Enhancing Wisdom: A Randomized Controlled Trial of a Buddhist Program for People Terminally Ill with Cancer

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Abstract: Hope and coping are major factors affecting the quality of life of people who are terminally ill with cancer. Thus, this randomized controlled trial examined the effects of the Enhancing Wisdom through the Buddhist Doctrine Program on hope and coping in people terminally ill with cancer. Thirty three participants were randomly assigned to two groups with the computed block design: the experimental group (n = 15) received the Program in addition to standard care; and the control group (n = 18) received standard care only. Data were collected before, immediately after, and one month and two months after the Program by using the Herth Hope Index and Jalowiec Coping Scale.

Using one and two-way repeated measures ANOVA and independent sample t-test revealed that the hope level of participants after receiving the Program was significantly higher than before receiving the intervention and higher than those receiving standard care at one month and two months afterward. In addition, emotive coping in this group was significantly lower than that before receiving the Program and lower than that of the control group at one month and two months afterward, study findings suggest that nurses can use the Program as intervention to enhance hope and to decrease the use of emotive coping of people terminally ill persons with cancer, however the Program needs testing with larger samples in different Thai populations.

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Introduction

Facing the terminal stage of cancer is a great crisis for people because they may feel uncertain with the progression of the disease as well as suffer within a short-lived period and may fear their upcoming death.[1] Moreover, awareness of a shortened life and inevitable death, symptom problems, loss of control related to limitation in bodily function, loss of autonomy related to dependence on others, social

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isolation, and uncertainty are causes of their helplessness and powerlessness.[2] Importantly, hopelessness is the consequence of helplessness and powerlessness.[2] Even though death is a natural phenomenon, many people cannot calmly accept it. Death may mean the loss of all things in their life including living with their loved ones and happiness of life. More importantly, they fear death because they do not know what life after death will be.[3] They, therefore, attempt to find the meaning of life and the illness they are encountering.[1] If they cannot truly understand it, they may have spiritual distress resulting from the meaningless of life and worthlessness of living.[4] These problems will be more severe when they are not able to deal with it. Thus, people terminally ill with cancer (PTIWCA) need support to increase hope for inner strength and to cope with this situation more effectively.

Review of Literature and Conceptual Framework

The World Health Organization[5(p.4)] stated that "terminal cancer is an advanced stage when curative treatment is no longer useful, the disease is assessed to be incurable and the patient's condition is progressively deteriorating." To maintain quality of life (QoL), it is important that PTIWCA can cope with the situation well. According to Lazarus and Folkman,[6] coping is the process of cognitive and behavioral changes used to deal with people's internal and external needs, and considered as needing the most effort or exceeding their resources. Cognitive appraisal plays an important role in the coping process. This means using cognition/thought to evaluate situations that a person encounters as harmful, threatening, or challenging, and to find appropriate options for coping and the consequences of using coping strategies. There are two main types of coping functions[6] namely problem-focused and emotion-focused. Problem-focused coping mechanisms focus on eliminating the source of the problem while the emotion-focused coping mechanism aims to master the emotional responses. Later, Folkman[7] introduced a third type of coping function called meaning-focused coping which regulates negative emotions.

The ultimate goal of coping in PTIWCA is to deal effectively with distress from their illness. This depends on their inner strengths including understanding the nature of life, positive thoughts towards life and illness[8] and external resources such as the natural environment and relationships with the family, others and a higher power.[6, 9] There are many factors associated with coping including religion,[10] social support,[11] spiritual well-being,[10,12] quality of life,[13] and hope.[14-15] Particularly, hope is a key component helping patients cope with problems[14-15] because hope and coping are dynamically interdependent.[7]

For people with terminal illness, hope refers to inner power which assists them to have inner strength, transcendence of the illness situation, new awareness, and enrichment of being alive.[16] Hope also focuses on a peaceful life, comfort, and the spiritual dimension as well as emphasizing hope in present living, rather than goal achievement in the future by setting short-term goals.[17] However, when people experience terminal illness, they may feel hopeless due to loss of longevity. They have to create new hope for happiness in their remaining life instead of hoping for a cure. As a result, it is possible that they can live without suffering from their illness, maintain their present life normally and as fully as possible, encounter death peacefully, and have a good life after.[1-2] There are many factors associated with hope including self-esteem,[15] family support,[18] religion,[19] spiritual well-being,[19] and quality of life.[15] As hope is a major factor supporting QoL of patients with cancer,[15] it is essential to enhance hope toward the end of their lives.

There have been some studies about enhancing hope programs in Western countries[20-22] and Thailand.[23-24] The results showed that those programs could increase hope levels of participants. However, those programs were not culturally suitable for Thais because their conceptual frameworks were based on Western cultures, and not a good fit with Buddhism. Two studies have demonstrated results of programs that increased hope in Thais with cancer, however the participants were not terminally ill and did not value religion as an important factor to cope with terminal illness.[25] For Thai Buddhists, Buddhism has influenced their cultures, spiritual beliefs and ways of life[26] therefore, recent enhancing hope programs might not be congruent with characteristics of PTIWCA. Moreover, it appears that religion, especially religious belief, is an important factor for enhancing hope in Thai people.

