A Randomized Controlled Trial of a Buddhist-based Nursing Program for Women with Breast Cancer

Samonnan Thasaneesuwan, Wongchan Petpichetchian, Tippamas Chinnawong*

Abstract: Psychological symptoms are commonly experienced in women with breast cancer undergoing chemotherapy. This study examined the effect of a Buddhist-based Nursing Program on psychological symptom experiences of these women. Ninety-three breast cancer women were randomized to either the experimental group (n = 45) receiving both the BNP and routine care, or the control group (n = 48) receiving only routine care at the outpatient department of a chemotherapy infusion center of a university hospital. The intervention consisted of 1) raising self-awareness; 2) integrating the Buddhist principles of the Four Noble Truths in the care of self; and 3) self-reflection regarding psychological symptom experiences and the progress of the Buddhist practices. The psychological symptom subscale of the Memorial Symptom Assessment Scale was used to measure psychological symptom experiences. Data were collected three times: at the start of chemotherapy as a baseline (T1), chemotherapy cycle-3 (T2), and chemotherapy cycle-6 (T3). Statistical analysis included descriptive statistics, chi-square test, independent t-test, and one-way repeated measures ANOVA.

There was a non-significant difference in the mean scores of psychological symptom experiences between the two groups, but there was a significant time difference and a significant interaction effect. These findings indicate that although the Buddhist-based Nursing Program might not have strong contribution to reducing psychological symptom experiences, its potential benefit might be stronger than that of routine care. Thus, this Program might be used as a complementary intervention in relieving psychological symptom experiences of women with breast cancer undergoing chemotherapy. However, it requires further testing with different groups in different locations.

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Introduction

The causes of death and suffering due to breast cancer and its treatment rank statistically high as a public health problem worldwide. Breast cancer has been identified as the first cancer site incidence in women.[1] It caused 521,000 deaths worldwide in

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2015.[1] Although treatments such as chemotherapy focus on alleviating disease intensity, the suffering caused by the disease and its treatment continues to affect the holistic health of the vulnerable group. Previous studies have shown that the toxicity of chemotherapy induces some serious side effects and increases the severity of treatment-related symptoms in women with breast cancer. These symptoms are both physical and psychological in nature.[2, 3]

Most women with breast cancer experience at least one psychological symptom. For a symptom to be experienced, once it occurs, its frequency, severity, and distress would be further perceived, evaluated, and responded to.[4] Psychological symptoms experienced by women with breast cancer have been studied extensively as they commonly persist throughout the course of chemotherapy. Some commonly experienced and studied of single psychological symptom are anxiety,[5] which is composed of multiple symptoms such as worry, nervousness, and restlessness,[6] and emotional distress[7] and depression,[5] which comprise a subset of symptoms such as being moody, and bored about things.[6] Generally, these symptoms are concurrent and may be hard to separate them from one another. Hence, efforts have been made to examine whether these symptoms are associated and form a set of symptoms.[2,3] Another study on women with breast cancer during chemotherapy has reported that a set of symptom cluster consisting of the symptoms of worrying and feeling sad was persistent across the whole chemotherapy cycle.[8] Furthermore, psychological symptom experiences, regardless of how they are presented, reflect one's psychological state, which can be further categorized into the emotional state and concentration state.[9] Thus, related psychological symptom experiences need to be closely observed in oncology care.

Psychological symptom experiences persist throughout the chemotherapy treatment, so they could also be related to or affect other dimensions of health.[10] For example, the level of anxiety could induce anticipatory nausea in breast cancer patients undergoing chemotherapy.[11] Moreover, it can lead to immunosuppression.[12] Depression is associated with a mitigated acceptance of chemotherapy treatment.[13] Similarly, another study on 238 women with breast cancer receiving chemotherapy found that emotional distress due to physical side effects such as nausea, hair loss, and tiredness led to an increased rate of a decision to discontinue the therapy and thoughts about quitting the treatment.[7] Therefore, these problems require the close investigation of interventions in order to minimize all possible psychological symptom experiences in women with breast cancer during chemotherapy.

In Thailand, Buddhism may influence people's lifestyle and cultivate a way of thinking that accompanies them throughout their life. The core of Buddhist teaching is the Four Noble Truths: 1) suffering; 2) cause of suffering; 3) ways to overcome suffering (the Noble Eightfold Path); and 4) the cessation of suffering.[14,15] The Four Noble Truths focus on understanding the true nature of life, suffering and obtaining wisdom to deal with suffering in order to accept reality, calm one's mind, and reach a state of serenity.[15] Illness is one natural phenomenon in the trajectory of life; this process is inevitable for every person. Women with breast cancer have no exception. They experience psychological symptoms during the trajectory of cancer and its treatment which is considered one kind of suffering[16] and this would affect their quality of life.[5] Helping women with breast cancer to come to term and walk through this journey is challenging for nurses.

