Effects of Buddhist-based, Nurse-delivered Program on Psychological Symptom Cluster and Spiritual Well-being of Thai Women with Breast Cancer Undergoing Chemotherapy: A Randomized Controlled Trial

Samonnan Thasaneesuwan

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Nursing (International Program)
Prince of Songkla University
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Author	Mrs. Samonnan Thasaneesuwan
Major Program	Nursing (International Program)

Major Advisor

……..…….....

(Asst. Prof. Dr. Tippamas Chinnawong)

Co-advisor

……..…….....

(Asst. Prof. Dr. Wongchan Petpichetchian)

Examining Committee:

……..…….....….Chairperson

(Assoc. Prof. Dr. Aranya Chaowalit)

……...……..…Committee

(Asst. Prof. Dr. Tippamas Chinnawong)

……..…….Committee

(Asst. Prof. Dr. Wongchan Petpichetchian)

……...…….……....Committee

(Assoc. Prof. Dr. Urai Hatthakit)

……...…….……....Committee

(Assoc. Prof. Dr. Sureeporn Thanasilp)

The Graduate School, Prince of Songkla University, has approved this thesis as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Nursing (International Program).

……..……..……

(Assoc. Prof. Dr. Teerapol Srichana)

Dean of Graduate School

This is to certify that the work here submitted is the result of the candidate's own investigations. Due acknowledgement has been made of any assistance received.

..…….……Signature

(Asst. Prof. Dr. Tippamas Chinnawong)

Major Advisor

..…….……Signature

(Mrs. Samonnan Thasaneesuwan)

Candidate

I hereby certify that this work has not already been accepted in substance for any degree, and is not being concurrently submitted in candidature for any degree.

..…….……..…….Signature

(Mrs. Samonnan Thasaneesuwan)

Candidate

ชื่อวิทยานิพนธ์	ผลของโปรแกรมการพยาบาลแนวพุทธต่อกลุ่มอาการทางด้านจิตใจและความผาสุกทางด้านจิตวิญญาณในสตรีมะเร็งเต้านมไทยที่ได้รับเคมีบำบัด: การศึกษาเชิงทดลองแบบสุ่ม
ผู้เขียน	นางสมนนันท์ ทัศนีย์สุวรรณ
สาขาวิชา	การพยาบาล (หลักสูตรนานาชาติ)
ปีการศึกษา	2559

บทคัดย่อ

การศึกษาเชิงทดลองแบบสุ่มวัดซ้ำ เพื่อศึกษาผลของโปรแกรมการพยาบาลแนวพุทธต่อกลุ่มอาการทางด้านจิตใจและความผาสุกทางด้านจิตวิญญาณในสตรีไทยที่เป็นมะเร็งเต้านมในระหว่างได้รับเคมีบำบัด กลุ่มตัวอย่างจำนวน 93 ราย เป็นสตรีมะเร็งเต้านมระยะที่ 1-3 และเข้ารับเคมีบำบัด ณ ศูนย์ให้ยาเคมีบำบัด โรงพยาบาลมหาวิทยาลัยแห่งหนึ่งในภาคใต้ กลุ่มตัวอย่างถูกสุ่มเข้ากลุ่มทดลองและกลุ่มควบคุม โดยกลุ่มทดลอง (n = 45) ได้รับการดูแลตามปกติ ร่วมกับโปรแกรมการพยาบาลแนวพุทธ ซึ่งประกอบด้วยกิจกรรม คือ 1) การรู้จักตนเองกับการเจ็บป่วย 2) การประยุกต์หลักคำสอนอริยสัจสี่ในการดูแลสุขภาพ และ 3) การสะท้อนคิดกลุ่มอาการทางด้านจิตใจและการประยุกต์ใช้โปรแกรม ส่วนกลุ่มควบคุม (n = 48) ได้รับการดูแลตามปกติเพียงอย่างเดียว

เครื่องมือที่ใช้ในการวิจัยได้แก่ 1) แบบประเมินกลุ่มอาการทางด้านจิตใจ และ 2) แบบประเมินความผาสุกทางด้านจิตวิญญาณ ดำเนินการเก็บข้อมูลจำนวน 3 ครั้ง คือ วันแรกที่ได้รับเคมีบำบัด ครั้งที่ 3 และครั้งที่ 6 ของการได้รับยาเคมีบำบัด วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนาเพื่อ

บรรยายข้อมูลทั่วไปและการเจ็บป่วย และใช้สถิติเชิงอนุมานเพื่อเปรียบเทียบความแตกต่างของค่าคะแนนภายในกลุ่มและระหว่างกลุ่มด้วยสถิติไคสแควร์ สถิติทดสอบที การวิเคราะห์ความแปรปรวนแบบวัดซ้ำ

ผลการศึกษาเปรียบเทียบค่าคะแนนเฉลี่ยแบบวัดซ้ำ พบว่า กลุ่มทดลอง มีอาการทางด้านจิตใจลดลง และค่าคะแนนเฉลี่ยความผาสุกทางด้านจิตวิญญาณเพิ่มขึ้นอย่างมีนัยสำคัญทางสถิติ ($p < .05$) แต่เมื่อเปรียบเทียบค่าคะแนนเฉลี่ยแบบวัดซ้ำระหว่างกลุ่มทดลองและกลุ่มควบคุม พบว่าไม่มีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ ($p > .05$)

โปรแกรมการพยาบาลแนวพุทธ เป็นแนวทางหนึ่งที่สามารถบรรเทากลุ่มอาการทางด้านจิตใจ และส่งเสริมความผาสุกทางด้านจิตวิญญาณในสตรีมะเร็งเต้านมในระหว่างได้รับเคมีบำบัด

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Academic Year	2016

ABSTRACT

This single-blinded randomized controlled trial with a repeated measures design was aimed at determining the effects of a Buddhist-based, nurse-delivered program on the psychological symptom cluster and spiritual well-being of Thai women with breast cancer undergoing chemotherapy. The sample consisted of 93 women with stage I-III breast cancer who were undergoing chemotherapy at the Chemotherapy Infusion Center of a university hospital in southern Thailand. The subjects were randomly assigned to either the experimental or control group. The experimental group (n = 45) received usual care plus the Buddhist-based, nurse-delivered program involving the following three main activities: raising self-awareness, integrated Buddhist principle of Four Noble Truths, and self-reflection regarding psychological symptom cluster and the progress of Buddhist practices. The control group (n = 48) received usual care only. The instrument consisted of 1) the Psychological Symptom Subscale (MSAS-PSYCH) and 2) Thai Spiritual Well-being Assessment Tool Patients

with Breast Cancer (TSWBATPBC). Data were collected on three occasions at baseline, Cycle 3, and Cycle 6 of Chemotherapy. The data were then analyzed by using descriptive statistics, chi-square tests, independent t-test, and repeated measures ANOVA.

There were statistically significant differences in the mean scores for the psychological symptom cluster and spiritual well-being scores over time in the experimental group ($p < .05$), while the interaction of time by group was not statistically significant concerning the psychological symptom cluster and spiritual well-being ($p > .05$).

The Buddhist-based, nurse-delivered program is an alternative intervention in relieving the psychological symptom cluster and enhancing spiritual well-being for women with breast cancer undergoing chemotherapy.

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"It was wonderful for everyone to keep my spirit up during my PhD journey"

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CHAPTER 1

INTRODUTION

Background and Significance of the Problem

The causes of death and suffering due to breast cancer and its treatment rank statistically high as a public health problem worldwide, including Thailand. Breast cancer was ranged as the first cancer site in women. In addition, it caused 521,000 deaths in 2012 (World Health Organization, 2015). Although treatment such as chemotherapy has focused on alleviating disease intensity, the suffering caused by the disease and its treatment continues to affect the holistic treatment approach for its sufferers.

Previous studies have shown that the toxicity of chemotherapy induce some side effects and increase the severity of treatment-related symptoms in women with breast cancer concerning physical, psychological and spiritual aspects in addition to the aim of fighting the tumor cells (Azim, De Azambuja, Colozza, Bines, & Piccart, 2011; Janelsins et al., 2011). Therefore, these problems in women with breast cancer require extensive study in order to find ways to improve overall well-being.

In order to understand symptom-related suffering in women with breast cancer, the symptom cluster concept acknowledged by Dodd and colleagues (Dodd, Miaskowski, & Paul, 2001), helps one understand the multiple and interrelated symptoms that may even be grouped into cluster. Symptom cluster may have synergistic and multiplicative rather than additive effects on individual outcome (Dodd et al., 2001). In addition, much evidence-based research on symptom cluster has revealed that such symptoms depend, among others,

on the type, stage, and treatment of cancer (Kim, Barsevick, Tulman, & McDermott, 2008; Roiland & Heidrich, 2011).

Previous studies related to women with breast cancer undergoing chemotherapy revealed there were many studies directly focused on the severity of physical symptoms during chemotherapy trajectory such as nausea and vomiting, fatigue, and insomnia. Consequently, numerous strategies for managing these problems were fruitful. However, the disease and its treatment were inevitable attrition to the psychological aspect as previously mentioned. Nguyen et al. (2011) reviewed studies of symptom cluster in women with breast cancer and in four out of five studies psychological symptom cluster such as depression and psychological distress were the most prevalent. All of these psychological problems have been proven to affect the health outcomes of women with breast cancer (Montazeri, 2008; Paraskevi, 2012; So et al., 2009, 2010).

In addition, Suwisith and colleagues (2010) found one in four symptom clusters was emotion-related (sadness, concern, irritability, nervousness; "I don't look like myself;" difficulty concentrating; sleep disturbance; perspiration and constipation) in Thai women with breast cancer receiving chemotherapy. These investigations have also explicitly demonstrated that psychological symptom cluster affect the quality of life of Thai Buddhist women with breast cancer. Moreover, the psychologically-related self-image cluster of breast cancer women is present and persistent throughout the trajectory of chemotherapy (Phligbua et al., 2013). Thus, the aspect of psychological symptom cluster was focused on in the current study as there was a great need for professional healthcare providers to implement appropriate intervention in order to eliminate psychological symptom cluster in this vulnerable group of women.

Previous studies on psychological symptom management among women with breast cancer undergoing chemotherapy have identified a wide variety of ways to effectively manage these symptoms with the aim of enhancing well-being such as (1) education: computer-based nursing intervention (Rawl et al., 2002); (2) supportive psychotherapy: individual psychosocial support; cognitive behavior therapy (CBT) (Arving et al., 2007), psychosocial intervention programs (Manos, Sebastian, Mateos, & Bueno, 2009); (3) social support: telephone social support and education (Coleman et al., 2005); (4) physical exercise (Cadmus et al., 2009; Daley et al., 2007); (5) complementary and alternative medicine (CAM): yoga (Rao et al., 2009), music therapy and verbal relaxation (Lin, Hsieh, Hsu, Fetzer, & Hsu, 2011), meditation/mindfulness (Henderson et al., 2012; Nidich et al., 2009) and (6) integrative intervention: psycho-education and telephone counseling (Sherman et al., 2012) , and integrative support programs (Baker et al., 2012).

In addition, almost all of these interventions were tested on populations in western countries; consequently, some factors such as socio-demographic characteristics, especially culture, religious beliefs and/or settings may have enhanced the outcomes in different ways from studies conducted in other populations. Therefore, a study emphasizing psychological symptom cluster management among women with breast cancer in other populations with consideration of these factors was necessary. Moreover, the findings of evidence-based practices had certain limitations due to sample size restrictions (Danhauer et al., 2009), ambiguous sample size (Boesen et al., 2011; Sherman et al., 2012), and subject attrition or low adherence to treatment (Moadel et al., 2007; Rao et al., 2009). As a result, the effectiveness of the aforementioned interventions remained questionable.

As previously mentioned symptom clusters from chemotherapy were also related to or affect spirituality. Manning-Walsh (2005) found women with breast cancer undergo highly stressful experiences associated with psychological and spiritual difficulties. In addition, Coward and Kahn (2004) found spiritual distress or spiritual disequilibrium characteristics such as fear of dying and a sense of loneliness in a struggle to maintain self-identity was present in women with breast cancer. On the other hand, spirituality could be applied as coping mechanism in order to significantly enhance both psychological and spiritual well-being among cancer patients (Lynn Gall & Cornblat, 2002; Reynolds, 2006; Tate, 2011; Weaver & Flannelly, 2004).

Consequently, the effects of spirituality to support or reduce suffering along the cancer trajectory, was important. Gaston-Johansson et al. (2013) studied the effects of a comprehensive coping strategy program (CCSP) related to aspects of spirituality and found it beneficial to psychological distress and spritual well-being. In Thailand, there were only two studies that have tried to implement an effective program by the way of supporting spirituality through applying Buddhist doctrine in Thai women with breast cancer undergoing radiotherapy and complete treatment period. Both studies also revealed beneficial psychological variables. However, these studies had limitations such a low sample size for generalizability (Bannaasan, Pothiban, Khampolsiri, & Seangthong, 2015; Tubtimhin, & Rungreangkulkij, 2012).

Therefore, the current study illustrated the need to find effective interventions for alleviating the psychological symptom cluster by promoting spirituality through applying Buddhist doctrine, in relation to Thai beliefs, faith and livelihoods. The Four Noble Truths were one of the essential Buddhist doctrines that may help one easily understand the way to cessation of suffering caused by psychological symptom cluster and enhance

spiritual well-being in women with breast cancer undergoing chemotherapy. The cessation of suffering was accomplished through the Noble Eightfold Path (Viradhammo, 1996) which could be applied to a person's way of thinking and practice with the goal of achieving a peaceful mind, relaxation, serenity, harmony, equanimity and wisdom during the breast cancer treatment.

In the aspect of following the middle path, the practice of meditation, which emphasized focusing on the present moment and calming the mind, allowed the individual become compassionate and open to new possibilities, transformation and healing (Otto, 2004). In addition, the benefits of meditation offer outstandingly positive outcomes in reducing stress, anxiety and even depression by using the mechanisms of bidirectional communication between the neuroendocrine and immune systems, or psychoneuroimmunology (PNI), by enhancing the mechanisms of the parasympathetic nervous system and leading to a decrease in the function of the sympathetic system to decrease psychological problems (Zeller, McCain, & Swanson, 1996). Therefore, this intervention was beneficial in alleviating the patients' suffering caused by psychological symptom cluster and enhancing spiritual well-being.

To sum up, the current study aimed to fill the current gap of knowledge by examining the effects of the Buddhist-based, Nurse-delivered Program (BbNdP) focused on psychological symptom cluster healing, spiritual well-being uplifting and Buddhist philosophy. The findings of this study could guide the way for such an intervention among Thai Buddhist women with breast cancer undergoing chemotherapy by employing a randomized controlled trial with the aim of ameliorating the psychological symptom cluster and enhancing spiritual well-being within the Thai Buddhist cultural context.

Purpose of the Study

To examine the effects of the Buddhist-based, Nurse-delivered Program (BbNdP) on the psychological symptom cluster and spiritual well-being of Thai Buddhist women with breast cancer undergoing chemotherapy.

Research Questions

1. Are the psychological symptom cluster scores of Thai Buddhist women with breast cancer undergoing chemotherapy lower than the baseline scores after receiving the BbNdP?

2. Are the spiritual well-being scores of Thai Buddhist women with breast cancer undergoing chemotherapy higher than the baseline scores after receiving the BbNdP?

3. Are the psychological symptom cluster scores of Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP lower than those of women receiving usual care?

4. Are the spiritual well-being scores of Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP higher than those of women receiving usual care?

Research Hypotheses

1. After receiving the BbNdP, the psychological symptom cluster scores are lower than the baseline scores of the Thai Buddhist women with breast cancer undergoing chemotherapy.

2. After receiving the BbNdP, the spiritual well-being scores are higher than the baseline scores for the Thai Buddhist women with breast cancer undergoing chemotherapy.

3. The psychological symptom cluster scores of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP are lower than those of women receiving usual care.

4. The spiritual well-being scores of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP are higher than those of women receiving usual care.

Conceptual Framework of the Study

The conceptual framework guiding the hypothesized relationships between the Buddhist-based, Nurse-delivered Program (BbNdP) and psychological symptom cluster and spiritual well-being of Thai Buddhist women with breast cancer undergoing chemotherapy was constructed based on integrative literature reviews covering psychological symptom cluster related to breast cancer and psychological symptom cluster management developed based on Buddhist philosophy, which is discussed in greater detail as follows:

Psychological symptom cluster in women with breast cancer undergoing chemotherapy

Most cancer patients suffer from multiple symptoms during the trajectory of the disease and its treatment (Dodd et al., 2001; Gift, Jablonski, Stommel, & Given, 2003; Given, Given, Azzouz, Kozachik, & Stommel, 2001). Multiple symptoms (two or more symptoms) or symptom cluster have been studied in health sciences, initially in general medicine and psychiatry. This concept was later extended to cancer patients (Aktas, Walsh, & Rybicki, 2010). According to Dodd et al. (2001), Gift et al. (2003), and Given et al. (2001), these multiple, interrelated, concurrent symptoms were called a "symptom cluster". Furthermore, compared to single symptoms, symptom cluster have more complicate and synergetic detrimental influences on patient outcomes (Dodd et al., 2001; Gift et al., 2003; Given et al., 2001).

Therefore, symptom cluster was a concept that determined the understanding of symptom occurring together in patients with cancer. However, the different symptom cluster depended on the type of cancer, treatment trajectory and stage of disease, etc. (Aktas et al., 2010). In particular, symptom cluster in women with breast cancer differ according to the type of treatment and stage of breast cancer.

In this study, the symptom management model (SMM) introduced by Dodd et al. (2001) was selected to guide the understanding of symptom cluster in women with breast cancer. This model covered symptom management strategies that were congruent in the study. The concept proposes the interrelatedness of the three key concepts: (1) symptom experience; (2) symptom management strategies and (3) outcomes. Symptom experience referred to the individual's perception of a symptom, evaluation of the meaning of that symptom and the individual's response to the symptom.

Perception denotes one's evaluation of the effect of a symptom on their life. In terms of symptom experience in women with breast cancer, evidence-based literature review suggested that not only physical symptom experiences, but also psychological symptom experiences were common. Four out of five recent studies on symptom cluster in women with breast cancer found psychosocial or psychological symptom cluster such as depression/psychosocial distress to be outstanding (Nguyen et al., 2011). Furthermore, the identified psychological symptom cluster in breast cancer include anxiety (Byar, Berger, Bakken & Cetak, 2006; So et al., 2009), depression (Byar et al., 2006; Evangelista & Santos, 2012; So et al., 2009) and mood disturbance (Bender et al., 2005), which concurred with the findings of earlier investigations.

Symptom management strategies referred to suitable methods for minimizing the distress caused by the perceived symptom's threat to a person's life. The strategies need to be specific for each patient's symptoms, because different patients could suffer from a wide range of symptoms. Moreover, the intervention must be specific in terms of time, place, reason for choosing the management modality and intervention details, etc. In this study, symptom management focused on psychological symptom cluster in women with breast cancer undergoing chemotherapy by applying Buddhist-based philosophy (the Four Noble Truths) as a guide to develop a program to eliminate these symptoms.

Outcome referred to the benefits of the intervention as applied to managing distress symptoms in individual persons or groups. The recently-revised model comprises eight outcomes: symptom status, functional status, emotional status, self-care, cost, mortality, quality of life, morbidity and co-morbidity (Dodd et al., 2001). However, this study focused on psychological aspects and extended to spiritual well-being to fit the targeted psychological symptom cluster in women with breast cancer

undergoing chemotherapy. Both psychological aspects and spiritual well-being were important in enhancing the harmony of life of patients who suffered from distress caused by their disease and its treatment.

This study utilized SMM to guide its framework for investigating symptom experiences, which vary in different individuals as they rely on the individual's perception, response and evaluation of the symptoms in order to capture the concurrent psychological symptoms in women with breast cancer undergoing chemotherapy. In addition, this study aimed to test symptom management intervention in order to enhance spiritual well-being in the Thai context.

There was a great need for professional healthcare providers to come up with appropriate intervention in order to enhance the psychological symptom cluster and spiritual well-being of this vulnerable group. Considering the way of life of Thai Buddhist women with breast cancer, Buddhist philosophy was applied to construct a nursing psychological symptom cluster management support program to enhance the nursing care of such patients undergoing chemotherapy, thereby making the intervention more effective in terms of managing psychological symptom cluster. The next section contains a detailed description of key Buddhist philosophy.

Buddhist philosophy

Buddhist philosophy emphasized the natural way of life, which consisted of four major stages: birth, old-age-related illness and death. All of these stages of life involve suffering. The Buddhist doctrine proposed a solution to this problem. The main pillars of its teachings were the Four Noble Truths which referred to natural reality as discussed in the details below.

The Four Noble Truths

Buddhist doctrine provided the Four Noble Truths that could be applied to achieve harmonious living by following the Eightfold Path – the right way to well-being of life leading to a holistic health outcome. Underscoring a person's way of thinking and understanding of human life, the paths were a way to teach lay people how to find happiness and harmony in their lives, especially, when they encounter suffering. Buddhist doctrine teaches the way to eliminate suffering, and lay people could understand and practice this doctrine. Therefore, this doctrine could assist in finding a suitable intervention to manage psychological symptom cluster and suffering in women with breast cancer undergoing chemotherapy as described below.

Firstly, suffering (*dukka*) originates from an individual's way of life. Suffering could take place at every step of life's journey. In Buddhism, suffering could be classified into the following three types: (1) suffering due to oppression such as the suffering of body and mind caused by unpleasant or disagreeable events or experiences; (2) suffering due to the impermanence of life, namely, the fear of changing one's status from positive to negative worldly conditions and (3) suffering due to conflict, which was caused by clinging to the Five Aggregates of Decay and Death against the laws of nature (Chaanchamnong, 2003). According to this doctrine, it could be claimed that suffering in women with breast cancer was due to the progress of the disease and its treatment. The Buddhist doctrine emphasizes the cause and effect aspects of suffering. Thus, it could determine the cause of suffering based on the concept of the fundamental truths of life according to Buddhist doctrine for dealing with understanding the origins of physical matter and the mind, which can be divided into five aggregates (khandha). Khandha refers to all that exists in the universe and beyond made up of the following

five factors: form (*rupa*), feeling (*vedana*), perception (*sanna*), conception (*sankhara*) and consciousness (*vinnana*) (Payutto, 1995; Viradhammo, 1996).

Form or *Rupa* is a corporeality of four elements: solid matter, water, fire and air. This concept provided understanding of the components making up the nature of life. Moreover, it could indicate the presence of suffering rising from these basic principles of life. Feelings referred to a physical sensation that was a reaction of the nervous system or a mental factor arising from the Six Sense Doors – the eyes, ears, nose, tongue, body and mind. Perception (*sanna*) referred to the memory of a particular form, sound, odor, taste, tangible object, or mental object. Conception (*sankhara*) referred to the conception of our thinking or thoughts concerning mental, verbal, and physical aspects. Consciousness (*vinnana*) referred to the element of knowing within the Five Aggregates (Payutto, 1995; Viradhammo, 1996). All of the components could lead to suffering during a person's life journey.

However, suffering in women with breast cancer could have all of the characteristics mentioned above; thus, nursing interventions were needed to eliminate suffering. However, various factors or situations in people could lead to different perceptions and meanings of suffering and, consequently, to different psychological symptom cluster. Therefore, professional oncology nurses should evaluate and help sufferers to eliminate the aforementioned symptoms on an individual basis.

Secondly, the causes of suffering (*samudaya*) were found in the origin, nature or creation of truth. In real life, human beings reflect this doctrine when they fail to understand universal laws of nature, which results in a state of ignorance (*aviccha*). This ignorance was an important point leading to more suffering. Moreover, craving (*tanha*) for material things was the root cause of suffering. In addition, clinging

(*upadana*) refers to the human tendency to grasp for things with the expectation that desires will be satisfied. Thus, if people could understand this doctrine, they will be able to face any situation in their lives without being affected by suffering.

Buddhist doctrine also emphasized the concept of cause and effect in natural life. Both suffering and non-suffering in human life occurred due to various causes and factors. The doctrine of the Law of Dependent Origination or Piticca-Samuppada shaded more light on the understanding of the occurrence or non-occurrence of suffering in human beings (Viradhammo, 1996). The laws of nature for maintaining the mind in a state of no suffering (piticca-samuppada) in reference to the way suffering either occurred or did not occur. Piticca-samuppada was not concerned with an individual person; thus, the concept of self or "I" has no meaning here. There were two forms of suffering contact – wisdom contact and ignorance contact. Contact was composed of three factors: 1) the six sense organs; 2) the six sense objects and 3) the six sense consciousness. This process has both a short and a long form. Moreover, it could be demonstrated by two aspects of the Law of Dependent Origination potentially leading to either suffering or no suffering (opposite processes). The section below details the process or cycle of suffering.

The process started with contact; after contact, feelings arise. In breast cancer patients, for example, after the perception of the diagnosis, the patients experience feelings of anxiety or depression. Following the feelings, desire and attachment occur. During both processes, if the patients have wisdom and/or the right mindfulness, they could manage or understand their state of natural life and non-self. Next, desire, attachment and being arise. After being, birth arises. The mind and body were in a completely new condition. After birth, old-age comes. The new conditions of body and

mind now begin to fade away because of their impermanent nature. After old-age came death. After death, the neutral mind and calm body reappeared (Viradhammo, 1996).

Thirdly, the way of achieving an end to suffering came through the Noble Eightfold Path (Payutto, 1995; Tanphaichitr, 2005). The Noble Eightfold Path was the middle path for human life and consists of eight folds [magga]: right view, right thought, right speech, right action, right livelihood, right effort, right mindfulness and right concentration. These could be further categorized into three groups for training purposes collectively called the Trisikha. The first group was Sila Sikha (morality) involving training in higher-level morality (right speech, right action and right livelihood). The second was Samadhi Sikha (meditation) involving training in higher-level consciousness (right effort, right mindfulness and right concentration) and the third was Panna Sikha (wisdom) involving training in higher-level wisdom (right view and right thought).

In this way, patients with breast cancer could follow the precepts of Buddhist morality and training to achieve higher-level morality (right speech, right action and right livelihood). In addition, the patients might try to practice meditation (vipassana or insight meditation) in order to gain mindfulness or recollection to develop wisdom. Wisdom (panna) referred to the ability to realize the three universal characteristics of physicality and mentality: impermanence (anicca), suffering or dissatisfaction (dukkha) and non-ego or non-self (anatta). If the patients were able understand these truths, they could examine their mental defilement, particularly concerning greed (lobha), anger (dosa) and delusion (moha). Thus, meditation enhanced mindfulness (sati) and clear comprehension (sampajanna) or wisdom (panna), which could prevent and alleviate the defilement of the mind (Disayavanish &

Disayavanish, 2005). In other words, critical thinking, practicing and understanding the Four Noble Truths and following the Noble Eightfold Path could enhance psychological aspect and spiritual well-being and help maintain harmony in a person's life.

Therefore, this doctrine could help human beings understand all things related to natural law; hence, if they have problems or suffering in their lives, they might be able to eliminate them. The overriding principle was that wisdom led to no suffering and, consequently, happiness. If women with breast cancer undergoing chemotherapy could adopt and follow the Four Noble Truths with application of the principles of the middle path, harmony of life will definitely abound in their lives.

Lastly, the cessation (nirodha) of suffering (also known as nirvana) was the ultimate goal of Buddhism (King, 2002). The state of the cessation of suffering means that patients with breast cancer could become happy, have harmony and live without craving or desires in their lives. The way to achieve this state was by following the Noble Eightfold Path as previously mentioned.

Consequently, Buddhism was able to guide this Buddhist-based, Nursed-delivered Program (BbNdP) aiming to eliminate the suffering and psychological distress of having breast cancer for Thai Buddhist women with the disease, while changing their outlook on life by means of understanding and realizing the principles of the Four Nobel Truths and following the Noble Eightfold Path. This was an intervention professional oncology nurses could apply in their practice in order to manage the psychological symptom cluster and enhance the spiritual well-being of cancer patients to achieve harmony in their lives. The conceptual framework of the current study is presented in Figure 1

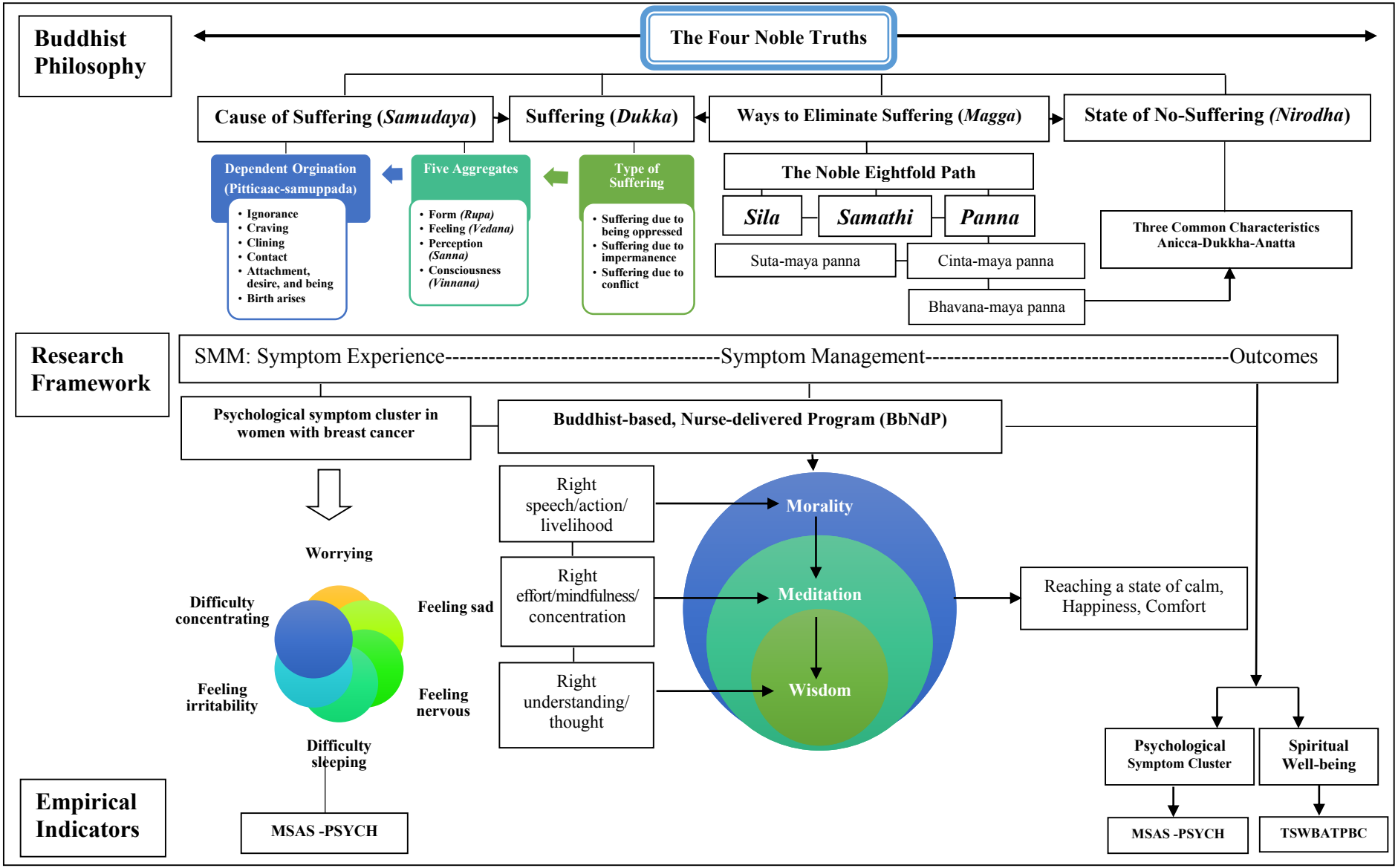

Figure 1. Conceptual framework of the study
Note: SMM: Symptom Management Model, MSAS-PSYCH: Memorial Symptom Assessment Scale-Psychological Symptom Subscale, TSWBATPBC: Thai Spiritual Well-being Assessment Tool for Patients with Breast Cancer.

Definition of Terms

Psychological symptom cluster refers to the group of interrelated psychological symptoms in women with breast cancer. It can be measured by the Memorial Symptom Assessment Scale- Psychological Symptom Subscale (MSAS-PSYCH) to assess symptom frequency, severity, and distress of symptoms in women with breast cancer. It consists of the following 6 items: worrying, feeling sad, feeling nervous, difficulty to sleep, feeling irritability, and difficulty concentrating (Portenoy et al., 1994).

Spiritual well-being refers to a state of harmony with respect to a sense of well-being in relation to a supreme being, as well as to a sense of meaning, purpose and satisfaction with life (O'Brien, as cited by Unsanit, Sunsern, Kunsongkeit, O'Brien, and McMullen, 2012). Spiritual well-being could be measured by the Thai Spiritual Well-being Assessment Tool for Patients with Breast Cancer (TSWBATPBC), which was derived from the Thai Spiritual Well-being Assessment Tool for Elderly with Chronic Illness (TSWBATECI) (Unsanit et al., 2012). The instrument covered the following eight aspects (41 items): (1) happiness in life; (2) acceptance of chronic illness; (3) life equilibrium; (4) passion for life; (5) self-transcendence; (6) optimistic personality; (7) a purpose in life and (8) willingness to forgive.

Buddhist-based, Nurse-delivered Program (BbNdP) refers to a program based on Buddhist philosophy (the Four Noble Truths) aiming to heal the psychological symptom cluster and enhance spiritual well-being of Thai Buddhist women with breast cancer undergoing chemotherapy. The program follows the usual care during the process of

chemotherapy infusion with the addition of certain special BbNdP activities employed the following three main activities: (1) raising self-awareness; (2) integrated Buddhist principle of Four Noble Truths, and (3) self-reflection regarding psychological symptom cluster and the progress of Buddhist practices.

Usual care refers to the nursing care provided by oncology nurses, including health-related education about chemotherapy treatment and self-care during chemotherapy with nursing care while the patients receive cancer-killing drugs at the chemotherapy infusion center.

Scope of the Study

This single-blinded randomized controlled trail was applied to women with stage I-III breast cancer who had psychological symptom cluster problems, and were undergoing chemotherapy treatment at the Chemotherapy Infusion Center (CIC) of a university hospital, Southern Thailand, from June 2014 to January 2016.

Significance of the Study

Nursing practice and nurse' role: This new program (BbNdP) was beneficial in alleviating suffering caused by psychological symptom cluster and achieving spiritual well-being, while extending to holistic health in women with breast cancer undergoing chemotherapy. Moreover, it demonstrated the art of nursing (following the holistic care approach) and its outstanding role in breast cancer patient treatment by incorporating

Eastern wisdom in integrated nursing healing to alleviate suffering during the cancer trajectory. The findings could be extended to nursing knowledge or practice guidelines in terms of methods to alleviate suffering in cancer patients or other groups of chronic illness. In addition, supporting professional nurses to study Buddhist doctrine and practices in order to apply the knowledge gained to nursing care is very important to advanced-nursing development as in this study. Furthermore, the study shed more light on the doctrine of the Four Noble Truths and the benefits of its application to the life journey of cancer patients.

Nursing curricula: The improvement of nursing curricula by applying evidenced-based nursing (EBN) concentrating on Eastern wisdom and its role in nursing care should also be of concern. Moreover, cultivating knowledge about Buddhist doctrine and encouraging nursing students to learn and practice the Buddhist doctrine to create balance in their lives in addition to having wisdom, love, compassion, equanimity, a calm mind and concentration in their journey of life are other potential benefits.

Research methodology: The knowledge gained about morality can help people realize the true human condition in RCT research methodology.

Health policy: The outcomes of the present study might serve to encourage the Ministry of Public Health in Thailand and other agencies worldwide to provide health policies supporting the integration of Buddhist doctrine in nursing interventions to enhance the holistic health of cancer patients and other patient groups.

CHAPTER 2

LITERATURE REVIEW

This chapter discussed the literature in support of the Buddhist-based, Nurse-delivered Program (BbNdP) on the psychological symptom cluster and spiritual well-being of Thai Buddhist women with breast cancer undergoing chemotherapy in a randomized controlled trial. Its contents followed the outline below:

1. Overview of breast cancer and its' treatment effects

1.1 Breast cancer incidence and prevalence and its trajectory

1.2 Breast cancer treatments

1.3 Chemotherapy side effects

2. Psychological symptom cluster in women with breast cancer undergoing chemotherapy

2.1 Concept of symptom cluster

2.2 Psychological symptom cluster in women with breast cancer and its contributing factors

2.3 Measurement of symptom/ symptom cluster

2.4 Review of psychological intervention in women with breast cancer

3. Buddhist philosophy and its' application in nursing

3.1 Overview of Buddhist doctrine

3.2 The Four Noble Truths

3.3 Applying the Buddhist doctrine in nursing

4. Spiritual well-being in women with breast cancer undergoing chemotherapy

4.1 Concept of spiritual well-being

4.2 Factors contributing to spiritual well-being of women with breast cancer undergoing chemotherapy

4.3 Measurement of spiritual well-being

The extended details were as follows:

1. Overview of Breast Cancer and Its' Treatment Effects

1.1 Breast cancer incidence and prevalence and its' trajectory

Breast cancer is the highest incidence cancer in women around the world. It caused of death 521,000 deaths in 2012 (World Health Organization, 2015). Similarly, in Thailand, statistics revealed that breast cancer ranks in the first range of high prevalence of cancers in women (Ministry of Public Health, 2015). Furthermore, the ratio of female to male breast cancer cases was about 150:1 (Lippman, 2012). The incidence and prevalence of newly-diagnosed females was particularly high among illiterate young women. In addition, the factors influencing the incidence of breast cancer are menarche, age of first full-term pregnancy, and menopause (Lippman, 2012).

In respect to the diagnosis of cancer stage, it was very important that the physician's prediction of the prognosis and therapeutic decision-making were guided by

the TNM (primary tumor, regional nodes, and metastasis) staging system to classify the cancer (Lippman, 2012). In addition, it helped to predict the five-year survival rates, which were significantly high, particularly for those with early-stage cancers: for stage 0 (99%), stage I (92%), stage IIA/B (65% for local invasion) and (82.0% for regional invasion), stage IIIA/B (44%) and (47%), respectively, and in women with metastatic-stage breast cancer (14.0%) (Lippman, 2012).

To sum up, the significantly increasing prevalence of breast cancer among women worldwide and the increasing survival rates in the early stages of the disease are important points of consideration for healthcare professionals to come up with effective care, particularly at the beginning of the disease.

1.2 Breast cancer treatments

In terms of breast cancer treatment, it can be provided in various ways depending on the progress of the disease. Recently, it has been reported that an effective treatment can be categorized in five domains (Centers for Disease Control & Prevention, 2012; National Comprehensive Cancer Network, 2012). Generally, breast cancer patients receive more than one kind of treatment.

1.2.1 Surgery. The surgery treatment has normally aimed to achieve local and regional control of tumor cells. For most cases of breast cancer, the initial treatment involves surgery before switching to a combination of other treatments such as radiation therapy, chemotherapy, or both. The main point of this treatment is to eliminate the cancer cells and provide a deep investigation of the cancer's stage (Hammer, Fanning, & Crowe, 2008). Currently, there are three main types of surgery; (1) breast conservation therapy,

generally followed by total or partial breast radiation treatment, (2) mastectomy, and (3) mastectomy and reconstruction.

(1) Breast conservation therapy. The surgical resection cuts the solid tumor and soft tissue around tumor cells (wide excision), also known as quadrantectomy. In addition, radiation therapy will follow. Moreover, this method is the current standard of care for early breast cancer, which provides patients with better cosmetic results with compromising survival (Jones et al., 2009).

(2) Mastectomy. The aim of this surgical procedure is to remove the whole breast affected by cancer.

(3) Mastectomy and reconstruction. This method is performed with the aim of supporting women who undergo mastectomy and suffer emotional distress due to their disease and losing a breast. This treatment concern may relate to both feminine and sexual function (Djohan, Gage, & Bernard, 2008).