Religion is a belief system which teaches people about the meaning and purpose of life, death and the end of suffering. Religious belief and faith are essential factors influencing people's cognitive appraisal of coping processes as well as maintaining hope.[7] In the Thai context, Buddhism is spiritual belief that is often used as the way of life in older people at the end of life.[25] Thai Buddhists believe in the Law of *Kamma* and the cycle of birth and death according to Buddhist principles, and which contribute to cultivating good deeds.[26] These beliefs and practices help Buddhists understand the reality of life, mindfully face illness or suffering, peacefully accept impending death, and have hope for a good next life.[26]

Buddhist principles and three ways of wisdom were used to guide the intervention for this study. These principles are summed up in the Buddhist Four Noble Truths: suffering *(Dukkha)*, the cause of suffering *(Samudaya)*, the cessation of suffering *(Nirodha)*, and the path leading to the cessation of suffering *(Marga)*, which is the path leading to the end of suffering.[27] The Noble Eightfold Paths (*Marga*) have been divided into three groups of Buddhist practice, called the Three Fold Training *(Tri-sikkh)* comprising morality or *Sila*, meditation or *Samadhi*, and wisdom or *Prajna*.[27] Importantly, wisdom is the essence of Buddhist life, so as to understand the nature of life that is conditioned by causes of the three characteristics.

People can develop wisdom in at least three ways, by studying Buddhist principles *(Sutamaya-panna)*, reflection on Buddhist principles *(Cintamaya-panna)*, and practicing Buddhist principles for mental development *(Bhavanamaya-panna)*.[27] Adapting these three ways to develop wisdom into daily living helps PTIWCA understand the nature of life, have hope, and be able to cope with suffering. For study and reflection about Buddhist principles, they need to know and have right understanding about the Four Noble Truths, Law of *Kamma*, and the bases of meritorious actions. The topics of the Four Noble Truths and Law of *Kamma* can help them understand the true nature of life and answer their meaning of life and life after death. After that, study and reflection about the bases of meritorious actions help them to find the way for living in the rest of their lives and for having hope for life after death. Practicing Vipassana meditation also helps those with terminal cancer to have concentration, that enhances their understanding of the nature of life and decreases suffering by decentering from the stress appraisal, and broadening awareness.[28] By promoting and teaching these three ways of wisdom, people with terminal cancer can reappraise their lives, after gaining new knowledge and awareness about their illness situations. Consequently, positive reappraisal can take place, resulting in more effective coping and hope.

However, there has been no study on the use of integrated Buddhist practices to enhance wisdom that in turn increase hope and enhance coping among people who are terminally ill with cancer. Thus, this study aimed to investigate the effects of the Enhancing Wisdom through Buddhist Doctrine Program (EWBDP or the Program) on hope and coping in this

population. In addition, since hope and coping are processes that can change over time in a serious disease,[7] these two concepts need to be measured at different times, and in the case of the present Program: immediately, and one and two months afterward. The hypothesis for this study was that PTIWCA, after receiving the EWBDP, would have higher hope, higher confrontive and palliative coping, and lower emotive coping than before receiving the EWBDP, and compared with the control group.

Methods

Design: This intervention study used a randomized two-group controlled trial.

Sample and Sampling: The participants were terminally ill with various types of metastatic cancer, that their physicians had identified as not being able to be cured or controlled, and were receiving palliative care. In addition, participants knew their illness status. After study approval was received, potential samples were recruited by the primary investigator's (PI) from outpatient oncology clinics of a university hospital in Bangkok. Then, after consenting to participate, they were randomly allocated to the experimental and the control groups using the permute block design in a block size of four.

Eligible participants were: 1) aged 40 - 70 years; 2) having good consciousness and perception with a score of at least 8 evaluated on the Mini Mental Status Questionnaire[29]; 3) being able to communicate in Thai; 4) never having practiced Vipassana meditation; 5) living with family members or a caregiver who could support them to perform the EWBDP activities; 6) living in Bangkok; 7) having scores of hope less ≤36; and 8) willing to participate in the program. Exclusion criteria were having: 1) concurrent or severe health complications including heart failure, dyspnea, and severe fatigue; 2)psychiatric problems or organic brain disorders or drug/alcohol dependencies; or 3) deterioration of consciousness.