Therefore, the Buddhist doctrine of the Noble Eightfold Path, the middle way to overcome suffering, served as the foundation to guide the nursing-based intervention in this study. It was hypothesized that the Noble Eightfold Path would help women with breast cancer to calm their mind[17] and gain insight,[18, 19] to accomplish the cessation of suffering, especially due to worry and feeling sad.

Previous studies[20-22] have documented improvements in psychological health by applying Buddhist teaching. For example, Bannasan et al. found positive outcomes in the Thai context by applying the Four Noble Truths to reduce fear of cancer recurrence and hopelessness in breast cancer survivors.[20] Moreover, a quasi-experimental study with breast cancer women receiving radiotherapy found that group therapy using a Buddhist-oriented program achieved higher level of consciousness, and lower anxiety and depression levels compared with the control.[22] In addition, the practice of Vipassana meditation and chanting has been shown to be effective in enhancing sleep quality in Thai elders.[23] As previous studies are mostly conducted with short-term follow ups (1 month[20] to 2 months[21,22]), studies are required investigating over a longer follow-up period. This is to respond to the fact that Buddhist-based practices, specifically meditation practices, require time to master. In addition, suffering from experiencing psychological symptoms can be found at any time throughout the course of cancer treatments including chemotherapy.

The current study acknowledged the need to find an effective intervention to alleviate psychological symptoms experienced by women with breast cancer by applying Buddhist teaching, in relation to Thai beliefs, faith and way of life. The Four Noble Truths and the Noble Eightfold Path are the essential Buddhist doctrines that may help women with breast cancer confront their psychological suffering.

Conceptual Framework and Review of Literature

A conceptualization of psychological symptoms experienced by women with breast cancer in this study was guided by a concept of symptom experience described in Dodd et al.'s Symptom Management Model (SMM).[4] Symptom experience includes perception of symptom (occurrence and frequency), evaluation of symptom (severity), and response to symptom (distress). Once any symptoms, including psychological symptoms, occur each of them are perceived, evaluated, and responded to. Thus, a combination of these three components of psychological symptoms reflect that such symptoms are experienced by women with breast cancer undergoing chemotherapy.

For the Buddhist-based nursing program, we applied the Four Noble Truths through the Noble Eightfold Path as a conceptual framework. Buddhist philosophy emphasizes the natural course of life, which consists of four major stages: birth, old age, related illness, and death.[14,15] These stages of life involve some levels of suffering. The Buddhist doctrine proposes ways to overcome suffering, especially when facing life-threatening illness such as breast cancer. The Four Noble Truths are the correct realization of: 1) suffering; 2) cause of suffering; 3) the way of achieving an end to suffering; and 4) the cessation of suffering. They provided as the conceptual framework of this intervention.

According to Buddhist teaching, psychological symptom experienced by women with breast cancer undergoing chemotherapy are one kind of suffering (*dukkha*). For example, women with breast cancer may worry regarding the progression of cancer or the side effects of chemotherapy. This can lead to feelings of irritability and/or nervousness, and when the psychological symptom experiences increase in intensity, they may experience a lack of proper solutions for these problems. In addition, these feelings might cause difficulties in concentration and/or sleep. Finally, they might even feel sad or depressed.

One way to overcome suffering is through the Noble Eightfold Path, which consists of eight rights: right view; right thought; right speech; right action; right livelihood; right effort; right mindfulness; and right concentration.[15,16] For training purposes, these can be further categorized into three groups that are collectively called the Trisikha.[14,15] The first group is

Sila Sikha (morality), involving training to achieve a higher level of morality in one's life (right speech, right action, and right livelihood). The second is *Samadhi Sikha* (meditation), training to obtain a higher consciousness level (right effort, right mindfulness, and right concentration). The third is *Panna Sikha* (wisdom); training to gain a higher level of wisdom (right view and right thought). The current study focused on only some of the paths; right view, right mindfulness, and right concentration.

The rationale was that women with breast cancer could follow the precepts of Buddhist morality and train to achieve high-level morality (right speech, right action and right livelihood). In addition, they could try to practice meditation (mindfulness and/or insight meditation) in order to gain mindfulness or recollection to develop wisdom. Wisdom (*panna*) refers 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*).[14, 15] The benefits of mindfulness meditation on psychological symptom experiences are obtained through the mechanism of attention regulation, body awareness, emotion regulation, and change in perspective on the self.[24] This can be explained by the mechanism of psychoneuroimmunology (PNI) in which bidirectional communication between the psychological symptom experiences and neuroendocrine-immune system may be developed. It is hypothesized that the PNI may reduce "activation of sympathetic nervous system and hormone-released in the hypothalamic-pituitary-adrenal (HPA) axis".[25(p.67)]

Consequently, following Buddhist practice, one can manage to control emotions, reduce irritability, increase concentration in order to calm down one's body and mind,[21] decrease the level of fear,[20] anxiety and depression,[22] and improve sleep quality.[23] Research related to Buddhist activities has revealed that reflection activities for 90-120 minutes/session could decrease depression and anxiety in chronic illness.[26] In addition, the daily practice of meditation for at least 30 minutes/day could bring balance to the body and mind as well as develop the correct understanding of the reality of life.[27] Moreover, regular meditation at home has been reported to relate with a better outcome of mood.[28] With regard to the prevalence and intensity of physical and psychological symptom experiences during chemotherapy, both types of symptom are persistent throughout the treatment.[29-31] Thus, we selected the mid-chemotherapy cycle (around 6-12 weeks)[30] and the completion of chemotherapy (around 12-24 weeks)[30] to measure the outcome in this study.