1.2.2 Chemotherapy. This is a standard regimen to cure cancer patients. The main goal of the cytotoxic drugs involved is to eliminate the tumor cells by means of a systemic treatment rather than a localized therapy (Otto, 2007). The criteria for chemotherapy commencement in the cancer of breast are: (1) node-negative disease with a high risk of recurrence, (2) axillary-node involvement, (3) poor prognosis, node-negative disease, (4) advanced local and/or regional disease, or (5) distance metastases (Crane-Okada & Loney, 2007).

Chemotherapy treatment can be applied in different protocols as follows:

(1) Adjuvant therapy. This treatment follows the primary treatment modalities such as surgery or radiation therapy. Moreover, adjuvant chemotherapy is a routine part of treatment for early-stage breast cancers (Foxson, Lattimer, & Felder, 2011).

The regimen most often used in adjuvant therapy consists of a combination of CAT; cyclophosphamide (C), and an anthracycline such as doxorubicin (A), with or without a taxane - paclitaxel or docetaxel (T). In addition, MFE - methotrexate (M), 5-fulorouracil (F) or epirubicin (E)- may also be used, particularly if women have preexisting cardiac disease (Crane-Okada & Loney, 2007)

(2) Neoadjuvant chemotherapy. This can be used before the standard primary therapeutic method, preoperatively for example, to reduce the size of the tumor (Otto, 2007). Moreover, in breast cancer, this kind of therapy is followed in patients who present locally-advanced disease in order to preserve organ structure and function (Foxson et al., 2011).

(3) Primary therapy. This form of treatment is administered to patients who have localized cancers, for which an alternative but less-than-completely-effective treatment is available.

(4) Induction chemotherapy. Systematic therapy is provided as primary treatment for patients who have a cancer for which no alternative treatment exists.

(5) Combination chemotherapy. Such treatment combines two or more chemotherapeutic agents to treat cancer; this allows each medication to enhance the action of the other or to act synergistically with it.

(6) Myeloablative therapy. This intensive therapy is used as preparation for peripheral blood stem cell transplantation.

Chemotherapies can be classified by their pharmacologic action and interference with cellular reproduction. Normally, chemotherapy classification is based on two main functions: (1) cell-cycle, phase-specific drugs which are active on cells undergoing division during their cell cycle, and (2) cell-cycle, phase-nonspecific drugs which are active on cells in either the dividing or resting state (Otto, 2007). More details on chemotherapy classification are shown in Table 1.

Table 1

Classification of Chemotherapy

Classification of Chemotherapy	**Kind of Cell Cycle**	**Action**	**Chemotherapy Drug**
Alkylating agents	Non-specific	They act primarily by forming a molecular bond with nucleic acids, which interferes with nucleic acid duplication, preventing mitosis.	Busulfan (Myleran) Chlorambucil (Leukeran) Cisplatin (CDDP, Platinol) Cyclophosphamide (Cytoxan) Eloxatin (Oxaliplatin) Nitrosuresa (Streptozocin)
Antibiotic (antitumor agents)	Non-specific	These drugs disrupt DNA transcription and inhibit DNA and RNA synthesis.	Actinomycin Bleomycin, Mitomycin Plicamycin
Antimetabolites	Specific	They exhibit their action by blocking essential enzymes necessary for DNA synthesis or by becoming incorporated into the DNA and RNA, so that a false message is transmitted.	5-Fluorouracil (5-FU) Capecitabine (Xeloda®) Methotrexate
Vinca alkaloids	Specific	They exert a cytotoxic effect by binding to microtubular proteins during metaphase, causing mitotic arrest. The cell loses its ability to divide and dies.	Vinblastin Vincristine (VCR)

Table 1

Classification of Chemotherapy (Continued)

Classification of Chemotherapy	Kind of Cell Cycle	Action	Chemotherapy Drug
Hormones and anti-hormones	Non-specific	These chemicals, secreted by endocrine glands, alter the environment of the cell by affecting the cell membrane's permeability. By manipulating hormone level, tumor growth can be suppressed. Hormone therapies are not cytotoxic, and therefore not curative. Their purpose is to prevent cell division and further growth of hormone-dependent tumors.	Androgen, Estrogen Antiandrogen (Bicalutamide) Antiestrogen (Tamoxifen) Aromatase inhibitor (AIs)
Miscellaneous agents	Non-specific /specific	They are enzyme products that act primarily by inhibiting protein synthesis.	L-asparaginase

Note. Otto, S. E. (2007). Chemotherapy. In Martha, E. Langhorne, Janet, S. Fulton, & Shirley, E. Otto (Editors), *Oncology Nursing* (5th, pp. 364). St. Louis, MO: Mosby Elsevier.

Chemotherapy is one significant treatment used to kill cancer cells in women with breast cancer. It is administered over multiple cycles of treatment. Patients will be affected by the chemotherapy and a recovery period is needed before receiving the next cycle of treatment (American Cancer Society, 2012).

Chemotherapy treatment is recommended to breast cancer women in several different treatment plans. There are normally two stages of cancer treatment; (1) before

surgery (called neoadjuvant chemotherapy, and (2) after surgery (called adjuvant chemotherapy).

The standard chemotherapy for women with breast cancer is usually used in combination with a drug regimen. American Cancer Society (2014) divided the drugs used into six groups: (1) CAF (or FAC): cyclophosphamide, doxorubicin (Adriamycin), and 5-FU, (2) TAC: docetaxel (Taxotere), doxorubicin (Adriamycin), and cyclophosphamide, (3) AC plus Taxanes: doxorubicin (Adriamycin) and cyclophosphamide followed by paclitaxel (Taxol) or docetaxel (Taxotere), (4) FEC plus Taxances, 5-FU, epirubicin, and cyclophosphamide followed by docetaxel (Taxotere) or paclitaxel (Taxol), (5) TC: docetaxel (Taxotere) and cyclophosphamide, and (6) TCH: docetaxel, carboplatin, and trastuzumab (Herceptin) for HER2/neu positive tumors. Consequently, the standard chemotherapy regimens of the women with breast cancer in the current study were found in 2 groups; FAC (6 cycles, every 3 weeks) and AC plus taxanes (4 cycles for AC and 4 cycles for taxanes (paclitaxel or decetaxel) every 3, weeks).

1.2.3 Radiation therapy. Utilizing the localized effect of radiation therapy to eliminate breast cancer cells has been an effective treatment for several years. This therapy is sometimes administered alone, but can combine with other forms of treatment, as adjuvant therapy of local and/or regional disease, and for local and/or regional advanced or metastasis disease (Crane-Okada & Loney, 2007). Radiotherapy was recommended after breast-conserving surgical therapy and should be performed within 7 months after surgery in order to have effective benefit. According to Group (2006), radiotherapy can reduce the risk of local recurrence within 5 years between 7% and 26% and decrease mortality from

30.5% to 35.9% in 15-year survivors. Currently, new treatments such as brachytherapy and shorter radiation therapy trajectory are being developed (Maughan, Lutterbie, & Ham, 2010).

1.2.4 Biological therapy or targeted therapy. This method helps to fight cancer or to control the adverse effects of other cancer treatments; it works with the immune system and attacks cancer cells directly (Centers for Disease Control and Prevention, 2012).

1.2.5 Hormonal therapy or endocrine treatment. Hormonal therapy is the primary treatment for most metastatic breast cancers and, currently, it is considered significant when used in patients with early-stage breast cancer (Gradishar & Jordan, 1999). The target of hormones is to block cancer cell growth in women with hormone receptor-positive breast cancer, taking into consideration the role of the estrogen receptor as a predictor of the response to the endocrine treatment (Rastelli & Crispino, 2008). It can reduce the risk of tumor recurrence by approximately 40% (Burstein & Griggs, 2010). Commonly, the hormones are tamoxifen and aromatase inhibitors (Als), with tamoxifen being a standard treatment applied in premenopausal breast cancer women. However, side effects such as those affecting the gynecologic system (vaginal discharge or dryness, uterine cancer), menstrual function (irregular menstrual cycles or amenorrhea), menopausal symptoms (hot flashes, night sweats), musculoskeletal health (mixed effects on bone density), and cardiovascular system (increased risk of deep vein thrombosis) should be considered (Burstein & Griggs, 2010).

1.3 Chemotherapy side effects

Despite the fact that chemotherapy regimens could provide beneficial treatment outcomes, many adverse effects due to drug interaction cause a lot of suffering in women with breast cancer throughout the trajectory of the treatment (Knobf, 1986). Hofsø, Miaskowski, Bjordal, Cooper, & Rustøen (2012) compared the symptom experience of breast cancer women who received chemotherapy before radiotherapy and others who did not, and found double as many symptoms such as lack of energy, anxiety, feeling drowsy, sweats, and pain in the chemotherapy group. Moreover, a lower functional status, higher comorbidity scores, and previous CTX were all predictors of a higher number of symptoms. The adverse effects due to chemotherapy could be divided into physical and psychological attritions as follows:

1.3.1 Physical disturbances

(1) Nausea and vomiting. Normally, chemotherapy induces nausea and vomiting in cancer patients, which affect their quality of life. Pendergrass (1998) found that approximately 10%–15% of women with breast cancer may reject or delay receiving chemotherapy treatment due to fears regarding suffering caused by the unpleasant symptoms of nausea and vomiting. However, nausea has a greater impact than vomiting (Hassan & Yusoff, 2010). According to Dibble, Casey, Nussey, Israel, and Luce (2004), breast cancer women taking chemotherapy had the worst vomiting after three days of treatment. In addition, some factors influence the severity of symptoms; for example, younger women experience more vomiting than women of older age (Dibble et al., 2004; Dibble, Israel, Nussey, Casey, & Luce, 2003).

(2) Alopecia or hair loss. Hair loss (mean incidence = 98%) was a well-known distress symptom attributed to the detrimental effects of breast cancer treatment (Duric et al., 2005; Lemieux, Maunsell, & Provencher, 2008). On the other hand, some women with breast cancer indicated that hair loss was a symbol of the effectiveness of the chemotherapy regimen (Lemieux et al., 2008). In addition to hair loss, the loss of eyebrows, eyelashes and beards was also a threat (Roe, 2011).

Generally, hair loss occurs approximately 1-2 weeks after receiving chemotherapy (Münstedt, Manthey, Sachsse, & Vahrson, 1997). The growth of hair was reduced to less than 0.1 mm, per 24 hours and hair continues to fall out throughout the duration of chemotherapy treatment (Batchelor, 2001). Crounse and Van Scott (1960) stated that the re-growth of hair was evident within 1-2 months following the discontinuation of chemotherapy. However, remarkable hair changed such as changes in hair color could be observed long after treatment cessation (Batchelor, 2001).

The severity of chemotherapy side effects is related to the kind of drug regimen and time of administration (Lemieux et al., 2008; Roe, 2011). Boehmke and Brown (2005), who studied the symptoms, symptom experience, and symptom distress in breast cancer women undergoing chemotherapy, found that, during treatment with adriamycin and cyclophosphamide, the symptoms of intense nausea and **hair loss** caused distress, whereas, receiving Paclitaxel, the symptoms of intense bone pain and peripheral neuropathy caused distress. In regard to hair loss, it is considered an intense factor to one's body image, which is very important in female patients (Helms, O'Hea, & Corso, 2008). Rosman (2004) studied the effect of chemotherapy in women with breast cancer and found

that the patients suffered from various symptoms such as the period encountering the seriousness of cancer. However, the patients accepted this phenomenon as a 'normal' and 'inevitable' adverse effect of the treatment trajectory. All things considered, suffering these symptoms affects the life quality of women with breast cancer (Lemieux et al., 2008).

(3) Fatigue. In breast cancer women, fatigue is an obviously high-prevalence symptom of the adverse effects of the chemotherapy regimen (Tsai, Lin, Chao, & Lin, 2010). It is undeniable that this symptom causes suffering in the life of such patients (Byar et al., 2006). However, many symptoms like sleep disturbance and pain are concurrent with fatigue (Byar et al., 2006). The severity of fatigue increases significantly during the first week of chemotherapy and declines after treatment completion (Byar et al., 2006).

It is noticeable that different regimens of chemotherapy have a disparate impact; in the doxorubicin group, a direct increase in fatigue is observed, while in the CMF group, a moderate direct increase occurs, followed by a delayed strong increase. An increase in fatigue is associated with a decrease in daily functioning (De Jong, Candel, Schouten, Abu-Saad, & Courtens, 2004). From the perspective of older breast cancer women, fatigue is interpreted as an inevitable normal reaction, and they are embarrassed to share its occurrence with others (Tsai et al., 2010).

However, the severity of this symptom depends on various factors such as sleep quality, more menopausal symptoms, greater use of catastrophizing as a coping strategy, and current presence of a psychiatric disorder (Broeckel et al., 1998). In addition, the symptom of occasional fatigue was affected by type of operation; for instance, women undergoing a mastectomy were more fatigued than women undergoing a

lumpectomy. Receiving radiotherapy also leads to an increase in fatigue (De Jong et al., 2004), anxiety level (Hanprasitkam, Wonghongkul, Sucamvang, & Panya, 2007), and worsening of emotional status due to symptom distress (Tsai et al., 2010), etc. To sum up, fatigue is the most common side effect of chemotherapy, often concurrent with other physical and psychological symptoms, and affecting one's quality of life in many aspects.

(4) Cognitive impairment. The side effects of chemotherapy could significantly induce cognitive impairment in women with breast cancer (Brezden, Phillips, Abdolell, Bunston, & Tannock, 2000); particularly, in high-dose chemotherapy regimens (van Dam et al., 1998). It is widely known as chemotherapy-related cognitive impairment (CRCI) or "chemo-fog" or "chemo-brain" (Myers, 2012). Chemotherapy drug toxicity could induce a decline in cognitive function not only during treatment, but also after treatment completion (Tannock, Ahles, Ganz, & van Dam, 2004). According to Biglia et al. (2012), who studied the effects of chemotherapy in 40 breast cancer women before and after 6 months of chemotherapy, after six months, the patient's cognitive functions like attention significantly decrease. Moreover, Tannock et al. (2004) has stated that cognitive deficits are durable in some patients for up to ten years. In his qualitative study, Myers (2012) found that the breast cancer women described the cognitive changes in terms of difficulties with short-term memory, focusing, word finding, reading, and driving. Furthermore, impaired memory and response speed in women with breast cancer have been reported (Hedayati, Alinaghizadeh, Schedin, Nyman, & Albertsson, 2012). In conclusion, the consequences of chemotherapy treatment in breast cancer women clearly affect cognitive dysfunction, both short-term and long-term.

(5) Insomnia. Insomnia is another symptom caused by the adverse effects of chemotherapy treatment in women with breast cancer. Normally, it can occur before and following the chemotherapy course (Enderlin et al., 2010). Throughout the trajectory of chemotherapy, the patient presents poor sleep quality, frequent nocturnal awakening and daytime sleepiness, which increase during the active phase of chemotherapy.

(6) Weight gain. This symptom presents significantly in breast cancer women after receiving chemotherapy; in approximately 50%-90% of all early-stage breast cancer cases (Camoriano et al., 1990). Normally, a weight gain of around 2.5 to 6.2 kg was observed; however, a gain of over 10 kg could also occur. Moreover, it was a sign which was associated with a poor prognosis regarding recurrence and mortality in this cancer group (Carmichael, 2006). Thivat et al. (2010), who studied the weight change of breast cancer women during chemotherapy, found that 31% of patients demonstrated a weight gain greater than 5% of the previous weight, and that both recurrence and death rate were related to a weight change more than 5%.

The factors influencing weight gain were related to premenopausal status and receiving multidrug regimens (Demark-Wahnefried, Winer, & Rimer, 1993). The causes of this problem can be attributed to an increased appetite and/or reduction in physical activity, metabolic rate, or thermogenesis (Demark-Wahnefried et al., 1993). The evidence-based study by McInnes and Knobf (2001) on weight gain in women treated with adjuvant chemotherapy for early-stage breast cancer clearly showed that, one year after treatment began, 62.5% of the study participants experienced weight gain (mean = 10.44), with a range of 5-27 pounds. After two and three years, 68% and 40%, respectively, maintained a

clinically significant weight gain. Furthermore, a greater weight gain occurred over time in premenopausal women**.**

(7) Reproductive function. The reproductive organs of women with breast cancer, who followed a chemotherapy regimen, were directly affected (Hickey, Peate, Saunders, & Friedlander, 2009). Generally, the most common effects to ovarian function were amenorrhoea due to the loss of the developing cohort of ovarian follicles (Early Breast Cancer Trialist's Collaborative Group, 2008; Walshe, Denduluri, & Swain, 2006). Moreover, fertility in breast cancer women was also significantly affected; this is a point of concern particularly in young women (Azim et al., 2011). Partridge et al. (2004) studied the attitudes of 657 women with breast cancer stage I, II, and III (mean age 35.8 years) related to fertility and how these concerns affect their decision making. They found that 29% of the women reported that concerns about infertility influenced their treatment decision, and 51% felt their concerns were addressed adequately.

Breast cancer women appear to overestimate their risk of becoming postmenopausal with treatment. Moreover, Duffy, Allen, and Clark (2005), studied the self-reports of young women with breast cancer flowing chemotherapy treatment related to reproductive health counseling, and found that 68% and 34% of women reported recalling a discussion with a physician regarding early menopause or fertility, respectively. Early stage of disease was associated with significantly increased chance of recall of a discussion regarding menopause, whereas older age and anxiety due to one's medical condition were associated with decreased odds (Duffy et al., 2005).

Concerning the factors influencing the severity of reproductive system deterioration, age, ovarian function at the time of treatment, and the specific agents used, particularly the dose of alkylating agents such as cyclophosphamide, are the most prominent (Lee et al., 2006). The study by Kil et al. (2006) on women 18 to 34 years of age (median = 32 years), 80 of whom received alkylating agent-based chemotherapy regimens (CMF) and 80 others anthracycline-based regimens (AD), and with a median follow-up period of 54 months, reported that treatment-induced menstrual change (amenorrhoea) occurred in 59 (36.9%) patients; 25 (31.3%) of those were treated with CMF and 34 (42.5%) with AD. Amenorrhoea occurred after a median two cycles of chemotherapy (range: 1-6 cycles). Menstruation resumed in 49 (83.1%) patients, 20 (80%) of those were treated with CMF and 29 (85.3%) with AD. The median time to resumption of menstruation was 3.5 months.

(8) Cardiac toxicity. Long-term chemotherapy treatment also affects the patients' cardiac function. Receiving medications such as anthracycline-based regimens with doxorubicin or epirubicin has significantly high cardiac toxic consequences (Azim et al., 2011). Moreover, co-ordinating between chemotherapy treatments with taxanes and trastuzumab has been reported to cause a decline in cardiac function (Bird & Swain, 2008). This is manifested in obvious disturbance symptoms in the patient's cardiac role such as congestive heart failure (CHF) (Bird & Swain, 2008). According to Pinder, Duan, Goodwin, Hortobagyi, and Giordano (2007), who conducted a study among a large number of older women with breast cancer, 66 to 77 year-old patients had significantly increased rates of CHF; they remained high even at 10 years of follow-up.

(9) Secondary leukemia. The study by Curtis et al. (1992) demonstrated that alkylating-agent chemotherapy induces significant acute nonlymphocytic leukemia in breast cancer women (relative risk, 10.0). Moreover, the study by Smith, Bryant, DeCillis, and Anderson (2003) found a significantly high incidence of acute myeloid leukemia (AML) and myelodysplastic syndrome (MDS) in breast cancer women receiving AC regimens (doxorubicin plus cyclophosphamide).

(10) Sexual function impairment. The reversible effects of chemotherapy have led to sexual impairment in breast cancer women. Cavalheiro et al. (2012) found that postmenopausal women with breast cancer displayed significantly declined sexual function at two periods of cancer; both after diagnosis of breast cancer and receiving chemotherapy. However, many factors contribute to this problem; hair loss, weight gain, nausea, and vomiting present earlier on in the treatment trajectory and then the additional effects of chemotherapy induce stomatitis, vaginal irritation and severe dyspareunia which lead to a further decrease in sexual function (Bakewell & Volker, 2005). Furthermore, chemotherapy treatment is one predictor of satisfaction with sexual performance in the cancer of the breast.

(11) Pneumonitis. This has a rare incidence in breast cancer; however, professional healthcare providers should recognize it correctly and in time because it can cause significant morbidity and mortality in patients undergoing treatment with docetaxel, paclitaxel, gemcitabine and cyclophosphamide (Kim, Tannock, Sridhar, Seki, & Bordeleau, 2012).

1.3.2 Psychological disturbance

Despite the fact that chemotherapy causes many physical symptoms as mentioned before, various evidence-based investigations have demonstrated effects of the

psychological dimension also. The suffering experienced due to the physical side effects of chemotherapy may also enhance psychological disturbance. The two kinds of side effects invariably affect each other. Generally, psychological disturbances occur tendentiously in breast cancer women after the diagnosis of breast and throughout the treatment trajectory, particularly, during the process of treatment via a chemotherapy regimen. Such a treatment can inevitably induce extreme psychological distress. In addition, in terms of chemotherapy regimens, an intensive course can yield further psychological impairment. Additional details concerning chemotherapy regimen effects on psychological aspects follow below:

(1) Anxiety. This form of systematic treatment causes high levels of anxiety in women with breast cancer (Lim, Devi, & Ang, 2011; So et al., 2010). The systematic review by Lim et al. (2011) found that, when compared to other treatments, chemotherapy induces the highest anxiety level in women with breast cancer. The reasons behind this could be not only the side effects of such a severe form of treatment, but also the patient's poorer self-esteem as a result of side effects involving changes in physical appearance (So et al., 2010). Moreover, the patient might feel unconfident or uncertain about the recurrence of cancer after the chemotherapy treatment (van den Beuken-van Everdingen et al., 2008). The most intense prevalence of performance anxiety will display in the early stage of treatment, before the first cycle of chemotherapy (Lim et al., 2011).

However, the psychological effects due to the systematic treatment of breast cancer are normally simultaneous, i.e., both depression and anxiety are present. So et al. (2010) studied these variables in 218 patients (≥ 18 years) with breast cancer who were midway through chemotherapy or radiotherapy for stages I-III of the disease and found that

both anxiety and depression were at a significantly higher level in the chemotherapy group ($x^2 = 6.56$, $p = .01$ and $x^2 = 7.26$, $p = .007$, respectively). Moreover, the results of psychological distress were found to affect the quality of life as well.

In other words, the level of anxiety could induce anticipatory nausea in cancer patients undergoing chemotherapy; therefore, the prevention and/or minimization of the infusion-related state of anxiety are beneficial to patients who present such symptoms at the beginning of chemotherapy treatment (Andrykowski, 1990). Regarding the pathology effects, Fredrikson, Furst, Lekander, Rotstein, & Blomgren (1993) found that anxiety can lead to immunosuppression.

(2) Depression. Depression is a normal psychological symptom of distress due to the severity of chemotherapy treatment in women with breast cancer (Fann et al., 2008; Ho, So, Leung, Lai, & Chan, 2013). In addition, the side effects of depression are associated with a mitigated acceptance of chemotherapy treatment (Colleoni et al., 2000). So et al. (2009) found that 36% and 21% of the Hong Kong women with breast cancer under study had experienced depression or anxiety, respectively. Moreover, depression was the most important psychosocial problem and in need of supportive care after the completion of the systematic treatment (Schmid-Büchi, Halfens, Dassen, & van den Borne, 2011).

(3) Emotional distress/mood disturbance. Del Mastro et al. (2002) compared two different dose-intensity chemotherapy regimens and found that emotional distress was dominantly higher in the high-dose regimen than in the standard one (32.3 ± 0.3 versus 27.6 ± 1.3; $p = .009$). On the other hand, psychological distress may be detrimental to the effectiveness of the chemotherapy regimen by changing neuronal and hormonal secretion

during stress (Su et al., 2005). In addition, Love, Leventhal, Easterling, and Nerenz (1989) investigated 238 breast cancer women receiving chemotherapy and found that emotional distress due to physical side effects such as nausea, hair loss, and tiredness led to patient-motivated decisions to discontinue the therapy and thoughts about quitting the treatment.

In respect to psychological symptoms experienced by breast cancer women, it was a significant and necessary point to clarify the existing knowledge regarding them and improve the effectiveness of care provided to breast cancer patients with treatment.

2. Psychological Symptom Cluster in Women with Breast Cancer Undergoing Chemotherapy

2.1 Concept of symptom cluster

The symptom cluster concept has been widely studied and refers to multiple symptoms which occur at the same time throughout the journey of the disease, particularly, in cancer patients (Xiao, 2010). Normally, patients with cancer hardly ever experience a single symptom; many studies have found at least two or three symptoms among patients of a given kind of cancer (Cleeland, 2007). Indeed, the existing knowledge on symptom cluster has significantly increased since the information about symptom cluster in cancer patients was first made public by Dodd and her team around ten years ago (Xiao, 2010). The concept of a symptom cluster explains a phenomenon observed among cancer patients

who have at least two, three or more concurrent symptoms that are related to each other on the same trajectory of disease or its treatment (Kim, McGuire, Tulman, & Barsevick, 2005).

Therefore, the presence of symptom cluster causes more complications and synergetic suffering in patients (Given et al., 2001). Much data indicating that symptom cluster have been detrimental on patient outcomes such as functional status, quality of life (QOL), mortality, and depression exists (Xiao, 2010).

The definition of the word 'symptom' is, "the subjective evidence of disease or physical disturbance observed by a patient" (Merriam-Webster Dictionary Online, 2012), whereas 'cluster' refers to a number of things that occurs together (Webster's). Hence, the combined meanings of these two words may be, 'the subjective evidence of physical disturbances occurring together.' Nevertheless, the definition of symptom cluster has been broadened to include not only subjective (self-reported), but also objective (observed) signs (Kim et al., 2005).

The literature review by Cleeland (2007) found that there were many terms used interchangeably such as "symptom cluster", "symptom occurrence", "multiple symptoms", or "symptom burden". Moreover, other terms, namely "symptom constellation" and "co-occurrence of symptoms" were interchangeable also (Miaskowski, Dodd, & Lee, 2004). In addition, Kim et al. (2005) found that "syndromes", "multiple symptoms", "symptom experience", "groups of symptoms", "grouped symptoms", and "grouping" were representative of the other terms referring to symptom cluster. Particularly in the aspect of statistical techniques and measurement, terms such as subscale symptom dimensions, symptom domains, and factors were used. However, since most of these words were quite different, to capture the direct

meaning of symptom cluster, it was suggested that the researchers very carefully select and define their terminology (Xiao, 2010).

Symptom cluster characteristics focused on the relationships among symptoms within a cluster; they should be stronger than the relationships among symptoms across different cluster and the etiology of symptoms in a cluster can be different (Kim et al., 2005). For example, cancer patients normally suffer from fatigue, depression, and sleep disturbance (Payne, Piper, Rabinowitz, & Zimmerman, 2006). Yet, there may only one initial symptom occurring, which may induce another symptom, e.g., pain commonly generates depression and sleep disturbance (Cleeland, 2007). However, the pathways the initial symptom follows to enhance other symptoms was still not clear (Cleeland, 2007).

However, some clinicians have tried to explain these pathways by understanding common biologic mechanisms; for instance an inflammatory process due to the disease or its treatment may cause or contribute to some other symptoms at the same time (Cleeland et al., 2003). Liu et al. (2012) examined the relationship between fatigue and sleep in 53 women with breast cancer stage I-III before and during chemotherapy and found that the level of Interleukin-6 (IL-6) increased and that of Interleukin-1 receptor antagonist (IL-1RA) decreased during chemotherapy for both fatigue and sleep disturbance. The mixed model analyses examining changes from the baseline to each treatment time point revealed an overall positive relationship between changes in the total Multidimensional Fatigue Symptom Inventory-Short Form (MFSI-SF) scores and IL-6, between changes in the total Pittsburgh Sleep Quality Index (PSQI) scores, IL-6 and IL-1RA, and between the total wake time at night and C-reactive protein (CRP) (all p-values were < 0.05). That means

that cancer-related fatigue and sleep disturbances may share common underlying biochemical mechanisms.

In addition, biomarker study was another way to understand the relationship of multiple symptoms in cancer patients. To this end, Payne et al. (2006) evaluated the changes in reports of fatigue, sleep disturbance and depressive symptoms, and serum cortisol, melatonin, serotonin, and bilirubin levels in women with breast cancer during adjuvant chemotherapy. They found that hypothalamic-pituitary-adrenal biomarkers may be related to fatigue, sleep disturbance, and depressive symptoms.

Furthermore, regarding unfavorable patient outcomes due to multiple concurrent symptoms in cancer patients, much existing knowledge on the topic clearly supports this concept; it has been shown that symptom cluster were detrimental to well-being parameters such as functional status, quality of life (QOL), mortality, and depression (Xiao, 2010).

However, many points of controversy regarding the concept of symptom cluster that need to be studied further exist (Xiao, 2010): (1) the amount of symptoms in a symptom cluster is at least two symptoms (Kim et al., 2005) or more than three (Dodd et al., 2001) ; (2) whether one symptom can be shared by several different clusters or not [most studies put a particular symptom exclusively in one cluster, but some researchers state that it can overlap in more than one sub-symptom group (Aprile, Ramoni, Keefe, & Sonis, 2008); (3) the relationship between symptoms in a cluster, some have identified these relationships by the correlation among symptoms (Gaston-Johansson, Fall-Dickson, & Bakos, 1999), while others have measured them based on the effect of symptoms on the

outcome (Fox & Lyon, 2007); and (4) whether all of the symptoms in a cluster should present at the same time or not (Kim et al., 2008).

In regard to the theoretical frameworks aiming to explain this phenomenon, six clear frameworks have been identified (Xiao, 2010). Their more particular details are described below:

(1) Theory of unpleasant symptom (TOUS) (Lenz, Pugh, Milligan, Gift, & Suppe, 1997), consists of three important components: 1) a symptom that can be identified with respect to intensity, timing, level of distress perceived, and quality, 2) influential factors which focus on physiological, psychological and situational antecedents, and 3) performance due to the different culture and language of the patient and the number of symptoms experienced at the same time. The consequence of this concept underscores the functional and cognitive activities. However, the psychosocial symptom cluster seems less than clearly clarified.

(2) The symptom model management (SMM) acknowledged by Dodd et al. (2001), states that there were three aspects that help explain the symptom cluster: the symptom experience, symptom management strategies and outcomes. Moreover, researchers underscored that this involves subjective perception or an experience of an encounter with distress symptoms. Additionally, symptom clusters were correlated to each other and could have synergistic effects on an individual outcome. However, the points of limitation concerning the display of the relationships among these multiple symptoms in a cluster were not yet elucidated.

(3) The symptom experience model. This concept, developed by Armstrong (2003), extended the understanding of symptom occurrence and symptom distress. Moreover, it emphasized the experience of an individual, who was unique, in obtaining the meaning of symptoms by underscoring three main components; (1) symptom experience: this is defined as the perception of the frequency, intensity, distress, and meaning of the symptoms, which occur as symptoms were produced and expressed; (2) symptom production: that relates to influencing factors which affect the experience of symptoms. They could be divided into three groups: 1) demographic characteristics (gender, age, marital status, ethnicity, culture, role, and education), 2) disease characteristics (type and stage, type of treatment, type of care providers, comorbid medical and clinical factors), 3) individual characteristics (health knowledge, values, past experiences, and sense of coherence); and (3) the outcomes of symptom experiences cover six aspects: adjustment to illness, quality of life, mood, functional status, disease progression, and survival. Understanding the model will guide the professional cancer nurse to evaluate the meaning of symptom perception in each person and the nursing intervention to alleviate these symptoms, and enhance health outcomes such as quality of life (Armstrong, 2003).

(4) Cytokine-induced sickness behavior. This concept has been proposed as an explanation pathway for the biological mechanism of a symptom cluster (Cleeland et al., 2003). The concept aimed to extend animal models of sickness behavior that refer to physiological and behavioral response after the administration of an infectious or inflammatory agent or certain pro-inflammatory cytokines. Many physical changes such as fever, pain, and increased activity in the hypothalamic-pituitary-adrenal axis and the

autonomic nervous system occur. As far as observed behavior changes were concerned, they consisted of decreased activity, appetite loss, somnolence, and cognitive impairment. However, this framework revealed restriction points related to explaining other symptoms that were not included in sickness behaviors (Aprile et al., 2008). Furthermore, it was difficult to use this model because the sickness behaviors could not explain symptoms that overlap into several different clusters (Molassiotis, Wengström, & Kearney, 2010).

(5) The symptom interaction. This framework was developed by Parker, Kimble, Dunbar and Clark (2005) as a model for the multidimensional study of the mechanisms underlying symptom pairs and cluster and to assist in translating research emphasizing information about individual symptoms in order to describe the multidimensional nature of symptoms, including the physiological, psychological, behavioral, and socio-cultural domains. The main concept consisted of (1) symptoms, (2) the multidimensional domains of mechanisms underlying symptoms, (3) the environmental and developmental context of symptoms, and (4) clinical interventions and outcomes. However, this model has many limitations in its application such as defining symptom pairs or cluster, determining the nature of the interrelationships between and among symptoms, and identifying related clinical outcome (Parker et al., 2005).

(6) Symptom cluster in children and adolescents with cancer. Hockenberry and Hooke (2007) presented the concept of symptom cluster that were specific for children and adolescents. The antecedents of this concept were personal, environmental, and disease-related factors. The affected antecedents enhance only one specific symptom

experience or symptom cluster to pain, sleep and fatigue. Their consequences demonstrated two aspects; 1) physical performance and 2) behavioral change.

To sum up, the symptom cluster concept was specific in clarifying or elucidating more in regards to multiple concurrent symptoms that normally occur in a cancer patient (at least two concurrent symptoms). Until now, many researchers have tried to shed more light and understand, particularly, the pathway which an initial symptom follows to enhance or exacerbate other symptoms such as cytokine-induced sickness behavior or the symptom interaction framework. Therefore, further study was essential to clarify this issue in order for effective care to be provided to cancer patients.

2.2 Psychological symptom cluster in women with breast cancer and its' contributing factors

Psychological symptoms refer to things that affect psychological functions, e.g. thinking, feeling, and behavior (Burke, Mohn-Brown, & Eby, 2011). Previously, most studies regarding psychological symptoms have been able to explain only a specific single psychological symptom (Bender et al., 2005). However, much existing knowledge related to symptom cluster in women with breast carcinoma has been gained, following the symptom cluster definition mentioned previously. Literature reviews of data from 2004 to 2016 found 16 suitable articles that helped to capture the concept of concurrent multiple symptom cluster in the cancer of the breast (Table 2).

According to a summary of symptom cluster in breast cancer women the cluster of symptoms could be categorized in two related groups: 1) physical and neurological

dysfunction and 2) psychological dysfunction. Outstandingly, even though the problems of physical dysfunction were demonstrated in the study overall, almost all were additionally accompanied by psychological/neurological dysfunction. Particularly, this was the case during chemotherapy treatment. In addition, the most commonly presented psychological dysfunctions were depression (Byar et al., 2006; Sanford et al., 2014), mood problems (Evangelista & Santos, 2012; Suwisith et al., 2010), and anxiety (Sanford et al., 2014).

Therefore, the psychological symptom cluster was necessary for the cancer healthcare team to manage by employing effective interventions to maintain and support their life during the chemotherapy trajectory.

Table 2

Summary of Literature Review of Symptom Cluster in Women With Breast Cancer Undergoing Chemotherapy With/Without Other Treatments Between 2004 and 2016

Author/ Year	**Analysis Method**	**Groups of Symptom Cluster**	**Dimension of Symptom Cluster**	
			Physical dysfunction/ neurological dysfunction	**Psychological dysfunction**
Wilmoth, Coleman, Smith, and Davis (2004)	Literature review	3	Fatigue, weight gain, and altered sexuality	-
Bender et al. (2005)	Kruskal-Wallis and chi-square test	3	Fatigue, Cognitive impairment	Mood problems

Table 2

Summary of Literature Review of Symptom Cluster in Women With Breast Cancer Undergoing Chemotherapy With/Without Other Treatments Between 2004 and 2016

(Continued)

Author/ Year	Analysis Method	Groups of Symptom Cluster	Dimension of Symptom Cluster	
			Physical dysfunction/ neurological dysfunction	Psychological dysfunction
Dodd et al. (2005)	Principal component analysis with varimax rotation	4	Sensory, GI-related, cognitive-respiratory, pain-fatigue (after 1st chemotherapy cycle)	-
		3	Pain/fatigue, GI-related, Cognitive dysfunction (completed Tx.)	
Byar et al. (2006)	Specific symptom	4	Fatigue, Sleep disturbances	Anxiety, depression
Kim et al. (2008)	Factor analysis with principal axis factoring	3-5	An upper gastrointestinal cluster (nausea, vomiting, decreased appetite: T2, T3-initial and after Rx.)	Psychoneurological cluster (depressed mood, cognitive disturbance, *fatigue, insomnia, and pain*: T1-before treatment.
Gwede, Small, Munster, Andrykowski and Jacobsen (2008)	The cubic criterion (CCC) and pseudo *F* statistic (PSF)	3	Chills	Emotional upset, problem with concentration
Suwisith et al. (2008)	Factor analysis with varimax rotation and multiple regression	4	GI and fatigue-related symptoms, and pain-related discomfort symptoms	Emotion-related symptoms, image-related cutaneous symptoms
So et al. (2009)	Specific symptom	4	Fatigue, pain	Anxiety, depression
Lui et al. (2009)	Specific symptom	3	Deteriorating sleep, fatigue	Depressive symptoms

Table 2

Summary of Literature Review of Symptom Cluster in Women With Breast Cancer Undergoing Chemotherapy With/Without Other Treatments Between 2004 and 2016

(Continued)

Author/ Year	Analysis Method	Groups of Symptom Cluster	Dimension of Symptom Cluster	
			Physical dysfunction/ neurological dysfunction	Psychological dysfunction
Dodd et al. (2010)	Specific symptom	4	Pain, fatigue, sleep disturbance	Depression
Kim et al. (2012)	Cluster analyses	5	Fatigue, pain, insomnia, cognitive disturbance	Depressed mood
Evangelista and Santos (2012)	Factor analysis with principal component analysis with promax rotation (oblique)	3	Physical symptoms (pain, dyspnea, arm symptom, and insomnia) gastrointestinal symptom (in appetence, diarrhea, nausea, and vomiting)	Psychological symptom (depression, confusing, anger, tension, fatigue, and breast symptom)
Matthews et al. (2012)	Confirmatory factor analysis	3	Pain-insomnia-fatigue, gastrointestinal, cognitive disturbance-outlook	-
Sanford et al. (2014)	Specific symptom	4	Fatigue, sleep disturbance, perceived cognitive impairment	Depression, anxiety
Sarenmalm, Browall and Gaston-Johansson (2014)	Factor analysis with PCA	3	Gastrointestinal symptom burden, unwellness symptom burden	Emotional symptom burden (worrying, feeling nervous)
Langford et al. (2016)	Specific symptom	4	Pain, fatigue, sleep disturbance	Depression

However, psychological symptom cluster depended on significant contributing factors. It could be concluded that the factors were influenced as explained below. As far as evidence-based data confirming the factors influencing symptom cluster in breast cancer patients was concerned, they were limited (Kim, Barsevick, & Tulman, 2009). Most of the existing knowledge on the topic has presented various factors that affect each single psychological symptom in breast cancer women as follows:

1. Socio-demographic factors.

1.1 Age. Most studies point out that age was related to the severity of psychological or psychosocial dysfunction in breast cancer women during chemotherapy treatment. Morasso et al. (2001) found that the problem of mood disorder considerably increased with increasing age ($p < 0.001$), and that it was particularly higher among post-menopausal women with breast cancer (46% versus 26%; $p = .026$).

1.2 Sex. This psychological problem in women with breast cancer was high prevalent if compared with its incidence in males with breast cancer. However, women were normally sensitive to the effects of the disease and its treatment.

1.3 Marital status. The psychosocial problem suggested that depressive symptoms were more common among the divorced and separated and lowest among the never married and currently married (Harrison & Maguire, 1994).