The sample size was determined from the estimated effect size of a previous study using a partial eta-squared ($\eta p2$) for repeated measures ANOVA.[30] Using the sum of square (SS)score of coping from the study of Wiriyasombat et al.[31] (SS time = 21,864.267, SS error = 19,493.445), the effect size was 0.528. Thus, data from statistical power tables indicated that a minimum of 17 participants per group or 34 total participants was required. It took 5 months to gather a sufficient sample: 52 potential participants were invited, of whom 38 participants agreed to be enrolled, 18 in the experimental group and 20 in the control group (Figure 1). Five participants chose not to participate before Program implementation due to severe complications: pneumonia (one participant), gut obstruction (one participant), and dyspnea and bone pain (three participants). Thus 33 participants completed the EWBDP. The PI re-calculated the effect size ($\eta p2$) of the program. The calculated effect size for hope was 0.418 with power of the test of 99.64.

Settings: The study was conducted March-July 2014 in the community in Bangkok. The five-day training session was implemented at a Buddhist temple in Bangkok, while the self-practicing of Vipassana meditation and follow-up were implemented in each participants' home..

Ethical Considerations: Study approval was received from the Research Ethics Review Committee of the Faculty of Nursing, Chiang Mai University. The PI described to prospective participants the study's objectives, procedures, potential risks and benefits, protection of confidentiality and rights to withdraw at any point in the study with no effect on treatment or hospital service. Prior to signing the informed consent form, participants were assured about confidentiality and anonymity and had an opportunity to ask questions about the study. Because the participants were vulnerable due to their illness, the PI evaluated the physical and psychological status by asking about their preparedness before and during program implementation and data collection.

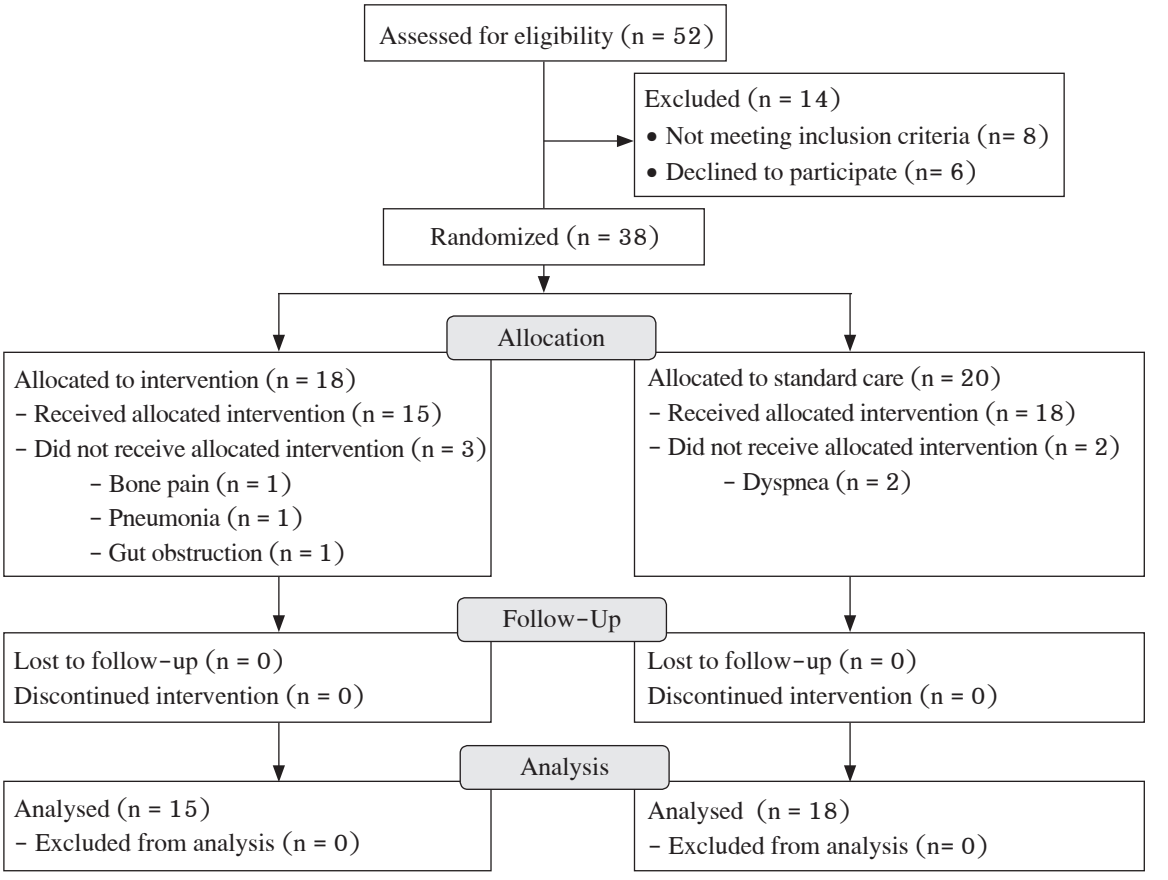


Figure 1 Enrollment and Study Flow for the EWBD Program

Instruments:

The Demographic Data Tool was developed by the PI to obtain personal data including age, gender, marital status, education level, current occupation, economic status, and experience of meditation practice.