Study Aim and Hypothesis

The aim of this study was to investigate the effect of a Buddhist-based Nursing Program on the psychological symptom experiences of women with breast cancer undergoing chemotherapy. We hypothesized that the mean psychological symptom experiences scores at the third (CC-3, T2) and sixth (CC-6, T3) cycles of chemotherapy of the experimental group would be significantly lower than that at baseline (T1) and those of the control group.

Methods

Design: This was a randomized controlled trial with repeated measures (3-time points over approximately 4-month period). A single blind method was used to control for data collection bias where information about the participants was masked from the data collectors (research assistants).

Sample and Setting: The target population of the current study consisted of women newly diagnosed with breast cancer stage I-III receiving chemotherapy at the outpatient department of a chemotherapy infusion center (OPD-CIC) in a university hospital in southern Thailand from June 2014 to January 2016. They were recruited if they met the following inclusion criteria: 1) Thai Buddhist woman with stage I-III breast cancer who was newly diagnosed

by a physician; 2) fully aware of her cancer diagnosis; 3) aged >18 years; 4) starting chemotherapy; 5) having a psychological symptom score ≥2 (PSYCH-MSAS),[9] 6) having no history of psychiatric or neurological disorders; and 7) able to read and speak Thai.

The sample size was estimated using a significant criterion of a_2 = 0.05, power = 0.80, and the effect size (d) = 0.61 as calculated from a previous study.[32] The sample size needed for the study was 44 participants per group. To compensate for missing data due to drop-out rate, an extra 20% was added. The total number of participants was 54 per group.

A total of 114 eligible participants were initially approached. Four did not meet the criteria and two declined to participate in the study. Therefore, 108 participants participated and were randomly assigned either to the experimental or the control group using a minimized randomization program[33] to control the following confounders: age, history of drug allergy, chemotherapy regimen and stage of cancer. During the study period, 15 participants discontinued the study (9 and 6 participants in the experimental group and the control group, respectively). The major reasons were transferal to another medical facility or change of treatments. The final number of participants used for data analyses were 45 and 48 in the experimental and control groups, respectively (Figure 1).

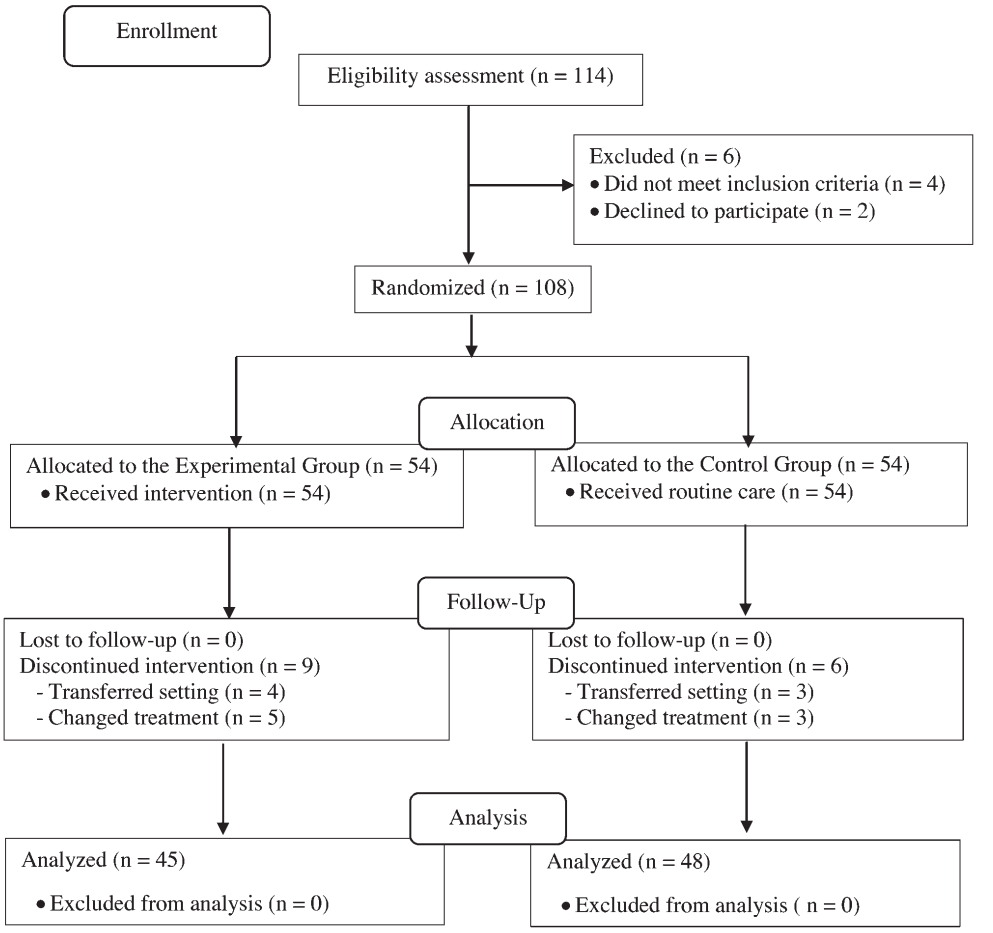

Figure 1. Flow diagram of participant enrollment.

