

CHAPTER III

PROJECT EVALUATION

3.1 Introduction

Project evaluation composed of 4 phases as illustrated in Figure 3.1 and is outlined as follows:

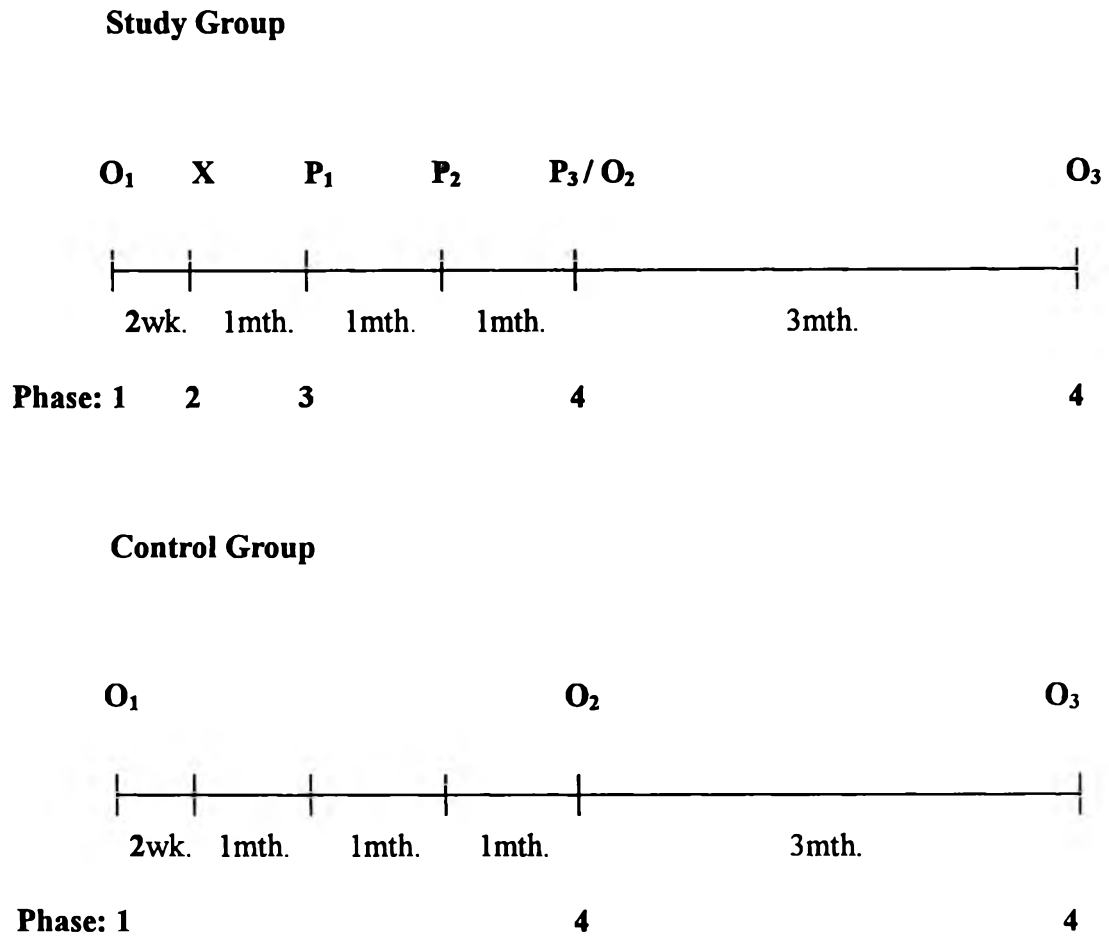
Phase 1 Baseline (O₁): The project team collected the data 2 weeks before the 2-day training program from both the study and the control group. Evaluation used interview form (appendix 2).

Phase 2 Training program by participatory learning approach (X): Two-day training program by participatory learning was organized for the study group and evaluated by analysis of several evaluation variables including the training content, appropriateness with the participants, timing, and resource allocation. The evaluation process involved observation and informal interview of both participant and trainer parties (appendix 4 and 5).

Phase 3 Supervision and support by home visit (P₁, P₂ and P₃): Home visit program was conducted by the project assistant team to follow up and support with self care behaviour of the study group at home. There were also 3 re-training sessions, first conducted at 1 month after the 2-day training program (phase 2). Each home visit was separated by a 1-month interval. There were two types of data collection methods for evaluation of the effect of home visits on self-care behaviour change. Those were qualitative data collection by in-depth interview and observation (appendix 3) and quantitative data, which were number and frequency of home visit to each patient.