The Jalowiec Coping Scale (JCS)[32] was used to assess coping behaviors. The JCS previously translated into Thai by Suthayakorn[33] was used. Permission for the use of this version was obtained prior to use. It consists of 36 items and comprises three domains: confrontive, emotive, and palliative coping behaviors. Confrontive coping behavior (13 items) is about the meaning of coming to terms with the problem and trying to handle it, while emotive coping (9 items) refers to coping methods to express emotions evoked by the situation and allowing for ventilation of feeling. In addition, palliative coping behavior (14 items) refers to methods of relieving stress or keeping under control without directly curing or taking care of the problem. Item examples were "Try out solution, information-seeking, handle problem in steps and set goals (confrontive coping)"; "Get nervous, worry, take tensions out on others, get mad, want to be alone, and blame others for problem (emotive coping)", and "Resignation because it's fate, hope for improvement, resignation because it's hopeless, accept situation, withdraw from situation, and let someone else solve problem (palliative coping)." All items use a 5-point Likert scale from 1=Never to 5=Almost always, with possible scores ranging 36 to 180. The total score for confrontive

coping behaviors ranges from 13-65, emotive coping behaviors from 9-45 and palliative coping behaviors from 14-70. Higher scores denote more frequent use of coping strategies. The questionnaire was tested for reliability with 10 PTIWCA and the reliabilities were found to be .83 for overall, 0.80 for confrontive, .75 for emotive, and .81 for palliative coping behaviors. In this study, the reliabilities were found to be .79 for overall, 0.75 for confrontive, .64 for emotive, and .65 for palliative coping behaviors.

The Herth Hope Index (HHI)[34] was used to measure participant hope. The 12-item version translated into Thai by Taechakaruha,[35] was used in this study. Items focus on inner sense of temporality and future (presence of goals, positive outlook on life, each day has potential and scared about the future), inner positive readiness and expectancy (see alight in a tunnel, a sense of direction, life has value and worth, and recalling happy/joyful times), and interconnectedness with self and others (feel all alone, faith that comforts, deep inner strength, giving and receiving caring/love). The participants respond on a 4-point Likert scale, arranged where 1=strongly disagree and 4=strongly agree. Negative items are reversed and the scores range from 12-48. Higher scores denote a higher level of hope.The questionnaire was tested for reliability with 10 PTIWCA and had a reliability of 0.81. In this study, the reliability was .80.

Instruments for monitoring participants' Vipassana meditation: Three instruments were used:

The *Perceived Happiness Questionnaire* (PHQ) was used to monitor happiness and rapture which resulted from participants' Buddhist practices. Happiness and rapture appear when peacefulness takes place in the mind. The items, developed by the PI, consist of 6 items such as: "You feel more calm" and "You feel refreshed". Responses are given on a 4-point Likert scale ranging from 1=strongly disagree to4=strongly agree. Possible scores range from 6-24 and higher scores indicate participants have higher levels of perceived happiness and rapture. A total score of at least 13 points is the acceptable criterion of perceived happiness and rapture.

The *Wisdom Questionnaire* (WQ) was used to evaluate participants' understanding of the nature of life. The items, developed by the PI, consisted of 6 items. Item examples are: "The illness allows you understand that life is always changing." and "You accept your illness." The response of items is on a 4-point Likert scale ranging from 1= strongly disagree to 4=strongly agree. A possible score averages from 6 to 24. Higher scores indicate participants have higher level of understanding of the nature of life. A total score is at least 13 points for an acceptable criterion of understanding the nature of life.

The Positive Reappraisal Questionnaire (PRQ) was used to evaluate participants' positive reappraisal. The scale was modified from the Thai version of Way of Coping Questionnaire (WOC)[36] - positive reappraisal domain, consisting of 7 items. Item examples are: "You change something about yourself." and "You develop your mind in a better way." The response of items is on a 4-point Likert scale ranging from 0 = Does not apply and/or not used to 3=Used a great deal. The total possible score ranges from 0-21. Higher scores indicate participants have a higher level of positive reappraisal. A total score is at least 8 points for acceptable criterion of positive reappraisal.

The PHQ, WQ, and PRQ were assessed for content validity by a panel of five experts in religion and philosophy, meditation, and terminal cancer care. The S-CVI for the PHQ, WQ, and PRQ were .96, 1.0, and .94, respectively. In addition, the PHQ, WQ, and PRQ were tested for reliability with 10 PTIWCA and found to reliabilities of .80, .86, and 0.78 respectively.

Intervention: Prior to the study, the PI was trained in Vipassana meditation techniques, received experience as an assistant meditation teacher, and then practiced meditation one hour daily for three months prior to data collection. The EWBDP was developed by the PI based on Buddhist principles and

wisdom enhancement. The activities in this Program, using a 33-day period, consisted of two parts: 1) a 5-day training session and 2) follow-up home visits and telephone calls for four weeks.