Ethical considerations: The Research Ethics Committee of Faculty of Nursing and Faculty of Medicine, Prince of Songkla University approved this study (protocol number EC: 57-029-19-6). Informed consents were obtained before running the program after thoroughly discussing the details regarding the objective of the study, program implementation, benefits and potential risks, time consumption, confidentiality, and right to withdraw any time prior to the completion of data collection without any repercussion.

Instruments: Two instruments were used for data collection—the Socio-demographic Data Record Form and a psychological symptom subscale score of the Memorial Symptom Assessment Scale (PSYCH-MSAS). The Socio-demographic Data Record Form collected data regarding age, marital status, educational level, employment status, financial problem, stage of breast cancer, menstrual status, and type of treatment.

The PSYCH-MSAS is a subscale of the Memorial Symptom Assessment Scale developed by Portenoy et al.[9] It was used to measure psychological symptom experiences indicating one's psychological state as associated with the emotional state (worrying, feeling sad, feeling nervous, and feeling irritable) and the concentration state (difficulty sleeping and concentrating). The participants were asked to rate whether they had experienced each symptom in the past week. If they perceived they had any of these psychological symptoms, they were further asked to rate the following three dimensions: symptom frequency, severity and distress. The symptom frequency was scored on a 4-point Likert scale ranging from 1 (rarely) to 4 (almost constantly). The symptom severity was scored on a 4-point Likert scale ranging from 1 (mild) to 4 (very severe). The symptom distress was scored on a 5-point Likert scale ranging from 0 (not at all) to 4 (very much). If a symptom (out of six symptoms) was not experienced, the average score of that symptom was 0. The mean psychological symptom scores were computed by summing and then averaging all six symptoms. Higher scores indicated higher degree of frequency, severity and distress reflecting higher psychological symptom experiences. After permission by the developers was granted, the PSYCH-MSAS was translated into Thai, and the content and language appropriateness were validated by five experts: four nurse educators from different specialties: medical nursing (2), oncology nursing (1), psychiatric nursing (1), and one oncology nurse. The internal consistency reliability was tested with 30 participants, who met the same inclusion criteria as the study participants; it yielded a Cronbach's alpha coefficient of 0.98.

Intervention Program: The Buddhist-based Nursing Program (BNP) at hand was based on the conceptual framework of this study. Three main sessions were included: 1) raising self-awareness; 2) integrating the Buddhist principles of the Four Noble Truths in the care of self; and 3) self-reflection regarding psychological symptom experiences and the progress of Buddhist practices (Table 1). The primary investigator (PI) acted as the interventionist. To help the participants strictly and correctly perform what was being taught, a set of equipment was used. These included a voice recording (MP3) of Dhamma sermons to help the participants, a guided VCD regarding Vipassana meditation, and a log book to record the practices performed by the participant at home while waiting for the next chemotherapy cycle (usually 21 days/cycle).

On the first day of recruitment and after allocation was made, the PI began the BNP by exploring each participant and guiding them to become self-aware about what had been happening in their life. That was followed by listening to a voice recording of Dhamma sermons. Subsequently, meditation practice led by PI was performed for approximately 5-10 minutes. A VCD containing Vipassana meditation material was introduced, and it was suggested for them to play this during home meditation. Next, they were encouraged to perform self-reflection. Any source of suffering, including psychological symptom experiences was

discussed, and participants were encouraged to discover ways to overcome these by themselves. Additional education related to physical symptoms or other concerns were added on an individual basis. The log book was explained to them and recommended to use for record keeping. This also served the purpose of enhancing self-reflection. The session lasted approximately 90-160 minutes. Six sessions were conducted for each participant when they came for each chemotherapy cycle at the OPD-CIC (Table 1).