1.4 Educational level. Many studies have maintained that the average monthly income predicts depression level in breast cancer women (Akin-Odanye, Asuzu, & Popoola, 2011).

1.5 Occupation/Income. The economic status factor based on the patient's career also affects the severity of depression level in breast cancer women under the treatment trajectory (Akin-Odanye et al., 2011).

1.6 Personal characteristics. Boehmke and Brown (2005) found that the characteristics of a positive outlook and trust in the health care received could enhance lower levels of the distress symptom in women with breast cancer during the first cycle of chemotherapy.

1.7 History of psychiatric problems. According to Morasso et al. (2001), the psychological problem significantly increased in patients with a history of psychiatric disorders (88% versus 35%; $p = 0.003$).

2. Status of disease.

2.1 Symptom burden. The prevalence of multiple symptoms in breast cancer women, along with early diagnosis and duration of the systemic treatment, contribute to their psychological status. Existing research evidence has confirmed this point; Zaza and Baine (2002) found that cancer pain was associated with psychosocial distress in patients with cancer. Moreover, Breen et al. (2009) conducted a cross-sectional survey on 192 patients with breast cancer, gastrointestinal cancer or lymphoma before the first cycle of chemotherapy with curative intent. They found five predictors for the symptom of distress, anxiety and depression were gastrointestinal symptoms/conditions (nausea, vomiting, pain), general malaise (tiredness, feeling weak, headaches), emotional symptoms (feeling depressed, feeling anxious), nutritional symptom (changes to appetite, weight loss and gain) and general physical symptoms (mouth/throat problem, shortness of breath).

However, there were three factors that were not related predictors of depression: symptom distress for the malaise ($\beta = 1.46$; $p < .001$), nutrition ($\beta = 0.70$; $p < .05$), and gastrointestinal ($\beta = 0.73$; $p < .05$).

2.2 Stage of cancer. Akin-Odanye et al. (2011) found that cancer stage could enhance depression level in women with breast cancer.

3. Treatment trajectory.

Hofsø et al. (2012) compared the symptom experience between breast cancer women who received chemotherapy before radiotherapy and others who did not receive it. He found that double as many symptoms such as lack of energy, worrying, feeling drowsy, sweats, and pain were present in the chemotherapy group compared to the group that did not receive chemotherapy. Moreover, a lower functional status, a higher co-morbidity score, and previous CTX were all predictors of a higher number of symptoms. Avis, Crawford and Manuel (2004) found systemic treatment to be associated with greater sexual dysfunction.

4. Social and environment factors.

4.1 Social support. Lueboonthavatchai (2007) found that social support, family relationships and functionality, problem and conflict solving ($p < .01$), number of hospital admissions, and presence of disturbing symptoms – pain, respiratory symptom, and fatigue ($p < .01$) – are related to anxiety and depression symptoms in Thai women with breast cancer. In addition, emotional support from the partner is important to the adjustment of women with breast cancer (Baucom, Porter, Kirby, Gremore, & Keefe, 2005). Chintamani et al. (2011) studied Indian breast-cancer women undergoing neoadjuvant chemotherapy and concluded that family support was a significant factor for the level of depression.

4.2 Health professionals. The cancer healthcare team was one important factor to enhance the well-being of the patient in the psychosocial aspect and provide a good patient support network for cancer patients (Harrison & Maguire, 1994). According to Maly et al. (2010), the most common symptom among breast cancer women was depression (66%), but physician awareness of these problems had the lowest percentage (26.3%). Therefore, the psychological problem in this group should be definitely better dealt with in order to enhance the quality of life of this vulnerable patient group.

In conclusion, the cluster symptom of the psychological aspect in the cancer of the breast was overall outstanding symptoms throughout the trajectory of treatment. The most prevalent symptom clusters were depression, anxiety, and emotional/mood distress. However, there were many kinds of factors that influence the level of severity of the distress symptom e.g. socio-demographics, status of disease, treatment, and the environmental factor. Therefore, understanding the assessment of symptom cluster was an important point in that it was a direct and accurate instrument for healthcare providers to apply in clinical practice, due to the effective care it provided for this patient group.

2.3 Measurement of symptom/symptom cluster

The assessment of symptom cluster was important in understanding disease characteristics such as intensity, frequency or suffering. Moreover, it could help healthcare personnel to convey suitable nursing care to this vulnerable patient group (Kirkova et al., 2006). The definition of symptom cluster referred to multiple symptoms occurring concurrently. Therefore, the measurement of these symptoms must be shown while they are occurring. The common instruments that aimed to capture these comprehensive

symptom experience cluster and that have been applied in clinical and research cancer areas are; (1) Symptom Distress Scale (SDS), (2) The modified Rotterdam Symptom Checklist (RSCL), (3) The Edmonton Symptom Assessment Scale (ESAS), (4) The Memorial Symptom Assessment Scale (MSAS, MSAS-SF (Short Form)), (5) The Adapted Symptom Distress Scale-2 (ASDS-2), (6) The M.D. Anderson Symptom Inventory (MDASI), and (7) Symptom Experience Index (SEI). The details of each instrument are presented in Table 3.

Table 3

Summary of the Assessment Tools for Symptoms/Symptom Cluster in Patients With Cancer

Instrument	Author	Developed to measure	Instrument Description
Symptom Distress Scale (SDS)	McCorkle and Yong (1978)	Multiple types of cancers	- Dimension: severity. - A number of symptoms (10 symptoms): nausea, mood, appetite, insomnia, pain, mobility, fatigue, bowel pattern, concentration, and appearance. - Scale: 5-point Likert scale. - Duration: Current symptom levels - Reliability/Validity (The Cronbach's alpha coefficients alpha = 0.82, r > 0.50).
SDS (Modified)	McCorkle and Quint-Benoliel (1983)	Lung carcinoma	- Dimension: frequency, intensity, and distress. - A number of symptoms (13 items): Nausea (frequency), nausea (intensity), appetite, insomnia, pain (frequency), pain (intensity), fatigue, bowel patterns, concentration, appearance, breathing, outlook, and cough. - Scale: VAS (0-100mm). - Reliability/Validity: The Cronbach's alpha coefficients alpha = 0.83, r = 0.78. - Strength/Weakness: Short time (3 minutes)/ Dimension of perception symptom is not clear.

Table 3

Summary of the Assessment Tools for Symptoms/Symptom Cluster in Patients With Cancer

(Continued)

Instrument	Author	Developed to measure	Instrument Description
			- Duration: the past 3 days or the past week. - Reliability/Validity: The Cronbach's alpha coefficients alpha = 0.83, r = 0.78. - Strength/Weakness: It is lengthy and is used as a rating system based on verbal descriptors that may be difficult for some patients to understand.
The Edmonton Symptom Assessment System (ESAS)	Bruera, Kuehn, Miller, Selmser, and Macmillan (1991)	Patients in a palliative-care unit	- Dimension: severity, frequency, and distress. - A number of symptoms: Original version consists of 9 items; pain, activity, nausea, depression, anxiety, drowsiness, appetite, sensation of well-being, and shortness of breath - Scale: (VASs) (0-100 mm)/ (0-10). - Duration: current symptom level. - Reliability/Validity: The Cronbach's alpha coefficients alpha = 0.76-0.87, r = 0.86-0.94). - Strength/Weakness: Convenient application (short time approximately 8 minutes)
The Memorial Symptom Assessment Scale (MSAS)	Portenoy et al. (1994)	Oncology patients	- Dimension: symptom distress, frequency, and severity. - A number of symptoms: 32 items for physical and psychological symptoms (factor analysis divided in 3 groups; 1. psychological symptoms, 2. high prevalence physical symptoms, and 3. low prevalence physical symptoms (ex. numbness/tingling in hands/feet, cough, and "I do not look like myself"), etc. - Reliability: The Cronbach's alpha coefficients for PHYS H, PSYCH, and PHYS L = 0.88,0.83, 0.58 respectively - Validity: r = -0.53, -0.59, and -0.36 (RAND well-being n = 202)
MSAS-SF (Short Form)	Chang et al. (2000)	Cancer patients	- Dimension: symptom distress of frequency. - A number of symptoms: 32 items for physical and psychological symptoms. - Reliability: The Cronbach's alpha coefficients for the GDI, PHYS, PSYCH, and TMSAS = 0.80, 0.82, 0.76, and 0.87, respectively.

Table 3

Summary of the Assessment Tools for Symptoms/Symptom Cluster in Patients With Cancer

(Continued)

Instrument	Author	Developed to measure	Instrument Description
			- Validity: r = -0.74 (PHYS), -0.68 (PSYCH), -0.70 (GDI and FACT summary of QOL subscales).
The Adapted Symptom Distress Scale-2 (ASDS-2)	Rhodes, McDaniel, Homan, Johnson, and Madsen (2000)	General medical-surgical and oncologic patients	- Dimension: symptom experience, symptom occurrence and symptom distress. - A number of symptoms: Self-report; 31 items, 5 points. 14 symptoms: nausea, vomiting, pain, eating, sleep, fatigue, bowel elimination, breathing, coughing, concentration, lacrimation, changes in body temperature, appearance, and restlessness. Added symptom occurrence and symptom distress. - Scale: 4-point Likert scale. - Duration: current symptom level. - Reliability/Validity: The Cronbach's alpha coefficients alpha =0.91, 0.90, 0.76, r = 0.92. - Strength: High validity and reliability
The M.D Anderson Symptom Inventory (MDASI)	Cleeland et al. (2000)	Cancer with/out treatment (medical oncology outpatients)	- Dimension: symptom presence, severity, and interference - A number of symptoms: self-report on 13 core items. - Scale: VAS (0-10) - Duration: within past 24 hrs. - Reliability/Validity: The Cronbach's alpha coefficients alpha =0.82-0.91, r = 0.55-0.83. - Strength/Weakness: short time (approximately 8 minutes)
Symptom Experience Index (SEI)	Fu, McDaniel, and Rhodes (2007)	Cancer	-Dimension: severity, intensity -A number of symptoms: 41 items (21 symptoms) -Duration: current level - Reliability/Validity; The Cronbach's alpha coefficients = 0.91 (symptom experience), 0.85 (symptom occurrence), 0.84 (symptom distress), r =0.92-0.94. - Strength/Weakness: High validity and reliability.

In addition, the capturing of symptom cluster has extended to specific conditions in cancer patients. For example, Stein et al. (2003) modified the RSCL by adding six physical items and deleting eight psychosocial ones in heterogeneous cancer patients. Until now, there have been many instruments adapted to specific situations in the cancer trajectory such as chemotherapy treatment (Chemotherapy Symptom Assessment Scale: C-SAS by Brown et al., 2001), and state of cancer -palliative care or advanced stage (Modified ESAS by Philip, Smith, Craft, & Lickiss, 1998). However, healthcare professionals should be concerned about comprehensive concurrent symptoms in cancer patients receiving treatment because the symptom cluster might be different in each situation. Outstanding symptom cluster will reveal under the process of statistical analysis such as factor analysis, multiple regressions, and cluster analysis.

To sum up, the current study applied the MSAS-psychological subscale (MSAS-PSYCH) to capture the concurrent symptoms of psychological aspect that the instrument specified as psychological aspects (6 items; worrying, feeling sad, feeling nervous, difficulty of sleep, feeling irritability, and difficulty concentrating) in women with breast cancer under treatment. Thus, the instrument has tried to ensure and cover common symptom cluster normally found in the target population as previously mentioned such as anxiety, depression, and emotional/mood distress. Moreover, they have shown the multidimensional nature of symptoms by addressing the symptom frequency, intensity, and distress (Lacasse & Beck, 2007).

2.4 Review of psychological intervention in women with breast cancer

Psychological symptom cluster or multiple psychological symptoms covering psychological symptom experiences such as depression, anxiety, fear, and mood disturbance were normally concurrent in women with breast cancer undergoing chemotherapy. Twenty-three randomized controlled trial studies regarding the effects of various interventions in order to manage suffering caused by psychological symptom cluster in the cancer of the breast with or without treatment from 2002 to 2016 were performed both in Western Countries and Thailand. More details concerning their conclusions are presented below (Table 4 and Table 5).

2.4.1 Psychological symptom cluster variables and outcomes. Many evidence-based findings have demonstrated effective interventions to eradicate suffering due to breast cancer and its treatment, focusing on multiple-concurrent-psychological symptom distress. The psychological symptom reviews normally involve managing a single symptom such as anxiety, depression or mood disturbance. However, existing knowledge on concurrent symptoms is increasingly being accepted in ongoing management.

In addition, most studies have usually covered both the positive and negative results of outcome variables due to a performed intervention for breast cancer patients. The perspective view of consequent studies has focused on (1) physiological aspects such as symptom distress (Rao et al., 2009), immune function (Baker et al., 2012), endocrine-specific conditions (Baker et al., 2012), exercise behavior and aerobic fitness (Daley et al., 2007), insomnia (Espie et al., 2008), sexual dysfunction (Marcus et al., 2010), fatigue (Danhauer et al., 2009); physiological and psychosocial adaptation (Antoni et al., 2009),

physical, emotional, and social adjustment (Sherman et al., 2012); (2) psychosocial aspects such as depression (Cadmus et al., 2009; Marcus et al., 2010), anxiety (Dolbeault et al., 2009; Lin et al., 2011), mood (Boesen et al., 2011), stress (Cadmus et al., 2009), psychosocial function (Classen et al., 2008), psychological distress (Boesen et al., 2011), mental adjustment (Boesen et al., 2011), adjustment strategies (Dolbeault et al., 2009), posttraumatic stress (Arving et al., 2007), marital relationship (Boesen et al., 2011), positive-negative effects (Vadiraja et al., 2009), interpersonal adaptation (Coleman et al., 2005); self-esteem (Cadmus et al., 2009); (3) spiritual dimension such as spiritual well-being (Vella & Budd, 2011), and well-being of life such as emotional well-being (Danhauer et al., 2009), happiness (Cadmus et al., 2009), and quality of life (QOL) (Boesen et al., 2011; Vella & Budd, 2011).

2.4.2 Population. In most studies, researchers have focused on stage I-IV breast cancer women after diagnosis, during chemotherapy with or without other treatments and after treatment. Moreover, they have investigated women of many age stages, particularly young women with breast cancer.

2.4.3 Type of intervention. There have been many groups of intervention, namely, (1) educational intervention: one such study showed a method for giving information to patients and their family regarding practice guideline for symptom management by using a computer-based nursing intervention (Rawl et al., 2002); (2) supportive psychotherapy, individual psychosocial support, CBT (Arving et al., 2007), psychosocial intervention programs (Manos et al., 2009); (3) social support such as telephone social support and education (Coleman et al., 2005); (4) complementary and alternative medicine (CAM), yoga (Rao et al., 2009), music therapy and verbal relaxation (Lin et al., 2011), meditation/mindfulness

(Henderson et al., 2012; Lesiuk, 2015; Sarenmalm et al., 2013; Würtzen et al., 2013); (5) physical intervention (Cadmus et al., 2009); (6) integrated interventions: psycho-education and telephone counseling (Sherman et al., 2012), integrated support program (Baker et al., 2012), and education with emotional support program (Sajjad et al., 2016).

2.4.4 Study significance and limitations. Most studies have been able to achieve a good outcome by manipulating various programs. On the other hand, limitations have also been revealed in most of the studies. The points of restriction were high-dropout or low-adherence samples (Rao et al., 2009), no screening related to psychological problems before running the intervention (Arving et al., 2007; Cadmus et al., 2009), and ambiguous sample size (Boesen et al., 2011; Danhauer et al., 2009).

Table 4

Psychological Intervention in Women With Breast Cancer From 2002 to 2016

Group of Intervention	**Author/ Year**	**Intervention**	**Outcomes measured**	**Weaknesses/ Notes**
1. Education	Rawl et al. (2002) E:55, C:54	Computer-based nursing intervention	Psychosocial functioning Depression Anxiety	High drop-out Diffused intervention No effect size to estimate sample size
	Dolbeault et al. (2009) E:81, C:87	Psychoeducational group (PEGs)	Anxiety Mood, QOL Mental adjustment Adjust strategies	No study in France with CBT and emphasis in early stage with post treatment.

Note. E = Experimental Group, C = Control Group, T = Time, QOL = Quality of Life, SWB = Spiritual Well-Being, CBT = Cognitive Behavioral Therapy, MBSR = Mindfulness-Based Stress Reduction, NEP = Nutritional Education Program, INS = Oncology nurse specially trained in psychological technique, IPS = Psychologists.

Table 4

Psychological Intervention in Women With Breast Cancer From 2002 to 2016 (Continued)

Group of Intervention	Author/Year	Intervention	Outcomes measured	Weaknesses/Notes
2. Supportive psychotherapy	Arving et al. (2007) INS:60 IPS:60 , C:59	Individual psychosocial support	QOL Anxiety Depression Posttraumatic stress	No screening for psychosocial problems
	Espie et al. (2008) E:100, C:50	CBT	Insomnia QOL	-
	Classen et al. (2008) E:177 (122) C:176 (124)	Supportive-expressive group therapy program	Mood state Psychosocial functions	-
3. Social support	Antoni et al. (2009) T1(I,63:C/65) ,T2 (51:46), T3(49:48)	Cognitive behavioral stress management	Physiological adaptation indicators	-
	Vella and Budd (2011) (n = 28)	A week-long residential retreat intervention incorporating photographic art therapy	QOL Spiritual well-being	-
	Boesen et al. (2011) E:89, C:97	Psychosocial group intervention	Psychological distress QOL Mental adjustment	No effect size to calculate sample size.
4.Complementary and alternative medicine (CAM)	Rao et al. (2009) E:152, C:152	Yoga	Anxiety Symptom distress	Low adherence. No data about subject adherence in the process.
	Moadel et al. (2007) E:108,C:56	Yoga	QOL Fatigue, Distressed mood Spiritual well-being	High rate of lost sample during 3 months.
	Danhauer et al. (2009) E:13, C:14	Yoga	Health-related QOL Fatigue, Sleep Spiritual well-being Psychological	Limited by sample size.

Table 4

Psychological Intervention in Women With Breast Cancer From 2002 to 2016 (Continued)

Group of Intervention	Author/Year	Intervention	Outcomes measured	Weaknesses/Notes
			distress Well-being	
	Vadiraja et al. (2009) E:44(42) C:44(33)	Yoga	QOL Positive and negative effects	High-rate adherence Demonstrate effect size to specific sample size
	Lin et al. (2011)	Music therapy and verbal relaxation	Anxiety Physiological outcome	-
	Nidich et al. (2009) E:64 C:66	Meditation	QOL	-Longitudinal study (18 m). -Low drop out.
	Henderson et al. (2012) E1:53 (MBSR),: E2: 52 (NEP),C:58	MBSR	QOL and SWB Depression Anxiety General distress	-Focused on early breast cancer -Long term study (F/U 2 years) -Low drop out
	Würtzen et al. (2013)	MBSR	Anxiety Depression	-Longitudinal study (12 mo)
	Sarenmalm et al. (2013) E1: 50, E2:50 C:50	MBSR	Mood	-Longitudinal study (3, 6, 12 mo, and 2-5y) - Complete treatment of participants.
	Lesiuk (2015) E:15	Mindfulness-Based music therapy	Attention Mood	-Small sample size (pilot study) - Only the experimental group
5. Physical intervention	Daley et al. (2007) E1 :34, E2: 36, C:38	Aerobic exercise therapy	QOL Depression Exercise behavior Aerobic fitness	Low rate of missing participants despite the long period of the study (2 years)
	Cadmus et al. (2009) E:37, C:38	Home-based exercise	Happiness Depressive symptom Anxiety, Stress Self-esteem, QOL	No process for screening
6. Integrated intervention	Sherman et al. (2012) E:61 (3 groups), C:61	Psycho-education and telephone counseling	Physical, emotional, and social adjustment	-

Table 4

Psychological Intervention in Women With Breast Cancer From 2002 to 2016 (Continued)

Group of Intervention	Author/Year	Intervention	Outcomes measured	Weaknesses/Notes
	Baker et al. (2012) E:6, C:6	Integrated support program	Mental fatigue Immune function Anxiety Endocrine-specific conditions	Differences between the characteristics of participants in the two groups
	Sajjad et al. (2016) E: 25, C: 25	Education with emotional support	QOL	Small sample size

As for psychological intervention in Thailand, there were twelve studies related to the management of psychological problems; 8 studies followed the quasi-experimental design and the remaining 4 were randomized controlled trials. These studies have so far targeted a single psychological symptom disturbance such as anxiety, depression, and stress or adaptation enhancement. The psychological interventions were; (1) education home healthcare by health counseling (Pichaya, 2003), (2) psychotherapy; group process (Chinwangwatanakul, 1998), (3) CAM; relaxation (Phukronghin, 1996), imagery (Sanigavate, 1999), music (Sornboon, 2000), reflexology (Fakmanee, 2001), psycho-spiritual intervention, and Buddhist doctrine-based practice (Bannaasan, et al., 2015 ; Tubtimhin & Rungreangkulkij, 2012), and (4) combined integrated intervention; supportive psychotherapy with progressive relaxation (Ratanajirakorn, 1999), promotion of holistic healthcare (Chancharupong, 2004), an educative-supportive nursing program combined with walking exercise (Jaikumsueb, 2006), and providing health information and aromatherapy foot reflexology (Punprim, 2006).

However, they involved a purposive selection sample, and little information regarding outcomes related to psychological symptoms and spiritual well-being. The consequence variables included anxiety (Fakmanee, 2001; Jaikumsueb, 2006; Phukronghin, 1996; Sanigavate, 1999; Sornboon, 2000; Tubtimhin & Rungreangkulkij, 2012), stress (Ratanajirakorn, 1999), depression (Tubtimhin & Rungreangkulkij, 2012), adaptation (Chinwangwatanakul, 1998), quality of life (Chancharupong, 2004; Pichaya, 2003; Punprim, 2006), and fear of cancer recurrence and hopelessness (Bannaasan, et al., 2015). Further details are provided in Table 5 below.

Table 5

Psychological Intervention in Women With Breast Cancer in Thailand From 1996 to 2016

Group of Intervention	Author/Year	Intervention	Sampling	Outcomes measured
1. Education	Pichaya (2003)	Home healthcare via health counseling	Purposive	Self-care behavior QOL
2. Psychotherapy	Chinwangwatanakul (1998)	Group process	RCT	Adaptation
3. CAM	Phukronghin (1996)	Relaxation	Purposive	Anxiety Coping
	Sanigavate (1999)	Imagery	Purposive	Anxiety
	Sornboon (2000)	Music	RCT	Anxiety N/V
	Fakmanee (2001)	Reflexology	Purposive	Anxiety Symptom distress
	Tubtimhin and Rungreangkulkij (2012)	Buddhism-Oriented Group Therapy	Purposive	Anxiety Depression
	Bannaasan, et al. (2015)	Buddhist Doctrine-Based Practice	RCT	Fear of Cancer Recurrence Hopelessness
4.Combined integrated intervention	Ratanajirakorn (1999)	Supportive psychotherapy with progressive relaxation	Purposive	Stress

Table 5

Psychological Intervention in Women With Breast Cancer in Thailand From 1996 to 2016

(Continued)

Group of Intervention	Author/Year	Intervention	Sampling	Outcomes measured
	Chancharupong (2004)	Promotion of holistic healthcare	Purposive	QOL
	Jaikumsueb (2006)	Educative-supportive nursing program combined with walking exercise	RCT	Anxiety Fatigue Insomnia
	Punprim (2006)	Providing health information and aromatherapy foot reflexology	Purposive	Anxiety Fatigue QOL Unpleasant symptoms

To sum up, providing psychological care for breast cancer patients has been developed to overcome the problems facing this group. However, some limitations such as those related to the integrated theory of religion, belief, and faith these in patients were a little pervasive. This was a gap in nursing knowledge to improve quality of care in women with breast cancer undergoing chemotherapy. Therefore, the researcher focused on a new program based on Buddhist philosophy in order to increase the effectiveness of the intervention and health outcome for women with breast cancer while receiving chemotherapy which has not been previously studied.

3. Buddhist Philosophy and Its' Application in Nursing

3.1 Overview of Buddhist Doctrine

Buddhist philosophy emphasized a natural way of life, which consisted of four major stages birth, old-age, illness, and death. All of these stages of life involve suffering. The Buddhist doctrine proposes a solution to this problem. The main pillars of its teaching were the Four Noble Truths. They referred to the natural reality that is discussed in details below:

3.2 Four Noble Truths

Underscoring the way of thinking and the understanding of human life, they were a way to teach lay people how to find happiness and harmony in their life, especially, when they encounter suffering. The Buddhist doctrine taught the way to eliminate suffering. Lay people could understand and practice this doctrine.

Firstly, suffering (*dukka*) originated from an individual's way of life. Suffering could take place in every step of life's journey. Suffering in Buddhism could be classified into three types: 1) suffering due to being oppressed; i.e. the suffering of body and mind caused by unpleasant or disagreeable things, 2) suffering due to the impermanence of life, which was fear of changing one's status from positive to negative worldly conditions, and 3) suffering due to conflict, which was caused by clinging to the Five Aggregates of Decay and Death against the law of nature (Chaanchamnong, 2003). According to this doctrine, it could be claimed that suffering in women with breast cancer was due to the progress of the disease and its treatment. The Buddhist doctrine emphasized the cause and effect aspect of suffering. Thus, it could determine the cause of suffering based on the concept of the

fundamental truths of life according to the Buddhist doctrine, which deal with the understanding of the origins of physical matter and the mind, and could be divided into five aggregates (Khandha). Khandha referred to everything that exists in the Universe and beyond, stating it was made up of five factors: form (*Rupa*), feeling (*Vedana*), perception (*Sanna*), conception (*Sankhara*), and consciousness (*Vinnana*) (Payutto, 1995; Viradhammo, 1996).

Form or *Rupa* was a concoction of four elements: solid matter, water, fire, and air. This concept provided the understanding of the components of the nature of life. Moreover, it could indicate the presence of suffering, which arose from these foundations of life. Feelings referred to a physical sensation, which was a reaction of the nervous system or a mental factor that arises from the Six Sense Doors – the eyes, ears, nose, tongue, body and mind. Perception (*Sanna*) referred to the memory of a particular form, sound, odor, taste, tangible object, or mental object. Conception (*Sankhara*) referred to the conception of our thinking or thought with regard to the mind, verbal, and body aspects. Consciousness (*Vinnana*) referred to the element of knowing within the Five Aggregates (Payutto, 1995; Viradhammo, 1996). All of the components could lead to suffering during one's life journey.

However, suffering in patients with breast cancer could have all of the characteristics mentioned above; thus, nursing interventions to eliminate it were needed. However, various factors or situations in people could lead to different perceptions and meanings of suffering and, consequently, to different psychological symptom

cluster. Therefore, professional cancer nurses should evaluate and help to eliminate them on an individual basis.

Secondly, the cause of suffering was the origins, nature or creation (*samudaya*). In real life, human beings reflect this when they fail to understand the universal natural laws, which results in a state of ignorance (*aviccha*). That was an important point leading to more suffering. Moreover, craving (*tanha*) for material things was the root cause of suffering. In addition, clinging (*upadana*) refers to the human tendency to grasp for things with the expectation that one's desires will be satisfied. Thus, if people could understand this doctrine, they would be able to face any situation in their life without being affected by suffering.

Thirdly, the cessation (nirodha) of suffering, also known as nirvana, was the goal of Buddhism (King, 2002). The state of the cessation of suffering means the patients with breast cancer could become happy, harmonious, living without caring or desires in their life. The way they could achieve this was by following the Noble Eightfold Path below.

Lastly, the way of achieving an end to suffering was through the Noble Eightfold Path (Tanphaichitr, 2005). The Buddhist doctrine guided BbNdP with the aim of eliminating the suffering of Thai Buddhist women with breast cancer caused by psychological distress of symptoms, and changing their whole view of life by means of understanding and performing the principles of the Four Nobel Truths. This was an intervention, which professional cancer care nurses could apply in their practice in order

to manage the psychological symptom cluster and enhance spiritual well-being of cancer patients. More details illustrate this below.

The Noble Eightfold Path

The Noble Eightfold Path was the middle path of human life. This consisted of 8 practices [magga]: right view, right thought, right speech, right action, right livelihood, right effort, right mindfulness and right concentration. However, they could be categorized into three groups for training purposes. They were collectively called the Trisikha. The first one was Sila Sikha (morality) involving training in higher-level morality (right speech, right action, and right livelihood). The second was Samadhi Sikha (Meditation); training in higher-level consciousness (right effort, right mindfulness, and right concentration), and the third was Panna Sikha (Wisdom); training in higher-level wisdom (right view and right thought). The overriding principle was that wisdom leads to no suffering and, consequently, happiness. As in the patients with breast cancer, if breast cancer women undergoing chemotherapy could adopt and follow the Four Noble Truths, and apply the principles of the Middle Path, well-being should definitely abound in their life.

The Eightfold path could be practiced at a simple level or a complicated one with the aim of finding the way to suffering cessation and, thus, reaching a state of clam, happiness, and living without carving or desires, i.e., the state of nirvana. It involved the practice of: (1) ethical conduct/morality, (2) mental discipline/meditation, and (3) wisdom (Smith, 2004). This way led to a full realization of the conditions of feeling (Dukkha, Anicca, and Annatta), the three universal characteristics (Payutto, 1995; Viradhammo, 1996). By practicing these, one could achieve the expected outcomes shown in Table 6.

Table 6

The Components of the Eightfold Path Guiding the Practice and Expected Outcomes

Eightfold Path	Practice Guide	Expected Outcome
(1) Ethical conduct/Morality (Sila Sikha) Right speech Right action Right livelihood	This way was to ethical conduct by applying five precepts main important for lay people. The five precepts: 1. Did not kill (unintentional killing is considered less offensive) 2. Did not steal (including misappropriating someone's property) 3. Did not engage in improper sexual conduct (e.g. sexual contact not sanctioned by secular laws) 4. Did not make false statements 5. Did not drink alcohol	Happy and purify mind
(2) Mental discipline/Meditation (Samadhi Sikha) Right effort Right mindfulness Right concentration	Vipassana meditation	Develop 4C (clear, clean, calm, and cool mind)
(3) Wisdom (Panna Sikha) Right view Right thought	Gaining from keeping the five precepts and meditation.	Develop one's wisdom by having the correct thoughts, views, and understand the Three Universal Characteristics.

The term *wisdom* in Buddhism connotes something different from that of the general word. In Buddhism, wisdom, or panna in Pali, was derived from the root 'na' that means 'to know', prefixed by 'pa' meaning 'correctly'. Therefore, its meaning in English was 'to know correctly'. Other words used to translate it are 'insight', 'knowledge'

and ‘wisdom’. We could see the word ‘wisdom’ used in both the doctrine of the Four Noble Truths and that of the Noble Eightfold Path. Wisdom was the final goal to achieve in order to obtain awareness and cessation of suffering or dukka (Vipassana research institute, 2012). Therefore, wisdom (panna) referred to the ability of realizing the three universal characteristics of physicality and mentality, i.e., impermanence (anicca), suffering or unsatisfactoriness (dukkha), and egolessness or non-self (anatta).

There were three kinds wisdom in Buddhism (Viradhammo, 1996):

(1) Suta-maya panna. It meant that wisdom could be obtained from listening to others and from being instructed by others regarding impermanence, suffering and essencelessness. Moreover, it could be gained by reading sacred texts. In other words, wisdom could be acquired from external sources, so this might inspire one to tread on the path of Dhamma. However, it, in itself, could not achieve the attainment of liberation.

(2) Cinta-maya panna. Wisdom could be obtained from one’s own thinking, i.e., one could spontaneously understand impermanence, suffering, and essencelessness. However, through it, one could not obtain liberation for oneself.

(3) Bhavana-maya panna. Wisdom could derive from meditation practice; one could gain insight by vipassana-bhavana (Vipassana meditation). During this process, the meditator could realize for oneself the meaning of suffering, and essencelessness.

However, while attaining wisdom, suta-maya panna and cinta-maya panna were interchangeable, the final development of wisdom was bhavana-maya panna.

As mentioned before, the Noble Eightfold Path was the path that leads to no suffering (Nibbana), and one way to achieve this state of being was through concentration

training Samadhi or meditation or bhavana (*Pali*) that referred to development, cultivation or culture (Chaanchamnong, 2003). In addition, its practice followed the principles of the Noble Eight-Fold Path, i.e., having proper mindfulness and concentration (Payutto, 1995). The mind could be developed though practice; it was not attained through the understanding of books or the hearing of some Buddhist doctrines. The aim of meditation practice was to bring about harmony of life and cultivate a clam mind, confidence, compassion, wisdom, energy, mindfulness, concentration and penetrative insight, and, on the other hand, to purify the mind, i.e., to eliminate defilement, desire, lust, hatred, jealousy, envy, worry, unawareness, anxiety and lethargy (Chaanchamnong, 2003).

Nowadays, meditation was widely applied to alleviating suffering in patients, especially cancer patients, in order to maintain a balance in their physical and psycho-spiritual health. Evidence-based research has demonstrated the various benefits it has on enhancing good outcomes related to health, as meditation could lead to a clean, clam, and clear mind and, consequently, to a balanced life (Tubtimhin & Rungreangkulkij, 2012; Wiriyasombat, Pothiban, Panuthai, Sucamvang, & Saengthong, 2011). Therefore, the researcher focused on how to practice meditation as a part of a program to enhance psycho-spiritual well-being in women with breast cancer receiving chemotherapy. The details regarding meditation in Buddhism are illustrated below.

Meditation referred to the process of fixing one's mind on one thing by using mindfulness to gain wisdom (Viradhammo, 1996). While practicing mindfulness, concentration (samadhi) and wisdom (panna) could be gained. There were three levels of meditations (Chanchamnong, 2003; Viradhammo, 1996): (1) momentary concentration

(*khanika-samadhi*): this level was what most people could put to good use at work or everyday life, (2) neighborhood concentration (upacara-samadhi): this was the middle level of concentration that people could collect by themselves, and (3) attainment concentration (appana-samadhi): this was the highest level of concentration in which the mind was fixed, absorbed, and undistracted. This was the final goal in the development of meditation. In real practice, most people could develop meditation between the levels of momentary concentration and neighborhood concentration, which was called *vipassana-samahi* (Chaanchamnong, 2003; Viradhammo, 1996).

There were two main kinds of meditation: (1) Samatha meditation: in this way, one could gain concentration by focusing on an object, and (2) Vipasana meditation: the way through which insight or wisdom could be gained was called insight (*Vipassana)* meditation. The chart below (Figure 2) shows the types of Buddhist meditation.

In this study, Vipassana meditation was applied in order to help women with breast cancer understand the reality of their suffering regarding to psychological symptom cluster and be able to manage their mind in order to achieve psycho-spiritual well-being in their life. Further details on insight meditation are discussed below.

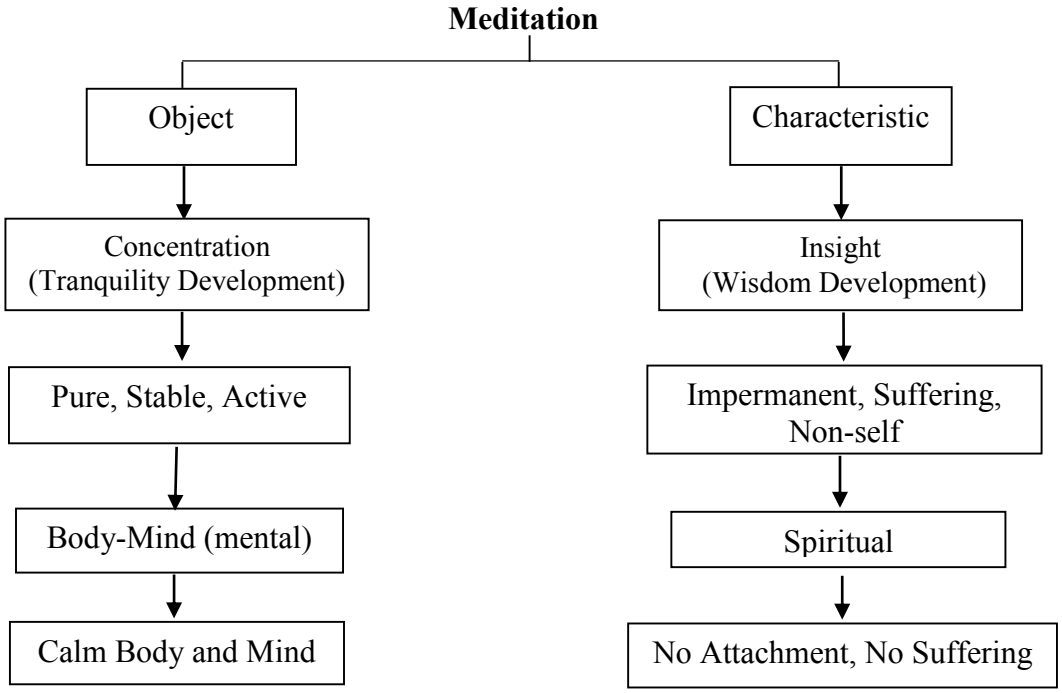

Figure 2. Types of meditation. Adapted from "Meditation" by V. Viradhammo, 1996. *Suffering and no suffering,* p. 239. Copyright 1996 by Pim Dee Co., Ltd.

Vipassana (insight) meditation

Vipassana or insight meditation intended to develop concentration in order to make possible one's understanding of Trisika (impermanence, suffering, and selflessness) or seeing things as they truly were (Chaanchamnong, 2003; Viradhammo, 1996). Moreover, it aimed to eliminate the five hindrances (nivarana), namely sensual desire [kamachanda], ill-will [vyapada], sloth and torpor [thina-midha], restlessness and anxiety [uddhacc-kukkucca], and doubt [vcikicca] (Chaanchamnong, 2003; Viradhammo, 1996). However, concentration was the path that leads to insight into the true nature of

things. In Vipassana practice, the main structure of Satipattha consisted of 4 core basic elements that led to the development of insight, as follows (Chaanchamnong, 2003; Payutto, 1995; Viradhammo, 1996):

(1) Kayanupassana – This means mindfulness in relation to the body and referred to thinking of one's breathing, physical postures, physical activities, and analysis of various physical components, material elements, and death. Through it, the realities of the human body could be learned. Anapanasati meditation was the most common and easy-to-practice example. It connoted the practice of mindfulness related to the natural way of breathing, e.g., how breathing works, and what its types were: short, long, deep or sallow breath. Actually, its main goal was to train the mind to know or become aware of what was happening at the moment.

(2) Vedananupassana – It referred to utilizing mindfulness to deal with feelings: pleasant (sukha), unpleasant (dukkha), and neutral (equanimity). Its goal was to help one understand one's feelings that rose and fell according to the law of causality, not subjectively as "my feeling". The practitioner should be trained to catch his/her mind up on the experience of that moment, i.e., whether his/her feeling was pleasant, unpleasant or neutral, and then was aware of that feeling without attachment to it.

(3) Cittanupassana – This purposed to use mindfulness to deal with the mind. It trained the meditator, by means of mindfulness, to understand and control one's mind and thoughts in various conditions such as sensual desire, disgust, vacillation, concentration, liberation etc., while being ever mindful of their rise and passing way.

(4) Dhammanupassana – This meant employing mindfulness to criticize Dhamma in the context of one's perception of the present moment. The aspects of Dhamma were the Five Hindrances (Nivarana), the Five Aggregates (Khandha 5), the Six Sense Bases (Ayatana), the Seven Factors of Enlightenment (Bojjhanga), and the Four Nobel Truths (Ariyasacca).

In Thailand, there were many places available for lay people to practice meditation, e.g., in temples or meditation practice centers. Meditation practice varies; however, its main types were concentration meditation and vipassana meditation or both of them (Sujiva, 2000).