Phase 4 Post intervention (O₂ and O₃): Two evaluation sessions were conducted to assess the 2-day intensive training and home visit programs, with first evaluation (O₂) after completion of the third home visit and second evaluation (O₃) at 3 months after the first evaluation. As in Phase 1, an interview form (Document 2) was used as a tool for data collection, which was carried out in both the study and the control group. Pairs of pre/post intervention data and the study/control group data were compared statistically.

Figure 3.1 Evaluation phase



Note:

O_1 = Baseline or pre intervention in the study and control group

O_2 = Post intervention 1 in the study and control group upon completion of P_3 .

O_3 = Post intervention 2 in the study and control group at 3 months after O_2 .

P_1, P_2, P_3 = To conduct 3 consecutive home visits in the study group with one month interval basis

X = Participatory learning program in the study group

The project compared the study group with the control group and used pre-post evaluation with self-control.

Target groups consisted of:

1. The study group consisted of 31 hypertension patients who were local residents of Yasothon municipal area and registered for medical treatment at the Hypertension Clinic and at the Urban Community Medical Center, Yasothon Hospital. The participants were recruited on voluntary basis according to the selection criteria noted earlier in Chapter 2 and received training by participatory learning program and home visit by a nurse.
2. The control group was hypertension patients who received health care at Khumkhuankheaw Hospital, Yasothon Province. The Hospital is situated in Loom Pook municipal area, Khumkhuankheaw District, at 25 kms distance from Yasothon municipal area. The control group contained equivalent 31 patients who had all characteristics as in the imposed criteria with similar socioeconomic characteristics as the study group. The control group received neither training by participatory learning approach nor nurse home visits, but, a routine health education program.

3.2 Evaluation Phase

Phase 1: Baseline (O₁)

Purpose

1. To evaluate general characteristics of the study group and the control group.
2. To evaluate knowledge level about essential hypertension disease and self care behaviour of the study group and the control group before intervention to serve as a baseline information.

Evaluation Question

1. *Do general characteristics of the study and the control group differ?*
2. *Do the knowledge level and self-care behaviour of the study and the control group differ?*
3. *What is knowledge level of the study group regarding essential hypertension and self care to prevent other hypertension-related disease?*

Evaluation Design

1. The evaluation was conducted 2 weeks prior to Phase 2. Data of the study group was compared with that of the control group.
2. Outcome measurements were
 - Percentage of general data.
 - Mean score of knowledge and self-care behaviours
3. Data collection instrument was

- Interview of essential hypertension patients to collect data on general data, knowledge and self-care behaviors regarding essential hypertension as follows:

Part 1: General data consisted of name, address, age, gender, blood pressure level at the time of interview, duration of illness, marital status, occupation, education, family monthly income, source of income, permanent dwelling, caregivers, paying of medical fee, other diseases, hobby and sleeping habit. The questionnaire contained both open-ended and multiple choice question.

Part 2: Knowledge of essential hypertension. The questionnaire contained 15 triple-choice questions requiring to choose either *Yes*, *No* or *Do not know*. Total score for this part is 15 points given as following:

Characteristic	Positive Practice (point)	Negative Practice (point)
Yes	1	0
No	0	1
Don't know	0	0

Part 3: Self-care behaviours of essential hypertension patients. The questions were divided into 8 sections of self-care behavior as follows:

Part 1 Dietary	9 items	range of 9-27 points
Part 2 Exercise	2 items	range of 2-6 points
Part 3 Smoking and alcohol consumption	2 items	range of 2-6 points
Part 4 Relaxation of stress	4 items	range of 4-12 points
Part 5 Climatic control	2 items	range of 2-6 points
Part 6 Health service encounter	2 items	range of 2-6 points

There were total of 21 questions with maximum of 63 points. Each question required the participants to choice one of the following answers:

- **Regularly practice** means practicing the activity regularly, every day of the week.
- **Occasionally practice** means practicing the activity occasionally, not every day of the week.
- **Never practice** means never practicing the activity in either day of the week

The scoring criteria used for the data analysis of these 6 parts were:

Characteristic	Positive Practice (point)	Negative Practice (point)
Regularly practice	3	1
Occasionally practice	2	2
Never practice	1	3

Part 7: Anti-hypertensive drug intake: a total of 4 items with a maximum of 4 points and Part 8: Follow up: a total of 2 items with a maximum of 2 points. For both parts, 1 point was given for a correct answer and 0 point was given to an incorrect answer.