Table 1. Activities, site, and duration of the Buddhist-based Nursing Program (BNP)

Session of BNP/ Cycle of Chemo therapy	Purpose	Site	Activities	Duration (minutes)
1	1. Creating relationship	OPD-CIC	1. Meeting potential participant, introducing researcher and establishing relationship	10
	2. Discussing details of the program		2. Explaining briefly the BNP and intervention equipment (MP3 Dhamma sermons, VCD-guided meditation, and log book)	10
	3. Raising self-awareness - Recognize the true nature of life and illness.		3. Enhancing self-awareness of what has been happening in one's life	15
	4. Integrating Buddhist principles of Four Noble Truths in care of self - Understanding Buddhist teaching - Establishing clam mind/ mindfulness		4. Playing a record player: Dhamma sermons. ST leads meditation practice while watching VCD on Vipassana meditation	100
	5. Self-reflection		5. Motivating self-reflection	10
	6. Providing strategies to manage chemotherapy side effects		6. Providing additional help as deemed necessary on an individual basis	15
	7. The same as No. 4	Home	7. Daily self-practicing of meditation following the instructions on the voice recording and/or VCD	30
	8. Evaluating progress of practices		8. Recording all related Buddhist practices on a log book	10
2-6	1. Building rapport	OPD-CIC	1. Meeting participant as scheduled from the last session	10
	2. Raising self-awareness - Evaluating response to the BNP and chemotherapy treatment		2. Exploring feelings and any obstacles encountered during the past 21 days	15
	3. Motivating critical reflection about cessation of suffering		3. Enhancing self-reflection to help discover effective ways to overcome suffering	15
	4. The same as No. 3-6		4. Repeating steps 3-6 of session 1.	50
	5. The same as No. 7-8	Home	5. The same as the BNP session 1 (No. 7-8)	40

The content validity of the BNP was examined by the same panel of experts who validated the PSYCH-MSAS Thai version. The researchers collected comments to further revise the BNP to make it practical and feasible for use at home. A pilot study was conducted with five participants before the actual study to evaluate the feasibility of program administration related to the where and when the BNP should be delivered. No

outcome measure was performed. It was revealed that the most suitable time was at the pre-hydration phase of chemotherapy.

Routine care: The nursing care provided by oncology nurses involved health-related education about chemotherapy and other usual nursing care while receiving chemotherapy at the OPD-CIC.

Data collection procedures: First, the registered nurse notified the PI of women with breast cancer who might be eligible for the study. Second, women who met the inclusion criteria were approached, and they were informed about the study and informed consent obtained. Third, the participants were randomly assigned to either the experimental or the control group. The BNP was delivered to the experimental group and both groups received routine care from nurses working at the OPD-CIC. The PSYCH-MSAS was used at baseline (T1), on the first day they started chemotherapy, and repeated again after receiving the intervention at CC-3 (T2) and CC-6 (T3). In order to lessen measurement bias, two research assistants, blinded to participant allocation, administered the PSYCH-MSAS to them.

Preparing the interventionist: The BNP required that an interventionist with a deep understanding of the Four Noble Truths and other Buddhist-related principles. With this in mind, self-practice under supervision helped ensure the validity of the program. The PI attended a 10-day course taught by Goenka[34] in the tradition of Sayayi U Bakin at Poorano Dhamma Center, Thailand. In addition, she also attended some follow-up 1-day retreats during program implementation to ensure intervention reliability.

Preparing the research assistants (RAs): There were two RAs who worked at the OPD-CIC who were instructed in quality administration of the PSYCH-MSAS.

Data analysis: Descriptive statistics for categorical variables were presented as frequency and percentage; continuous variables were reported as mean (SD) and range as appropriate. The chi-square or independent t-test was used to compare the characteristics of the experimental and control groups depending on the type of data. The independent t-test was used to compare the between-groups difference at each time point, and one-way repeated measures analysis of variance (one-way RM-ANOVA) was used to compare the difference across the three time points.

Results

All participants in both groups were Thai Buddhist women with breast cancer Stage I-III. At baseline, they were comparable in demographic variables of age, marital status, education level, occupation, monthly income, sufficiency of income, menstrual status, and regimen of chemotherapy (**Table 2**).

Table 2. Comparison of background data between the experimental and control groups

Background Data	Experimental Group n = 54		Control Group n = 54		t/c^2	*p*-value
	n	%	n	%		
Age (*M/SD*) (range)	47.02 (8.62)	(31-65)	50.02 (9.69)	(31-74)	1.70[a]	0.09
Marital status						
Single	10	18.5	12	22.2	0.88[b]	0.64
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[b]	0.24

Table 2. Comparison of background data between the experimental and control groups (cont.)

Background Data	Experimental Group n = 54		Control Group n = 54		t/c^2	*p*-value
	n	%	n	%		
Grade 7-9	5	9.3	3	5.6		
Grade10-12/High School 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[b]	0.36
Blue-collar/White-collar/	35	64.8	30	55.6		
Business Owner						
Government Officer	14	25.9	14	25.9		
Salary (baht)						
< 25,000	33	61.1	34	63.0	0.04[b]	0.84
≥ 25,000	21	38.9	20	37.0		
Financial problem						
No	44	81.5	46	85.2	0.27[b]	0.60
Yes	10	18.5	8	14.8		
Stage of cancer						
Stage I	11	20.4	15	27.8	0.99[b]	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	0.60[b]	0.44
Menstruation	22	40.7	26	48.1		
Chemotherapy Regimen						
FAC	29	53.7	30	55.6	0.04[b]	0.85
AC plus Taxane	25	46.3	24	44.4		

Note. [a] = independent t-test, [b] = chi-square test; FAC = 5-Fluorouracil, Doxorubicin, and Cyclophosphamide; AC = Doxorubicin and Cyclophosphamide

Regarding psychological symptom experiences, worrying and feeling nervous were rated the highest scores of the emotional state at baseline in both the experimental and control groups. Difficulty sleeping, a symptom associated with the concentration state was rated the highest score. The total psychological symptom score of the experimental group at baseline was slightly higher than that of the control group (Table 3).