The training session (Table 1) was conducted at a temple and comprised studying and reflection on Buddhist principles, and practicing Vipassana meditation. The teaching and practice of Vipassana meditation was conducted by the PI under the supervision of the meditation teacher for 5 days. Regarding Buddhist principles, the PI gave three topics of the Dhamma information namely *Law of Kamma*, bases of meritorious actions, and the Four Noble Truths by using reflection techniques and presentation media. The reflection of Buddhist principles was conducted by evaluating and sharing practices with the meditation teacher as well as reflecting during studying the three topics of Dhamma. After describing basic information and demonstrating Vipassana meditation on the first day, the PI and participants practiced together. The group size was five participants.

Table 1 Intervention Activities

Ways to develop wisdom	**Time (A 5-day training program)**				
	Day1	**Day2**	**Day3**	**Day4**	**Day5.**
Studying Buddhist principles *(Sutamaya-panna)*	Law of Karma	Bases of Meritorious actions: generosity *(Dhana)*, morality *(Sila)* and mental development *(Bhavana)*	The Four Noble Truths	-	-
Reflection *(Cintamaya-panna)*	- Discussing the Law of Karma. - Evaluating and sharing in practices	- Discussing about Meritorious actions. - Evaluating and sharing in practices.	- Discussing about the Four Noble Truths. - Evaluating and sharing in practices.	- Evaluating and sharing in practices	- Evaluating and sharing in practices
Meditation Practice (*Bhavanamaya-panna*)	- Describing basic information and demonstrating *Vipassana meditation*	- Practicing sitting meditation **two cycles of 15-minute sitting meditation*	- Practicing sitting and lying meditation **one cycle of 20-minute sitting and 20-minute lying meditation*	- Practicing sitting and lying meditation **one cycle of 30-minute sitting and 30-minute lying meditation*	- Practicing sitting and lying meditation **one cycle of 30-minute sitting and 30-minute lying meditation*
	-	- Demonstrating and practicing lying meditation	- Practicing mindfulness of minor action movement	- Practicing mindfulness of minor action movement	- Practicing mindfulness of minor action movement
	Time (Follow up for 4 weeks)				
	A. Participant: 1. Self-practicing activities were conducted by participants daily at home including: - Practicing 30-minute sitting and 30-minute lying meditation, - Practicing mindfulness of minor action movement in daily living. 2. Recording participants'practice using Recording Form of Vipassana Meditation. **B. Principal Investigator:** 1. Followed up participant through home visits and telephone calls once a week to evaluate and advise participant on practicing meditation, and to monitor participants' perceived happiness, understanding the nature of life, and positive reappraisal. *** Follow-ups through telephone calls were organized at week 1 and week 3. *** Follow-ups through home visits were organized at week 2 and week 4.				

After completion of the 5-day training session, the participants practiced Vipassana meditation at home daily for 4 weeks including 30-minutes sitting and 30-minutes lying meditation, and 30-minutes mindfulness of minor action movement in daily living. This Program needed participants to practice three activities of Vipassana meditation 100%. They daily recorded their practice using the Recording Form of Buddhist Practices (RFBP) form which comprised a check list of activities in sitting, lying meditation and mindfulness of minor action movement, obstacles in practices, and level of happiness. The PI followed up with home visits (week 2 and week 4) and telephone calls (week 1 and week 3) to evaluate their progress and advise their practice. On each 60-minute visit, the PI evaluated and advised participants' practice using data from the RFBP. In addition, participants' perceived happiness and rapture, positive appraisal, and understanding the nature of life were monitored using the PHO, WQ, and POQ.

Prior to being used, the Program, RFBP and a handbook of Buddhist practices were assessed for content validity by a panel of five experts (i.e., one Buddhist monk with expertise in religion and philosophy, two nurse instructors with clinical experience in terminal cancer care and Buddhism, and two Buddhist monks with expertise in Vipassana meditation for patients with terminal cancer).

Standard care: refers to the palliative care provided to patients with cancer by the health team at outpatient oncology clinics, including chemotherapy or radiation therapy or some medications for symptom management.

Procedures: After study approval was obtained, the PI screened all participants meeting the inclusion criteria by using the medical records and interviewing participants. The participants were recruited, and randomly assigned. The experimental groups received the Program plus standard care, while the control group received only standard care. All participants in both groups completed the study questionnaires at baseline, Program completion, and one and two months later. Completion of the questionnaire took approximately 20-25 minutes. The single-blind technique was used in the process of data collection and analyses, and the two trained research assistants collected posttest data in both groups.

Data Analysis: Descriptive statistics, the Fisher's Exact test, and independent t-test were used for analyzing the demographic data. The assumptions of normal distribution and homogeneity of variances were tested prior to data analysis. If assumptions were met, repeated ANOVA was used. Two-way repeated measures ANOVA was used to compare within subject and between subjects, among the two groups. If there was interaction effect, one-way repeated measures ANOVA was used to compare hope and coping scores, across groups, at baseline and at immediately, one and two months after completion of the interventions. The Bonferroni test was used for multiple pairwise comparisons of hope and coping in each group, at each point of measurement. In addition, the independent sample t-test was used to examine the difference in the mean scores of hope and coping between the experimental and control groups at each time point. The significance level of 0.5 was used.