In the study, the researcher designed a program that applied Vipassana meditation practice, which was one part of the Eightfold Path (Samashi Sikha), as it focused on the aspects of proper mindfulness and concentration to refine the mind and develop wisdom that enables one to see the three characteristics of things, eliminate psychological symptom cluster from which one was suffering. Normally, there were many ways to practice meditation. As it was well-known, meditation practice around the world has been applied as a mindfulness-oriented intervention to eliminate the psychological and physiological clinical problems, especially in chronic illness. Examples of such kind of interventions that have been applied to nursing care were Mindfulness-Based Stress Reduction (MBSR), Mindfulness-Based Cognitive Therapy (MBCT), Dialectical Behavior Therapy (DBT), and Acceptance and Commitment Therapy (ACT). However, the construct of mindfulness between the Buddhist and Western psychological conceptualization of mindfulness was different (Keng, Smoski, & Robins, 2011). Therefore, in this study, this intervention was implemented in the Thai

Buddhist cultural context; therefore, the concurrent beliefs and faith derived from the Buddhist doctrine were incorporated into it. Specifically, Vipassana meditation, as taught by Goenka, was applied in this study. Further details regarding the principles of its practice were clarified below.

Vipassana meditation, as taught by Goenka, was one of the popular practices of meditation, which follows the Buddhist doctrine. It was easy to practice because there were no regulations; it depended on one's discipline to practice meditation regularly. The method was unique and simple, a logical way to achieve a real peace of mind, which leads to a happy, useful life for other people any history (Hart, 1997). According to Hart (1997), Vipassana meditation was a technique for observing reality from every angle. The method aimed to provide the meditator to the way of cultivate awareness and wisdom to understand the three universal characteristics of reality (non-permanence, suffering, and non-self). Evidence-based research on Goenka meditation has found that it could improve one's awareness of bodily sensations (Zeng, Oei, & Liu, 2014).

Generally, the course of Goenka's vipassana for lay people interested in practicing it regardless of religious affiliation was arranged over ten days. Its two main aims were to develop a clam mind and wisdom by practicing anapana and vipassana meditation, as detailed below:

1) Anapana meditation: in the beginning (first 3 days), the preparation for vipassana meditation involved developing metal concentration by focusing on breathing. This method aimed to cultivate a maintained attention by observing one's natural way of breathing, i.e., air passing through the nostrils or the base of the nose.

2) Vipassana meditation: during the remaining 7 days, vipassana meditation aimed to cultivate awareness and wisdom (understanding impermanence, suffering, and selflessness) by scanning one's body to monitor one's emotions that arise due to bodily sensations.

In this way, women with breast cancer could develop awareness and wisdom to eliminate the psychological symptom cluster that affects them in order to achieve a harmony and well-being of life. However, in the process of vipassana meditation, the instructor of Goenka's institute recommended lay people to attend a 10 day course. Therefore, the researcher applied anapana meditation as the basis meditation practice for the participants in the current study.

3.3 Applying the Buddhist doctrine in nursing

Currently, belief and religious faith such as the Buddhist doctrine are being applied in nursing care to change, patients' thinking process and/or perception in order to enhance their well-being. Many dimensions in healthcare in which Buddhist doctrine could be applied to nursing care are detailed below:

3.3.1 Understanding and managing suffering in chronic illness. The application of Buddhist doctrine aims to guide clinical professional nurses in promoting the understanding of and managing suffering caused by illness as a way of self-healing or self-management in chronically-ill patients. Therefore, most studies have applied this doctrine in the management of suffering as a consequence of illness by striving to understand natural law and find a suitable way to eliminate suffering, and, hence, bring about harmony and happiness in one's life. For example, Saeloo, Hatthakit and Nilmanat (2012) studied self-healing based on the Buddhist

doctrine in hypertension and found that patients with hypertension could engage in Buddhist meditation in their daily activities and increase their mindfulness, decrease stress, and maintain a normal level of blood pressure.

Furthermore, related to the cause of suffering, two outstanding Buddhist doctrine principles, the Law of Nature and the Law of Karma, have been found to have a strong influence on the perception of the meaning of suffering by survivors of the 2004 Asian Tsunami by providing a favorable response to their suffering that led to them to overcome it more effectively. They perceived the suffering caused by the Tsunami as being part of the "Law of Nature" and responded to the disaster in balancing their life. Similarly, concerning the principle of the "Law of Karma", they believed that a person's good or bad deeds are reflected in his/her outcomes later in life according to the manner he/she has acted (Hatthakit & Thaniwathananon, 2007). Moreover, Nilmanat and Street (2007), who studied the constructions of karma that was based on the Buddhist doctrine as applied by four Thai family caregivers living with a dying AIDS patient in Southern Thailand, found that they used Karmic healing activities to help end suffering, promote a peaceful and calm death for the patient and ensure a better life for her in the next one. Similarly, other studies focusing on preparing a peaceful death for terminally-ill patients and their family in the ICU setting have pointed out that this was very important to Buddhists (Kongsuwan, Chaipetch, & Matchim, 2012; Kongsuwan, Keller, Touhy, & Schoenhofer, 2010).

As in patients with breast cancer, Buddhist practice or beliefs were very important to the family's care for women in early-stage breast cancer as they influence and/or enhance patient well-being by attributing the disease and suffering causes to karma,

bad fate or spirits. In this way, they try to support their psychological aspect and spiritual health by encouraging the patient's participation in activities (religious activities, exercise, going out to divert attention from breast cancer, and by increasing prayer and merit making in their life (Junda, 2004).

3.3.2 Evidence-based Buddhist practice. Currently, nursing care has applied Buddhist doctrine in order to provide coping mechanisms, especially for suffering encountered in chronic disease. For example, cancer patients have used meditation to enhance their quality of life (Lundberg & Rattanasuwan, 2007). Similarly, Tubtimhim and Rungreangkulkij (2012) reported that Buddhism-oriented group therapy could enhance higher levels of consciousness, and lower anxiety and depression during the first and second month of follow-ups in women with breast cancer undergoing radiotherapy. In addition, Panphadung (2013) studied nursing programs applying Buddhist principles that could significantly enhance spiritual well-being of family caregivers of hospitalized patients with advanced gynecological cancer ($t = 13.32$, $p < .001$).

An intervention for managing unpleasant symptoms in breast cancer patients based on Buddhist philosophy was mindfulness-based stress reduction (MBSR), which assists in reducing mood disturbance (Lengacher et al., 2009), anxiety, fear of recurrence, depression (Lengacher et al., 2009), stress (Speca, Carlson, Goodey, & Angen, 2000), enhancing physical functioning (Lengacher et al., 2009), boosting physical role functioning and energy, and decreasing pain (Lengacher et al., 2009), improving sleep quality (Shapiro, Bootzin, Figueredo, Lopez, & Schwartz, 2003), as well as enhancing breast- and endocrine-related quality of life and well-being (Hoffman, Ersser, & Hopkinson, 2012).

In addition, Buddhist counseling intervention was applied in patients suffering from anxiety by Rungreangkulkij and Wongtakee (2008). They found that, when patients practiced the mindfulness technique, they were able to accept unpleasant situations calmly and, consequently, reduce the level of anxiety at the 1 month follow-up. Therefore, it could be maintained that these ways of suffering self-management during treatment or the trajectory of illness could be applied by professional nurses in order to make nursing care more effective.

3.3.3 Buddhist-oriented education. Studying the application of Buddhist doctrine to the integrated curriculum for nursing students, Sarakwan, Suwannaka, Wongkrason, Kanhadilok and Khumpeng (2006) reported on the outcome of a Buddhist-oriented school applying the Buddhist doctrine of "Tisikkha" to 224 nurse students at Pra-Buddhabath College of Nursing. It was found that nursing students could begin to initiate self-nurturing behaviors to create balance in their lives. Moreover, the students had a good understanding of the perspective of holistic dimensions, which entails the interrelationship of the personal mind, body, society, and spirituality, and its impact caring for social harmony.

4. Spiritual Well-being in Women With Breast Cancer Undergoing Chemotherapy

4.1 Concept of spiritual well-being

The term of spirituality was one of the domains important for tool coping and enhancing quality of life in the early state of breast cancer (Swinton, Bain, Ingram, & Heys, 2011). Moreover, Tate (2011) found that spirituality was to be the main coping mechanism used during all phases of the African American women with breast cancer

journey. In addition, Harandy et al. (2009) found that spirituality was the primary source of psychological support among patients with breast cancer.

The meaning of spirituality in nursing arenas has had many researchers trying to define it overtime; however the meaning of spirituality cannot be defined in only one definition because it was related in meaning and integrated in the definition (McSherry, Cash, & Ross, 2004). However, it could be concluded with regards to the spiritual meaning as follows;

Villagemeza (2005) concluded the meaning of spirituality in 7 dimensions; 1) connectedness (intrapersonal, personal, ecological, and transpersonal) 2) faith and religious belief system 3) value system 4) sense of meaning and purpose in life and amidst suffering 5) sense of self-transcendence (self-power and capacity in coping with stressful situation) 6) sense of inner peace and harmony and 7) sense of inner strength and energy. Another aspect of spirituality was frequently clarified in 4 parts and they were integrated belief, practice, love, and self-transcendence (O'Neil & Mako, 2011).

To sum up, spirituality was related to inner-self (value, belief, faith, love, self-power, peace and harmony), interpersonal (connected person and environment), religion (faith, belief, practice) and the supernatural (God, high power, supernatural).

In term of spiritual well-being, Yang, Yen and Chen (2010) reviewed the concept analysis of spiritual well-being that referred to the feeling of happiness, affirming the self-worth, managing interpersonal relationships with an open, accepting attitude, and possessing an internal energy. However, the term of spiritual well-being in a Thai context was arguable. Finally, the term "wisdom health" or intellectual well-being was used replace of spiritual well-being (Chokwiwat, 2008).

According to Wasi (2001) the meaning of spiritual well-being (wisdom health) referred to the sense of inner self, having faith and wisdom contributing to happiness with morality. Consequently, the meaning of both western and eastern terms were rooted in the same aspect referring to being related deeply to the inner person in multi-dimensions about self (as the meaning of life, purpose), interpersonal (people), related environment, and related to the supernatural whether in religion (God) that drives harmony in a journey of life while wisdom health (spiritual well-being*)* was emphasized the wisdom (intelligence), morality, and ethics leading to happiness or a harmonious life based on the way of the Buddhist doctrine. Indeed, both aspects were similar in the way of a defense mechanism to keep fulfillment of breath and relevant inner self, inter-personal, environment, and supernatural dimensions.

Therefore, the domain of spiritual well-being in the current study was defined following the basis of the meaning in a Thai context. This domain was important as a coping mechanism of mind-body-spirit to enhance positive outcomes of health in patients with breast cancer under treatment.

4.2 Factors contributing to spiritual well-being of women with breast cancer undergoing chemotherapy

Associated factors which influence the spiritual well-being of breast cancer women undergoing chemotherapy were an important point to consider for health care providers because those factors could augment the suffering or poor state of spiritual well-being. Therefore, professional cancer teams could manipulate effective intervention to achieve patient

well-being. The literature review showed factors detrimental to spiritual well-being in that group below.

4.2.1 Age. The study found that age had a positive relationship with spiritual well-being that meant older age, higher spiritual well-being in Arab Muslim cancer (Lazenby & Khatib, 2012).

4.2.2 Marital status. The study of Arab Muslim women with breast cancer by Lazenby and Khatib (2012) found that divorce had a negative relationship with spiritual well-being.

4.3.2 Coping ability and religious coping. Gaston-Johansson, et al. (2013) found a higher coping ability and religious coping related to higher spiritual well-being in African American women with breast cancer undergoing chemotherapy.

4.3 Measurement of spiritual well-being

Presently, spiritual well-being measurement could be summarized using the tools listed below.

4.3.1 Functional Assessment Chronic Illness Therapy General questionnaire (FACIT-G) and its breast module (FACIT-B). Brady et al. (1997) developed the FACT-B that consisted of the FACT-General (FACT-G) plus the Breast Cancer Subscale (BCS). It covered the FACT-B total score, the Physical Well-Being (PWB) subscale, the Functional Well-Being (FWB) subscale, Emotional Well-being (EWB), and the BCS. It consisted of 44-items covered on a five-point scale ranging from 0 (not at all) to 4 (very much).

4.3.2 Spiritual Index of Well-being (SIWB). The instrument was developed by Daaleman and Frey (2004). It consisted of 12-items scored to 6 from a self-efficacy domain

and 6 from a life scheme domain studying community-dwelling geriatric outpatients. The index had the following reliability results: for the self-efficacy subscale, alpha = 0.86 and test-retest r = 0.77; for the life scheme subscale, alpha = 0.89 and test-retest r = 0.86; and for the total scale alpha = 0.91 and test-retest r = 0.79, showing very good reliability.

4.3.3 The Spiritual Well-Being Scale (SWBS). The instrument was developed by Ellison (1983). It consisted of 20 items, a 7-point Likert scale studying students. It showed high reliability Cronbach's alpha = 0.89.

4.3.4 The World Health Organization Quality of Life-Spiritual, Religion and Person Beliefs (WHOQOL-SRPB). The instrument was developed by Group (2006). It consisted of 32 items, a 5-point Likert scale studying community participants in 18 countries. It showed high reliability Cronbach's alpha = 0.91.

4.3.5 JAREL spiritual well-being scale. The instrument was developed by Hungelmann, Kenkel-Rossi, Klassen and Stollenwerk (1996). It consisted of 21 items, a 6-point Likert scale studying older, healthy to the terminally ill from nursing homes, acute care facilities, home/apartment and senior centers. It showed high reliability Cronbach's alpha = 0.85.

4.3.6 The Geriatric Spiritual Well-being Scale (GSWS). The instrument was developed by Dunn (2008). It consisted of 16 items, four domains; (1) affirmative self-appraisal, (2) connectedness, (3) altruistic benevolence, and (4) faith ways. A 6-point with Likert scale from 1= strongly disagree to 6 = strongly disagree, Studying 138 community-dwelling older adults. It showed high reliability Cronbach's alpha = 0.76.

4.3.7 Functional Assessment of Chronic Illness Therapy-Spiritual Well-being (FACIT-Sp) scale: This tool was established by Peterman, Fitchett, Brady, Hernandez and Cella (2002) to measure the spiritual well-being that developed from various cancer patients. It consisted of 12-items grouped into two main domains: (1) eight items covered sense of meaning/peace, and (2) four items covered the role of faith. At first score was given on a 5-point Likert scale ranging from 0 (not at all) to 4 (very much) and finally summed for total for the domain scores. The score interpreted the level of well-being of spirituality where a high score indicated the high level of well-being of spirituality. Moreover, this tool was acceptable in psychometric properties (Cronbach's alpha = 0.87).

(8) Thai Spiritual Well-being Assessment Tool for Elders with a Chronic Illness (TSWBATECI): This tool was developed by Unsanit et al. (2012) to measure spiritual well-being in patients with chronic illness. The instrument composed of 41-items and eight domains; 1) happiness in life, 2) acceptance of chronic illness, 3) life equilibrium, 4) passion for life, 5) self-transcendence, 6) optimistic personality, 7) a purpose in life, and 8) willingness to forgive. At first the score was given on a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree) and finally summed for the total domain scores. The scores interpreted the level of well-being of spirituality where a high score indicated the high level of well-being of spirituality. Moreover, this tool was acceptable in psychometric properties (Cronbach's alpha = 0.97).

(9) Spiritual Well-being Scale for Thai Buddhist Adult with Chronic Illness (SWS-TBACI): This tool was developed by Promkaewngam, Pothiban, Srisuphan and Sucamvang (2014) to measure spiritual well-being in adult patients with chronic illness.

The instrument composed of 13-items and three domains; 1) having hope and sense of connectedness, 2) understanding self and nature of life, and 3) being happy. The score was given on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) and finally summed for total for the domain scores. The scores interpreted the level of well-being of spirituality where a high score indicated the high level of well-being of spirituality. It showed high reliability overall (Cronbach's alpha = 0.88) and in each dimension (Cronbach's alpha = 0.76 to 0.81).

To sum up, the current study applied the TSWBATECI to capture the spiritual well-being in Thai context, because it was developed based on Thai beliefs, faith, and culture. Moreover, it was specifically for chronic illness such as breast cancer in the target population. However, the SWS-TBACI should be considered for application in further studies focusing on Thai Buddhist adult patients with chronic illness also.

Summary

All in all, the literature review of studies aims to understand the overview of patients with breast cancer and the subsequent chemotherapy effects, psychological symptom cluster covering the management of psychological symptom cluster, spiritual well-being, and Buddhist philosophy in specifically in the doctrine of Four Noble Truths with application in nursing to help to understand existing knowledge about suffering with the limitation of management in the vulnerable group. Hence, it was necessary to further study this topic by using randomized controlled trails to establish evidence-based findings

related to nursing practice that applied the Buddhist doctrine to ameliorate psychological symptom cluster and enhance spiritual well-being of patients with breast cancer, with the aim of achieving and maintaining harmony in their lives.

CHAPTER 3

RESEARCH METHODOLOGY

The methodology of this study was developed to evaluate the effects of the Buddhist-based, Nurse-delivered Program (BbNdP) on psychological symptom cluster and spiritual well-being of Thai Buddhist women with breast cancer, who were undergoing chemotherapy infusion. The details of the research design, experimental setup, target population and sample, instruments, experimental treatment, protection of human subjects, and data analysis were covered.

Research Design

A single-blinded randomized controlled trial with a repeated measures design was used to investigate the effects of the BbNdP on the psychological symptom cluster and spiritual well-being of women with breast cancer undergoing chemotherapy (Figure 3).

		Cycle of Chemotherapy					
	Group	Cycle1	Cycle2	Cycle3	Cycle4	Cycle5	Cycle6
Randomized	Experimental	O_1X_1	X_1	O_2X_1	X_1	X_1	O_3X_1
	Control	O_1X_0	X_0	O_2X_0	X_0	X_0	O_3X_0

Figure 3. The study design.

Note. X_0 = Usual Care, X_1 = Buddhist-based, Nurse-delivered Program (BbNdP), O_1 = Baseline, O_2 = Post-test at Chemotherapy Cycle 3, O_3 = Post-test at Chemotherapy Cycle 6.

Setting

The study was conducted at a Chemo-Infusion Center (CIC) of a university hospital in Southern Thailand. This unit provides care for patients receiving chemotherapy treatment by professional oncology nurses for any type and stage of cancer on one day treatment basis. There were 20 beds (7 beds, 13 couches). The ratio of professional nurses to patients was one to two. The CIC provided service from 8.00 a.m. to 6.00 p.m. Monday to Friday.

The women with breast cancer went to receive the chemotherapy regimen depending on the treatment prescribed by their physician. The current study focused on the standard regimen of FAC and AC plus taxane for six and eight cycles, respectively. There were three weeks between cycles; however, some participants were not ready to receive the chemotherapy at that time, so they postponed to the following week (total duration was 4 weeks). The FAC regimen was chemotherapy in which women with breast cancer received the same regimen for 6 cycles, while in the AC plus taxane they received 4 cycles of AC and 4 cycles of taxane. The duration was two hours for receiving FAC, and five hours for the AC plus taxane regimen.

The process of chemotherapy infusion as an out patient's service was composed of the women with breast cancer having their blood taken for checking to assess readiness to receive chemotherapy through measuring the level of absolute neutrophil count (ANC). Normally, if the ANC is less than 1,500 or the patient is not ready to receive the chemotherapy infusion and displayed symptoms such as high fever; severe fatigue, then it is postponed to the following week. In the current study several women with breast cancer postponed their chemotherapy infusion course (6 cycles/6 times) at least one or two times. Next, vital sign checking was done

before starting the process of chemotherapy infusion. Then, the oncology nurse prepared chemotherapy infusion, pre-chemotherapy medicine, and the chemotherapy session with appropriate bed side nursing care while receiving chemotherapy. Duration of chemotherapy infusion in each regimen was as previously mentioned. After that, the patients could go back to rest at their home.

At the first cycle of chemotherapy, the patients attended health education for chemotherapy treatment as prepared by the oncology nurse. A health education video was provided for caregivers to watch for around 30 minutes. After that, the nurse health educator provided a small group health education session for both the patient and their family. In addition, a guideline chemotherapy self-care pocket book was provided.

Population and Sample

Women with breast cancer, both new and recurrent cases, who were receiving chemotherapy treatment at a study setting, were the targeted population. The following inclusion criteria were applied to select the sample from the target population.

Inclusion criteria

The inclusion criteria were as follows: (1) Thai Buddhist women having stage I-III breast cancer who are newly or recurrently diagnosed by a physician, (2) being fully aware of her cancer diagnosis, (3) age more than 18 years, (4) receiving chemotherapy treatment with/without radiotherapy or other treatments, (5) reporting psychological symptom cluster as indicated by symptom clusters average distress score ≥ 2 by MSAS-PSYCH (Portenoy

et al, 1994), (6) having no history of psychiatric or neurological disorders, and (7) being able to read and speak Thai.

Sample size estimation

Attention was given to the appropriate number of subjects in the sample size that was necessary to meet the statistical validity of the experiment (Polit & Beck, 2012). The appropriate sample size was calculated by the method known as "power analysis" (Cohen, 1988). An optimal sample size can properly determine the effects of an independent variable on a dependent variable. Power analysis was employed to calculate the sample size using the procedure below.

A power of .80 at an alpha level of .05 requires an adequate approximation of n as given by the following formula in case of a value of *d* is not provided (the non-tabulated effect size) (Cohen, 1988, p.53):

$$N = n_{.10} + \frac{1}{100d^2}$$

Where N = was the sample of the study

$n_{.10}$ = was the required sample size for a given significance criterion (a)

d = was the effective size index for t-test of means in a standard unit

The findings of Jafari et al.'s study (2013) was used to determine the effect size. This randomized controlled trial investigated the effects of meditation on women with breast cancer who underwent treatment, and found that it significantly enhanced their spiritual well-being. Using Cohen's formula, the effect size (*d*) was 0.61 ($p < .05$). Subsequently, table 2.4.1 on page 55 (Cohen, 1988) was used to estimate the sample size by considering the given significant criterion of $a_2 = .05$, power = .80, where n.10 = 1571 and desired effect size was (*d*) = 0.61, indicating the minimum required sample size of 44 participants per group. In addition, 20% more participants were added per group to overcome an anticipatory dropout, yielding the sample size of 53 per group. During the study period, there were 108 participants (54 participants per group enrolled). The sequence of steps in a conventional randomization design is displayed in Figure 4.

Random assignment

In this study, the process of random assignment was very important in order to reduce bias from systematic selection, as it balances the potentially confounding variables, and equalizes the number of participants in the two groups (Zeller, Good, Anderson, & Zeller, 1997). Therefore, a minimized randomization program version 2.01 was selected to randomize the participants into either the experimental or the control group (Zeller, 1997). The program could control the confounding variables of the participants using four variables. Then, the four variables were entered into the program; 1) age (less than 40, 40-49, 50-59, and more than 60 years), 2) stage of cancer (I-III), 3) chemotherapy regimen (FAC or AC plus Taxane), and 4) history of drug allergic reaction (yes, no).

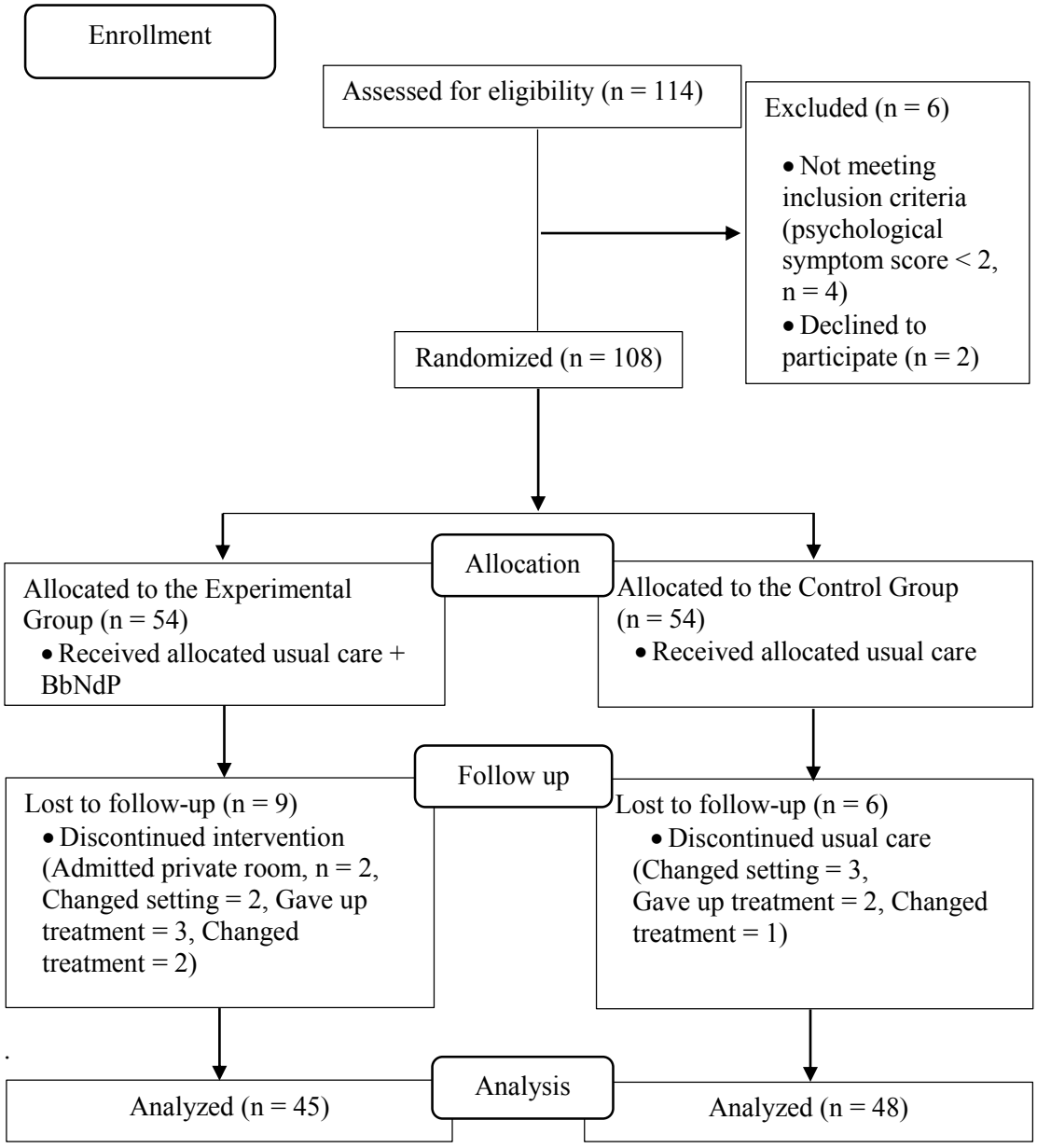

Figure 4. Flow diagram of participant's enrollment.

Instruments

Two main types of instruments were prepared for the study: (1) the program and (2) data collecting instruments. The details of each instrument were given below.

1. Program. This program consisted of activities for women with breast cancer, who suffered from psychological symptom cluster. It was developed by the researcher following the Buddhist doctrine (Four Noble Truths) for women with breast cancer undergoing chemotherapy. Before running the program, the process of a pilot study was arranged by five participants who had the same criteria as mentioned previously. Literature reviews supported the process of developing the program. The content of Buddhist sermons were concurrent with women with breast cancer encountering suffering from psychological symptom cluster while receiving chemotherapy.

Moreover, the tools used in the program for women with breast cancer were helpful and easy to follow throughout this study and were composed of an MP3 Buddhist sermon, a guided VCD for meditation practice, and a pocket book to record the Buddhist practice during treatment. More details of these instruments are shown below.

1.1 MP3 Buddhist (Dharma) sermon. The MP3 contained information regarding breast cancer using the Four Noble Truths. The details described suffering related to breast cancer and the way to eliminate their suffering. The duration the sermon was around 90 minutes.

1.2 Guided VCD for meditation practice. The VCD consisted of the process of preparing for meditation practice and the process of anapanasati meditation practice, as taught by Goenka (2001). It was 12 minutes long.

1.3 Pocket book for recording other Buddhist practices. The participants were asked to record related Buddhist activities such as meditation practice, listening to the dharma sermon, and other activities on a daily basis while waiting for the next chemotherapy cycle (3 weeks).

2. Data collecting instruments: The instruments had three main parts: (1) a socio-demographic data questionnaire that was designed to collect the demographic data such as age, marital status, educational level, religious affiliation, employment status, stage of breast cancer, and type of treatment, etc.; (2) the psychological symptom subscale of the Memorial Symptom Assessment Scale (MSAS-PSYCH) to measure the psychological symptom cluster of women with breast cancer undergoing chemotherapy, and (3) the Thai Spiritual Well-being Assessment Tool for Patients with Breast Cancer (TSWBATPBC) to measure spiritual well-being. Both tools were applied 3 times on Day-1 chemotherapy (baseline), Cycle-3 Chemotherapy (CC-3), and Cycle-6 Chemotherapy (CC-6). Accordingly, chemotherapy regimen duration for women with breast cancer stage I-III is n six to eight cycles. The literature reviews showed the psychological symptom cluster was persistent through during chemotherapy infusion (Liao et al., 2015; Lim, Devi, & Ang, 2011; Souza, et al., 2014). Thus, the researcher observed the effectiveness of the program in the cycle 3 and cycle 6 of chemotherapy regimen. The details of the assessment tools are discussed below.

2.1 MSAS-PSYCH was used to capture the initial symptoms of chemotherapy in female breast cancer patients. Thus, the instrument has tried to ensure and cover common symptom cluster normally found in the target population as previously mentioned such as anxiety, depression, and emotional/mood distress. Moreover, they have shown the multidimensional nature of symptoms by addressing the symptom frequency, intensity, and distress (Lacasse & Beck, 2007). The MSAS-PSYCH was developed by Portenoy et al. (1994) to measure the three dimensions of a symptom: (1) frequency, (2) severity, and (3) symptom distress. The frequency of symptom was scored on a 4-point Likert scale ranging from 1 (rarely) to 4 (almost constantly). The severity of symptom was scored on a 4-point Likert scale ranging from 1 (mild) to 4 (very severe). The distress of symptom was scored on a 5-point Liker scale ranging from 0 (not at all) to 4 (very much). Calculation of a total score was performed by summing each item by its dimension. Higher scores indicated more frequency, severity and distress of symptoms. The six items focusing on psychological symptoms were worrying, feeling sad, feeling nervous, difficulty to sleep, feeling irritability, and difficulty concentrating. The validity was r = 0.65 (frequency), 0.67 (severity), and 0.67 (distress). The reliability of this tool was observed by Cronbach's alpha = 0.88 (PHYS H), 0.83 (PSYCH), and 0.58 (PHYS L), respectively.

2.2 The Thai Spiritual Well-being Assessment Tool for Patients with Breast Cancer (TSWBATPBC) was modified from the Thai Spiritual Well-being Assessment Tool for Elderly with a Chronic Illness (TSWBATECI) originally developed by Unsanit et al. (2012) to measure spiritual well-being in the target population. Since, the original instrument did not target in breast cancer patients, the items were modified to be more specific to women with

breast cancer. Permission was granted by the original developers. There were eight domains: 1) happiness in life, 2) acceptance of chronic illness, 3) life equilibrium, 4) passion for life, 5) self-transcendence, 6) optimistic personality, 7) a purpose in life, and 8) willingness to forgive. Each item was scored on a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree), and, finally, added up in order to calculate the total scores for each domain. High scores indicated a high level of spiritual well-being. Moreover, this tool was acceptable in terms of psychometric properties (a content validity index = .82 to 0.95, a total Cronbach's alpha = 0.90).

Content validity

The Thai version of the demographic data form, MSAS-PSYCH, and TSWBATPBC were assessed for content validity based on the judgment of five experts to determine whether the contents of each measure were consistent with what it was supposed to measure. They comprised of four nurse instructors, one who has expertise in the area of cancer and one with experience working in the psychological area, one expert on spiritual instruments, one expert in Buddhist doctrine, and one expert nurse who has expertise in oncology care (Appendix D). Finally, after careful consideration and taking the suggestions of the experts into account, one item, purpose in life (item no.39) was added to the TSWBATPBC. Therefore, the total number of items of TSWBATPBC was 42. The possible scores of TSWBATPBC ranged from 0-168.

Reliability

The MSAS-PSYCH and TSWBATPBC were tested on 30 women with breast cancer receiving chemotherapy. Cronbach's alpha coefficients were accepted (0.95 for MSAS-PSYCH and 0.91 for total TSWBATPBC). The reliability of the subscales for TSWBATPBC was 0.69 (happiness in life), 0.76 (acceptance of chronic illness). 0.89 (life equilibrium), 0.82, (passion for life), 0.76 (self-transcendence), 0.68 (optimistic personality), 0.56 (a purpose in life), and 0.73 (willingness to forgive).

Data Collection Process

The processes of collecting data were as follows:

1. Upon completion of the research proposal, it was approved by the Research Ethics Committee of the Faculty of Nursing and Faculty of Medicine, Prince of Songkla University.

2. The participating eligible participants were recruited when the participants came to receive chemotherapy at a study setting. After verification of the inclusion criteria, the eligible participants were invited to participate in this study, and the participants were random placed into either the experimental or the control group as previously mentioned. They were informed regarding the purpose, procedures and benefits of the study as well as their right to participate or withdraw from the study at any time without any consequence.

3. The participation of eligible participants was confirmed via written consent. The demographic data questionnaire, the MSAS-PSYCH, and the TSWBATPBC questionnaires were completed as baseline data.

4. The implementation of the program was arranged. First, the researcher co-operated with the oncology nurse who was the health educator that month, to notify the researcher of new cases of women with breast cancer receiving chemotherapy each day. Second, checking the inclusion criteria for recruiting the participant using the randomized minimization program was performed in order to assist the participant to either the experimental group or the control group. The experimental group was run as per the activities as in Table 7. The participants in the control group were provided with the data collection as the instrument mentioned earlier.

5. The data collection of the MSAS-PSYCH and TSWBATPBC questionnaires was performed at Chemotherapy Cycle 3 (CC-3) and Chemotherapy Cycle 6 (CC-6).

Treatment Intervention

The Buddhist-based, Nurse-delivered Program (BbNdP) was applied to the experimental group, while the control group received only the usual care during chemotherapy treatment. The program was implemented in the experimental group following the usual nursing care and chemotherapy treatment regimen. The effects of the program on independent variables were evaluated in three sessions: (1) Chemotherapy on Day1 (baseline), (2) Chemotherapy Cycle 3 (CC-3), and (3) Chemotherapy Cycle 6 (CC-6). The program covered the Buddhist doctrines of the Four Noble Truths, the Eightfold Path, the Three Common Characteristics, and other related Buddhist doctrines concurrently. The details of BbNdP were shown in Table 7.

Table 7

The Details of Buddhist-based, Nurse-delivered Program

Session of chemotherapy	Main principles	Strategies	Activities	Details	Time (minutes)
Day 1 of Chemotherapy infusion	- Understanding suffering	(1) Raising self-awareness	- Preparing the participants	- Building relationship with the participants and their family	15
				- Orientation of the program	10
			- Health education for chemotherapy and self-care	- Health education for chemotherapy and self-care	20
			- Raising self-awareness	- Raising self-awareness regarding attitude of breast cancer and its treatment, believe, faith, etc.	20
	- Initial learning of the Buddhist doctrine	(2) Integrated Buddhist principle of Four Noble Truths	- Learning Buddhist doctrine and meditation	- Providing the materials of program: CD for Dharma sermons, a Buddhist pocket book.	10
				- Listening the modified Dharma sermons	90
		(3) Self-reflection of PSYCH symptom and progress of Buddhist practices	- Self-reflection of PSYCH symptom and progress of Buddhist practices	- Self-reflection regarding psychological symptoms or other symptoms related treatment and the progress of Buddhist practices	10

Table 7

The Details of Buddhist-Based, Nurse-delivered Program (Continued)

Session of chemotherapy	**Main principles**	**Strategies**	**Activities**	**Details**	**Time (minutes)**
Chemotherapy Cycle 2 - 6		(1) Raising self-awareness	- Raising self-awareness symptom related treatment, etc.	-Raising self-awareness regarding the psychological symptom distress or other symptom related treatment, etc.	20
	- Cultivate mindfulness, concentration and wisdom	(2) Integrated Buddhist principle of Four Noble Truths	- Learning Buddhist principle of Four Noble Truths and practice	- Meditation Practice - **Listening the dharma sermons (Cycle1-2) -**Watching the guided meditation videos at chemotherapy cycle 4	10 90 10
		(3) Self-reflection of PSYCH symptom and progress of Buddhist practices	- Self-reflection of PSYCH symptom and progress of Buddhist practices	- Self-reflection regarding psychological symptoms or other symptoms related treatment and the progress of Buddhist practices	10

Table 8

Conclusion of Buddhist-based, Nurse-delivered Program

Group	**Cycle of Chemotherapy**					
Randomized sampling	**1**	**2**	**3**	**4**	**5**	**6**
Experimental Group (n = 54)	<Usual Care> - 1st Evaluation of MSAS-PSYCH and TSWBATPBC - Raising self-awareness - Listening the modified Dharma sermons - Meditation Practice - Self-reflection	<Usual Care> - Raising self-awareness regarding the psychological symptom distress or other symptom related treatment, etc. - Meditation Practice - Listening to the modified Dharma Sermons - Self-reflection regarding psychological symptoms and the progress of Buddhist practices	<Usual Care> - Raising self-awareness regarding the psychological symptom distress or other symptom related treatment, etc. - Meditation Practice - Self-reflection regarding psychological symptoms and the progress of Buddhist practices - 2nd Evaluation of MSAS-PSYCH and TSWBATPBC	<Usual Care> - Raising self-awareness regarding the psychological symptom distress or other symptom related treatment, etc. - Meditation Practice - Watching the guided meditation videos - Self-reflection regarding psychological symptoms and the progress of Buddhist practices	<Usual Care> - Raising self-awareness regarding the psychological symptom distress or other symptom related treatment, etc. - Meditation Practice - Self-reflection regarding psychological symptoms and the progress of Buddhist practices	<Usual Care> - Raising self-awareness regarding the psychological symptom distress or other symptom related treatment, etc. - Meditation Practice - Self-reflection regarding psychological symptoms and the progress of Buddhist practices - 3rd Evaluation of MSAS-PSYCH and TSWBATPBC
Control Group (n = 54)	<Usual Care> -1st Evaluation of MSAS-PSYCH and TSWBATPBC	<Usual Care>	<Usual Care> - 2nd Evaluation of MSAS-PSYCH and TSWBATPBC	<Usual Care>	<Usual Care>	<Usual Care> - 3rd Evaluation of MSAS-PSYCH and TSWBATPBC

Preparation of the Researcher and Research Assistants

To ensure effective implementation of BbNdP among women with breast cancer who suffered from psychological symptom clusters, the BbNdP integrating the principles of the Buddhist doctrine of the Four Noble Truths and the Three Common Characteristics were clarified. Before conducting the study, the researcher tried to understand clearly not only the concepts of the doctrines, but also practice them, to a level which could enhance well-being in life. In this regard, the researcher attended a 10-day course taught by Goenka in the tradition of Sayayi U Bakhin at Poorano Dharma Center, Nakornsrithammarat Province, Southern, Thailand. The main course involves the study of Buddhist doctrine and vipassana meditation. In addition, the researcher continued to study Buddhist doctrine and meditation practice from specialists in order to ensure and achieve a high enough level of practice that can contribute to well-being in life.

The research assistants were trained to evaluate the outcomes of the study – the researcher explained how to use the questionnaires to collect data following the program mentioned above. The RA graduated with Bachelor's degree in Science and had experience working with in the CIC. However, the research assistants only collected data in the study process and were unaware of the source of the data, to prevent any possible bias.

Protection of Human Subjects

The protection of human rights was addressed by requesting the approval of the Research Ethics Committee of Faculty of Nursing and Faculty of Medicine, Prince of Songkla University. Prior to the study, the informed consent form was formulated, which illustrated the purpose of the study, the name and address of the researcher, the assurance of participants' anonymity and freedom to withdraw from the study at any time and for any reason. The participants provided written consent (Appendix B).

Threats to Internal Validity

Consideration of the threats to validity was very important as the credibility of the study results depended on the elimination or minimization of these threats. A RCT study clearly showed the effects of independent variables on dependent variables, and this should not be confounded by other factors (Polit & Beck, 2012). The potential threats to internal validity were controlled as discussed below.