Table 3. Mean and standard deviation of psychological symptom experience (six items) between the experimental and control groups over time

PSYCH-MSAS	Experimental Group			Control Group		
	M (*SD*)			*M* (*SD*)		
	Baseline n = 54	CC-3 n = 50	CC-6 n = 45	Baseline n = 54	CC-3 n = 53	CC-6 n = 48
1. 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)
2. 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)
3. 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)
4. Difficulty sleeping	5.17 (2.51)	3.28 (2.63)	2.98 (2.61)	3.37 (3.28)	3.21 (3.21)	4.13 (3.14)
5. Feeling irritable	4.03 (2.77)	2.64 (2.53)	3.16 (2.55)	3.37 (3.23)	3.55 (2.53)	4.04 (2.52)
6. 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)
Total M (SD)	26.87 (11.62)	14.92 (11.00)	13.53 (10.48)	22.76 (11.34)	14.68 (10.97)	16.23 (12.30)

A one-way RM-ANOVA was conducted to determine between-group difference of the mean scores of psychological symptom experiences over time. No group difference was found (p>.05) but there was a significant time difference (p < .01) and the interaction between time and group was also significant (p < .05) (**Table 4**). Subsequently, a post-hoc pairwise comparison using Bonferroni test was conducted to examine the time difference. Table 5 shows that there were significant differences in psychological symptom experiences of the experimental group between T1 and T2 (p < .001) and between T1 and T3 (p < .001). Similar findings were found in the control group (**Table 5**). Figure 2 displays the interaction effect of time and group where the psychological symptom experiences scores declined from T1 to T2 to T3 in the experimental group but only T1 to T2 in the control group.

Table 4. One-way repeated measures ANOVA of psychological symptom experience between the experimental and control groups over time

Source of variation	SS	df	MS	F	h^2	*p*-value
Between-subject effects						
Group	65.11	1	65.11	0.26	0.00	0.61
Error	22948.49	91	252.18			
Within-subject effects						
Time	5763.59	1.90	3040.26	42.57	0.32	0.00
Time*Group	640.58	1.90	337.90	4.73	0.05	0.01
Residuals	12320.54	172.51	71.42			

Table 5. Pairwise comparison of psychological symptom experience between the experimental and control groups over time using Bonferroni test

Group	Mean Difference				
	(I) Time	(J) Time	(I-J)	Std. Error	*p*-value
Experimental Group	Baseline	CC-3	11.48	1.70	.000
		CC-6	13.48	1.82	.000
	CC-3	CC-6	2.00	1.57	.625
Control Group	Baseline	CC-3	7.60	1.84	.000
		CC-6	6.04	1.91	.008
	CC-3	CC-6	-1.56	1.32	.723

Buddhist-based Nursing Program for Women with Breast Cancer

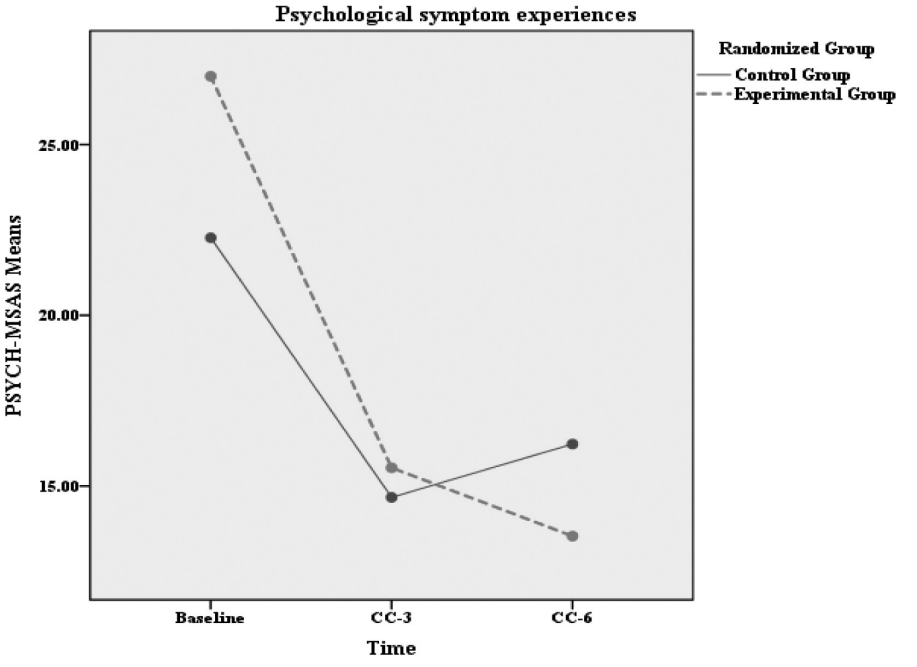

Figure 2. Mean scores of psychological symptom experience between the experimental and control groups over time.