Results

There were no statistical differences between the control and intervention groups in terms of demographic data at baseline (Table 2).

Effect of the EWBDP on Hope

The mean score of hope at each point of measurement is displayed in Table 3. A repeated measures ANOVA performed on hope demonstrated a significant difference in the hope mean score between each point of measurement ($F = 44.37$, $p = .000$) and group ($F = 22.27$, $p = .000$). However, the time-group interaction was also significant ($F = 13.33$, $p = .000$). This means that the effect of the

Table 2 Demographic of the Study Sample, Control group and Intervention Group (n=33)

Study Variables	Control Group (n = 18)	Intervention Group (n = 15)	t-test	Fisher's Exact Test	*P*
Gender					
Female	9	11		.157	NS
Male	9	4			
Ages (yrs)					
Mean (SD)	53.7(8.2)	53.4 (8.8)	.932		NS
40-50	6	7			
51-60	8	3			
61-70	4	5			
Educational level					
Primary education/ High school education	11	8		.461	NS
Bachelor or higher	7	7			
Marital Status					
Married	11	8		.459	NS
Single/Widowed	7	7			
Current occupation					
Unemployed	8	9		.412	NS
Employed	10	6			
Employed daily	4	4			
Trader	3	1			
Farmer	2	0			
Public servant/State enterprise	1	1			
Economic status					
Sufficient	15	15		.150	NS
Insufficient	3	0			
Experience of meditation practice					
No	11	5		.107	NS
Yes	7	10			
Anapanasati	5	10			
Prayer	2	0			

NS = not significant

Table 3 Results of Two-way Repeated Measure ANOVA: Main Effects and Interaction Effect of The Program on Hope and Coping. (N = 33)

Source of variation	SS	df	MS	F	*p*
Hope[a]					
Within participant					
Time	510.13	3	170.05	44.37	.000
Time x group	153.23	3	51.09	13.33	.000
Error	356.44	93	3.83		
Between participants					
Group	324.16	1	324.16	22.27	.000
Error	451.17	31	14.55		
Overall coping[b]					
Within participant					
Time	66.45	2.35	28.26	.42	.692
Time x group	281.33	2.35	119.63	1.77	.171
Error	4920.06	72.90	67.49		
Between participants					
Group	300.58	1	300.58	.75	.393
Error	12439.30	31	401.27		
Confrontive coping[b]					
Within participants					
Time	75.11	2.43	30.86	1.38	.257
Time x group	72.96	2.43	29.97	1.34	.268
Error	1686.13	75.46	22.35		
Between participants					
Group	178.61	1	178.61	1.76	.194
Error	3141.63	31	101.34		
Emotive coping[b]					
Within participant					
Time	55.97	2.27	24.64	5.51	.004
Time x group	381.43	2.27	167.89	37.56	.000
Error	314.84	70.43	4.47		
Between participants					
Group	120.93	1	120.93	4.30	.047
Error	871.71	31	28.120		
Palliative coping [b]					
Within participant					
Time	5.92	2.25	2.63	.13	.898
Time x group	99.07	2.25	44.04	2.20	.113
Error	1397.77	69.74	20.04		
Between participant					
Group	55.07	1	55.07	.59	.450
Error	2915.169	31	94.04		

Note. *a = Sphericity Assumed was used to adjust the degree of freedom.*

b = Greenhouse-Geisser was used to adjust the degree of freedom.

intervention depended on the combination effects of time and groups. Therefore, time and groups needed to be examined separately for the difference of hope.

By using one-way repeated measures ANOVA, after receiving the EWBDP, hope scores changed significantly over time in the control and experimental groups ($p<0.01$). Post-hoc pair wise comparisons indicated that, in the experimental group, hope scores changed significantly in each of measurement ($p<0.01$) (Table 4). For the control group, hope scores changed significantly from baseline to the program end ($p<0.01$), from baseline to one month after ($p<0.01$), and from baseline to two months after ($p<0.01$). By using the independent sample t-test, results showed that the hope mean score of the experimental group was significant higher than that of the control group at one month and two months after the program end ($p<0.01$).