History

If any threats due to an event which occurs between the baseline to CC-3 and CC-6 period were observed, the resulting outcome was not considered that of the intervention of the research study. In this study, the researcher collected data in only one setting to maintain the same situation related to care provided during the study. The randomization of participant assignment was followed in order to ensure that each one experienced the same historical effect.

Maturation

This threat might be present when an observed effect may be due to the respondent becoming older, stronger, more experienced or experiencing additional symptoms during breast cancer treatment, between pre-test and post-test period. In this study, a long follow-up period (more than 4-6 months) might induce this threat. Therefore, the strategy to control this problem was having a parallel control group so that the effect of maturation was taken into consideration equally for both groups.

Testing

This could happen when an effect might be due to the number of times a particular response was measured. It can indicate familiarity with the test, which enhances the performance of the participant. In this study, there were three times when the outcomes of psychological symptom cluster (MSAS-PSYCH) and spiritual well-being (TSWBATPBC) were measured: at the chemotherapy on Day1 (baseline), Chemotherapy Cycle 3 (CC-3), and Chemotherapy Cycle 6 (CC-6). Therefore, the long period between interval measurements (6 to 9 weeks) could prevent the participant from remembering her previous answers; the same situation was true in both the experimental and the control groups.

Statistical regression

This threat is present when an effect is due to the participant being assigned in the experimental group due to her low or high scores in the pretest and/or post-test (floor effect or ceiling effect). In this study, the random assignment of the participants into each group can help to eliminate this problem.

Selection bias

This threat might be due to the effects of differences between participants on selection into the experimental or the control groups. The process of randomized sampling was used to avoid this threat. In addition, chi-square test, Fisher's exact test, and independent t-test were used to confirm the homogeneity of the background characteristics (Table 9) and the mean scores of MSAS-PSYCH and TSWBATPBC at baseline in both groups (Table 12).

Interaction with selection

This threat interacts with selection to produce a force which could spuriously appear as a treatment effect. There are three kinds of interaction related to selection: 1) selection-maturation, 2) selection-history, and 3) selection-instrument. However, this has little chance of happening in this study as initiative was taken to minimize its incidence by applying randomized sampling into either group.

Mortality

It is a threat observed when the participants drop out of the program during its course. It could be observed in this study as it proceeded over a long time period (more than 4-6 months). Therefore, in this study, a small payment of 300 Baht per case to assist with travel costs was provided to ensure consistent participation throughout the study. Moreover, the time to meet the participants and implement the program was the same as that for scheduled follow-ups and administrated chemotherapy (every 3 weeks/time during 6 sessions of treatment). Finally, the current study revealed 15 participants (13.8%) withdrew in both groups (9 and 6 participants in the experimental and the control group, respectively).

Diffusion of treatment

This threat could occur because of the transfer of information from one group of participants to another group. It can occur in this study, as the participants were in contact with each other at the same place for chemotherapy infusion; this could affect the result of treatment. Thus, the researcher explained clearly a different program to each group.

Data Analysis

Data Management

The process of data management after receiving the raw data was very important. Therefore, detail checking was completed against all of the questionnaires. In the case of missing data, the researcher and the research assistants reviewed all of the questionnaires to find the missing data. If missing data were detected, completion was sought by asking the participants to review and complete it afterwards.

All data were verified for the exact number through double entry against data entry mistake. The scores of the negative items were reversed. All data were carefully re-checked, before further analysis using the Statistical Packages for Social Science program (IBM® SPSS® version 23).

Test of Statistical Assumptions

Firstly, the assumptions of chi-square were checked: frequency data, adequate sample size, measure independent of each other, and theoretical basis for the categorization of the variables (Munro, 2005, p.111). Background characteristics data met. The assumptions of dependent variables: MSAS-PSYCH and TSWBATPBC that

were measured of the experimental and control groups were continuous data. Therefore, the normal distribution was checked by histogram, box plotand skewness. There was evidence of normality. Homogeneity of variance was examined by Levene's test and this assumption was also met. The independent t-test could be used to examine the difference between two groups at baseline.

Secondly, the current study examined the effect of BbNdP to MSAS-PSYCH and TSWBATPBC scores across time during implementation of the program. Thus, the repeated measures ANOVA was applied to determine whether the mean scores of MSAS-PSYCH and TSWBATPBC over time from the same person were similar or different. Then, the assumptions were checked. The normal distribution of the dependent variables across time (MSAS-PSYCH scores and TSWBATPBC scores) was met. The homogeneity-of-variance-of-differences (the sphericity assumption) was detected. The TSWBATPBC scores of the experimental group did not meet this assumption (Mauchly's test revealed, $p = .041$). Therefore, the multivariate result or univariate result with an epsilon (ε) correction should be reported (Munro, 2005). When $\varepsilon > .75$ then the Huynh-Feldt correction was used, and when $\varepsilon < .75$ then the Greenhouse-Geisser correction was used (Field, 2005). The current study showed the $\varepsilon > .75$ (.879-.912), so the Huynh-Feldt correction was used.

Hypotheses testing and statistical analyses

Hypothesis 1: After receiving the BbNdP, the psychological symptom cluster were lower than the baseline scores of the Thai Buddhist women with breast cancer undergoing chemotherapy. The RM ANOVA was used to determine different mean scores overtime (within-subjects test by group alone across time at baseline, Chemotherapy Cycle 3

(CC-3), Chemotherapy Cycle6 (CC-6). A post hoc test was employed by Bonferroni correction.

Hypothesis 2: After receiving the BbNdP, the spiritual well-being were higher than the baseline scores of the Thai Buddhist women with breast cancer undergoing chemotherapy. The RM ANOVA was used to determine different mean scores across time (within-subjects test by group alone across time at baseline, Chemotherapy Cycle 3 (CC-3), and Chemotherapy Cycle 6 (CC-6). A post hoc test was employed by Bonferroni correction.

Hypothesis 3: The psychological symptom cluster of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP were lower than those of women receiving usual care. The RM ANOVA was used to determine different means between the experimental group and the control group across time (between groups test at baseline, Chemotherapy Cycle 3 (CC-3) and Chemotherapy Cycle6 (CC-6).

Hypothesis 4: The spiritual well-being of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP were higher than those of women receiving usual care. The RM ANOVA was used to determine different mean between the experimental group and the control group across time (between groups test at baseline, Chemotherapy Cycle 3 (CC-3) and Chemotherapy Cycle 6 (CC-6).

Conclusion

In this study, a single-blind randomized controlled trial was selected to evaluate the effects of a Buddhist-based, Nurse-delivered Program (BbNdP) on the psychological symptom cluster and spiritual well-being of women with breast cancer (stages I-III) during chemotherapy infusion. The final total of 93 participants were recruited and randomized

into 45 participants in the experimental group and 48 participants in the control group. The experimental group received the usual care and BbNdP that comprised three activities: (1) raising self-awareness, (2) integrated Buddhist principle of Four Noble Truths, and (3) self-reflection regarding psychological symptom cluster and the progress of Buddhist practices. The control group received usual care. The independent t-test and RM ANOVA were used to evaluate the significance of the study's results.

CHAPTER 4

RESULTS AND DISCUSSION

This chapter illustrated the findings of the study and the effects of Buddhist-based, Nurse-delivered Program (BbNdP) on Thai women with breast cancer undergoing chemotherapy on psychological symptom cluster and spiritual well-being. The data is presented in three parts: sample profile, hypothesis testing and discussion as follows:

1. Sample Profile
   1.1 Background characteristics
   1.2 Study variables
2. Hypothesis Testing
3. Discussion

1. Sample Profile

1.1 Background characteristics

One hundred and eight participants were randomly assigned to the experimental group (n1 = 54) and the control group (n2 = 54). The average age of the experimental group was 47.02 years (SD = 8.62) ranging from 31-65 years. The majority was married (75.9 %) and half had attained a bachelor's degree or higher education (50.0%). The participants' occupations were laborer/officer/business owner and government officer (64.8%, and 25.9% respectively). More than half of the participants had

incomes of less than 25,000 baht per month (61.1%). Most did not report financial problems (81.5%). Breast cancer stage was stage I-III, but more than half were stage II, (53.7%), followed by stage III and I, (25.9% and 20.4%, respectively). The majority of the women with breast cancer were in menopause (59.3%).

In the control group, the average age was 50.02 years (SD = 9.69) ranging from 31-74 years. The majority was married (68.5 %) and nearly half had attained a bachelor's degrees or higher education (48.1 %). The participants' occupations were laborer, officer/business owner and government officer (55.6% and 25.9%, respectively). More than a half of participants had incomes of less than 25,000 baht per month (63.0%). The participants in the control group were women with stage I-III breast cancer, more than half had stage II breast cancer (51.9%), while the remainder were at stages I and III, (27.8%, and 20.4%, respectively). More than a half of the women with breast cancer were in menopause (51.9%) and received FAC (55.6%), and AC plus Taxanes (44.4%), respectively. Few participants presented severe drug allergy (14.8%) and more than a half also showed current co-morbidities on the trajectory of breast cancer (53.7%).

Background characteristics between the two groups were examined. Chi-square test and Fisher's exact test were used for the categorical variables, and independent t-testing was used for the ratio variables (age) which confirmed the homogeneity of both groups ($p > .05$) (Table 9).

Table 9

Comparison of the Experimental Group and the Control Group Classified by Background Characteristics

Background Data	Experimental Group *n1* = 54		Control Group *n2* = 54		t/χ^2	*p* - value
	n	%	*n*	%		
Age (M/SD) (range)	47.02(8.62) (31-65)		50.02(9.69) (31-74)		1.70	.09
Marital status						
Single	10	18.5	12	22.2	0.88	.64
Married	41	75.9	37	68.5		
Widowed/Divorced/ Separated	3	5.6	5	9.3		
Educational level						
≤ Grade 6	12	22.2	20	37.0	4.19	.24
Grade 7-9	5	9.3	3	5.6		
Grade 10-12/Diploma	10	18.5	5	9.3		
Bachelor or higher	27	50.0	26	48.1		
Occupation						
Unemployed	5	9.3	10	18.5	2.05	0.36
Laborer/Officer/Business Owner	35	64.8	30	55.6		
Government Officer	14	25.9	14	25.9		
Salary (baht)						
≤ 25,000	33	61.1	34	63.0	.04	.84
>25,000	21	38.9	20	37.0		
Financial problem						
No	44	81.5	46	85.2	.27	0.60
Yes	10	18.5	8	14.8		
Stage of cancer						
Stage I	11	20.4	15	27.8	.99	0.61
Stage II	29	53.7	28	51.9		
Stage III	14	25.9	11	20.4		
Menstrual status						
Menopause	32	59.3	28	51.9	.60	.44
Menstruation	22	40.7	26	48.1		
Chemotherapy Regimen						
FAC	29	53.7	30	55.6	.04	.85
AC plus Taxane	25	46.3	24	44.4		

Table 9

Comparison of the Experimental Group and the Control Group Classified by Background Characteristics (Continued)

Background Data	Experimental Group *n1* = 54		Control Group *n2* = 54		t/χ^2	*p* - value
	n	%	*n*	%		
History of severe drug allergy	46	85.2	46	85.2	.00	1.0
No	8	14.8	8	14.8		
Yes						
Current co-morbidities						
No	32	59.3	25	46.3	1.82	.17
Yes	22	40.7	29	53.7		

1.2 Study variables

This current study focused on the psychological symptom score (MSAS-PSYCH) and spiritual well-being scores (TSWBATPBC). The mean scores of MSAS-PSYCH at Baseline (Day 1 of Chemotherapy), Chemotherapy Cycle 3 and Chemotherapy Cycle 6 in the experimental group were 26.87 (SD = 11.62), 14.92 (SD = 11.00), and 13.53 (SD = 10.48), respectively (Table 10). In the control group the MSAS-PSYCH scores at Baseline, Chemotherapy Cycle 3 and Chemotherapy Cycle 6 had mean scores of 22.76 (SD = 11.34), 14.68 (SD = 10.97), and 16.23 (SD = 12.30), respectively.

The mean TSWBATPBC scores at Baseline, Chemotherapy Cycle 3 and Chemotherapy Cycle 6 in the experimental group were 131.72 (SD = 17.35), 125.96 (SD = 12.30), and 128.89 (SD = 13.10), respectively, while the scores in the control group were 132.26 (SD = 17.93), 125.11 (SD = 12.88), and 122.15 (SD = 15.07), respectively (Table 11).

Table 10

Mean and Standard Deviation of Psychological Symptom Cluster Between the Experimental Group and the Control Group Across Time

Time points	*n1*	Experimental Group		*n2*	Control Group	
		M	*SD*		*M*	*SD*
Baseline	54	26.87	11.62	54	22.76	11.34
CC-3	50	14.92	11.00	53	14.68	10.97
CC-6	45	13.53	10.48	48	16.23	12.30

Table 11

Mean and Standard Deviation of Spiritual Well-Being Between the Experimental Group and the Control Group Across Time

Time points	*n1*	Experimental Group		*n2*	Control Group	
		M	*SD*		*M*	*SD*
Baseline	54	131.72	17.35	54	132.26	17.93
CC-3	50	125.96	12.30	53	125.11	12.88
CC-6	45	128.89	13.10	48	122.15	15.07

In addition, the scores at Baseline of MSAS-PSYCH and TSWBATPBC were checked. The results revealed no significant differences in scores at the baseline point for both MSAS-PSYCH scores, $t(106) = -1.86$, $p = .07$, and TSWBATPBC scores, $t(106) = .16$, $p = .88$, respectively (Table 12).

Table 12

Mean Scores Comparison of Psychological Symptom Cluster and Spiritual Well-Being at Baseline Between the Experimental Group and the Control Group

Baseline	Experimental Group		Control Group		Difference		t	df	*p*-value
	M	*SD*	*M*	*SD*	*M*	Std. Error			
MSAS-PSYCH	26.87	11.62	22.76	11.34	-4.11	2.21	-1.86	106	.07
TSWBA TPBC	131.72	17.35	132.26	17.93	0.54	3.39	0.16	106	.88

2. Hypothesis Testing

2.1 Test of Hypothesis 1

After receiving the BbNdP, the psychological symptom cluster scores were lower than the baseline scores of the Thai Buddhist women with breast cancer undergoing chemotherapy.

After implementing the BbNdP in the experimental group, the mean score and standard deviation of psychological symptom cluster at Baseline, Chemotherapy Cycle 3, and Chemotherapy Cycle 6 were 26.87(SD = 11.62), 14.92(SD = 11.00), and 13.53(SD = 10.48), respectively. The study was designed to measure outcomes more than twice, then repeated measures ANOVA was appropriately applied to correctly determine the mean psychological symptom cluster score that changed across time. The study revealed different significant time effects, ($F(2,88) = 36.52$, $p < .001$) (Table 13). The results indicated a significant effect across time. It could be said that at least time

point was different from the others. Thus, it was necessary to perform *post hoc* tests to determine which of the means were different. The post hoc test used the Bonferroni correction and pairwise comparison showed a significant difference at Baseline to Chemotherapy Cycle 3 ($p < .001$) and Baseline to Chemotherapy Cycle 6 ($p < .001$) (Table 14). As a result, the null hypothesis was rejected, and there was significant difference in lower score of the psychological symptom cluster in women with breast cancer undergoing chemotherapy infusion after implementing the BbNdP at Baseline to Chemotherapy Cycle 3 and Baseline to Chemotherapy Cycle 6 (Figure 5).

Table 13

Repeated Measures ANOVA of Psychological Symptom Cluster in the Experimental Group Across Time

Source of Variation	*SS*	*df*	*MS*	*F*	η^2	*p-value*
Within-Subject Effects						
Time	4752.53	2	2376.26	36.52	.454	.000
Residuals	5726.80	88	65.08			

Table 14

Pairwise Comparison of Psychological Symptom Cluster in the Experimental Group Across Time

Group	Mean Difference				
	(I) Time	(J) Time	(I-J)	Std. Error	*p*-value
Experimental Group	Baseline	CC-3	11.467	1.703	.000
		CC-6	13.467	1.823	.000
	CC-3	CC-6	2.000	1.566	.625

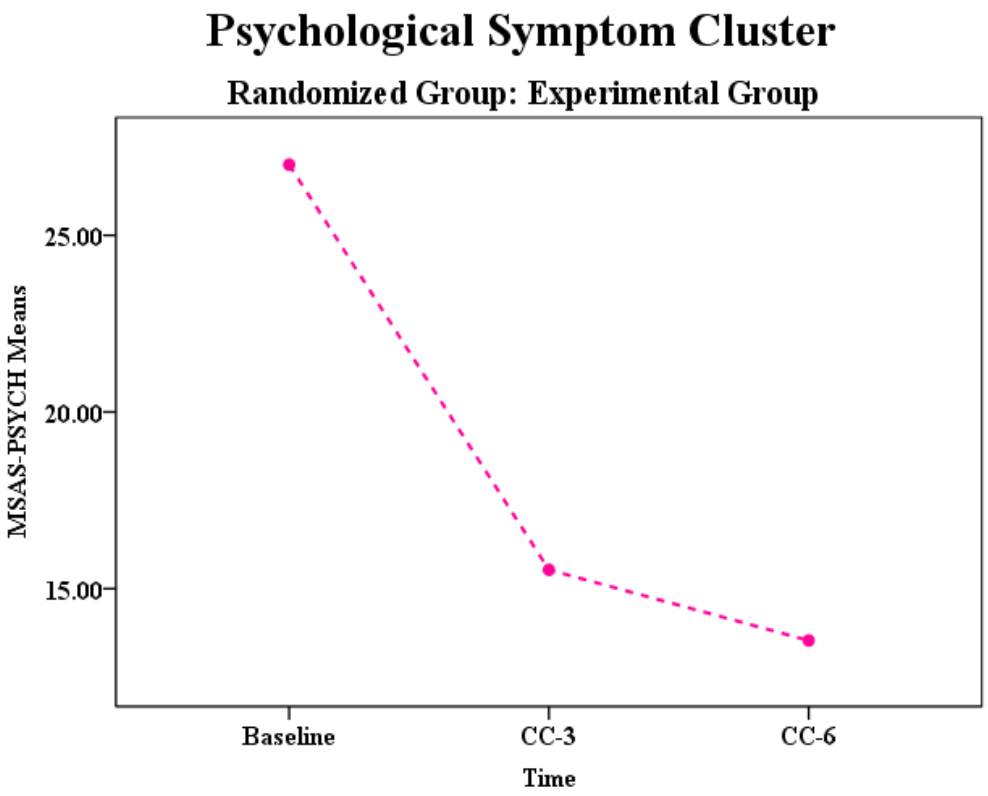

Figure 5. The mean scores of psychological symptom cluster in the experimental group across time.

2.2 Test of Hypothesis 2

After receiving the BbNdP, the spiritual well-being scores were higher than the baseline scores for the Thai Buddhist women with breast cancer undergoing chemotherapy.

The examination of the means showed difference across time for spiritual well-being scores using RM ANOVA. The mean scores and standard deviation of spiritual well-being across time were 125.96(SD = 12.30), 128.89(SD = 13.10), respectively, from baseline 131.72(SD = 17.35) (Table 11, and Figure 6). However, all assumptions were not met employing RM ANOVA. Mauchly's test of sphericity had been violated, χ^2 (2) = 6.382, p = .041), therefore the degrees of freedom were corrected using Huynh-Feldt estimates of sphericity (ε = .912). The result showed that there was a significant difference between the spiritual well-being scores by over time (F(1.83, 80.30) = 3.30, p = .046) (Table 15). Next, *post hoc* was tested to determine which of the mean scores were different. The post hoc test was performed by using the Bonferroni correction. The pairwise comparison showed a significant difference from Baseline to Chemotherapy Cycle3 ($p < .05$) (Table 16). It can be concluded, therefore, that there were significant differences in the TSWBATPBC mean scores across time. However, the spiritual well-being mean scores changed across time only at Baseline to Chemotherapy Cycle3 in the reverse direction. Thus, after implementing the program, the mean scores for spiritual well-being were significantly decreased from Baseline to Chemotherapy Cycle 3. However, the TSWBATPBC mean scores of Chemotherapy Cycle 3 to Chemotherapy Cycle 6 showed a substantial increase (Table 16, Figure 6).

In conclusion, the BbNdP could decrease the psychological symptom cluster in women with breast cancer during chemotherapy infusion in the experimental group.

Moreover, the BbNdP might also have a positive effect on spiritual well-being from Chemotherapy Cycle 3 to Chemotherapy Cycle 6.

Table 15

Repeated Measures ANOVA of Spiritual Well-Being in the Experimental Group Across Time

Source of Variation	*SS*	*df*	*MS*	*F*	η^2	*p*-value
Within-Subject Effects						
Time	917.38	1.83	502.68	3.30	.07	.046
Error	12237.96	80.30	152.40			

Table 16

Pairwise Comparison of Spiritual Well-Being in the Experimental Group Across Time

Group	Mean Difference				
	(I) Time	(J) Time	(I-J)	Std. Error	*p*-value
Experimental Group	Baseline	CC-3	6.36	2.26	.022
		CC- 6	2.64	2.91	1.000
	CC- 3	CC- 6	-3.71	2.22	.307

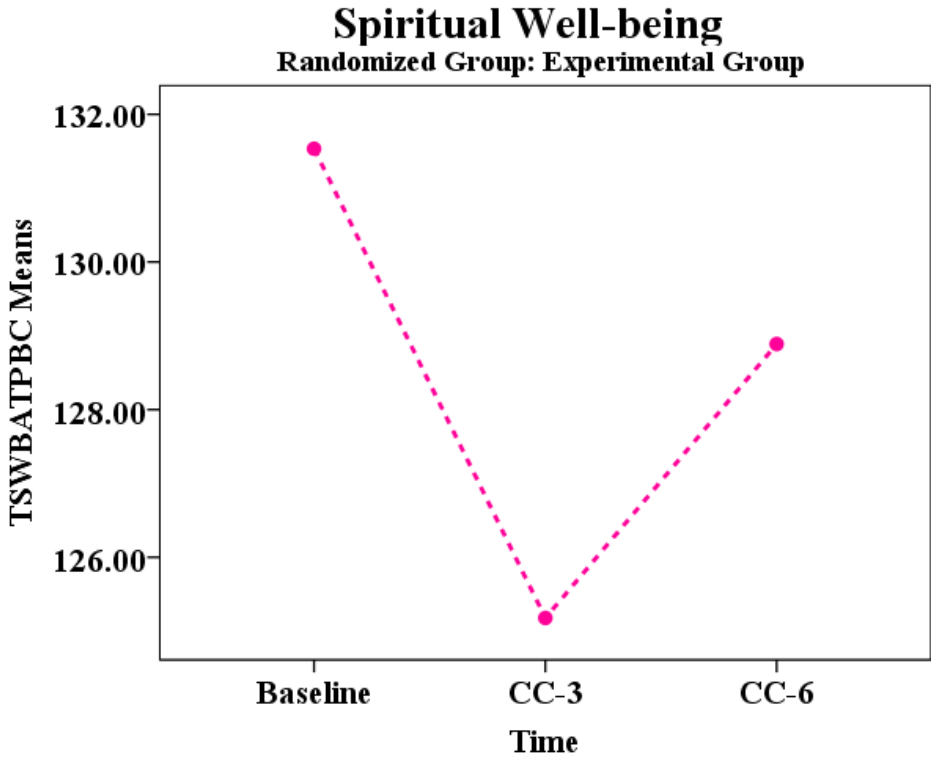

Figure 6. The mean scores of spiritual well-being in the experimental group across time.

2.3 Test of Hypothesis 3

The psychological symptom cluster scores of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP are lower than those of women receiving usual care.

Both groups showed a decrease in mean psychological symptom cluster scores, and the mean psychological symptom cluster scores for the experimental group were consistently lower than those of the control group (Table 10, Figure 7). The mean scores and standard deviation of MSAS-PSYCH in the experimental group at baseline, chemotherapy cycle 3 and chemotherapy cycle 6 were 26.87(SD=11.62), 14.92 (SD=11.00), and 13.53(SD=10.48), respectively, while the mean scores and standard

deviation of MSAS-PSYCH in the control group were 22.76(SD = 11.34), 14.68(SD = 10.97), 16.23(SD=12.30), respectively, (Table 10).

Repeated measures ANOVA was analyzed to determine the difference in mean between-group scores over time for the psychological symptom cluster. In addition, Levene's Test of equality of error variances table provides a test of the assumption of homogeneity of variance for the between-subject factor. Based on the findings, two groups had equivalent variance on both of the measures ($p > .05$). However, the test of between-subject effects table indicates no significant difference between the groups ($F(1, 91) = .258$, $p = .613$, partial $\eta^2 = .003$) (Table 17). Moreover, Repeated measures ANOVA revealed a significant difference in MSAS-PSYCH of the participants in both groups, and interaction effect was found time by group ($F(1.9, 172.51) = 4.73$, $p = .001$) (Table 17).

Thus, the psychological symptom cluster scores of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the program were not lower than those of women receiving usual care. However, the MSAS-PSYCH scores in the experimental group were substantially lower than in the control group from chemotherapy cycle 3 to chemotherapy cycle 6 (Table 10, Figure 7).

Table 17

Repeated Measures ANOVA of Psychological Symptom Cluster Between the Experimental Group and the Control Group Across Time

Source of Variation	*SS*	*df*	*MS*	*F*	η^2	*p*-value
Between-Subject Effects						
Group	65.11	1	65.11	.258	.003	.613
Error	22948.49	91	252.18			
Within-Subject Effects						
Time	5763.59	1.90	3040.26	42.57	.319	.000
Time*Group	640.575	1.90	337.90	4.73	.049	.011
Residuals	12320.536	172.51	71.42			

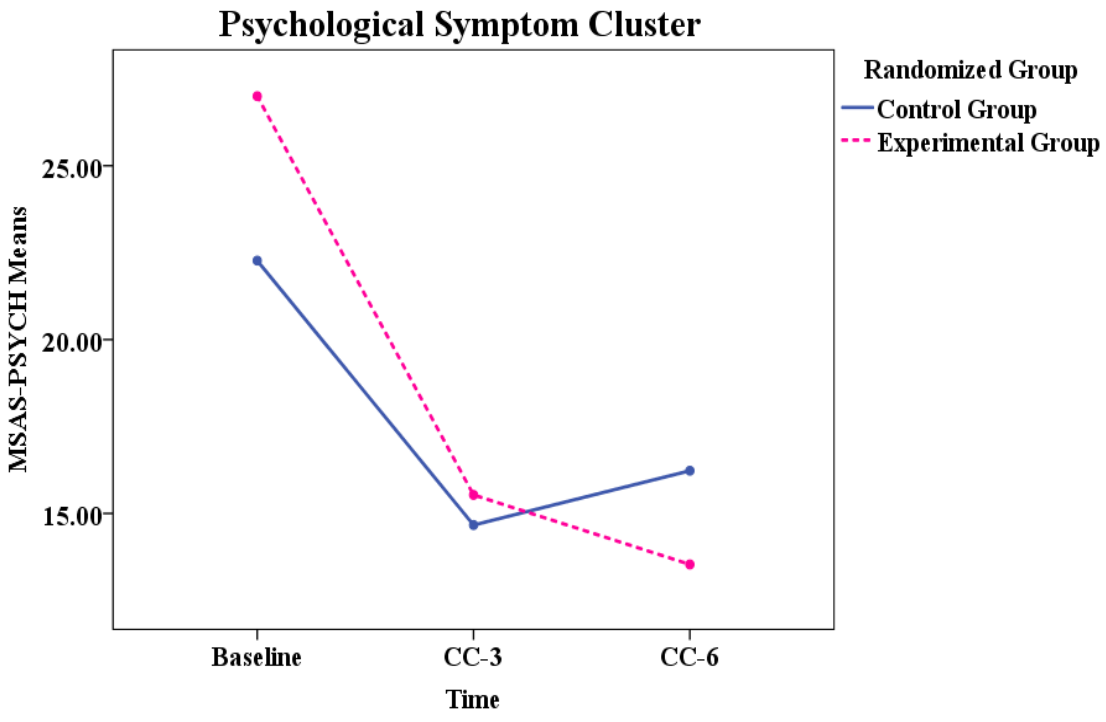

Figure 7. The mean scores of psychological symptom cluster between the experimental group and the control group across time

2.4 Test of Hypothesis 4

The spiritual well-being scores of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP are higher than those of women receiving usual care.

Consequently, in implementing the program, the spiritual scores in the experimental group increased more than in the control group across time (Table 11, and Figure 8). However, both groups showed dramatically decreased TSWBATPBC mean scores at Baseline to Chemotherapy Cycle 3 (Figure 8). The mean scores and standard deviation of TSWBATPBC in the experimental group at Baseline, Chemotherapy Cycle 3 and Chemotherapy Cycle 6 were 131.72(SD=17.35), 125.96 (SD=12.30), and 128.89(SD=13.10), respectively, while the mean scores and standard deviation of TSWBATPBC in the control group were 132.26(SD = 17.93), 125.11(SD = 12.88), 122.15(SD=15.07), respectively, (Table 11).

Repeated measures ANOVA was analyzed to determine the mean score between-group difference over time for spiritual well-being. The experimental group showed an increase in TSWBATPBC scores, and the TSWBATPBC scores of the experimental group were substantially higher than in the control group (Figure 8). Levene's Test of Equality of Error Variances table provided testing for the assumption of homogeneity of variance for the between-subject factor. Based on findings, the two groups had equivalent variance on both of the measures ($p > .05$). However, the test of between-subject effects table indicated no significant differences between the groups ($F(1, 91) = .561$ $p = .456$, partial $\eta^2 = .006$) (Table 18). Moreover, Repeated measures ANOVA revealed a significant difference in TSWBATPBC of the participants in both

groups, and had interaction effect was found (time by group) ($F(2, 182) = 3.48$, $p < .05$) (Table 18).

Therefore, the spiritual well-being scores of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP were not higher than those of women receiving the usual care. However, the TSWBATPBC mean scores of Chemotherapy Cycle 3 to Chemotherapy Cycle 6 substantially increased more than the control group.

In conclusion, comparison between the groups with psychological symptom cluster scores had no statistically significant lower scores than the control group ($p > .05$). However, the scores for the psychological symptom cluster were consistently lower than in the control group. Similarly, spiritual well-being scores were not significantly higher than in the control group. However, spiritual well-being scores were higher than in the control group from Chemotherapy Cycle 3 to Chemotherapy Cycle 6.

Table 18

Repeated Measures ANOVA for Spiritual Well-Being Between the Experimental Group and the Control Group Across Time

Source of Variation	*SS*	*df*	*MS*	*F*	η^2	*p*-value
Between-Subject Effects						
Group	240.98	1	240.98	.56	.006	.456
Error	39113.26	91	429.82			
Within-Subject Effects						
Time	2822.47	2	1411.23	11.64	.113	.000
Time*Group	844.92	2	422.46	3.48	.037	.036
Residuals	22061.52	182	121.22			

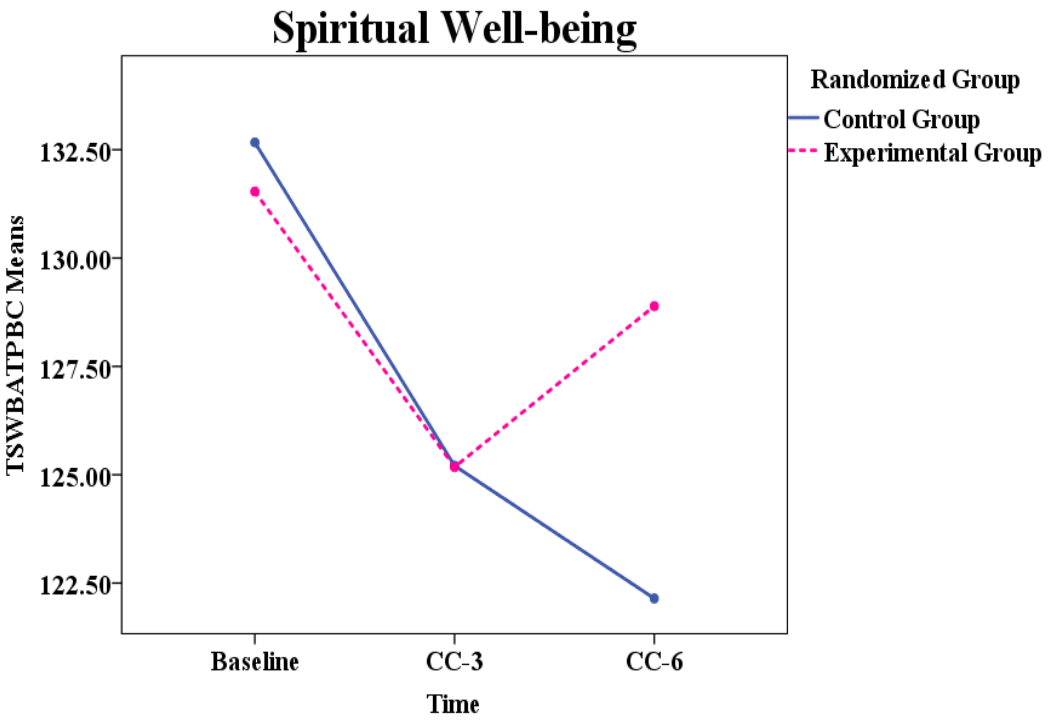

Figure 8. The mean scores of spiritual well-being between the experimental group and the control group across time

3. Discussion

The current findings were discussed and compared to other related studies. The effects of the BbNdP on the psychological symptom cluster and spiritual well-being were illustrated below.

3.1 Psychological Symptom Cluster

Based on the findings, the current study revealed that the psychological symptom cluster scores of Thai Buddhist women with breast cancer undergoing chemotherapy to be lower after receiving the BbNdP across time in the experimental group (Table 13). In addition, the mean score of the psychological symptom cluster of

the Thai Buddhist women with breast cancer undergoing chemotherapy receiving the BbNdP were no better than those of women receiving the usual care across time ($p >$ .05) (Table 17, and Figure 7). However, the mean difference scores for the psychological symptom cluster were compared and found to be lower than the control group (Table 10).

The findings revealed the BbNdP to possibly be capable of enhancing the lower scores of the psychological symptom cluster during chemotherapy infusion after implementing the program. The main reasons for the findings of this study might stem from the structure and details of the program being mainly composed of Buddhist doctrine which could simply alleviate to the psychological symptom cluster of Thai Buddhist women with breast cancer undergoing chemotherapy. The BbNdP was developed based on a review of literature that found religious teaching focusing on the Four Noble Truths as effective psycho-spiritual care to be a main path for alleviating the psychological symptom cluster and also enhancing spiritual well-being in women with breast cancer undergoing chemotherapy.

Consequently, the BbNdP was developed based on the core concepts of the Four Noble Truths under the following strategies and processes: (1) raising self-awareness; (2) integrated Buddhist principles of the Four Noble Truths and (3) self-reflection regarding psychological symptom cluster and progress of Buddhist practices. The details of key domains in each strategy are clarified below:

(1) Raising self-awareness: The first process of the program was developed based on the concept of self-awareness in which opportunities were given to patients to clarify the psychological symptom clusters from initial chemotherapy through completion of the treatment. Professional nurses have a role in encouraging and

cultivating an atmosphere for the target group to offer support and express feelings in a non-threatening situation. The main reason for the participants to understand themselves was that women with breast cancer who consent to undergoing chemotherapy usually suffer from imagining future side effects and prognosis. Hence, the healing environment was supported with relaxed atmosphere in a non-hurried manner. Next, time was required for the participants to understand themselves and provide information in a quiet place to ask questions about the side effects of chemotherapy and the process of undergoing chemotherapy. Consequently, participants were able to understand that potential problems that sometimes threaten their life activities and may affect the psychological symptom cluster. Finally, they realized that there were good ways to manage and control all problems.

(2) Integrated Buddhist principles of the Four Noble Truths: The objective of this section was to apply Buddhist practice which could reduce psychological symptom clusters and promote spiritual well-being during chemotherapy treatment. This program applied the Four Noble Truths in concurrence with the beliefs and faith of Buddhist women with breast cancer to enhance their harmonious living with cancer while receiving chemotherapy. The program applied the Dharma or Buddhist doctrine regarding nature, clarified understanding about the reality of life and ways for seeing the nature of suffering and overcame symptom distress during the cancer experience with explanations about the causes of suffering in the cancer treatment of women with breast cancer and ways for overcoming their suffering.

Thus, the Four Noble Truths were essential Buddhist pillars enhancing understanding about the way to cease suffering caused by related factors inducing the severity of the psychological symptom cluster in women with breast cancer during

chemotherapy. The cessation of suffering was accomplished through the Noble Eightfold Path (Viradhammo, 1996), which could be applied to a person's way of thinking, living and practice with the goal of achieving a peaceful mind, relaxation, serenity, harmony, equanimity and wisdom during chemotherapy for breast cancer. Therefore, this intervention was focused on nursing practice guided by Buddhist doctrines such as understanding the Four Noble Truths, the Eightfold Path, and the Three Common Characteristics, all of which were considered helpful in obtaining insight or wisdom related to living with breast cancer.

In terms of following the middle path, the regular practice of meditation with emphasis on the moment and calming the mind allows the individual to become compassionate and open to new possibilities, transformation and healing (Otto, 2004). In addition, the benefits of meditation were noticeably positive outcomes for reducing stress, anxiety and even depression by using the mechanisms of bidirectional communication between the neuroendocrine and immune systems or psychoneuroimmunology (PNI). Thus, the mechanisms of the parasympathetic nervous system were enhanced, which leads to a decrease in the function of the sympathetic nervous system that could decrease psychological problems (Zeller, McCain & Swanson, 1996). Therefore, this program was beneficial in alleviating the patients' suffering caused by psychological symptom clusters, which can be extended to spiritual well-being. However, continuing meditation practice was essential to accomplishing serenity of mind. In summary, the Buddhist practices involved in adhering to the Four Noble Truths were the main activities implemented in women with breast cancer undergoing chemotherapy. The main activities were described below.

(1) Listening to modified Dharma sermons: The participants suggested listening to modified Dharma sermons regarding suffering and ways for eliminating suffering. All of the contents were composed of the following six issues: (1) suffering and the cause of suffering; (2) Noble Eightfold Path; (3) Vipassana meditation practices; (4) Three Common Characteristics; (5) equanimity and (6) applying Buddhist principles. CD and/MP3 recordings were provided for participants who agreed to learn the Buddhist principles to understand and integrate the aforementioned into the way of living during the cancer patients' chemotherapy treatment. The details of the six issues were as follows:

(a) Suffering and the cause of suffering: The modified Dharma scripts aim to describe the cause of suffering in the area of the psychological symptom cluster experienced by women with breast cancer undergoing chemotherapy.

(b) Noble Eightfold Path: This is the second section of the modified Dharma sermons on the way to manage suffering from the psychological symptom cluster through Buddhist principles. The Noble Eightfold Path is the middle path of human life. The aim of this section is to help the participants learn ways to manage the psychological symptom cluster during treatment and consists of the following eight aspects [magga]: right view, right thought, right speech, right action, right livelihood, right effort, right mindfulness and right concentration. These can be further categorized into three sub-groups for training purposes collectively called the Trisikha. The first sub-group is the Sila Sikha (morality) and involves training in higher-level morality (right speech, right action and right livelihood). The second is the Samadhi Sikha (meditation): training in higher-level consciousness (right effort, right

mindfulness and right concentration). The third is Panna Sikha (wisdom): training in higher-level wisdom (right view and right thought).

In this way, women with breast cancer could follow the precepts of Buddhist morality and training to achieve higher-level morality (right speech, right action, and right livelihood). In addition, patients could try to practice meditation (Vipassana or insight meditation) to gain mindfulness or recollection to develop wisdom. Wisdom (*panna*) refers to the ability to realize the three universal characteristics of physicality and mentality, i.e., impermanence (*anicca*), suffering or dissatisfaction (*dukkha*) and non-ego or non-self (*anatta*). Consequently, if the patients can understand these truths, they can examine their mental defilements, particularly greed (*lobha*), anger (dosa) and delusion (*moha*). Thus, meditation enhances mindfulness (*sati*) and clear comprehension (*sampajanna*) or wisdom (*panna*), which could prevent and alleviate the defilements of the mind (Disayavanish & Disayavanish, 2005). In other words, critical thinking, practicing and understanding the Four Noble Truths and following the Noble Eightfold Path could enhance psycho-spiritual well-being and help maintain harmony in one's life.

