and Percentages on Brief COPE (N = 196)

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all n (%)</th>
<th>A little bit n (%)</th>
<th>Medium amount n (%)</th>
<th>A lot n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I’ve been turning to work or other activities to take my mind off things.</td>
<td>33 (16.8)</td>
<td>49 (25.0)</td>
<td>80 (40.8)</td>
<td>34 (17.3)</td>
</tr>
<tr>
<td>I’ve been concentrating my efforts on doing something about the situation I’m in.</td>
<td>7 (3.6)</td>
<td>24 (12.2)</td>
<td>110 (56.1)</td>
<td>55 (28.1)</td>
</tr>
<tr>
<td>I’ve been saying to myself “this isn’t real.”</td>
<td>123 (62.8)</td>
<td>39 (19.9)</td>
<td>18 (9.2)</td>
<td>16 (8.2)</td>
</tr>
<tr>
<td>I’ve been using alcohol or other drugs to make myself feel better.</td>
<td>189 (96.4)</td>
<td>7 (3.6)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I’ve been getting emotional support from others.</td>
<td>9 (4.6)</td>
<td>45 (23.0)</td>
<td>96 (49.0)</td>
<td>46 (23.5)</td>
</tr>
<tr>
<td>I’ve been giving up trying to deal with it.</td>
<td>166 (84.7)</td>
<td>23 (11.7)</td>
<td>4 (2.0)</td>
<td>3 (1.5)</td>
</tr>
<tr>
<td>I’ve been taking action to try to make the situation better.</td>
<td>13 (6.6)</td>
<td>24 (12.2)</td>
<td>102 (52.0)</td>
<td>57 (29.1)</td>
</tr>
<tr>
<td>I’ve been refusing to believe that it has happened.</td>
<td>157 (80.1)</td>
<td>29 (14.8)</td>
<td>3 (1.5)</td>
<td>7 (3.6)</td>
</tr>
<tr>
<td>I’ve been saying things to let my unpleasant feelings escape.</td>
<td>60 (30.6)</td>
<td>90 (45.9)</td>
<td>36 (18.4)</td>
<td>10 (5.1)</td>
</tr>
<tr>
<td>I’ve been getting help and advice from other people.</td>
<td>7 (3.6)</td>
<td>46 (23.5)</td>
<td>112 (57.1)</td>
<td>31 (15.8)</td>
</tr>
<tr>
<td>I’ve been using alcohol or other drugs to help me get through it.</td>
<td>188 (95.9)</td>
<td>7 (3.6)</td>
<td>1 (0.5)</td>
<td>0</td>
</tr>
<tr>
<td>I’ve been trying to see it in a different light, to make it seem more positive.</td>
<td>9 (4.6)</td>
<td>29 (14.8)</td>
<td>92 (46.9)</td>
<td>66 (33.7)</td>
</tr>
<tr>
<td>I’ve been criticizing myself.</td>
<td>75 (38.3)</td>
<td>85 (43.4)</td>
<td>26 (13.3)</td>
<td>10 (5.1)</td>
</tr>
<tr>
<td>I’ve been trying to come up with a strategy about what to do.</td>
<td>11 (5.6)</td>
<td>36 (18.4)</td>
<td>106 (54.1)</td>
<td>43 (21.9)</td>
</tr>
<tr>
<td>Continued</td>
<td>Not at all</td>
<td>A little bit</td>
<td>Medium amount</td>
<td>A lot</td>
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<tr>
<td>I’ve been getting comfort and understanding from someone.</td>
<td>10 (5.1)</td>
<td>52 (26.5)</td>
<td>97 (49.5)</td>
<td>39 (18.9)</td>
</tr>
<tr>
<td>I’ve been giving up the attempt to cope.</td>
<td>160 (81.6)</td>
<td>25 (12.8)</td>
<td>6 (3.1)</td>
<td>5 (2.6)</td>
</tr>
<tr>
<td>I’ve been looking for something good in what is happening.</td>
<td>12 (6.1)</td>
<td>60 (30.6)</td>
<td>85 (43.4)</td>
<td>39 (19.9)</td>
</tr>
<tr>
<td>I’ve been making jokes about it.</td>
<td>13 (6.6)</td>
<td>77 (39.3)</td>
<td>72 (36.7)</td>
<td>34 (17.3)</td>
</tr>
<tr>
<td>I’ve been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.</td>
<td>25 (12.8)</td>
<td>80 (40.8)</td>
<td>65 (33.2)</td>
<td>26 (13.3)</td>
</tr>
<tr>
<td>I’ve been accepting the reality of the fact that it has happened.</td>
<td>5 (2.6)</td>
<td>11 (5.6)</td>
<td>94 (48.0)</td>
<td>86 (43.9)</td>
</tr>
<tr>
<td>I’ve been expressing my negative feelings.</td>
<td>30 (15.3)</td>
<td>118 (60.2)</td>
<td>39 (19.9)</td>
<td>9 (4.6)</td>
</tr>
<tr>
<td>I’ve been trying to find comfort in my religion or spiritual beliefs.</td>
<td>26 (13.3)</td>
<td>80 (40.8)</td>
<td>57 (29.1)</td>
<td>33 (16.8)</td>
</tr>
<tr>
<td>I’ve been trying to get advice or help from other people about what to do.</td>
<td>4 (2.0)</td>
<td>60 (30.6)</td>
<td>99 (50.5)</td>
<td>33 (16.8)</td>
</tr>
<tr>
<td>I’ve been learning to live with it.</td>
<td>3 (1.5)</td>
<td>31 (15.8)</td>
<td>98 (50.0)</td>
<td>64 (32.7)</td>
</tr>
<tr>
<td>I’ve been thinking hard about what steps to take.</td>
<td>21 (10.7)</td>
<td>62 (31.6)</td>
<td>75 (38.3)</td>
<td>38 (19.4)</td>
</tr>
<tr>
<td>I’ve been blaming myself for things that happened.</td>
<td>103 (52.6)</td>
<td>72 (36.7)</td>
<td>16 (8.2)</td>
<td>5 (2.6)</td>
</tr>
<tr>
<td>I’ve been praying or meditating.</td>
<td>37 (18.9)</td>
<td>93 (47.4)</td>
<td>44 (22.4)</td>
<td>22 (11.2)</td>
</tr>
<tr>
<td>I’ve been making fun of the situation.</td>
<td>17 (8.7)</td>
<td>79 (40.3)</td>
<td>76 (38.8)</td>
<td>24 (12.2)</td>
</tr>
</tbody>
</table>