Discussion

The Buddhist-based Nursing Program was tested in this study with Thai women with breast cancer. It involved the application of Buddhist teachings focusing on the Four Noble Truths: obtaining the correct understanding of reality, understanding of suffering caused by illness, applying the Noble Eightfold Path, and resulting in eliminating suffering to reduce frequency, severity and distress of psychological symptom experiences during chemotherapy treatment. Even though the results did not show a significant difference in the psychological symptom mean scores between the experimental group and the control group, there were significant time differences and interaction effects of time and the BNP.

Two main reasons may have influenced the study results. Firstly, the participants in the control group could also learn and perform religious practices, such as merit making, listening to *Dhamma* sermons, chanting, and even practicing meditation in their daily life prior to or soon after they were diagnosed of having cancer. When Thai people are sick, they usually seek help from these religious practices because of their belief about bad deeds-induced illness (bad Karma), including cancer. This was in line with the findings of Lundberg and Trichorb's study.[35] They found that for Thais with cancer undergoing radiation therapy, more than half expressed a feeling of "acceptance/calmness" as they believed in the Law of Karma, regardless of gender. Additionally, more than one-third of the participants coped with cancer diseases by using meditation. This Buddhist belief regarding bad Karma is strongly supported by a recent qualitative study with women with breast cancer in Southern Thailand.[36] Not only did

Buddhism help them accept their fate but it also helped them to deal with these stressful life situations better through performing religious practices. Moreover, it is worth noting that in Thailand there are many temples and meditation centers everywhere, which are easily accessible to them.

Secondly, results may have affected by a low-to-moderate intensity of Buddhist practice, especially listening to *Dhamma* sermons and *Vipassana* meditation practice. As found in the log book records, only 59% of participants in the experimental group regularly listened to the voice recording at home, which might or might not be sufficient to understand fully the essential Buddhist teachings. Similarly, the effect of 5-10 minutes of *Vipassana* meditation during chemotherapy infusion and at home might have been insufficient. In addition, our study found that 9% of the participants in the experimental group developed sudden severe side effects from chemotherapy, especially nausea, vomiting, and chest discomfort despite having already received standard anti-nausea/vomiting medication. Therefore, they did not feel ready to practice meditation. As reviewed from the log book, about 78% of the participants had consistent compliance with this activity. The main reason related to the recovery from chemotherapy side effects lasted ~14 days, so the participants often had only 7 days to practice meditation before receiving the next chemotherapy cycle. In addition, after 2 weeks of chemotherapy, there were some persisting symptoms such as fatigue and insomnia which might interfere with the patients' daily life activities regardless of medications being given to treat these symptoms. Consequently, the effect of the BNP program in alleviating psychological symptom experiences in this target population was ambiguous.

The effectiveness of meditation practice becomes visible within approximately 450 minutes per month when serenity of the mind is achieved.[37] Hsu et al.[31] studied symptom clusters in 103 women with breast cancer after receiving chemotherapy (21-day chemotherapy) and found that the target group showed the occurrence of symptoms related to the neurocognition cluster (pain, shortness of breath, vomiting, memory loss, and numbness), emotional-nausea cluster (nausea, disturbed sleep, distress/upset, drowsiness, and sadness), and fatigue-anorexia cluster (fatigue, lack of appetite, and dry mouth) within 14 days. At 3-5 days after receiving chemotherapy, they found the highest occurrence of the fatigue-anorexia and emotional-nausea clusters. Similarly, another study[38] found that women with breast cancer exhibited a 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. Thus, the intensity, consistent meditation practice, and duration of symptoms related to the treatment were associated with effectiveness of the program.

Our participants reflected that the Buddhist activities such as raising self-awareness, self-reflection, considering the nature of illness and life, listening to Dhamma sermons, and meditating helped calm their minds and impart a feeling of serenity during chemotherapy infusions. The mechanism of mindfulness meditation could offer a positive outcome to psychological symptoms, experiences which could be explained by PNI mechanism particularly in reducing psychological symptom experiences.[24, 25] However, our study did not explore the effect of Buddhist practices, especially the mindfulness meditation, on neuroimmunology aspects. The study revealed that the mean psychological symptom scores in the experimental group decreased rapidly and maintained a decreasing trend, while those of the control group, even they also decreased rapidly, they tended to increase after CC-3 (T2) (Figure 2). In this case, the findings suggested that the BNP was capable of lowering mean psychological symptom scores of the participants during chemotherapy infusions. The main reasons for this might stem from the structure and details of the BNP that supports the view that religious teaching focusing on the Four Noble

Truths could be applied for alleviating psychological symptom experiences in Thai women with breast cancer. The BNP might therefore be useful to Thai Buddhist women with breast cancer undergoing chemotherapy.