This doctrine helped human beings understand all things related to natural law. Therefore, humans who had problems or suffering in their lives might be able to eliminate the aforementioned. The overriding principle was that wisdom leads to no suffering and consequential happiness. If women with breast cancer undergoing chemotherapy could adopt and follow the Four Noble Truths by applying the principles of the middle path, harmony of life may occur in their lives.

(c) Vipassana Meditation Practices: The contents demonstrate the way of Vipassana meditation practices by following the step-by-step process of Goenka

meditation practice. Therefore, women with breast cancer could try to practice the meditation while listening. Moreover, the scripts described potential problems during training and solutions for those problems.

(d) Three Common Characteristics: The participants could gain knowledge about the following three characteristics: (1) *Anicca*, which means nothing was permanent but subject to change at any time; (2) *Dukkha, which* means everything was suffering or unsatisfactory; and (3) *Anatta*, which means that not everything perceived by the senses is either "I" or "mine". Therefore, the aforementioned could not be controlled. The main points helped the patient understand the existing situation as understanding suffering. Consequently, the patient could understand in terms of real life while undergoing chemotherapy for breast cancer.

(e) Equanimity: This section described how the participants could lift their minds to escape suffering from the psychological symptom cluster. The topic of equanimity was revealed and described in terms of understanding the nature of suffering.

(f) Applying Buddhist Pillars: The participants were able to gain methods for applying Buddhist principles integrated into their lives such as ways of thinking about illness or prognosis and ways to maintain a peaceful mind during treatment.

(3) Self-reflection regarding psychological symptom cluster and progress of Buddhist practices: In addition, when the participants learned and practiced the Buddhist doctrine and practice, reflective stories were provided regarding the psychological symptom cluster during treatment and what they learned and understood

or areas in which they encountered some problems related to these activities in subsequent chemotherapy treatments.

Consequently, the BbNdP could support Thai Buddhist women with breast cancer undergoing chemotherapy to alleviate the psychological symptom cluster (worrying, feeling nervous, and feeling sad) and enhance spiritual well-being. However, this was a preliminary study that applied the Buddhist teaching of the Four Noble Truths in Thai women with breast cancer during chemotherapy. Thus, the effective outcomes for both the psychological symptom cluster and spiritual well-being were obvious. The main reasons were confounding factors related to the Buddhist practice in the control group. More details were clarified below.

Firstly, in Thailand 95% of people are Buddhism, there are many temples and mediation centers in every provinces, so people can learn and carry out religious practices such a meditation with their family and friends. In term of intensity of religious practices such as listen to modified Dharma sermons (6 chapters). The study found that most of the participants (60%) were able to complete one round of this activity in the first chemotherapy cycle. The remainder (40%) re-listened for approximately 5-10 times in the initial cycle of chemotherapy (Cycle 2-3). Consequently, the period of time might not have been sufficient to capture the essential Buddhist details. The other reasons were that they felt unwell due to chemotherapy side effects, especially, fatigue, nausea, vomiting, and difficulty in sleeping. Therefore, they could not concentrate on the contents of teaching of the Four Noble Truths. However, all of the participants revealed the modified Buddhist sermons were able to help them feel calm in their mind resulting in a feeling of serenity during chemotherapy infusion.

Similarly, the power of vipassana meditation was practiced for 5 to 10 minutes while receiving chemotherapy and the participants did not consistently practice this at home. In addition, the participants in the experimental group developed or suddenly had symptoms of side effects from chemotherapy such as nausea, vomiting, chest discomfort, and rashes. Therefore, they did not feel ready to practice meditation. Furthermore, having more past experience or skill in meditation made it more beneficial than for novice.

According to the literature review, the effectiveness of meditation was visible within approximately 450 minutes per month when serenity of mind was achieved (Siritaro, 2016). Noticeably, the participants were only about to practice samatha or tranquility development due to situational limitations such as some participants said that they did not have good skills to practice vipassana, the Goenka way, or they were busy at work. Thus, the effectiveness of short duration and inconsistency the meditation practice was low. Moreover, some participants did not prefer to practice alone or select simple meditation to practice. Therefore, in order to gain more meditation skill or easily practice, early meditation practice for around one to two months is recommended before starting chemotherapy infusion or after the diagnosis is known.

Secondly, the severity of the effects of chemotherapy during the trajectory of chemotherapy treatment to physical and psychological symptoms were observed. Accordingly, the participants revealed uncertainty about symptoms during subsequent chemotherapy such as fatigue, constipation, infection, worrying, difficulty sleeping, and feeling irritability. Similarly, Ratcliff, et al. (2014) found sleeping problems in women with breast cancer under chemotherapy infusion to be related to increased fatigue and also consequential psychological distress. Moreover, chemotherapy was

revealed to have the greatest treatment effects on sleep problems compared to radiotherapy and hormone therapy ($F(2,760) = 9.77$; $p < .001$) (Savard, Ivers, Savard, & Morin, 2015).

In addition, the study of Liao et al. (2015) found women with breast cancer to exhibit mild overall symptom distress during treatment that increased from cancer diagnosis to the treatment phase with a peak at 4 months after diagnosis and in which insomnia was the most commonly identified distressful symptom over time. As previously mentioned, moderate and highly severe psychological symptom cluster might be not decreased. Therefore, these outstanding problems required close observation in breast cancer patients undergoing chemotherapy.

The women with breast cancer were about to exhibit high scores for the psychological symptom cluster during chemotherapy infusion (Lim, Devi, & Ang, 2011; Souza, et al., 2014). Accordingly, a qualitative study was conducted to investigate tasks and management of the side effects of chemotherapy in 17 Taiwanese women. The researcher found patients to be dealing with multiple challenges and managing both emotional and interpersonal disturbances. Problems such as emotional distress, anxiety, anger, depression and despair were difficult to manage. Moreover, there were some physical symptoms the patients confronted such as oral mucosa problems, nausea and vomiting, swallowing problems, constipation, hot flushes, and alopecia. (Kuo, Liang, Tsay, Wang, & Cheng, 2015).

Thus, this prominent physical symptom could influence psychological symptoms and could also be extended or related to spiritual well-being in women with breast cancer on chemotherapy trajectories. The literature (Kuo et al., 2015) supported that many extreme problems were faced by women with breast cancer during the

chemotherapy trajectory. Consequently, the high scores of psychological symptom cluster and low scores of spiritual well-being were exit. Observed concurrent physical symptoms were recommended for further study.

In summary, the findings of the current study did not show significant differences of psychological symptom cluster across time between groups. Subsequent activities were also focused on the effects of the BbNdP for spiritual well-being through extended discussions on specific points as described below.

3.2 Spiritual Well-being

Based on the findings, the scores for spiritual well-being were not higher among the Thai Buddhist women with breast cancer undergoing chemotherapy after receiving the BbNdP. Moreover, the findings also revealed spiritual well-being to have no statistically significant differences between the experimental and the control groups across time ($p > .05$). However, the mean difference score in the experimental group was higher than the control group (Table 11, Figure 8). Remarkably, the line graph in Figure 8 shows substantially increased spiritual well-being scores from Chemotherapy Cycle 3 to Chemotherapy Cycle 6.

The finding might be explained in that the findings of the current study for the scores of the TSWBATPBC dramatically decreased from Baseline to Chemotherapy Cycle 3 in both groups. As previously mentioned, the severity of the side effects of chemotherapy had a negative impact on equilibrium of mind and spirit to maintain life. Similarly, the study of Caldeira, Carvalho and Vieira (2014) found spiritual distress to be encountered in nearly 50% of the sample group (42%) during chemotherapy treatment and in relation to anti-depressant medications (24.4%). In contrast, the scores

of the TSWBATPBC were quite high compared to the TSWBATPBC scores during Chemotherapy Cycle 3 and Chemotherapy Cycle 6. The current finding might be explained in that the women were able to cope and accept the threatening diagnosis and treatment.

Moreover, the findings showed most of the patients to believe that karma (29.6%) was one cause of cancer (Appendix E, Table 19). Therefore, based on the Thai Buddhist context, the women applied Buddhist doctrine to perform good deeds as a means of survival from the threat of cancer and to support their minds. Similarly, the qualitative study of Liamputtong and Suwankhong (2016) in women with breast cancer in Southern Thailand found that women could accept the disease as in their own karma or fate and believed that their survival was the result of good deeds. Moreover, they received psychosocial support from their family members and other relatives during cancer treatment. Consequently, the participants' spirits could be lifted during this cancer treatment. Similarly, the findings of Kuo et al. (2015) found family support continued to play a role by key persons taking care of them during chemotherapy infusion (Kuo et al., 2015).

A possible reason for this result is that the core program was composed of three main activities, as previously mentioned, that were able to enhance spiritual well-being in comparison to the usual care group. The findings were similar to previous studies. For example, Würtzen et al. (2015) studied the MBSR program for supporting spiritual well-being in Dutch women with breast cancer undergoing chemotherapy, but found no significant differences in spiritual well-being. It is possible that the physical, psychological and spiritual aspects were also side effects. Similarly, Nidich et al. (2009) found that transcendental meditation practice at home could not enhance spiritual well-

being in breast cancer survivors. A study by Peteet and Balboni (2013) found meditation to support clinical self-care and persistent psychological aspects.

The evidenced-based practices with regard to spiritual interventions have rarely shown the significance of spiritual well-being in women with breast cancer undergoing treatment. In addition, the significant positive outcomes of spiritual well-being basically revealed a small to moderate effect size (0.3-0.5) (Sherman, et al., 2015). A repetitive study mentioned a concern about giving greater consideration to sample size.

In summary, the BbNdP involves challenging nursing roles for managing the psychological symptom cluster and supporting spiritual well-being while helping women with breast cancer who were suffering during chemotherapy. Therefore, this program could be compatible with Thai Buddhist women with breast cancer because these women normally believed and had faith in Buddhist doctrine.

Statistical Significance Versus Clinical Significance

The findings of this current study could support that Buddhist-based, nurse-delivered program was implemented during chemotherapy trajectory in women with breast cancer significantly alleviating psychological symptom cluster and enhancing spiritual well-being across time during implemented treatment. Improving some activities in this program is necessary for future study.

Conclusion

The Buddhist-based, nursed-delivered program (BbNdP) could be deemed a powerful nursing practice to alleviate psychological symptom cluster in women with breast cancer during conventional chemotherapy treatment within the Thai context.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter provides conclusions and recommendations based on the findings of the current study. The chapter covers sample profiles summaries, study outcomes, strengths and limitations, implications and recommendations for further study. The topics are addressed in more detail below.

Sample Profile Summaries

This investigation involved a clinical trial of a Buddhist-based, Nurse-delivered Program (BbNdP) by single-blinded randomized controlled trial in Thai women with breast cancer undergoing chemotherapy at a university hospital in Southern Thailand from June 2014 to January 2016. The allocation of the samples was concealed in the random assignment by minimizing a randomization program to randomly assign participants to the experimental or the control groups by controlling the following four variables in the computer program: age, stage of cancer, chemotherapy regimen and history of allergic reaction to drugs. The above mentioned process yielded one-hundred and fourteen eligible participants. However, only one-hundred and eight participants who had been recruited to the study met the inclusion criteria with MSAS-PSYCH scores of more than 2, age more than 18 years, stage I-III breast cancer; chemotherapy treatment, no history of psychiatric or neurological disorders, and ability to read and speak Thai (two participants declined to participate, and four had MSAS-PSYCH scores lower than 2). Finally, a total of ninety three

participants (experimental group, n1 = 45 and control group, n2 = 48), agreed to enroll and continued to implement the program completely. Total dropout was 15 participants in both groups (two were admitted to a different setting, five changed setting, five gave up treatment, and three changed treatment).

Two dependent variables, psychological symptom cluster and spiritual well-being, were investigated. The following three instruments were used to collect data in this study: (1) a demographic questionnaire, (2) MSAS-PSYCH developed by Portenoy, et al. (1994) to assess the psychological symptom cluster from the memorable aspect and (3) Thai Spiritual-Well-being Assessment for Patients with Breast Cancer (TSWBATPBC) developed by Usanit et al. (2012). In the current study, Cronbach's alpha coefficients were acceptable at 0.95 and 0.91, respectively.

The BbNdP was developed based on Buddhist principles, namely, the Four Noble Truths (Arrya sacca). The main activities were raising self-awareness, integrated Buddhist principles of Four Noble Truths, and self-reflection regarding psychological symptom cluster and the progress of Buddhist practices. The activities were implemented in breast cancer women who were either new or recurrent cases undergoing chemotherapy. The program was additionally provided to participants receiving the usual nursing care at the Chemotherapy Infusion Center on Day 1 of chemotherapy until Chemotherapy Cycle 6 (at 3-week intervals). The outcomes were assessed three times: during chemotherapy on Day 1 (Baseline), Chemotherapy Cycle 3 (CC-3), and Chemotherapy Cycle 6 (CC-6), while the control group received usual care only.

Descriptive statistics, chi-square tests, paired t-test, independent t-tests and repeated-measures ANOVA were used for analysis with SPSS, Version 23 (IBM®, USA).

To summarize the background characteristics of the sample group, one-hundred and eight female participants with stage I-III breast cancer and undergoing chemotherapy were selected. The mean age of the subjects was 47.02 years (SD = 8.62) in the experimental group and 50.02 (SD = 9.69) in the control group. The majority were married in both the experimental groups (75.9 %) and the control group (68.5 %). The majority of both the experimental and the control groups also had educational attainments of bachelor's degree or higher (50.0%, and 48.1% respectively). Most of the women with breast cancer in both the experimental and control groups were in menopause (59.3%, and 51.9%, respectively). More than half had received FAC (53.7%) and AC plus Taxane (46.3%) in the experimental group, while 55.6% received FAC and AC plus Taxane (44.4%) in the control group. Notably, some of the subjects presented equally with severe drug allergies in both the experimental and control groups (14.8%). Notwithstanding, there were no statistically significant differences between the experimental group and the control group concerning age, marital status, educational attainment, occupation, income, stage of cancer, menstrual status, chemotherapy regimen, history of severe drug allergy and current co-morbidities.

The findings on the research hypotheses were summarized below.

Hypothesis 1: After receiving the BbNdP, the psychological symptom cluster scores are lower than the baseline scores of the Thai Buddhist women with breast cancer undergoing chemotherapy**:** Using repeated measure ANOVA to determine the within-subject difference across time the result found that the MSAS-PSYCH mean scores over time (CC-3 and CC-6) in the experimental group (M = 14.92, SD = 11.00, and M = 13.53, SD = 10.48), respectively had decreased from

baseline (M = 26.87, SD = 11.62). RM ANOVA at with correction determined that the MSAS-PSYCH mean scores were shown to have different statistically significantly time effects, F(2, 88) = 36.52, $p < .001$. Moreover, the pairwise comparison showed that they were significant differences at Baseline to Chemotherapy Cycle 3 (CC-3) ($p < .001$) and Baseline to Chemotherapy Cycle 6 (CC-6) ($p < .001$). This meant the BbNdP really does have an effect on lower scores overtime of psychological symptom distress during chemotherapy.

Hypothesis 2: After receiving the BbNdP, the spiritual well-being scores are higher than the baseline scores for the Thai Buddhist women with breast cancer undergoing chemotherapy .The mean scores of spiritual well-being in the experimental group were, (M = 125.96, SD = 12.30 at CC-3, and M = 128.89, SD = 13.10 at CC-6), respectively, from baseline (M = 131.72, SD = 17.35). RM ANOVA at with correction determined that the mean psychological symptom cluster scores were shown to have different statistically significantly time effects, F(1.83, 80.30) = 3.30, $p = .046$. Moreover, the pairwise comparison showed that they were significant differences at Baseline to Chemotherapy Cycle 3 (CC-3) ($p < .05$). Remarkably, the mean scores of TSWBATPBC dramatically decreased at Baseline to Chemotherapy Cycle 3 (CC-3). However, the TSWBATPBC mean scores of Chemotherapy Cycle 3 (CC-3) to Chemotherapy Cycle 6 (CC-6) substantially increased. These results suggested that BbNdP could be have an effect on spiritual well-being during chemotherapy.

Hypothesis 3: The psychological symptom cluster scores of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP are lower than those of women receiving usual care: The mean scores of MSAS-PSYCH across time in the experimental group were (M = 14.92, SD = 11.00,

and M = 13.53, SD = 10.48), respectively, from baseline (M = 26.87, SD = 11.62). While, the MSAS-PSYCH mean scores in the control group at the same time points were (M = 14.68, SD = 10.97 at CC-3, and M = 16.23, SD = 12.30 at CC-6), respectively, from baseline (M = 22.76, SD = 11.34). When RM ANOVA was checked, the test of between-subject effects table indicated no significant difference between the groups (F(1, 91) = .258, p = .613, partial η^2 = .003). However, the MSAS-PSYCH scores in the experimental group showed substantially decreased scores, more than in the control group, at Chemotherapy Cycle 3 to Chemotherapy Cycle 6.

Hypothesis 4: The spiritual well-being scores of the Thai Buddhist women with breast cancer undergoing chemotherapy and receiving the BbNdP are higher than those of women receiving usual care: The mean scores of TSWBATPBC in the experimental group at Chemotherapy Cycle 3, and Chemotherapy Cycle 6 were (M = 125.96, SD = 12.30, and M = 128.89, SD = 13.10), respectively, from baseline (M = 131.72, SD = 17.35). The TSWBATPBC mean scores in the control group at the same time points were (M = 125.11, SD = 12.88, and M = 122.15, SD = 15.07), respectively, from baseline (M = 132.26, SD = 17.93). RM ANOVA was checked, the test of between-subject effects table indicated no significant difference between the groups (F(1, 91) = .561 p = .456, partial η^2 = .006). However, the TSWBATPBC mean scores from Chemotherapy Cycle 3 to Chemotherapy Cycle 6 showed a substantial increased more than in the control group.

Strengths and Limitations

A number of strengths were revealed in the current study. Firstly, the results presented an outstanding preliminary evidence-based, clinical nursing trial capable of yielding possibly one of the highest grades of evidence in nursing research to support complementary modalities for managing psychological symptom cluster and enhancing spiritual well-being in women with breast cancer undergoing chemotherapy. The new knowledge also supported holistic health outcomes which are powerful in improving a good balance of life during the cancer treatment. Moreover, it clearly revealed the process of how professional oncology nurses and health care teams could implement complementary modalities in oncology patients undergoing treatment.

Secondly, the program was developed based on Buddhist principles concurrent with beliefs, faith and practices of the Buddhist religion which the Thai breast cancer women were also familiar with making it easier to accept and learn and adopt in their lives. It is evident, therefore, that advanced knowledge in nursing care can successfully apply eastern wisdom to alleviate suffering in oncology patients.

Thirdly, when the patients were confronted with a threatening situation such as cancer, they tried to find way to cope and survive. For example, some participants tried to find a way to balance mind and body while undergoing treatment. Hence, Buddhist principles such as the Four Noble Truths, of which they might have previous knowledge or experience, gave the patients a good opportunity to study and practice. Therefore, the present study was able to provide and meet their needs as a coping method. Moreover, the program was a highly beneficial option for the group,

particularly for some participants who were dissatisfied with the results of chemotherapy and its' physical effects that extended to psycho-spiritual aspects.

Fourthly, the program was distinguished by activities that could be conducted by professional oncology nurses in an independent role. Therefore, the nurses could be considered healers in terms of balancing mind-body aspects during a difficult situation due to the severe side effects of cancer killing drugs. Moreover, the program was provided to professional nurses to establish good relationships; hence, the nurses could assess patients easily and understand that suffering might be concealed.

In addition, the program was composed of multiple media such as Buddhist (Dharma) sermons via MP3 and helpful CDs on meditation practice that the patients were easily able to follow. In addition, encouraging family participation helped the patients cooperate during the program and further practice was implemented as the patients waited for next cycle of treatment.

On the other hand, the findings also revealed some limitations with the process of the program. First, the program offered might not have been the strongest program available and was not the ideal program for promoting a calm situation in the setting for meditation or listening to Buddhist sermons. Regardless, the program did facilitate a calm mind and environment, which were also important for this program.

Secondly, the absence of simultaneous evaluation of the physical symptoms in the primary outcomes might have been a reason why the outcomes presented were rather vague. It can be said that many participants regularly presented or complained about concurrent physical symptoms due to the side effects of chemotherapy such as

nausea vomiting, common cold, sore throat, and constipation. However, the current findings indicate an opportunity to emphasize that professional oncology nurses should be active in assessing and providing a comfortable physical state before implementing optional complementary modalities. In addition, the ability to generalize the study might be limited due to the study's exclusive focus on Thai breast cancer patients who were Thai Buddhists. However, the participants presented different experiences or had deep understanding of Buddhist doctrine which they had adopted in their lives.

Thirdly, if the psychological symptom cluster had been observed during the administration of cancer killing drugs, the women with breast cancer would likely have been found to present difficulty sleeping in high numbers with high frequency and severity. Regardless, the present study did not strictly record the details of insomnia or sedatives taken. Therefore, the factor might be an important confounding factor to consider in the primary outcomes.

Lastly, some participants made suggestions regarding the contents of the Buddhist (Dharma) sermons. Consequently, some of the sermons could be made quite a bit longer (6 parts, total 1 hr. 30 minutes). Regardless, the sermons provided a good rhythm for relaxation.

Implications

The findings of the present study were the outcomes relevant to nursing implications. As a consequence, the study could be extended to essential knowledge covering nursing practice, nursing education, health policy and nursing research. These subjects are discussed in greater details below.

Nursing Practice

The results of the current study also revealed valuable nursing knowledge on the explicit implications of the BbNdP in nursing practice. The current study presented the highest advanced evidence-based nursing practice study in supporting optional nursing care during chemotherapy treatment in women with breast cancer. According to the findings of the present study, the breast cancer patients wanted to learn about Buddhist doctrine and Buddhist practices such as meditation in line with their beliefs, faith or as a consequence of details they had heard from someone else, such as a cancer survivors' experience. Therefore, this approach was exceedingly meaningful and beneficial for cancer patients as professional oncology nurses can provide information and perfect this method to target populations. Therefore, professional nurses could easily apply the program in the women with breast cancer undergoing chemotherapy. However, professional nurses should learn and study about Buddhist-based modalities and practices, such as meditation, in order to teach or provide information to help patients who might be interested in the Four Noble Truths which is the basic Buddhist doctrine and be familiar with the Thai Buddhist context. Moreover, nurses should have had experience practicing meditation to make it easy to implement the program. However, if the nurse is a novice, the Buddhist content in the sermons is already easy

to explain in both the Four Noble truths that is concurrent in breast cancer and the way of practice meditation.

In addition, preliminary findings indicated that the Buddhist-based nursing program proposed in the present study was composed of three main processes, namely, raising self-awareness, integrated Buddhist principles of Four Noble Truths, self-reflection regarding psychological symptom cluster and following the program. As a result, the aforementioned were examples of processes that professional oncology nurses might find applicable to their work. Furthermore, a number of nursing techniques need to be used while providing optional nursing care such as the approach of communication, which is obviously an important method between nurses and patients/patients' family members with important details such as eye contact, touch, listening, and keeping quiet. All of these skills were also necessary while providing nursing care during chemotherapy infusion.

The study also revealed that the level of cooperation with Buddhist-based modalities was evaluated at the following three levels: limited, moderate and high. In the group of moderate and high cooperation with Buddhist practices, the women with breast cancer not only listened to Buddhist sermons, but also engaged in meditation practice. Therefore, professional oncology nurses need to provide media and encourage oncology patients to practice. As a result, patients can show their discipline, ability proficiency. However, in the group of less cooperative patients, some of the patients were not ready to practice. Therefore, nurses should pay close attention to assessing the reasons in the patients' minds and be able to provide care, or delay, or postpone optional nursing care until the patients are ready. Moreover, some patients have previous experience of certain practices, such as mediation, and might use the same techniques

to which they are already accustomed. However, nurses can suggest and provide information including, encouragement of new techniques, adding that patients can select whichever method makes them feel the most comfortable. The study proposed the duration for mediation practice while receiving chemotherapy to be approximately 5-10 minutes in the process of hydration before starting chemotherapy. A peaceful environment and calm atmosphere was also provided for Buddhist practice. Additionally, family members or caregivers also represent an important source of support to accompany the processes of the Buddhist-based program in order to encourage the patients to learn and practice calming their minds during cancer treatment.

All things considered, following the Buddhist-based nursing program in which patients can follow the doctrines could change their attitudes in such a way that the patients are able realize the reality of life and suffering of cancer as they try to find a way to balance their lives. The BbNdP could be a notable nursing program for alleviating psycho-spiritual dimensions and might also be extended to enhance holistic health outcomes based on religion and spiritual healing. From an overall perspective, the well-being provided by religion and spiritual care should be recorded as key methods featured in the roles of professional nurses.

Nursing Education

The Buddhist-based, nurse-delivered program proposed in the present study was an outstanding example of nursing role practice to be provided in oncology care; hence, the program should be promoted in nursing curricula in order to extend advanced nursing knowledge in the area of complementary therapy regarding the application of eastern wisdom to obtain fruitful holistic health outcomes. Moreover, the effectiveness

of the Buddhist-based program was one way to ground novice nurses in advanced nursing practice through active professional oncology nursing.

Additionally, nursing curricula can employ Buddhist principles to nursing care by holding activities to initiate self-nurturing behaviors to establish mind-body balance, kindness, compassion, loving thoughtfulness, politeness, humanity and gratitude, all of which are fundamental to nurturing equanimity in the care of persons with illnesses such as oncology patients, etc.

Health Care Policy

The current study can contribute to encouraging the Ministry of Public Health of Thailand and relevant institutions worldwide to provide health policy supporting and pertaining to the use of Buddhist-based principles in oncology nursing care with a holistic nursing focus. Moreover, health care policy should support professional nurses in studying Buddhist doctrine and practices such as meditation for application in Buddhist nursing care, as in the current study, which is highly beneficial in extending advanced nursing development. However, a repost of the National New Bureau of Thailand has stated that more than 65% of hospitals in Thailand apply meditation to improve the symptoms of chronic diseases such as hypertension and stress (National New Bureau of Thailand, 2013). Consequently, the aforementioned method should be recognized as one aspect of nursing practice for both nurses and patients in order to heal patients with eastern wisdom.

Recommendations for Further Study

As previously mentioned, a number of interesting topics are available for future studies aimed at narrowing the research gap in nursing related to preliminary studies of Buddhist programs to ameliorate psycho-spiritual aspects in women with breast cancer undergoing chemotherapy. Further investigation is also required through well-designed controlled trials or other methodologies with beneficial health outcomes in oncology care. Further details covering the overall perspective of processes are required by conducting studies with groups of populations and treatments with Buddhist-based programs, methodology and outcomes as in the following recommendations:

(1) Population and treatment: the current study was conducted in women with stage I-III breast cancer who were aged more than 18 years. It would also be very interesting to repeat the study in the same age population or possibly extend to more specific groups such as younger women, older or elderly women, survivors, and advanced cancer patients. In addition, this study implemented both the FAC and AC with taxane regimens. Hence, future studies might be more specific to regimens of chemotherapy with either only FAC or AC with taxane groups. In addition, further studies could also be extended to other treatments such as pre- and postoperative patients, radiotherapy and hormone therapy. Studies should also be extended to other cancer patients in both women and men. Notably, approximately half of the participants in both groups in the present study also had delayed time for receiving chemotherapy averaging 3-14 days due to clinical physical problems from the side effects of chemotherapy. Hence, additional study might

be conducted regarding the effects on the health outcomes in the aforementioned groups.

(2) Buddhist-based Program: This preliminary study attempted to develop and evaluate the psycho-spiritual outcomes of a new Buddhist-based program for women with breast cancer under chemotherapy treatment. The study might have encountered some limitations when implemented with the current oncology care situation in the Thai cultural context. Firstly, a follow-up on the outcomes could be added until the drug regimens are finished. Then maintenance of a fitting program could be added with another extension to follow up after completing chemotherapy at one-month before starting subsequent treatments such as radiotherapy or hormone therapy. Moreover, the present study involved the implementation of an individual program; therefore, subsequent studies should also replicate the study or extend to implementing group programs while receiving chemotherapy such as group sitting meditation or listening to Buddhist sermons. In addition, family members or spouses should be recruited for membership to the program. Furthermore, subsequent studies should be well-designed to combine other programs for alleviating the psychological symptom cluster such as additional relaxation techniques.

Considering the program, further study could add some activities during the program, because, while implementing the program the participants showed uncertainty managing or controlling themselves, while encountering signs and symptoms, after receiving each cycle of chemotherapy. Basically, the participants always reported the physical symptoms such as mucositis, fever, fatigue, constipation, difficult to sleep, fever. Moreover, they felt uncertainty about managing these symptoms or new symptoms mentioned before. Thus, the further study should provide a re-educational

program at Chemotherapy Cycle 2 because the women with breast cancer already had experienced exposure to the chemo-drug meaning they could further concentrate on the health-education. The program should cover subjects such as management of other symptoms and nutritional therapy. Moreover, telephone follow ups to all participants at 1-2 weeks post chemotherapy could be added in order to psychologically support them and also keep their spirits up to achieve happiness and keep balance in their world during chemotherapy treatment.

Nurses should focus on the time appropriate to practice the activities such as nurses preparing meditation practice while receiving pre-hydration (30 minutes) before starting chemotherapy. Nurses could also provide meditation practice for small groups of 3-5 persons while they are waiting for chemotherapy infusion. Moreover, some regimens take a long time such as taxane at around 4-5 hr. The author suggests starting activities after taking pre-medication, because the action of meditation made the patients dizzy, and want to rest before receiving chemotherapy. To sum up, depending on each regimen, nurses can also provide activities to suit each case.

Furthermore, naturally, when patients have suffered from cancer, they will seek sources and ways to heal their life. Also when the author practices meditation, some patients have practiced, it may be different to the way that the author intends to practice, so nurses should listen to the way the patient practices. We can learn how to succeed in practice from this experience and give examples to other patients who are unfamiliar with meditation.

(3) Outcomes: The present study focused on the psychological symptom cluster and spiritual well-being aspect. Therefore, it would also be interesting to study the outcomes of replicated studies. Nevertheless, such studies should be specific to

outstandingly concurrent psychological distress in breast cancer patients such as anxiety, insomnia, and depression. The studies should also cover quality of life and concurrent physical symptom clusters because the current study revealed physical problems due to obvious side effects from chemotherapy such as fatigue, nausea and vomiting, and constipation. These symptoms might also affect the psycho-spiritual dimension.

(4) Methodology: This study was a randomized clinical trial in the field of oncology. Therefore, studies on the effectiveness of complementary modalities of nursing care to support suffering on the trajectory of cancer treatment would also be interesting with outstanding replicated studies on evidence-based nursing for implementation in this area. However, there are also many interesting issues prompting further study such as understanding the process of overcoming breast cancer during chemotherapy, or successful experiences of survivors who have implemented Buddhist-based practice during chemotherapy treatment through both quantitative and qualitative research methodologies. The adoption of complementary modalities across all cancer treatments in women with breast cancer or other cancers should be included in the Thai cultural context.

Conclusion

While the findings of the present study were only preliminary, they clearly indicate an evidenced-based model for psycho-spiritual support care option across breast cancer chemotherapy treatments. In addition, further investigation should be conducted through well-designed controlled trials with essential health outcomes in oncology nursing

care or other methodology. Although a slightly significant statistics program dependent variable was implemented in the vulnerable group, the program could be powerful nursing practice for changes in clinical psychological symptoms and enhance spiritual well-being. Therefore, this vulnerable group might adopt Buddhist principles and main practices to heal themselves while undergoing cancer treatment with chemotherapy. The nurse oncology and health care team could actively apply this program in breast cancer under treatment and also extend it to other cancer groups to achieve psycho-spiritual outcomes.

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APPENDICES

Appendix A

Instruments for Data Collection

Appendix A.1

ID ☐☐☐

Demographic Data Form

ID…….Group [ ] 1. Experiment [ ] 2. Control Date……..…..…….
Section I: Demographic data Form **Direction:** Please answer each of these questions about yourself
1. Age ……..years
2. What is your current marital status? ☐ 1) Single ☐ 2) Married ☐ 3) Divorced ☐ 4) Separated ☐ 5) Widowed
3. What is highest your level of education? ☐1) Illiterate ☐ 2) Less than grade 6 ☐ 3) Grade 6 ☐ 4) Grade 9 ☐ 5) High school ☐ 6) College ☐ 7) Bachelor's degree ☐ 8) Graduate school
4. What is your occupation? ☐ 1) Unemployed ☐ 2) Laborer ☐ 3) Government officer ☐ 4) Private sector employee ☐ 5) Self-employed ☐ 6) Others (please specify)……
5. What is your monthly income (including couple's income)? …….Baht/month
6. Do you have any financial problems? ☐ 1) No ☐ 2) Yes, further 6.1
6.1 Level of financial problem? ☐ 1) Low ☐ 2) Medium ☐ 3) High

ID ☐☐☐

Questionnaire

7. Do you have history of psychiatric or neurological disorder?

☐ 1) No ☐ 2) Yes, Please specify……..

8. Mensuration status

☐ 1) Mensuration period

☐ 2) Menopause

8.1 Menarche…….years and/or The last mensuration…….years

9. Who are socially supporting you during cancer trajectory? (You could answer more than one)

☐ 1) Parents ☐ 2) Spouse

☐ 3) Son/Daughter ☐ 4) Relatives

☐ 5) Friend ☐ 6) Sister/brother

☐ 7) Nephew/niece ☐ 8) other…….

10. Health belief for your illness (can select more than 1)

☐ 1) Karma ☐ 2) Health behavior

☐ 3) Folk belief ☐ 4) Heredity

☐ 5) Unknown ☐ 6) other (please specify)……

11. Are you interested in applying Buddhist principles in your daily activities?

☐ 1) No ☐ 2) Yes

12. What Buddhist practices are you interested in, in your daily activities? (You could answer more than one activity)

12.1 ☐ Buddhist book reading

☐ 1) Arriya sacca ☐ 2) Karma

☐ 3) Dhramm for illness ☐ 4) Meditation

☐ 5) Other please specify…….

12.1.1 Duration for this activity……..mo

12.1.2 Frequency of this activity…….time/week

ID ☐☐☐

Questionnaire
12.2 ☐ Meditation 12.2.1 Kind of meditation ☐ 1) Sitting ☐ 2) Walking ☐ 3) Other (please specify)……. 12.2.2 Duration for this activity……..mo 12.2.3 Frequency of this activity…….time/week 12.2.4 Duration for this activity……..minutes/times
12.3 ☐ Make a merit 12.3.1 Duration for this activity……..mo 12.3.2 Frequency of this activity…….time/week
12.4 ☐ Go to temple 12.4.1 Duration for this activity……..mo 12.4.2 Frequency of this activity…….time/week
12.5 ☐ Other activities…….. 12.5.1 Duration for this activity……..mo 12.5.2 Frequency of this activity…….time/week
13. Other than meditation, have you ever practiced any of the following modalities? ☐ 1) No ☐ 2) Yes (could answer more than one choice) 13.1 ☐ Yoga 13.1.1 Duration for this activity……..mo 13.1.2 Frequency of this activity…….time/week 13.2 ☐ Tai-chi 13.2.1 Duration for this activity……..mo 13.2.2 Frequency of this activity…….time/week

ID ☐☐☐

Questionnaire
13.3 ☐ Qigong 13.3.1 Duration for this activity……..mo 13.3.2 Frequency of this activity…….time/week 13.4 ☐ Reiki 13.4.1 Duration for this activity……..mo 13.4.2 Frequency of this activity…….time/week 13.5 ☐ Other, Please specify…… 13.5.1 Duration for this activity……..mo 13.5.2 Frequency of this activity…….time/week

ID ☐☐☐

Section II: Clinical Data

1. Position of breast cancer

☐ 1. Left side ☐ 2. Right side

2. Stage of breast cancer

☐ 1. Stage I	☐	1. IA	T…… .N…….M……
	☐	2. IB	T…… .N…….M……
☐ 2. Stage II	☐	3. IIA	T…… .N…….M……
	☐	4. IIB	T…… .N…….M……
☐ 3. Stage III	☐	5. IIIA	T…… .N…….M……
	☐	6. IIIB	T…… .N…….M……
	☐	7. IIIC	T…… .N…….M……

3. Nodal status

☐ 1. Negative ☐ 2. Positive ☐ 3. Unknown ☐ 4. Equal

4. Hormone response

☐ 1. Negative ☐ 2. Positive ☐ 3. Unknown

5. Date of perception of breast cancer: dd……/mm……../yy……..

6. Date of initial chemotherapy: dd……/mm……../yy……..

7. Chemotherapy regimen

☐ 1. FAC…… Cycle

☐ 2. AC…..…….Cycle

☐ 3. CMF…….…...Cycle

☐ 4. AC+TX……...Cycle

☐ 5. Others regimens (specify)……..….. ……Cycle

8. Did you have history of chemotherapy/drug allergic reaction?

1. ☐ No

2. ☐ Yes, specify

ID ☐☐☐

Clinical Data
☐ 1. Penicillin ☐ 2. Ampicillin ☐ 3. Sulfonamides ☐ 4. Aspirin ☐ 5. Ibuprofen ☐ 6. Other…….
9. History of surgical treatment 1. No 2. Yes, specified: dd……mm…….yy..…… ☐ 1. Wide excision ☐ 2. Breast conserving surgery ☐ 3. Radical mastectomy ☐ 4. MRM (Modified radical mastectomy)
10. Radiotherapy treatment ☐ 1. No ☐ 2. Yes, if yes complete more details this below. Dose…….Gray……fraction……
11. Hormone therapy **v** ☐ 1. No ☐ 2. Yes, if yes, check more detail: dd…….mm……..yy…….. Type of hormone therapy (specify) ☐ 1. Taxomifen ☐ 2. Other…….
12. Complementary therapy ☐ 1. No ☐ 2. Yes ☐ 1. Herbal ☐ 2. Local medicine ☐ 3. Massage ☐ 4. Reflexology ☐ 5. Prayer ☐ 6. Cosmic ☐ 7. Acupuncture ☐ 8. Other…….

ID ☐☐☐

Clinical Data
13. Co-morbidity ☐ 1. No ☐ 2. Yes ☐ 1. DM duration…….year ☐ 2. HT duration…….year ☐ 3. CAD duration…….year ☐ 4. CRF duration…….year ☐ 5. Other duration…….year

แบบสอบถาม

ID ☐☐☐

ID:……Group [ ] 1.Experimental 2.Control [ ] วันที่.....

<u>ส่วนที่ 1 แบบสัมภาษณ์ส่วนบุคคล</u>

คำชี้แจง โปรดเติมข้อความลงในช่องว่างหรือกาเครื่องหมาย (√) ลงในช่องให้ตรงกับความเป็นจริง

1. อายุ.....ปี

2. สถานภาพสมรส

☐ 1. โสด ☐ 2. คู่ ☐ 3. หม้าย ☐ 4. หย่า ☐ 5. แยก

3. ระดับการศึกษาสูงสุด

☐ 1. ไม่ได้รับการศึกษา ☐ 2. ประถมศึกษา

☐ 3. มัธยมศึกษาตอนต้น ☐ 4. มัธยมศึกษาตอนปลาย/ปวช.

☐ 5. อนุปริญญา/ปวส. ☐ 6. ปริญญาตรี หรือสูงกว่าระบุ.....

4. อาชีพ

☐ 1. ว่างงาน ☐ 2. รับจ้าง/ลูกจ้าง

☐ 3. รับราชการ ☐ 4. รัฐวิสาหกิจ

☐ 5. ธุรกิจส่วนตัว/ค้าขาย ☐ 6. อื่นๆ ระบุ.....