Table 4 Multiple Pairwise Comparisons of Hope and Emotive Coping Scores Over Time in both Control and Experimental Groups (N = 33)

Source of variation	Base-line (1)	At Program end (2)	One month after (3)	Two month after (4)	p-value[b]					
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	1 vs 2	1 vs 3	1 vs 4	2 vs 3	2 vs 4	3 vs 4
Hope										
Control group	33.83 (1.89)	36.67 (2.66)	36.78 (3.78)	36.33 (2.87)	.005**	.011**	.017**	1.000	1.000	1.000
Experimental group	34.80 (1.32)	38.27 (2.12)	40.27 (2.37)	42.87 (2.36)	.000**	.000**	.000**	.048*	.000**	.033*
Emotive coping										
Control group	18.61 (3.63)	18.83 (3.35)	18.67 (2.87)	22.11 (3.70)	1.000	1.000	.002**	1.000	.001**	.000**
Experimental group	20.33 (3.20)	18.80 (3.08)	16.67 (2.38)	14.73 (1.75)	.195	.000**	.000**	.001**	.001**	.011**

Note. [b] = Bonferroni test, * = $p < .05$, ** $p < .01$

Effect of the EWBDP on Coping

The mean coping score at each point of measurement is displayed in Table 3. Using two-way repeated measures ANOVA showed that there was only a significant difference of coping between each point within groups in emotive coping ($F = 5.51$, $p = 0.004$) and between groups ($F = 4.38$, $p = 0.047$). However, the time-group interaction was also significant ($F = 37.57$, $p = 0.000$). Therefore, time and groups were needed to be examined for the difference of emotive coping separately.

One-way repeated measures ANOVA was performed separately for each group, and the results showed that after receiving the Program, the scores of emotive coping changed significantly over time in both groups ($p<0.01$). In addition, post-hoc pair wise comparisons indicated that after entering the Program, the score of emotive coping in the experimental group significantly decreased at each point of measurement ($p<0.01$) except from baseline to the Program end (Table 4). For the control group, the score of emotive coping at two months after significantly increased from baseline, the program end, and one month after ($p<0.05$). Using independent sample t-test, the results showed that the score of emotive coping of the experimental group was significantly

lower than the score of the control group at both one month and two months after entering the Program ($p<0.01$).

Discussion

The findings of this study suggest that the EWBDP can enhance hope of the participants over time. Hope was higher in experimental group receiving the Program than those in the control group at one month and two months after the program end.

The EWBDP is based on Buddhist principles namely the Law of *Kamma,* bases of meritorious actions, and the Four Noble Truths. There are three main activities in this program including studying and reflecting about Buddhist principles and practicing meditation. Studying and reflecting about Buddhist principles could help the participants understand the true nature of life and in finding a way to live for the rest of their lives. This can enhance two ways of wisdom–studying and reflection.[27] Practicing *Vipassana* meditation which enhances wisdom resulting from spiritual practice[27] and promotes concentration that broadens awareness and modifies stress appraisal leading to a positive reappraisal.[28] The new knowledge from three ways of wisdom could help the participants have new awareness of life and illness situation leading to having positive reappraisal. As a result, hope was increase. Therefore, hope arose when wisdom developed. Data from monitoring at baseline and weeks 1, 2, 3 and 4 of follow-up indicated the effectiveness of the wisdom enhancement process by showing a slight increase of the perceived happiness and rapture, wisdom, and positive reappraisal score. Findings from this study are congruent with some studies that spiritual belief was manipulated in the program,[20-22] even though those studies did not use meditation.

The participants in the control group receiving only standard care also had significantly increased hope and there was no difference in hope between the experimental and control groups at Program end. A possible explanation may be that the participants in the control group might have had other strategies to build up their own psychological strength and hope. For example, reading Dhamma book and making merit are common strategies used by Thais with advanced cancer.[37] In addition, the hope mean score of both groups at baseline were approximately 36. This may be due to the fact that both groups received palliative care in the university hospital, and this might have had a positive relationship with spiritual well-being[37] and QoL[38], thus effectivecare leading to not having low level of hope at baseline.

Regarding the effects of the EWBDP on coping, findings revealed that emotive coping in the experimental group was significantly lower than that before receiving the Program and lower than that of the control group at one month and two months after the Program. In wisdom development, the participants could increase their right understanding of the true nature of life by studying and reflecting on Buddhist principles and by practicing meditation, and they had an opportunity for positive reappraisal. More understanding of the reality of life gave new knowledge which helped the participants change their appraisal about their illness situation from threat to challenge, then leading to a positive reappraisal in their illness situation. Positive reappraisal, a part of meaning-focused coping, results in positive emotion.[7] Positive emotions can restore resources in the stress process and encourage and maintain coping effort over a long time period because it regulates negative emotions.[39] However, emotive coping strategies were negative emotions,[32] because most strategies in emotive coping are from the powerlessness dimension.[32] Therefore, when positive reappraisal increases, it regulates the negative emotions. As the result, emotive coping decreased in the experimental group. Additionally, hope is positively associated with coping[14-15] so hope can facilitate coping.[7] Therefore in this study, when hope increased, the participants could achieve better coping by decreasing

their use of emotive coping. The findings of this study are congruent with previous studies using Buddhist meditation practice to decrease psychological distress[40] and decreased the stress level[41] in patients with cancer.