In summary, the BNP might be considered as a complementary care to enhance holistic nursing practice by helping alleviate some level of psychological symptom experiences in women with breast cancer during conventional chemotherapy treatment.

Limitations

This study had some limitations. First, the absence of a simultaneous evaluation of the physical symptoms might have been a reason why the outcomes presented were rather trivial. Second, the ability to generalize the results of the study might be limited only to Buddhist women with breast cancer. Third, the mechanism of the program on PNI was not possible to examine in this study, but it is theoretically promising that the program might influence PNI, which could reduce some levels of psychological symptom experiences. Therefore, further studies related to PNI variables are recommended.

Conclusion and Implications for Nursing Practice

In this study the ability of the BNP to reduce the psychological symptom experiences in women with breast cancer during chemotherapy did not reveal a clear effectiveness. However, the results showed a trend that suggests the possible enhancement of positive outcomes on psychological symptom experiences.

For nursing practice, preparing women with breast cancer to have the proper skills for meditation practice about one to two months before the commencement of chemotherapy is recommended. One way is to set up a one-day camp to learn Buddhist doctrine, and practice concentration and mindfulness meditation.

For research, further studies should explore: 1) the experiences of women with breast cancer in applying Buddhist doctrine and meditation while encountering side effects due to treatment and facing various psychological symptom experiences from illness and chemotherapy using a qualitative study; and 2) the application of additional strategies to enhance the participant adherence to meditation practice and realization of the benefits of Dhamma teaching.

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การศึกษาเชิงทดลองแบบสุ่มของโปรแกรมการพยาบาลแนวพุทธสำหรับสตรีที่เป็นมะเร็งเต้านม

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บทคัดย่อ: อาการทางด้านจิตใจ เป็นประสบการณ์อาการที่พบบ่อยในสตรีที่เป็นมะเร็งเต้านมระหว่างได้รับเคมีบำบัด การศึกษานี้มีวัตถุประสงค์เพื่อทดสอบผลของโปรแกรมการพยาบาลแนวพุทธต่ออาการทางด้านจิตใจ กลุ่มตัวอย่างจำนวน 93 ราย สุ่มเข้ากลุ่มทดลอง (n = 45) ได้รับโปรแกรมการพยาบาลแนวพุทธร่วมกับการดูแลตามปกติ และกลุ่มควบคุม (n = 48) ได้รับการดูแลตามปกติเพียงอย่างเดียว ณ แผนกผู้ป่วยนอกของศูนย์ให้เคมีบำบัด โรงพยาบาลมหาวิทยาลัยแห่งหนึ่ง กิจกรรมของโปรแกรมประกอบด้วย 3 กิจกรรม คือ 1) การรู้จักตนเองกับการเจ็บป่วย 2) การประยุกต์หลักคำสอนอริยสัจสี่ในการดูแลสุขภาพตนเอง และ 3) การสะท้อนคิดเกี่ยวกับประสบการณ์อาการทางด้านจิตใจ และความก้าวหน้าในการปฏิบัติวิถีพุทธ ดำเนินการเก็บข้อมูล ด้วยแบบประเมินประสบการณ์อาการทางด้านจิตใจ จำนวน 3 ครั้ง คือ วันแรกที่ได้รับเคมีบำบัด รอบที่ 3 และ รอบที่ 6 ของการได้รับเคมีบำบัด วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา เพื่อบรรยายข้อมูลทั่วไป ใช้สถิติเชิงอนุมานเพื่อเปรียบเทียบความแตกต่างของค่าคะแนนเฉลี่ยภายในกลุ่มและระหว่างกลุ่มด้วยสถิติไคสแควร์ สถิติทดสอบที และการวิเคราะห์ความแปรปรวนแบบวัดซ้ำแบบทางเดียว

ผลการศึกษา พบว่า ไม่พบความแตกต่างคะแนนเฉลี่ยประสบการณ์อาการทางด้านจิตใจทางสถิติระหว่างกลุ่มทดลองและกลุ่มควบคุม อย่างไรก็ตามพบความแตกต่างทางสถิติภายในกลุ่มในช่วงเวลาที่แตกต่างกัน และพบปฏิสัมพันธ์ของช่วงเวลาและกลุ่มที่แตกต่างกัน ผลการศึกษาชี้ให้เห็นว่าถึงแม้โปรแกรมการพยาบาลแนวพุทธอาจไม่สามารถลดประสบการณ์อาการทางด้านจิตใจได้อย่างชัดเจนทางสถิติ แต่อาจเป็นวิธีการดูแลแบบผสมผสานวิธีหนึ่ง ในการช่วยลดประสบการณ์อาการทางด้านจิตใจสำหรับสตรีที่เป็นมะเร็งเต้านมระหว่างที่ได้รับเคมีบำบัด

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คำสำคัญ: มะเร็งเต้านม โปรแกรมการพยาบาลแนวพุทธ โปรแกรมการปฏิบัติ ประสบการณ์อาการทางด้านจิตใจ ผู้หญิง

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