5. รายได้ต่อเดือน……บาท/เดือน

6. ท่านมีปัญหาทางด้านการเงินหรือไม่

☐ 1. ไม่มี ☐ 2. มี (มีตอบข้อ 6.1)

6.1 มีปัญหาด้านการเงินระดับใด

1.☐ เล็กน้อย 2.☐ ปานกลาง 3.☐ มาก

7. ท่านเคยเข้ารับการปรึกษาคลินิกจิตเวช หรือไม่

☐ 1. ไม่เคย

☐ 2. เคย ปี.....เรื่อง.....

8. ประจำเดือนในปัจจุบัน

☐ 1. ยังมีประจำเดือน ☐ 2. หมดประจำเดือนแล้ว

8.1 ประจำเดือนครั้งแรก อายุ.....ปี

และหรือ ประจำเดือนครั้งสุดท้ายอายุ.....ปี

แบบสอบถาม
9. บุคคลที่ให้การดูแล ในขณะที่ท่านเจ็บป่วยในครั้งนี้ (ตอบได้มากกว่า 1 ข้อ) ☐ 1. บิดา มารดา ☐ 2. สามี ☐ 3. บุตร ☐ 4. ญาติ (ลุง/ป้า/น้า/อา) ☐ 5. เพื่อน ☐ 6. พี่/น้อง ☐ 7. หลาน ☐ 8. อื่นๆ ระบุ.....
10. ท่านมีความเชื่อเกี่ยวกับความเจ็บป่วย อย่างไร (ตอบได้มากกว่า 1 ข้อ) ☐ 1. ไปเป็นตามกรรมเก่า ☐ 2. เกิดจากพฤติกรรมการปฏิบัติตัว ☐ 3. ถูกกระทำ/ถูกของ ☐ 4.กรรมพันธุ์ ☐ 5. ไม่ทราบ ☐ 6. อื่นๆ ระบุ.....
11. ก่อนที่ท่านเข้าร่วมงานวิจัยครั้งนี้ ท่านสนใจเกี่ยวกับการนำคำสอนของพระพุทธศาสนามาประยุกต์ใช้ในการดำเนินชีวิตหรือไม่ ☐ 1. ไม่สนใจ (ข้ามไปตอบ ข้อ 13) ☐ 2. สนใจ (ตอบข้อ 12)
12.ความสนใจเกี่ยวกับการปฏิบัติตามตามคำสอนของพระพุทธศาสนาที่ประยุกต์ใช้ในการดำเนินชีวิต (ตอบได้มากกว่า 1 ข้อ) 12.1 ☐ อ่านหนังสือธรรมะ(เกี่ยวกับเรื่อง ตอบได้มากกว่า 1 ข้อ) 1. ☐ หลักอริยสัจ 4 2. ☐ กฎแห่งกรรม 3. ☐ ธรรมะสำหรับยามเจ็บป่วย 4. ☐ การฝึกสมาธิ 5. ☐ อื่นๆ ระบุ..... 12.1.1 ระยะเวลาในการปฏิบัติ.....เดือน 12.1.2 ความถี่ในการอ่านหนังสือ.....ครั้ง/สัปดาห์
12.2 ☐ ปฏิบัติสมาธิ 12.2.1 ชนิดของการปฏิบัติสมาธิ 1. ☐ นั่งสมาธิ (กำหนดลมหายใจ/ท่องคำบริกรรม/เพ่งวัตถุ) 2. ☐ เดินจงกรม 3. ☐ อื่นๆ ระบุ.....

ID☐☐☐

แบบสอบถาม
12.2.2 ระยะเวลาในการปฏิบัติ.....เดือน 12.2.3 ความถี่ในการทำสมาธิในแต่ละครั้ง.....ครั้ง/สัปดาห์ 12.2.3 ระยะเวลาในการทำสมาธิ.....นาที/ครั้ง
12.3 ☐ ตักบาตร ทำบุญ 12.3.1 ระยะเวลาในการปฏิบัติ.....เดือน 12.3.2 ความถี่ในการปฏิบัติกิจกรรม.....ครั้ง/เดือน
12.4 ☐ ไปวัด ฟังธรรม 12.4.1 ระยะเวลาในการปฏิบัติ.....เดือน 12.4.2 ความถี่ในการปฏิบัติกิจกรรมแต่ละครั้ง.....ครั้ง/เดือน
12.5 ☐ กิจกรรมอื่นๆ..... 12.3.1 ระยะเวลาในการปฏิบัติ.....เดือน/ปี 12.3.2 ความถี่ในการปฏิบัติกิจกรรมแต่ละครั้ง.....ครั้ง/เดือน
☐ 13.2. ไทเก็ก (ระบุรายละเอียด) 13.2.1 ความถี่ในการปฏิบัติ.....ครั้ง/สัปดาห์/เดือน 12.2.2 ระยะเวลา……..……นาที
☐ 13.3 ชี่กง (ระบุรายละเอียด) 13.3.1 ความถี่ในการปฏิบัติ.....ครั้ง/สัปดาห์/เดือน 13.3.2 ระยะเวลา……...……นาที
☐ 13.4. เรกิ (ระบุรายละเอียด) 13.4.1 ความถี่ในการปฏิบัติ.....ครั้ง/สัปดาห์/เดือน 13.4.2 ระยะเวลา……...นาที
☐ 13.5. อื่นๆที่เกี่ยวข้อง (ระบุรายละเอียด)..... 13.5.1 ความถี่ในการปฏิบัติ.....ครั้ง/สัปดาห์/เดือน 13.5.2 ระยะเวลา…….....นาที

ID ☐☐☐

ส่วนที่ 2 ข้อมูลทางคลินิก (สำหรับนักวิจัย)

แบบสอบถาม

1. ตำแหน่งของมะเร็งเต้านม ☐ 1. ด้านซ้าย ☐ 2. ด้านขวา

2. ระยะของมะเร็งเต้านม

☐ 1. ระยะที่ 1 ☐ 1. IA T…… .N…….M……

☐ 2. IB T…… .N…….M……

☐ 2. ระยะที่ 2 ☐ 3. IIA T…… .N…….M……

☐ 4. IIB T…… .N…….M……

☐ 3. ระยะที่ 3 ☐ 5. IIIA T…… .N…….M……

☐ 6. IIIB T…… .N…….M……

☐ 7. IIIC T…… .N…….M……

3. ลักษณะก้อน CA (Nodal status)

☐ 1. Nodal Negative ☐ 2. Nodal Positive ☐ 3. Unknown

4. Hormone response

☐ 1. Negative ☐ 2. Positive ☐ 3. Unknown ☐ 4. Equal

5. ทราบผลการตรวจวินิจฉัยเมื่อ วันที่.....เดือน.....ปี.....

6. รับยาเคมีบำบัดครั้งแรก วันที่……เดือน….....ปี.....

7. สูตรยาเคมีบำบัด

☐ 1. FAC Dose…….จำนวนครั้งที่ให้...../course

☐ 2. AC Dose…….จำนวนครั้งที่ให้...../course

☐ 3. CMF Dose…….จำนวนครั้งที่ให้...../course

☐ 4. AC+TX Dose…….จำนวนครั้งที่ให้...../course

☐ 5. อื่นๆ Dose…….จำนวนครั้งที่ให้...../course

8. ประวัติการแพ้ยา/เคมีบำบัด

☐ 1. ไม่มี ☐ 2. มี ระบุ……(ตอบได้มากกว่า 1 ข้อ)

☐ 1. Penicillin ☐ 2. Ampicillin

☐ 3. Sulfonamides ☐ 4. Aspirin

☐ 5. Ibuprofen ☐ 6. อื่นๆ ระบุ.....

ID ☐☐☐

แบบสอบถาม

9. ประวัติการรักษาด้วยการผ่าตัด

☐ 1. ไม่มี

☐ 2. มี ระบุ ผ่าตัดเมื่อ.....

9.1 ☐ Wide excision 9.2 ☐ Breast conserving surgery

9.3 ☐ Radical mastectomy 9.4 ☐ MRM (Modified radical mastectomy)

10.ประวัติการรักษาด้วยการฉายรังสี

☐ 1.ไม่มี

☐ 2. มี รังสีรักษา เมื่อวันที่.....

Dose……Gray……fraction

11.ประวัติการรักษาด้วยฮอร์โมน

☐ 1. ไม่มี ☐ 2. มี รักษาเมื่อ.....

ชนิดของฮอร์โมน 1. ☐ Tamoxifen 2. ☐ อื่นๆ.....

12. การรักษาอื่นๆร่วมกับการรักษาแผนปัจจุบัน (Complementary)

☐ 1. ไม่มี

☐ 2. มี ระบุ..... (ตอบได้มากกว่า 1 ข้อ)

1. ☐ ยาสมุนไพร 2. ☐ ยาหม้อ

3. ☐ นวดตัว 4. ☐ นวดกดจุดสะท้อนฝ่าเท้า

5. ☐ สวดมนต์ 6. ☐ พลังลมปราณ/พลังจักรวาล

7. ☐ ฝังเข็ม 8. ☐ อื่นๆระบุ.....

13. ประวัติโรคประจำตัวอื่นๆ

☐ 1. ไม่มี

☐ 2. มี ระบุ (ตอบได้มากกว่า 1 ข้อ)

☐ 1. DM ระยะเวลาที่เป็นโรค.....ปี

☐ 2. HT ระยะเวลาที่เป็นโรค.....ปี

☐ 3. CAD ระยะเวลาที่เป็นโรค.....ปี

☐ 4. CRF ระยะเวลาที่เป็นโรค.....ปี

☐ 5. โรคอื่นๆ ระบุ.....ระยะเวลาที่เป็นโรค.....ปี

ID ☐☐☐

APPENDIX A.2

Memorial Symptom Assessment Scale:

Psychological Symptom Subscale (MSAS-PSYCH)

Direction: Below are statements that may describe your psychological symptom cluster. We have listed 6 symptoms below. Read each carefully. If you have had the symptom during this past week, let us know how OFTEN you had it, how SEVERE it was usually and how much it DISTRESSED OR BOTHERED you by circling the appropriate number. If you DID NOT HAVE the symptom, make an "X" in the box marked "DID NOT HAVE". Thank you for your cooperation.

DURING THE PAST WEEK Did you have any of the following symptoms?	**DID NOT HAVE**	**IF YES, How OFTEN did you have it?**				**IF YES, How SEVERE was it usually?**				**IF YES, How much did it DISTRESS or BOTHER you?**				
PSYCH group		Rarely	Occasionally	Frequently	Almost constantly	Slight	Moderate	Severe	Very severe	Not at all	A little bit	Somewhat	Quite a bit	Very much
1.Worrying		1	2	3	4	1	2	3	4	0	1	2	3	4
2. Feeling sad		1	2	3	4	1	2	3	4	0	1	2	3	4
3.Feeling nervous		1	2	3	4	1	2	3	4	0	1	2	3	4
4.Difficulty sleeping		1	2	3	4	1	2	3	4	0	1	2	3	4
5.Feeling irritable		1	2	3	4	1	2	3	4	0	1	2	3	4
6.Difficulty concentrating		1	2	3	4	1	2	3	4	0	1	2	3	4
** IF YOU HAD ANY OTHER SYMPTOMS DURING THE PAST WEEK, PLEASE LIST BELOW AND INDICATE HOW MUCH THE SYMPTOM HAS DISTRESSED OR BOTHERED YOU.														
Other:……..										0	1	2	3	4
Other:……..										0	1	2	3	4
Other:……..										0	1	2	3	4

แบบสอบถาม

<u>ส่วนที่ 2 แบบประเมินกลุ่มอาการทางด้านจิตใจ</u>

(Memorial Symptom Assessment Scale-Psychological Symptom Subscale: MSAS-PSYCH)

คำชี้แจง แบบสอบถามนี้ต้องการทราบว่า ท่านมีอาการเหล่านี้ในรอบสัปดาห์ที่ผ่านมา ท่านมีอาการใดเกิดขึ้นบ้าง อาการเหล่านี้เกิดขึ้นมีความถี่ในการเกิดขึ้นอย่างไร อาการเหล่านั้นมีความรุนแรงระดับใด และอาการเหล่านั้นรบกวนท่านมากน้อยเพียงใด

อาการ หมายถึง สิ่งที่ท่านรับรู้ว่ามีความผิดปกติ หรือมีความรู้สึกไม่สุขสบายเกิดขึ้นในรอบสัปดาห์ที่ผ่านมา รวมทั้งระดับความถี่ ความรุนแรง และอาการเหล่านั้นรบกวนท่านมากน้อยเพียงใด

ให้ท่านทำเครื่องหมาย ○ ล้อมรอบตัวเลขในช่องด้านล่าง เพื่อประเมินระดับความถี่ ความรุนแรง และอาการเหล่านั้น รบกวนท่านมากน้อยเพียงใด ในรอบ 1 สัปดาห์ที่ผ่านมา

ประเมินความถี่

ระดับคะแนน ④ คือ บ่อยมาก หมายถึง อาการเหล่านั้นเกิดขึ้นทุกวัน

ระดับคะแนน ③ คือ บ่อย หมายถึง อาการเหล่านั้นเกิดขึ้นเกือบทุกวัน

ระดับคะแนน ② คือ เกิดได้บ้าง หมายถึง อาการเหล่านั้นเกิดได้บ้างเป็นพักๆ

ระดับคะแนน ① คือ นานๆ ครั้ง หมายถึง อาการเหล่านั้นเกิดขึ้นนานๆ ครั้ง

ประเมินความรุนแรง

ระดับคะแนน ④ คือ รุนแรงมาก หมายถึง อาการเหล่านั้นรุนแรงมาก

ระดับคะแนน ③ คือ รุนแรง หมายถึง อาการเหล่านั้นรุนแรง

ระดับคะแนน ② คือ รุนแรงปานกลาง หมายถึง อาการเหล่านั้นรุนแรงปานกลาง

ระดับคะแนน ① คือ รุนแรงน้อย หมายถึง อาการเหล่านั้นรุนแรงน้อย

ประเมินการรบกวนของกลุ่มอาการ

ระดับคะแนน ④ คือ ระกวนอย่างมาก หมายถึง อาการเหล่านั้นรบกวนอย่างมาก

ระดับคะแนน ③ คือ รบกวนมาก หมายถึง อาการเหล่านั้นรบกวนมาก

ระดับคะแนน ② คือ รบกวน หมายถึง อาการเหล่านั้นรบกวน

ระดับคะแนน ① คือ รบกวนเล็กน้อย หมายถึง อาการเหล่านั้นรบกวนเล็กน้อย

ระดับคะแนน ⓪ คือ ไม่รบกวนเลย หมายถึง อาการเหล่านั้นไม่รบกวนเลย

ID ☐☐☐

ช่วงสัปดาห์ที่ผ่านมาท่านมีอาการเหล่านี้หรือไม่		**กลุ่มอาการเหล่านั้นเกิดขึ้นมากน้อยเพียงใด**				**ระดับความรุนแรงของกลุ่มอาการ**				**กลุ่มอาการเหล่านั้นรบกวนท่านมากน้อยเพียงใด**				
กลุ่มอาการทางด้านจิตใจ	**ไม่พบอาการเหล่านั้น**	**นานๆ ครั้ง**	**บางครั้ง**	**บ่อย**	**บ่อยมาก**	**น้อย**	**ปานกลาง**	**รุนแรง**	**รุนแรงมากมาก**	**ไม่รบกวน**	**น้อย**	**ปานกลาง**	**มาก**	**มากที่สุด**
1.กังวลโรค		1	2	3	4	1	2	3	4	0	1	2	3	4
2.รู้สึกเศร้า		1	2	3	4	1	2	3	4	0	1	2	3	4
3.รู้สึกกระวนกระวายใจ		1	2	3	4	1	2	3	4	0	1	2	3	4
4.นอนหลับยาก		1	2	3	4	1	2	3	4	0	1	2	3	4
5.รู้สึกไม่สุขสบาย		1	2	3	4	1	2	3	4	0	1	2	3	4
6.ไม่มีสมาธิ		1	2	3	4	1	2	3	4	0	1	2	3	4
** ท่านมีอาการอื่นๆ นอกจากที่กำหนดหรือไม่ อาการเหล่านั้นเกิดขึ้น รุนแรงและ/รบกวนท่านมากน้อยเพียงใด														
7.อาการอื่นๆ……...…….										0	1	2	3	4
8.อาการอื่นๆ……...…….										0	1	2	3	4
9.อาการอื่นๆ……...……..										0	1	2	3	4

APPENDIX A.3

Thai Spiritual Well-being Assessment Tool for Patients With Breast Cancer Form

Direction: Below are statements that may describe your spiritual well-being right now. Five numbers are provided for each question; please circle the number you think mostly matches your feeling. Thank you for your cooperation.

ID ☐☐☐

Statement	**Strongly disagree**	**0**	**1**	**2**	**3**	**4**	**Strongly agree**
1. You never suffer with your breast cancer.							
2. Your life is perfect and you don't need anything else.							
3. Although you are suffering from the breast cancer, you feel happy.							
.							
.							
.							
.							
.							
.							
.							
.							
42.							

ID □□□

ส่วนที่ 3 แบบประเมินความผาสุกทางด้านจิตวิญญาณ

คำชี้แจง โปรดตอบคำถามให้ตรงกับความรู้สึกของท่านมากที่สุด โดยทำเครื่องหมาย √ ลงในช่องด้านขวามือ

โดยเกณฑ์ในการเลือกคำตอบมีดังนี้

คะแนน **4** หมายถึง ข้อความนั้นเป็นจริงอย่างยิ่ง

คะแนน **3** หมายถึง ข้อความนั้นเป็นจริงมาก

คะแนน **2** หมายถึง ข้อความนั้นเป็นจริงบางครั้ง

คะแนน **1** หมายถึง ข้อความนั้นเป็นจริงน้อย

คะแนน **0** หมายถึง ข้อความนั้นไม่เป็นจริงเลย

ข้อความ	0	1	2	3	4
	ไม่เป็นจริงเลย	เป็นจริงน้อย	เป็นจริงบางครั้ง	เป็นจริงมาก	เป็นจริงอย่างยิ่ง
1. ท่านรู้สึกโมโหเมื่อรู้สึกเจ็บปวด หรือทุกข์ทรมานจากโรคที่เป็นอยู่					
2. ท่านคิดว่าโรคที่เป็นอยู่ไม่ควรเกิดขึ้นกับท่าน					
3. ท่านรู้สึกโกรธที่เป็นโรคนี้ ซึ่งเชื่อว่าอาจไม่สามารถรักษาให้หายได้					
.					
.					
.					
42.					

Appendix B

Informed Consent Form

Informed Consent Form

My name is Samonnan Thasaneesuwan, a doctoral student of the Faculty of Nursing, Prince of Songkla University. I am conducting a research study entitled: "Effect of Buddhist-based, Nurse-delivered Program (BbNdP) on Psychological Symptom Cluster and Spiritual Well-Being of Thai Women with Breast Cancer Undergoing Chemotherapy". The study is aimed to help the patient who has breast cancer like you. I have found that patients may suffer from treatment-related and that cause them to feel unhappy or distressed, or sometimes they may feel discouraged to continue receiving treatment. Therefore, in this study, I am proposing to examine if my intervention will help the patients to be cope better and live happier lives.

After you decide to participate in this study, you will be randomized into either the experimental group or the control group. Both groups will receive the same usual care from the hospital. The experimental group will receive the BbNdP such as learning Buddhist doctrine and mediation practice. If you feel uncomfortable about participating in this study, please do not hesitate to tell me.

You are being asked to participate in this research study. All information in this study will remain confidential, no names will be mentioned, and the information gathered will be reported as a dissertation, which is a requirement for a doctoral degree. The BbNdP comprised of three aspects while providing chemotherapy treatment. During the study, you have the right to withdraw from the participation anytime without any problems prior to completion of data collection. If you are interested in participating in this study, you will be assessed using the following information/data.

You will be asked to complete the Demographic Data Form, Memorial Symptom Assessment Scale-Psychological Symptom Subscale Form (MSAS-PSYCH), and the Thai Spiritual Well-Being Assessment Tool with Breast Cancer Form (TSWBATPBC) at the beginning of the study. Then you will be examined fore outcomes of psychological symptom cluster and spiritual well-being at the cycle 3 and cycle 6 of chemotherapy, respectively.

If you have any questions or suggestions or cannot participate in this study you can directly contact me by phone on 086-2886226. If you agree to join this program, please sign your name on the consent form.

Thank you for kind cooperation

Samonnan Thasaneesuwan

For the participant

This program has been explained to me and I voluntary agree to give my consent to participate in this study.

…….

(Name of Participant)

…….

Date

Consent Form (ภาษาไทย): ใบแสดงความยินยอมผู้เข้าร่วมการศึกษาวิจัย

ผลของโปรแกรมการพยาบาลแนวพุทธต่อกลุ่มอาการทางด้านจิตใจและความผาสุกทางด้านจิตวิญญาณในสตรีมะเร็งเต้านมไทยที่ได้รับเคมีบำบัด

ดิฉัน นางศมนนันท์ ทัศนีย์สุวรรณ นักศึกษาปริญญาเอกทางการพยาบาล คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ สนใจทำวิจัยเรื่อง ผลของโปรแกรมการพยาบาลแนวพุทธต่อกลุ่มอาการทางด้านจิตใจและความผาสุกทางด้านจิตวิญญาณในสตรีมะเร็งเต้านมไทยที่ได้รับยาเคมีบำบัด การวิจัยนี้มีวัตถุประสงค์ เพื่อช่วยให้ผู้ป่วยมะเร็งเต้านมที่ได้รับความทุกข์ทรมานจากกลุ่มอาการด้านจิตใจ และส่งเสริมความผาสุกทางด้านจิตวิญญาณได้รับการเยียวยาด้วยวิถีทางแนวพุทธที่สอดคล้องกับความเชื่อ ประเพณีวัฒนธรรมของชาวพุทธ โดยการนำคำสอนสำคัญคือ หลักธรรมอริยสัจ 4 แนวปฏิบัติตามมรรค 8 การฝึกทำสมาธิ เพื่อช่วยเหนี่ยวนำให้จิตใจผ่อนคลาย มีสมาธิ จดจ่อและใจที่เบาสบาย ไม่ยึดติด หมกมุนอยู่กับความทุกข์ทางใจและจิตวิญญาณ อันจะช่วยให้ชีวิตมีความผาสุกทางด้านจิตใจ และจิตวิญญาณ และส่งเสริมให้เกิดความสมดุลในชีวิตมากขึ้น

หลังจากที่ท่านได้ตัดสินใจที่จะเข้าร่วมวิจัยในครั้งนี้ ท่านจะได้รับการจัดกลุ่มโดยการสุ่มให้อยู่ในกลุ่มที่ได้รับการดูแลตามปกติในระหว่างที่ได้รับเคมีบำบัด และเพิ่มเติมในส่วนโปรแกรมการพยาบาลแนวพุทธ ได้แก่ การสะท้อนปัญหา ประยุกต์ใช้แนวคำสอนอริยสัจ 4 การฝึกสมาธิ และอื่นๆ ตลอดจนการสะท้อนการฝึกเรียนรู้ตามคำสอนและการฝึกปฏิบัติตามหลักอริยสัจ 4 ส่วนกลุ่มควบคุม จะได้รับการดูแลตามปกติเพียงอย่างเดียว ข้อมูลที่เกี่ยวข้องกับศึกษาจะถูกบันทึกไว้ โดยไม่ระบุชื่อ ข้อมูลจะถูกรายงานในภาพรวมของงานวิจัยเท่านั้น ทั้งนี้ในระหว่างการศึกษาท่านมีสิทธิขอยกเลิก หรือออกจากการศึกษาได้ทุกเวลา โดยไม่มีผลกระทบใดๆ ต่อแผนการรักษาและการพยาบาล

การศึกษาครั้งผู้วิจัยขออนุญาตบันทึกข้อมูลเกี่ยวกับข้อมูลส่วนบุคคล ข้อมูลการเจ็บป่วย การรักษา ข้อมูลเกี่ยวกับกลุ่มอาการทางด้านจิตใจและความผาสุกทางด้านจิตวิญญาณ ก่อนการลงโปรแกรม การประเมินผลลัพธ์โดยประเมินกลุ่มอาการทางด้านจิตใจและความผาสุกด้านจิตวิญญาณ อีกจำนวน 2 ครั้ง คือ เมื่อมารับเคมีบำบัดครั้งที่ 3 และครั้งที่ 6

หากท่านมีข้อสงสัย หรือคำแนะนำ หรืออาจไม่สามารถเข้าร่วมในการศึกษาครั้งนี้ได้ ท่านสามารถติดต่อผู้วิจัยได้โดยตรง ทางโทรศัพท์หมายเลข 086-2886226 และหากท่านสนใจที่จะเข้าร่วมการศึกษาในครั้งนี้ ขออนุญาตท่านลงลายชื่อไว้ด้านล่างนี้ จะเป็นพระคุณยิ่ง ผู้วิจัยจะได้นัดแนะ วันเวลาที่จะมาพบกับผู้วิจัย หรือเข้าร่วมกิจกรรมตามโปรแกรมอีกครั้ง

สำหรับผู้เข้าร่วมการศึกษาวิจัย

ข้าพเจ้าได้รับการชี้แจงรายละเอียดดังกล่าวข้างต้น และเข้าใจในวัตถุประสงค์ของการศึกษาและกิจกรรมตลอดโปรแกรม ข้าพเจ้ามีความยินดีในการเข้าร่วมโครงการวิจัยในครั้งนี้ และอนุญาตให้บันทึกข้อมูลส่วนบุคคล และให้ความร่วมมือในการฝึกปฏิบัติตามโปรแกรม และประเมินผลตามโปรแกรมที่ได้วางแผนไว้

.....

ลายมือชื่อผู้เข้าร่วมวิจัย

.....

วัน/เดือน/ปี

Appendix C

Instruments for an Intervention Program

Appendix: C.1

Buddhist-based, Nurse-delivered Program (BbNdP) for Women with Breast Cancer Undergoing Chemotherapy

Buddhist-Based, Nurse-delivered Program (BbNdP) has been developed based on Buddhist principles (Four Noble Truths) to help women with breast cancer experiencing a psychological symptom cluster and to enhance spiritual well-being during conventional chemotherapy treatment.

Background

Women undergoing conventional treatment for breast cancer also have holistic health effects during their cancer disease and treatment trajectory. Psychological symptoms are one aspect in this experience. In breast cancer patients, literature reviews have identified a cluster of psychological symptoms that can be experienced at each stage of treatment. The most commonly encountered psychological dysfunctions are depression (Dodd, Cho, Cooper, & Miaskowski, 2010; Kim et al., 2008; Sanford et al., 2014; So et al., 2009), mood disturbances (Evangelista & Santos, 2012; Suwisith et al., 2008), and anxiety (Sanford et al., 2014; So et al., 2009). In addition, Nguyen et al. (2011) reviewed studies of symptom clusters in patients with breast cancer. The authors found that in four out of five recent studies the most prevalent psychological symptoms were depression and psychological distress. All of these psychological symptoms have been shown to affect the health outcomes of women with breast cancer (Paraskevi, 2012; So et al., 2009, 2010). Thus, there is a great need for professional health care

providers to find appropriate nursing programs for managing psychological symptom clusters that improve the holistic health outcome in this vulnerable group of women.

These symptom clusters are also related to or affected by spirituality (Caldeira et al., 2014). Spirituality can be applied as coping mechanisms to enhance both the psychological aspect and spiritual well-being among cancer patients significantly (Weaver & Flannelly, 2004). Coward and Kahn (2004) found that spiritual distress or spiritual disequilibrium characteristics, such as fear of dying and a sense of loneliness in a struggle to maintain self-identity, are present in women with breast cancer, and the maintenance of this stage requires the restoration of a sense of connection to self, others, and/or a high power. Manning-Walsh (2005) found that patients with breast cancer undergo highly stressful experiences, which are associated with psychological and spiritual difficulties. Moreover, research has shown that racial and/or ethnic groups may have particular coping strategies. For example, a study among African American women with breast cancer revealed that they used some form of spirituality to cope with their suffering (Reynolds, 2006; Tate, 2011).

The ability of spirituality to support or reduce suffering along one's disease journey is an important point. Mickley, Soeken, and Belcher (1992) studied 50 women with breast cancer and found that degree of religiousness may be an important variable affecting both the spiritual and psychological health of women with breast cancer. Likewise, Feher and Maly (1999) investigated coping in elderly women who were newly diagnosed with breast cancer and found that religious and spiritual faith can provide emotional and social support and meaning in their lives (Gaston-Johansson et al., 2013).

Thus, this concept was applied to the development of a program with the aim of reliving psychological symptom clusters in patients with breast cancer. This concept is congruent in terms of belief, faith, and culture as one's way of life and can enhance spiritual well-being in this group of patients. Therefore, the Buddhist-Based, Nurse-delivered Program (BbNdP) has been developed as an effective program to manage the psychological symptom cluster by way of promoting a spirituality based Buddhist theoretical framework. The aim of this article is to clarify the details of all of the BbNdP components and strategies for oncology nurses to deliver the intervention in order to enhance patient well-being during the breast cancer with chemotherapy trajectory.

Objective

To examine the Buddhist-based, Nursed-delivered Program (BbNdP) on psychological symptom cluster and spiritual well-being of women with breast cancer undergoing chemotherapy

Targeted population

The targeted population was women with breast cancer receiving chemotherapy treatment. The inclusion criteria that was used to select the sample from the target population were as follows: (1) Thai Buddhist woman with stage I-III breast cancer who are newly or recurrently diagnosed by a physician, (2) fully aware of her cancer diagnosis, (3) age more than 18 years, (4) receiving chemotherapy treatment with/without radiotherapy or other treatments, (5) reported to have a psychological

symptom cluster as indicated symptom clusters average distress score ≥ 2 by MSAS-PSYCH, (6) having no history of psychiatric or neurological disorders, and (7) able to read and speak Thai.

Setting

The study was conducted in Chemo-Infusion Center (CIC) at a university hospital, Southern, Thailand.

Duration

May, 2014 - January, 2016

Buddhist-based, Nurse-delivered Program

Buddhist-Based, Nurse-delivered Program has been developed using Buddhist principles (Four Noble Truths). The program was provided to the women with breast cancer undergoing chemotherapy at the first day of chemotherapy infusion to cycle 6 of chemotherapy therapy. The core strategies for alleviating the psychological symptom cluster and enhancing spiritual well-being were (1) raising self-awareness, (2) integrated Buddhist principles of Four Noble Truths, and (3) self-refection regarding psychological symptom cluster and progress of Buddhist practices. More details are discussed below:

1. Raising self-awareness: The first process of the program was developed based on the concept of self-awareness in which opportunities are given to patients to clarify the psychological symptom clusters from initial chemotherapy through completion of treatment. The main reason for participants to understand themselves is that when women with breast cancer accept planning for chemotherapy, they usually suffer from the side effects and prognosis. Hence, time is required for the patients to understand themselves. Consequently, patients are able to understand that potential problems sometimes threaten their life activities and may affect the outcome of treatment and well-being.

2. Integrated Buddhist principles of Four Noble Truths: The second process was objective of this section is to reduce psychological symptom clusters and promote spiritual aspects to enhance spiritual well-being and holistic health during the cancer trajectory. This method was applied based on Buddhist principles concurrent with the beliefs and faith of Buddhist patients with cancer or those interested in other religions. However, mainstream Buddhist doctrine was selected as one of the principles capable of assisting cancer patients by alleviating suffering from the cancer trajectory. Consequently, cancer patients can apply and integrate Buddhist principles to enhance their lives. The program applied the Dharma or Buddhist doctrine regarding nature as a state of suffering in the cancer trajectory of women with breast cancer, including ways of managing their suffering. The main principle, called the Four Noble Truths, clarifies understanding about the reality of life and ways to eradicate symptom distress during the cancer experience.

Activities:

2.1 Listening to Dharma Sermons**:** The participants suggested listening to modified Dharma sermons regarding suffering and ways of eliminating suffering. All of the contents were composed of the following six issues: (1) suffering and the cause of suffering, (2) Noble Eightfold Path, (3) Vipassana meditation practices, (4) the Three Common Characteristics, (5) equanimity, and (6) applying Buddhist principles. The CD and/MP3 recordings were provided for participants who tried to learn the Buddhist principles to understand and integrate these into the cancer trajectory.

2.2 Meditation practice VDO: Provided demonstrated meditation practice in order to the participant could follow the way of practices.

3. Self-reflection regarding psychological symptom cluster and progress of Buddhist practices. The last section was provided regarding what the participants learned and understood or areas in which they encountered some problems related to these activities in subsequent chemotherapy treatments. The aim of the activities was to evaluate the psychological symptom cluster and the progress of Buddhist practice follow the program during chemotherapy treatment.

Adding activity: Provided Buddhist Pocket Book (Appendix: C.2) for the participants in order to record related Buddhist practice or Buddhist activities during three weeks before receiving the chemotherapy at the next session.

Appendix C.2

Buddhist Pocket Book

ID……..…….…….

Buddhist Activities

Date	Activities	Duration	Note
	☐ Listening Modified Dharma Sermons ☐ Meditation ☐ Go to temple ☐ Generous offering ☐ Others……...……....		
	☐ Listening Modified Dharma Sermons ☐ Meditation ☐ Go to temple ☐ Generous offering ☐ Others……...……....		
	• • •		

โปรแกรมการพยาบาลแนวพุทธสำหรับสตรีมะเร็งเต้านมไทยที่ได้รับเคมีบำบัด

(Buddhist-based, Nurse-delivered Program for Women with Breast Cancer Undergoing Chemotherapy)

โปรแกรมการพยาบาลแนวพุทธ พัฒนาขึ้นตามหลักพุทธศาสนา (อริยสัจสี่) โดยมีวัตถุประสงค์เพื่อช่วยบรรเทากลุ่มอาการทางด้านจิตใจและส่งเสริมความผาสุกทางด้านจิตวิญญาณในสตรีมะเร็งเต้านมไทยที่ได้รับเคมีบำบัด

หลักการและเหตุผล

สถิติการตายและความทุกข์ทรมานจากภาวะมะเร็งเต้านม เป็นปัญหาทางด้านสาธารณสุขที่เพิ่มสูงขึ้นทั่วโลก สถิติในปี 2012 พบ ผู้ป่วยมะเร็งเต้านมรายใหม่ ประมาณ 1.7 ล้านคนของผู้ป่วยมะเร็งทั้งหมด นอกจากนี้ยังพบอัตราการตายร้อยละ 14 หรือ 522,000 คน ของผู้ป่วยมะเร็งเต้านมทั้งหมดเช่นเดียวกัน (WHO, 2015) และถึงแม้การรักษาจะมุ่งเป้าไปที่การบรรเทาความทุกข์ทรมานของการดำเนินโรค เช่น การรักษาด้วยยาเคมีบำบัด การรักษาด้วยวิธีการดังกล่าวก็ล้วนส่งผลกระทบต่อกาย จิตใจ อารมณ์ และจิตวิญญาณของผู้ป่วยได้เช่นเดียวกัน (Ferrel, et al., 1998) ดังนั้นปัญหาดังกล่าวจึงเป็นปัญหาสำคัญที่ต้องการได้รับช่วยเหลือ ศึกษาวิจัยเพื่อปรับปรุงการบริการให้เกิดความผาสุกในผู้ป่วยผู้ป่วยมะเร็งเต้านมต่อไป

การทำความเข้าใจอาการที่เกิดขึ้นระหว่างการดำเนินโรคและการรักษาในผู้ป่วยมะเร็งเต้านม แนวคิดกลุ่มอาการ (symptom cluster) ซึ่งนำเสนอโดยดอดค์และคณะ (Dodd, Miaskowski, & Paul, 2001) ช่วยทำให้เกิดความเข้าใจเกี่ยวกับกลุ่มอาการที่เกิดขึ้นพร้อมกันๆ และเป็นกลุ่มอาการที่มีความสัมพันธ์ซึ่งกันและกัน โดยกลุ่มอาการที่เกิดขึ้น จะมีผลกระทบต่อผลลัพธ์ทางสุขภาพมากกว่า อาการเดี่ยวๆอย่างมีนัยสำคัญ (Dodd, Miaskowski, & Paul, 2001) นอกจากนี้หลักฐานเชิง

ประจักษ์ต่างๆ ต่างยืนยันตรงกันว่ากลุ่มอาการต่างๆที่เกิดขึ้นในผู้ป่วยแต่ละราย ขึ้นอยู่กับชนิด ระยะของโรค และแผนการรักษาด้วยเช่นกัน (Bender, et al., 2005; Kim, et al., 2008; Roiland & Heidrich, 2011)

จากการทบทวนงานวิจัยกลุ่มอาการในผู้ป่วยมะเร็งเต้านมล่าสุดของ กูเยน และคณะ (Nguyen et al., 2011) พบว่า 4 ใน 5 ของการศึกษาพบกลุ่มอาการทางด้านจิตใจ เช่น ซึมเศร้า ภาวะบีบคั้นทางจิต กลุ่มอาการดังกล่าวจึงมีผลกระทบต่อผลลัพธ์ทางสุขภาพในผู้ป่วยกลุ่มดังกล่าวอย่างหลีกเลี่ยงไม่ได้ (Montazeri, 2008; Paraskevi, 2012; So et al., 2009, 2010) ดังนั้นจะเห็นได้ว่า ปัญหากลุ่มอาการทางด้านจิตใจในผู้ป่วยกลุ่มนี้ต้องได้รับการดูแลเอาใจใส่มากขึ้น

การทบทวนการศึกษาที่ผ่านมาเกี่ยวกับวิธีการที่จะช่วยบรรเทาอาการดังกล่าวในผู้ป่วยมะเร็งเต้านมพบว่า มีหลากหลายวิธี ซึ่งสามารถจัดเป็นหมวดหมู่ดังนี้ ได้แก่ การให้ความรู้ (Rawl et al., 2002) การสนับสนุนทางด้านจิตใจ (Arving et al., 2007) การสนับสนุนทางด้านสังคม (Coleman et al., 2005) กิจกรรมการออกกำลังกาย (Cadmus et al., 2009; Daley et al., 2007) การบำบัดแบบทางเลือก เช่น โยคะ (Rao et al., 2009) ดนตรีบำบัด (Lin, et al., 2011) การเจริญสติและสมาธิ (Henderson et al., 2012; Nidich et al., 2009) และวิธีแบบผสมผสาน เช่น การสนับสนุนทางด้านจิตใจ การให้ความรู้ (Sherman et al., 2012) และการให้คำปรึกษาทางโทรศัพท์ (Baker et al., 2012) เป็นต้น อย่างไรก็ตามการศึกษาส่วนใหญ่ เน้นการจัดการอาการเดี่ยวๆ และการศึกษาดังกล่าวทั้งหมด ศึกษาในบริบทตะวันตก ดังนั้นปัจจัยบางประการ เช่น ข้อมูลพื้นฐานทางประชากร ความเชื่อ วัฒนธรรม และสถานที่ในการเก็บข้อมูล ล้วนมีความแตกต่างกัน ดังนั้นการศึกษาวิธีการจัดการกลุ่มอาการทางด้านจิตใจในผู้ป่วยมะเร็งเต้านมในบริบทอื่นๆ จึงเป็นประเด็นสำคัญที่จะต้องได้รับการศึกษาพัฒนาต่อไป นอกจากนี้งานวิจัยที่ผ่านมามีข้อจำกัดต่างๆเช่น การคำนวณกลุ่มตัวอย่าง

การสูญหายของกลุ่มตัวอย่าง ทำให้ผลลัพธ์ที่ได้ ยังที่เป็นสงสัยเกี่ยวกับประสิทธิภาพของโปรแกรมและวิธีการต่างๆที่ให้กับผู้ป่วยกลุ่มดังกล่าว