Regarding confrontive and palliative coping, these were not significantly changed in this study. This can be explained by four reasons. Firstly, it could be that the personal characteristics of the participants who were aware of their life situation and better understand the nature of life after receiving the program, so they were able to better accept their life situation. Therefore, participants did not use some confrontive coping strategies frequently. Results regarding confrontive coping indicated that most participants rated each scale with occasional to frequent use of this coping strategy. In addition, they could not perform by themselves some strategies such as exercise. Secondly, some items of the subscale of palliative coping might not fit with Thais terminally ill with cancer because most participants rated some scales with never or occasionally use of this coping strategy. Thirdly, the participants receiving standard care might use other strategies to cope with their situation. Reading Dhamma and making merit are two common strategies used by Thais with advanced cancer[37] thus affecting the difference in confrontive and palliative coping. Lastly, the sample size for this study may have been too small to show the effects of the Program on the overall, confrontive and palliative coping because the effect sizes of them were lower than 0.2. Therefore, the results partially supported the hypothesis of this study in coping that terminally ill persons with cancer, after receiving the EWBDP, had lower emotive coping than before receiving the EWBDP and the control group.

Limitations

This study has limitations. Firstly, one part of the Program, a 5-day training session, was not implemented at home but at the temple. Some prospective participants who had physical limitations and needed help in transportation could not participate in this study. Secondly, the sample size for this study may be too small to determine the effects of the Program on the overall, confrontive and palliative coping because the effect sizes of these were lower than 0.2.

Conclusion and Implications for Nursing Practice

The findings demonstrate that the EWBD Program can positively affect hope and emotive coping in PTIWCA. Thus, nurses can use Buddhist principles and three ways of wisdom as a guide for intervention program to help PTIWCA who is interested in Buddhist practice achieve their emotive coping and hope at the end of life state.

For further research, studies should be implemented in the home setting for the participants who have any physical limitations and need help in transportation. As there was not a significant change in confrontive and palliative coping in this study, further study is needed using a larger sample size to be able to generalize results to other populations.

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การส่งเสริมปัญญา: การวิจัยแบบทดลองทางคลินิกของโปรแกรมตามหลักพุทธศาสนาสำหรับผู้ที่เป็นมะเร็งระยะสุดท้าย

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บทคัดย่อ: ความหวังและการเผชิญปัญหาเป็นปัจจัยสำคัญที่ส่งผลต่อคุณภาพชีวิตของผู้ที่เป็นมะเร็งระยะสุดท้าย การศึกษานี้ใช้วิธีการวิจัยทดลองแบบสองกลุ่มวัดก่อนหลัง เพื่อศึกษาประสิทธิผลของโปรแกรมส่งเสริมปัญญาตามหลักพุทธธรรมต่อความหวังและการเผชิญปัญหาในผู้ที่เป็นมะเร็งระยะสุดท้าย กลุ่มตัวอย่างเป็นผู้ที่เป็นมะเร็งระยะสุดท้าย 33 ราย ถูกสุ่มเข้ากลุ่ม 2 กลุ่มคือ กลุ่มทดลองที่ได้รับโปรแกรม จำนวน 18 ราย และกลุ่มควบคุมที่ได้รับการดูแลตามมาตรฐาน จำนวน 15 ราย เก็บรวบรวมข้อมูลก่อนเข้าโปรแกรม หลังสิ้นสุดโปรแกรมทันที หนึ่งเดือนและสองเดือนหลังสิ้นสุดโปรแกรม โดยใช้แบบวัดความหวังของเฮิร์ทและแบบวัดการเผชิญปัญหาของจาโลวีส วิเคราะห์ข้อมูลโดยใช้การวิเคราะห์ความแปรปรวนแบบวัดซ้ำและสถิติทดสอบค่าที

ผลการวิจัยพบว่าผู้ที่เป็นมะเร็งระยะสุดท้ายที่ได้รับโปรแกรมส่งเสริมปัญญาตามหลักพุทธธรรมมีคะแนนความหวังสูงขึ้นตลอดทุกช่วงของการวัด และสูงกว่ากลุ่มที่ได้รับการดูแลตามมาตรฐานในช่วงหนึ่งเดือนและสองเดือนหลังสิ้นสุดโปรแกรม นอกจากนี้ยังพบว่า การเผชิญปัญหาด้านการจัดการกับอารมณ์ต่ำกว่าก่อนได้รับโปรแกรมและต่ำกว่ากลุ่มที่ได้รับการดูแลตามมาตรฐานที่หนึ่งเดือนและสองเดือน ผลจากการศึกษาครั้งนี้ชี้ให้เห็นว่าพยาบาลสามารถนำโปรแกรมมาใช้เป็นแนวทางสำหรับการบำบัดทางการพยาบาลเพื่อส่งเสริมความความหวังและลดการใช้วิธีการเผชิญปัญหาด้านการจัดการกับอารมณ์ของผู้ที่เป็นมะเร็งระยะสุดท้าย

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