ปัญหาที่กล่าวมาแล้วนั้น เป็นปัญหาที่สำคัญเช่นเดียวกันในประเทศไทย ทั้งสถิติกลุ่มผู้ป่วยที่เพิ่มสูงขึ้น (MPH, 2012) และจากการศึกษากลุ่มอาการที่เกิดขึ้นร่วมกันในผู้ป่วยมะเร็งเต้านม พบว่า กลุ่มอาการทางด้านจิตใจเป็นปัญหาที่สำคัญ (Phligbua et al., 2013; Suwisith et al., 2008) โดยเฉพาะในผู้ป่วยที่ได้รับยาเคมีบำบัด ซึ่งการจัดการกับปัญหาดังกล่าว จากการทบทวนงานวิจัยที่ผ่าน พบวิธีการจัดการที่คล้ายคลึงกัน และยังคงเน้นการจัดการปัญหาอาการเดี่ยวๆ ยังไม่พบการจัดการแบบกลุ่มอาการโดยเฉพาะ (Fakmanee, 2001; Sornboon, 2000)

ดังนั้นผู้วิจัยจึงสนใจที่ศึกษาและพัฒนาโปรแกรมที่ช่วยจัดการกลุ่มอาการทางด้านจิตใจ เพื่อช่วยลดกลุ่มอาการดังกล่าว และส่งเสริมให้เกิดความผาสุกทางด้านจิตวิญญาณ โดยวิธีการให้ความสำคัญ และส่งเสริมทางด้านจิตวิญญาณ ประยุกต์ใช้วิธีการทางศาสนา ซึ่งสอดคล้องกับความเชื่อ ความศรัทธาของผู้ป่วยชาวไทยพุทธ โดยการนำหลักศาสนาที่สำคัญคือ หลักอริยสัจสี่ เพื่อให้ผู้ป่วยเกิดความเข้าใจความทุกข์ทางจิตใจที่เกิดขึ้น และสามารถจัดการกับความทุกข์จากกลุ่มอาการทางจิตใจที่เกิดขึ้นได้ โดยดำเนินชีวิตตามหลักพุทธธรรมที่จะช่วยจรรโลงจิตใจ จิตวิญญาณให้เกิดความผาสุกให้แก่ตนเอง และสามารถอยู่ร่วมกับความเจ็บป่วยได้สำเร็จ และโดยเฉพาะในช่วงที่ให้การรักษาด้วยยาเคมีบำบัด

วัตถุประสงค์

เพื่อทดสอบผลของโปรแกรมการพยาบาลแนวพุทธต่อผลกลุ่มอาการทางด้านจิตใจและความผาสุกทางด้านจิตวิญญาณในสตรีมะเร็งเต้านมไทยที่ได้รับเคมีบำบัด

กลุ่มเป้าหมาย

สตรีมะเร็งเต้านมระยะที่ 1-3 ที่ได้รับการวินิจฉัยโดยแพทย์ และได้รับการรักษาโดยเคมีบำบัด ตั้งแต่ครั้งแรก ถึงมารับเคมีบำบัดครั้งที่ 6 เลือกกลุ่มตัวอย่างตามคุณสมบัติที่กำหนด ดังนี้

คุณสมบัติของกลุ่มตัวอย่าง

1. สตรีมะเร็งเต้านมไทยพุทธ ระยะที่ 1-3 ที่ได้รับการวินิจฉัยโดยแพทย์
2. สตรีมะเร็งเต้านมไทยพุทธ ที่ทราบผลการวินิจฉัยของโรคและแผนการรักษา
3. มีอายุมากกว่า 18 ปีขึ้นไป
4. มีคะแนนกลุ่มอาการทางด้านจิตใจมากกว่าเท่ากับ 2 คะแนนขึ้นไป (ด้วยแบบประเมิน MSAS-PSYCH)
5. ไม่มีประวัติการเจ็บป่วยด้วยโรคทางจิตเวชและระบบประสาท
6. สามารถสื่อสารเข้าใจได้โดยการใช้ภาษาไทย

สถานที่

การศึกษาเชิงทดลองแบบสุ่มครั้งนี้ศึกษา ณ ศูนย์เคมีบำบัด โรงพยาบาลมหาวิทยาลัยแห่งหนึ่งในภาคใต้

ระยะเวลา

ตั้งแต่ 1 พฤษภาคม 2557 ถึง 30 มกราคม 2559

โปรแกรมการพยาบาลแนวพุทธ

โปรแกรมการพยาบาลแนวพุทธ จัดทำขึ้นให้กับสตรีมะเร็งเต้านมที่ได้รับเคมีบำบัด โดยเริ่มจัดกิจกรรมตั้งแต่วันแรกที่ได้รับเคมีบำบัด ถึงครั้งที่6 ของการมารับยาเคมีบำบัด กิจกรรมของโปรแกรม เป็นกิจกรรมที่เพิ่มเติมจากการให้การพยาบาลตามปกติ ประกอบด้วย 3 กิจกรรมหลัก คือ (1) การรู้จักตนเอง (2) ประยุกต์หลักคำสอนอริยสัจสี่ และ (3) สะท้อนคิดเกี่ยวกับกลุ่มอาการทางด้านจิตใจ และการฝึกปฏิบัติแนวพุทธ (ตามโปรแกรม) ดังรายละเอียดดังนี้

1. การรู้จักตนเอง

จากความเจ็บป่วยด้วยมะเร็งเต้านม และเข้ารับการรักษาโดยเคมีบำบัด ในขั้นตอนแรกของโปรแกรม ได้ให้ความสำคัญกับกลุ่มตัวอย่างที่เข้าร่วมโปรแกรม โดยการสะท้อนคิดเกี่ยวกับภาวะโรค อาการ และปัญหาทั้งทางด้านจิตใจ ร่างกาย ความคิด ความเชื่อ และอื่นๆ เพื่อให้กลุ่มตัวอย่างฝึกการคิดการรับรู้ตนเองในสภาวะปัจจุบัน

กิจกรรมหลัก

1.1 กลุ่มตัวอย่าง เข้ารับการฟังการให้ความรู้เกี่ยวกับโรค การให้ยาเคมีบำบัด และการดูแลตนเอง ขณะที่ได้รับยาเคมีบำบัดจากพยาบาลศูนย์เคมีบำบัด (การพยาบาลตามปกติ)

1.2. ร่วมแสดงความคิดเห็นเกี่ยวกับอาการความไม่สุขสบายทางด้านจิตใจ และประเด็นอื่นๆ ที่เกี่ยวข้องกับผู้วิจัย

2. ประยุกต์หลักคำสอนอริยสัจสี่

ในขั้นตอนนี้ เป็นการนำหลักพุทธธรรมคือ หลักอริยสัจ 4 เข้ามาประยุกต์ใช้ในการทำความเข้าใจเกี่ยวกับโรค ความทุกข์/ปัญหาที่เกิดขึ้น ในระหว่างการดำเนินโรคและการรักษา หลักธรรมที่สำคัญได้แก่ อริยสัจ 4 (ทุกข์ สมุทัย นิโรธ และมรรค) โดยให้กลุ่มตัวอย่างฟังเทปธรรม

บรรยาย เกี่ยวกับอริยสัจ 4 พร้อมทั้งฝึกปฏิบัติหนทางแห่งมรรค คือการรักษาศีล 5 การฝึกปฏิบัติสมาธิ การประยุกต์ใช้ธรรมะในการดูแลตนเอง เพื่อให้เกิดการเรียนรู้หลักธรรม ที่สามารถนำมาประยุกต์ใช้ในระหว่างได้รับเคมีบำบัดได้ ทั้งนี้เพื่อให้เกิดความสงบทางด้านจิตใจ และจิตวิญญาณ

กิจกรรมหลัก

2.1 ฟังซีดีธรรมบรรยาย

สื่อประกอบ : ซีดีธรรมบรรยาย จำนวน 1 แผ่น โดยมีเนื้อหาแบ่งเป็น 6 หมวด

หมวดที่ 1 รู้จักตัวทุกข์ (Four Noble Truths: Suffering and cause of suffering)

หมวดที่ 2 รู้จักทางสายกลาง ทางดับทุกข์ (Four Noble Truths: Noble Eightfold Path)

หมวดที่ 3 รู้จักวิธีฝึกสติและวิปัสสนาสมาธิ (Four Noble Truths: Noble Eightfold Path, and Vipassana meditation)

หมวดที่ 4 รู้จักและเข้าใจกฎธรรมชาติ (กฎไตรลักษณ์) (The Three Common Characteristics)

หมวดที่ 5 รู้จักการปรับเปลี่ยนตน (Applying Buddhist doctrine)

หมวดที่ 6 รู้จักวางอุเบกขา (Equanimity)

2.2 ฝึกการเจริญสติ และวิปัสสนาสมาธิ (Mindfulness and Vipassana Meditation)

สื่อประกอบ

วิดีโอแสดงการฝึกเจริญสติ และวิปัสสนากรรมฐาน ระยะเวลา 12 นาที เนื้อหาประกอบด้วย 1) การเตรียมตัวก่อนการฝึกสมาธิ 2) วิธีฝึกการเจริญอานาปานาสติ และ 3) การฝึกวิปัสสนา

3. สะท้อนคิด กลุ่มอาการทางด้านจิตใจ และการฝึกปฏิบัติแนวพุทธ (ตามโปรแกรม)

จัดให้กลุ่มตัวอย่างมีการพูดคุย สะท้อนคิด เกี่ยวกับกลุ่มอาการทางด้านจิตใจมีการเปลี่ยนแปลง พัฒนาไปอย่างไร รวมทั้งติดตามผลจากการฝึกปฏิบัติตามโปรแกรม ทั้งนี้เพื่อประเมินกลุ่มอาการทางด้านจิตใจ รวมทั้งอาการอื่นๆ และติดตามการประยุกต์ใช้โปรแกรมร่วมด้วย

สื่อประกอบอื่นๆ

สื่อประกอบเพิ่มเติม คือ สมุดบันทึกกิจกรรมแนวพุทธ จัดทำขึ้นเพื่อให้กลุ่มตัวอย่างบันทึกกิจกรรมต่างๆ ในระหว่างที่รอเข้ารับการให้เคมีบำบัดในรอบต่อไป (ระยะเวลา 3 สัปดาห์) เช่น การบันทึกการฟังซีดี/เทปธรรมบรรยาย การฝึกสมาธิ การไปวัด ทำบุญ ฟังธรรมในวัด ฯลฯ

สมุดบันทึกกิจกรรมแนวพุทธ

ID……

กิจกรรมแนวพุทธ

วันที่	กิจกรรม	ระยะเวลา	บันทึก
	☐ ฟัง MP3 ธรรมะ ☐ ฝึกสมาธิ ☐ ไปวัด ☐ ทำบุญ ☐ อื่นๆ…….. ……		
	☐ ฟัง MP3 ธรรมะ ☐ ฝึกสมาธิ ☐ ไปวัด ☐ ทำบุญ ☐ อื่นๆ…….. ……		
	• • •		

Appendix D

LIST OF EXPERTS

LIST OF EXPERTS

No.	Name	Institute
1.	Associate Professor Dr. Tassanee Thongprateep	Kuakarun Faculty of Nursing, Navamindradhiraj University, Thailand.
2.	Associate Professor Dr. Wandee Suttharangsee	Department of Psychiatric Nursing, Faculty of Nursing, Prince of Songkla University, Thailand.
3.	Associate Professor Dr. Urai Hatthakit	Department Administration of Nursing Education and Nursing Service, Faculty of Nursing, Prince of Songkla University, Thailand.
4.	Associate Professor Dr. Kittikorn Nilmanat	Department of Medical Nursing, Faculty of Nursing, Prince of Songkla University, Thailand.
5.	Ms. Paradee Prechawittayakul	Cancer Information Center, Faculty of Medicine, Prince of Songkla University, Hatyai, Songkhla, Thailand.

Appendix E

Additional Data Analysis

Additional Data Analysis

Table 19

Comparison of the Experimental Group and the Control Group Classified by Background Characteristics (Additional Data)

Background Data	Experimental Group *n1* = 54		Control Group *n2* = 54	
	n	*%*	*n*	*%*
Social support				
Parent	18	33.3	15	27.8
Spouse	40	74.1	30	55.6
Children	27	50.0	26	48.1
Relatives	5	9.3	1	1.9
Friends	5	9.3	5	9.3
Siblings	13	24.1	15	27.8
Nephew	1	1.9	4	7.4
Belief of cancer cause				
Karma (Buddhist)	16	29.6	16	29.6
Lifestyle	30	55.6	27	50.0
Genetics	15	27.8	14	25.9
Superstition	1	1.9	-	-
Unknown	13	24.1	14	25.9
Other	9	16.7	7	13.0
Religious practices				
Buddhist reading	30	55.6	15	27.8
Meditation	17	31.5	15	27.8
Generous offering	54	100.0	52	96.3
Go to temple	50	92.6	52	96.3
Prayer	33	61.1	26	48.1
Complementary therapies				
Yes	17	31.5	19	35.2
Medicinal herbs	14	82.4	15	78.9
Folk medicine	5	29.4	4	21.1
Massage	-	-	1	5.3
Co-morbidity	23	42.6	28	51.9
DM	4	17.4	2	7.1
HT	5	21.7	14	50.0
Other	21	91.3	20	71.4

Table 20

Mean and Standard Deviation of Psychological Symptom Cluster Across Time

MSAS-PSYCH	Experimental Group			Control Group		
	M (SD)			*M (SD)*		
	Baseline	CC-3	CC-6	Baseline	CC-3	CC-6
	n1 = 54	*n1* = 50	*n1* = 45	*n2* = 54	*n2* = 53	*n2* = 48
Worrying	5.67(2.50)	2.66(2.82)	2.11(2.23)	5.43(2.10)	2.80(2.25)	2.17(2.40)
Feeling sad	4.22(2.79)	2.16(2.37)	1.73(2.07)	3.50(2.67)	1.87(2.39)	1.88(2.39)
Feeling nervous	5.17(2.50)	1.67(2.17)	1.67(2.17)	3.72(2.54)	2.13(2.25)	2.13(2.25)
Difficulty to sleep	5.17(2.51)	3.28(2.63)	2.98(2.61)	3.37(3.28)	3.21(3.21)	4.13(3.14)
Feeling irritability	4.03(2.77)	2.64(2.53)	3.16(2.55)	3.37(3.23)	3.55(2.53)	4.04(2.52)
Difficulty concentrating	3.72(3.14)	2.0(2.10)	1.89(2.04)	3.00(2.80)	1.87(2.17)	1.90(2.30)

Table 21

Mean and Standard Deviation of Psychological Symptom Cluster in the Experimental Group Across Time

MSAS-PSYCH	Experimental Group								
	M (SD)								
	Baseline (n1 =54)			CC-3 (n1 =50)			CC-6 (n1 =45)		
	frequently	severity	bothering	frequently	severity	bothering	frequently	severity	bothering
Worrying	2.24(.79)	1.96(.80)	1.46(1.21)	1.06(1.09)	1.0(1.0)	.6(.90)	.78(.82)	.76(.80)	.58(.81)
Feeling sad	1.56(.94)	1.52(.96)	1.15(1.01)	.84(.93)	.82(.89)	.50(.76)	.64(.77)	.67(.76)	.42(.75)
Feeling nervous	1.87(.82)	1.78(.853)	1.52(.98)	.86(.92)	.74(.77)	.58(.81)	.64(.80)	.62(.77)	.40(.80)
Difficulty to sleep	1.46(1.3)	1.33(1.24)	1.46(1.00)	1.44(1.12)	1.14(.90)	.70(.83)	1.38(1.21)	1.04(.90)	.56(.78)
Feeling irritability	1.46(1.00)	1.35(.91)	1.22(.92)	1.1(1.0)	.92(.85)	.58(.81)	1.22(.97)	1.04(.82)	.89(.98)
Difficulty concentrating	1.37(1.12)	1.24(1.02)	1.11(1.07)	.82(.87)	.76(.77)	.42(.67)	.80(.86)	.67(.67)	.42(.65)

Table 22

Mean and Standard Deviation of Psychological Symptom Cluster in the Control Group Across Time

MSAS-PSYCH	Control Group								
	M (SD)								
	Baseline (*n2* =54)			CC-3 (*n2* =53)			CC-6 (*n2* =48)		
	frequently	severity	bothering	frequently	severity	bothering	frequently	severity	bothering
Worrying	2.17(.82)	1.80(.68)	1.46(.86)	.75(.80)	.79(.81)	.53(.79)	.88(.95)	.75(.81)	.54(.74)
Feeling sad	1.33(.97)	1.17(.90)	1(.91)	.72(.90)	.64(.81)	.51(.77)	.77(.95)	.63(.78)	.48(.77)
Feeling nervous	1.43(.90)	1.26(.85)	1.04(.93)	.89(.93)	.79(.84)	.43(.69)	.83(.88)	.799.87)	.50(.61)
Difficulty to sleep	1.22(1.2)	1.13(1.08)	1.02(1.05)	1.26(1.27)	1.0(1.0)	.89(1.1)	1.71(1.2)	1.40(1.02)	1.02(1.10)
Feeling irritability	1.41(1.17)	1.20(1.07)	1.13(1.08)	1.47(1.0)	1.21(.84)	.87(.83)	1.63(1.02)	1.33(.80)	1.08(.84)
Difficulty concentrating	1.06(.97)	1.02(.94)	.93(.94)	.74(.85)	.64(.73)	.49(.72)	.81(.93)	.67(.78)	.42(.71)

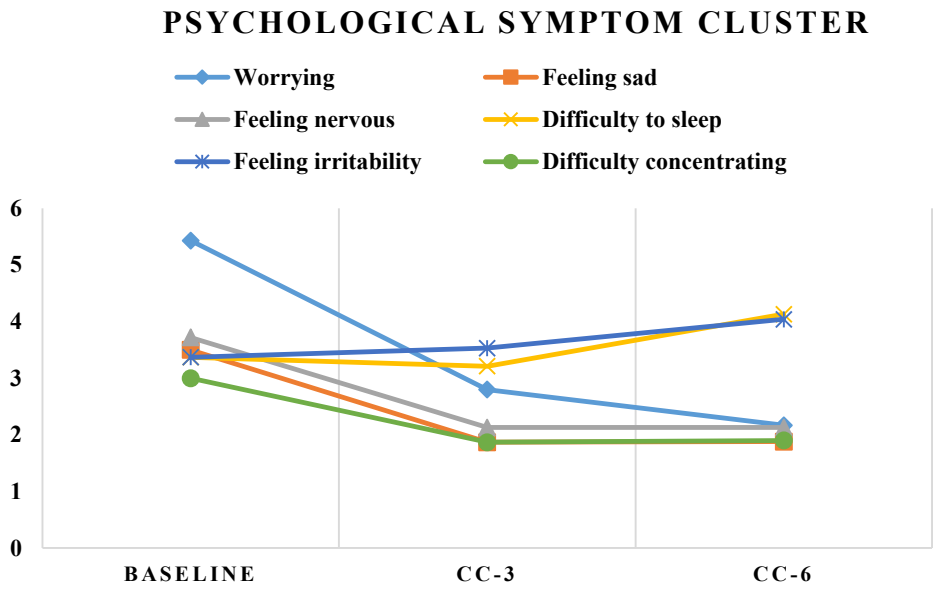

Figure 9. Mean scores of psychological symptom cluster in the experimental group across time.

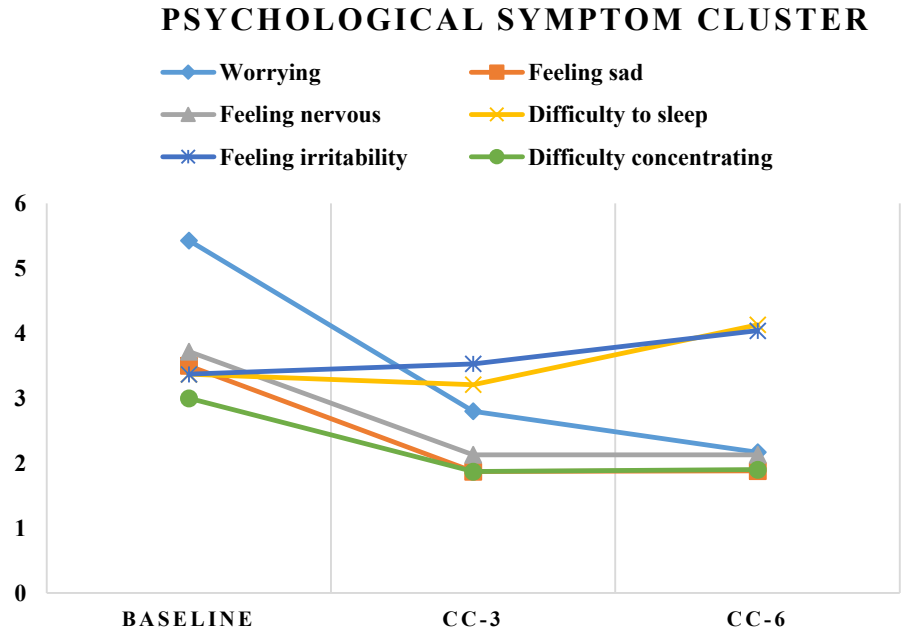

Figure 10. Mean scores of psychological symptom cluster in the control group across time.

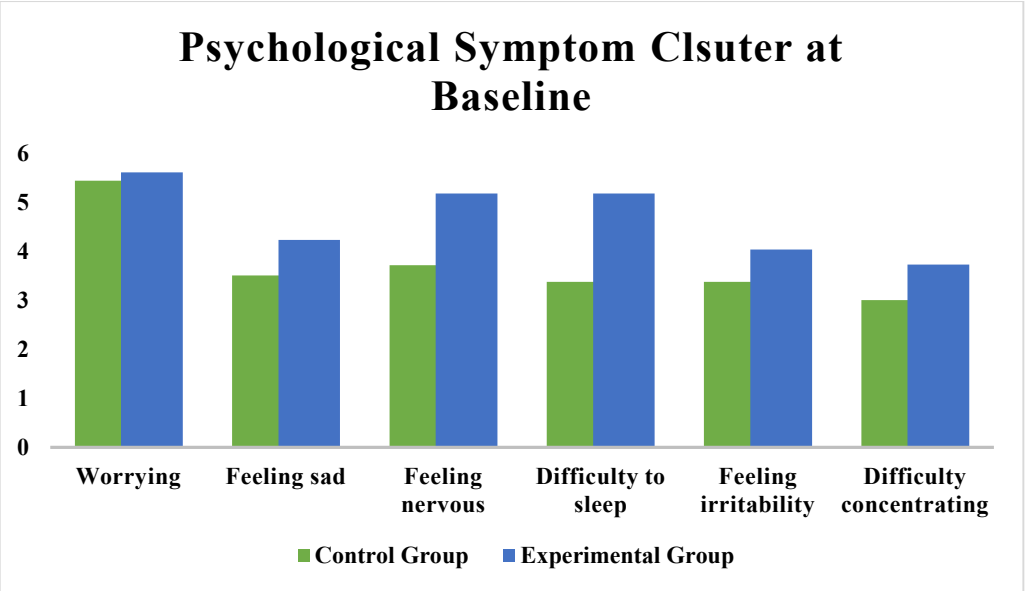

Figure 11. Comparison mean scores of psychological symptom cluster between the experimental group and the control group at baseline.

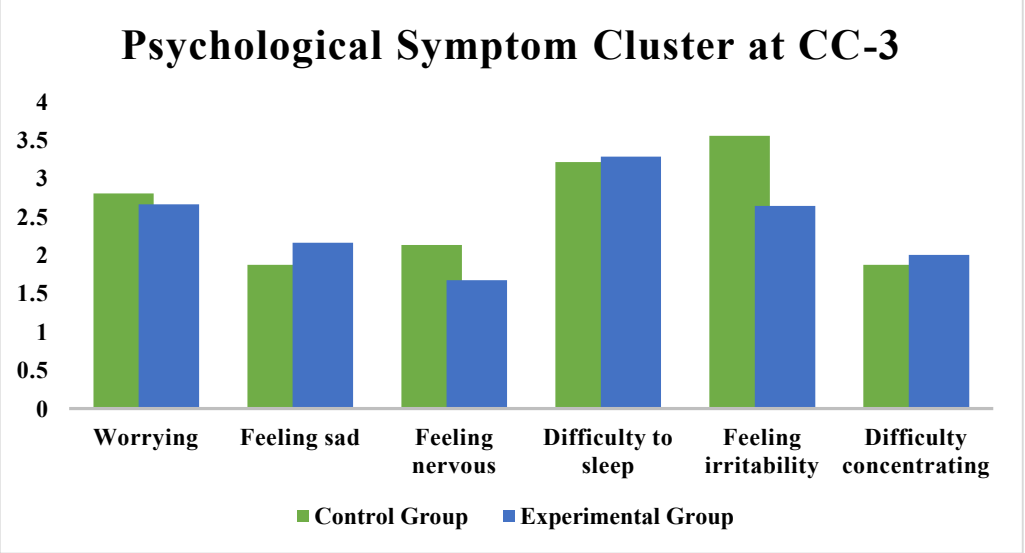

Figure 12. Comparison mean scores of psychological symptom cluster between the experimental group and the control group at chemotherapy cycle 3 (CC-3).

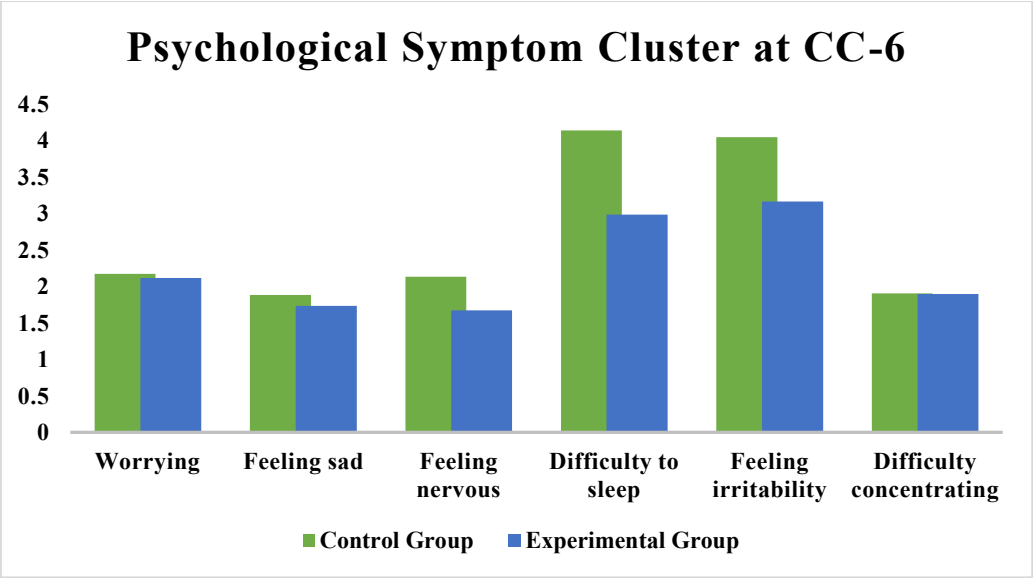

Figure 13. Comparison mean scores of psychological symptom cluster between the experimental group and the control group at chemotherapy cycle 6 (CC-6).

Table 23

Mean and Standard Deviation of Spiritual Well-Being Between the Experimental Group and the Control Group Across Time

TSWBATPBC	Experimental Group			Control Group		
	Mean (SD)			Mean (SD)		
	Baseline n1 = 54	CC-3 n1 = 50	CC-6 n1 = 45	Baseline n2 = 54	CC-3 n2 = 53	CC-6 n2 = 48
Happiness in life	16.28(4.24)	19.22(3.56)	19.58(3.04)	18.00(4.18)	19.45(3.90)	18.71(3.61)
Acceptance of chronic illness	16.56(5.05)	18.68(3.03)	19.04(2.94)	17.57(5.26)	18.51(3.72)	17.27(3.55)
Life equilibrium	15.01(3.40)	14.22(2.48)	14.91(2.27)	14.98(3.52)	14.53(2.52)	14.25(2.65)
Passion for life	22.69(2.19)	19.50(2.39)	19.80(2.82)	22.31(2.31)	19.75(2.32)	19.39(2.83)
Self-transcendence	17.50(2.27)	15.34(1.77)	15.38(2.26)	17.70(2.26)	15.19(1.59)	15.27(1.89)
Optimistic personality	15.96(3.90)	15.34(1.77)	14.93(3.00)	15.33(4.24)	15.19(1.59)	13.29(3.50)
A purpose in life	17.30(2.45)	15.48(3.00)	15.84(1.96)	16.44(3.57)	14.83(2.80)	15.02(3.14)
Willingness to forgive	10.43(1.91)	9.26(1.22)	9.40(1.40)	9.91(1.88)	9.01(1.78)	8.93(1.89)

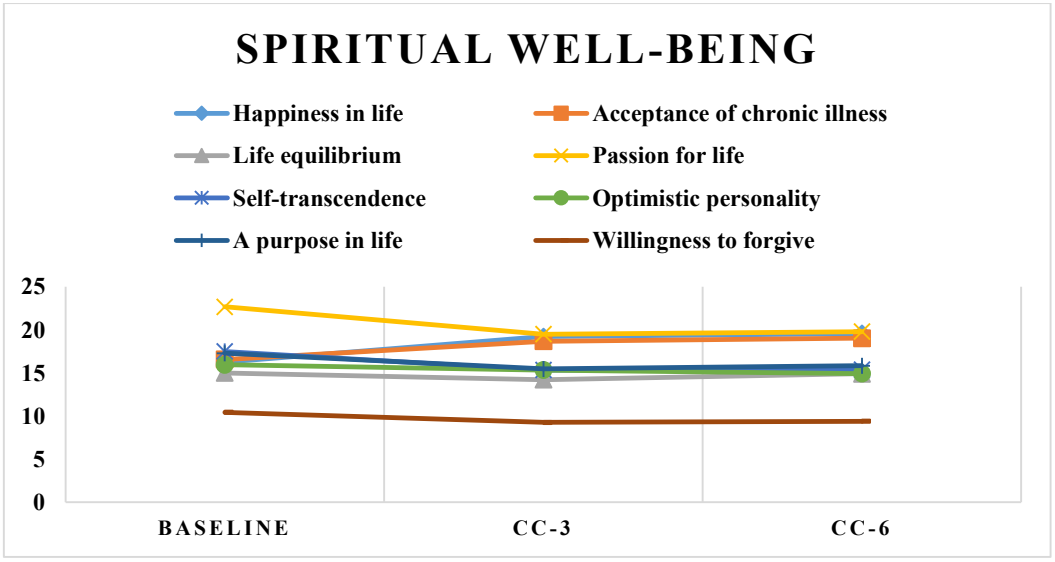

Figure 14. Mean scores of spiritual well-being in the experimental group across time.

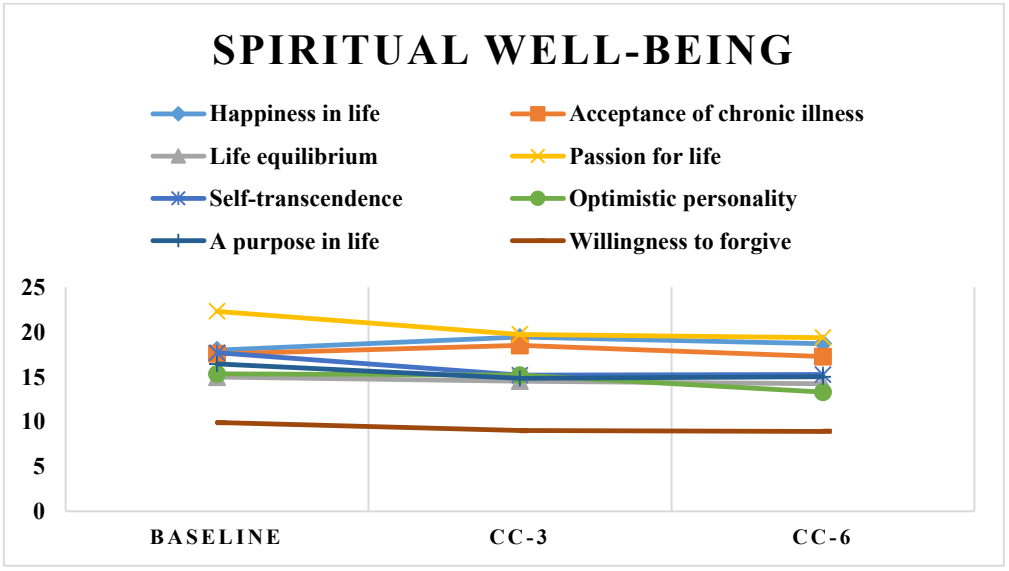

Figure 15. Mean scores of spiritual well-being in the control group across time.

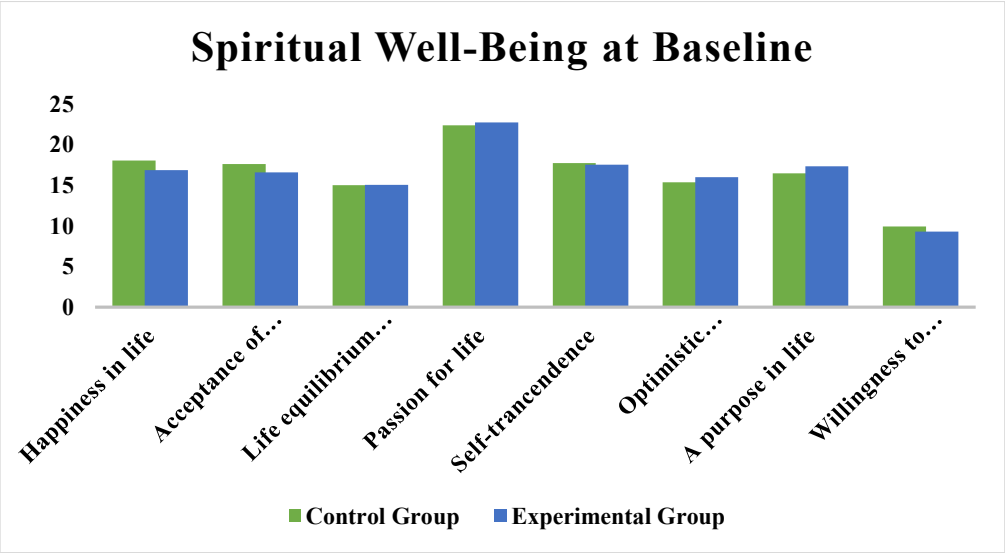

Figure 16. Comparison mean scores of spiritual well-being between the experimental and the control group at baseline.

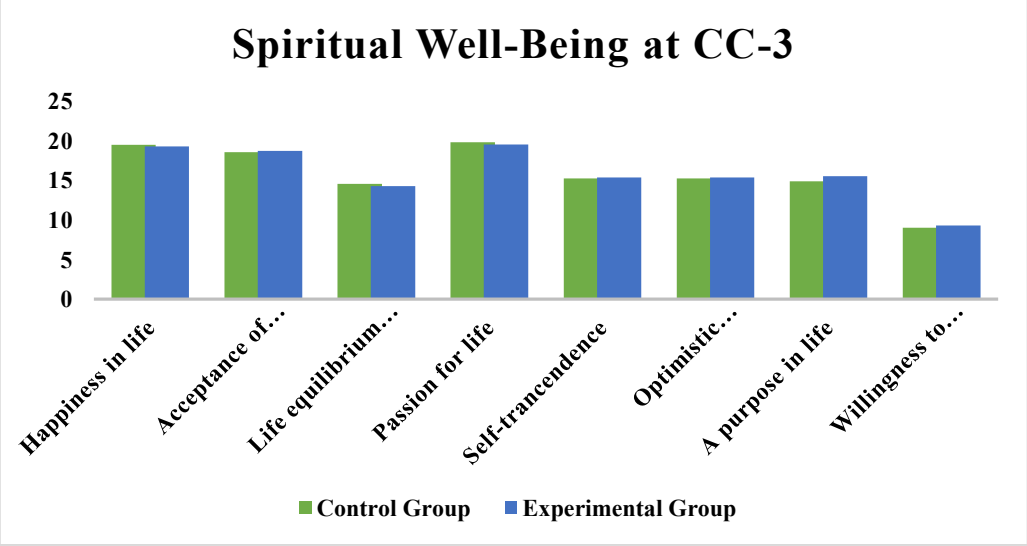

Figure 17. Comparison mean scores of spiritual well-being between the experimental group and the control group at chemotherapy cycle 3 (CC-3).

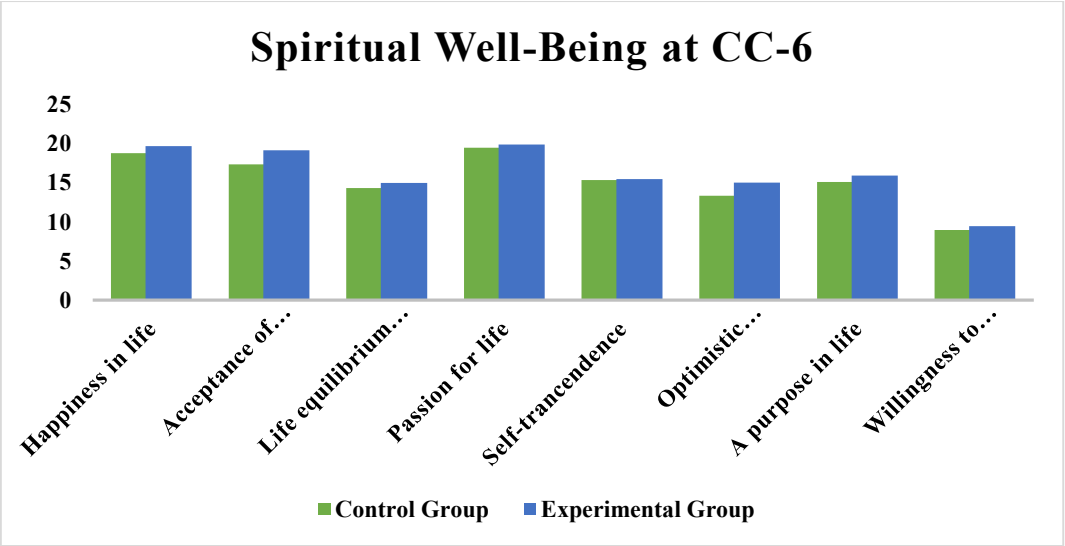

Figure 18. Comparison mean scores of spiritual well-being between the experimental group and the control group at chemotherapy cycle 6 (CC-6).

Table 24

Buddhist Activities Record of the Experimental Group During Chemotherapy Treatment

Activities	*n1* = 54	
	n	%
Listening to modified Dharma sermons	32	59.3
Meditation	42	77.8
Go to temple	54	100
Generous offering	54	100
Other activities		
Ordained as a nus	2	3.7

VITAE

Name Mrs. Samonnan Thasaneesuwan

Student ID 5410430005

Education Attainment

Degree	Name of Institution	Year of Graduation
Bachelor of Nursing Science	Prince of Songkla University	1998
Master of Nursing Science (Adult Nursing)	Prince of Songkla University	2004

Scholarship Awards during Enrolment

Thai Government Scholarship and Graduate School, Prince of Songkla University, Thailand.

Work Position and Address

June 2007 – Present**,** a lecturer at Medical Nursing Department, Faculty of Nursing, Prince of Songkla University, Thailand**.**

April 1998 – May 2007, a registered nurse, Vachira Phuket Hospital, Thailand

Address:

Adult and Elderly Nursing Department, Faculty of Nursing, Prince of Songkla University, Thailand**.**

International Nursing Conference

Thasaneesuwan, S., & Hatthakit, U. (2013). Wisdom health in context of Thailand: A literature review. Poster presentation at The 16th East Asian Forum of Nursing Scholars (EAFON), "Developing International Networking for Nursing Research", February 21-22, 2013, Bangkok, Thailand.

Thasaneesuwan, S, Petpichetchian, W., Chinnawong, T. (2013). Symptom Clusters in Women with Breast Cancer and Their Contributing Factors: A Literature review. Poster presentation at the 2013 International Nursing Conference on "Health, Healing, & Harmony: Nursing Values", 1-3 May, 2013, Phuket Orchid Resort and Spa, Phuket, Thailand.

Visiting Scholar

7 - 20 May 2012, University of Miyazaki, Japan.

March – June 2015, University of Virginia School of Nursing, the United States of America.