Inclusion of maximal 6 points from Part 7 and Part 8 questionnaires with the above 6 parts resulted in the possible total of 69 points for self-care behaviour questionnaire.

4. Data collection

- Collected data 2 weeks before intervention.
- Interviewed 31 patients each two groups by the project teams members.

5. Data analysis

- The SPSS version 8.0 for window data analysis was used for data analysis.
- Frequency and percentage values were obtained to describe general data, knowledge and self-care behaviour of hypertension patients.
- Pair t-test was used to compare mean scores of knowledge and self-care behaviour.

Results

1. General Data

Table 3.1 indicated the comparison results of participants' characteristics between the study and the control group as follows:

Table 3.1 Numbers and percentage of general data of the study and the control group.

General data	Study group		Control group	
	number	%	number	%
Total	31	100.0	31	100.0
1. Gender				
Male	9	29.0	9	29.0
Female	22	71.0	22	71.0
2. Age group (years)				
50-54	3	9.7	6	19.4
55-59	7	22.6	6	19.4
60-64	7	22.6	11	35.5
65-69	9	29.0	8	25.8
70-74	5	16.1	0	0
3. Marital status				
Married	23	74.2	26	83.9
Divorced/Widow	8	25.8	5	16.1
4. Occupation				
House worker	20	64.5	15	48.4
Employee	3	9.7	2	6.4
Merchant	8	25.8	8	25.8
Agriculturist	0	0	6	19.4
5. Education background				
Primary school level	27	87.1	27	87.1
Secondary school level	4	12.9	4	12.9
6. Medical service entitlement				
Full refunding	6	19.4	11	35.5
Health insurance	7	22.6	4	12.9
Elderly card	16	51.6	11	35.5
Full fee paying	0	0	4	12.9
Red cross/ health volunteer card	2	6.5	1	3.2
7. Monthly family income (Baht)				
≤ 1000	6	19.4	3	9.7
1001-3000	16	51.6	16	51.6
3001-5000	6	19.4	3	9.7
5001-10000	1	3.2	3	9.7
> 10000	2	6.4	6	19.4
8. Source of income				
Working/ Pension	13	41.9	8	25.8
Spouse/ Descendant	13	41.9	19	61.3
Working/Spouse/Descendant	5	16.1	3	9.7
Other	0	0	1	3.2

Table 3.1 (continue)

General data	Study group		Control group	
	number	%	number	%
Total	31	100.0	31	100.0
9. Usually living with				
Spouse	8	25.8	11	35.5
Descendant	9	29.0	5	16.1
Spouse/ Descendant	12	38.7	15	48.4
Spouse/ Descendant/ Relatives	1	3.2	0	0
Living alone	1	3.2	0	0
10. Caregiver				
Spouse	7	22.6	13	41.9
Descendant	12	38.7	11	35.5
Spouse/ Descendant	11	35.5	6	19.4
11. Other diseases				
Yes	17	54.8	18	58.1
No	14	45.2	13	41.9
12. Type of other diseases				
Diabetes	7	41.2	10	55.6
Heart disease	1	5.9	1	5.9
Arthritis	2	11.8	1	5.6
Diabetes/ Heart disease	1	5.9	0	0
Other	6	35.3	6	33.3
13. Hobbies				
Yes	8	25.8	7	22.6
No	23	74.2	24	77.4
14. Night sleeping duration (hours)				
< 6	2	6.4	9	29.0
6-8	28	90.3	21	67.7
> 8	1	3.2	1	3.2
15. Duration of illness (years)				
1-2	11	35.5	11	35.5
3	1	3.2	2	6.5
4-5	19	61.3	18	58.0

From table 3.1 the results showed:

Gender. Seventy-one percent of essential hypertension patients in both the study and the control group were female and 29 % of the participants were male.

Age. The majorities of the study group were between the ages of 65-69 years old (29%). The second age group was 60-64 and 55-59 years old, accounting for

22.6%. In the control group, 35.5 % were of 60-64 year old group and 25.8 % were of 65-69 year old group. The mean age of the study group was 62 years old with a standard deviation value of 6.02, whereas that of the control group was 60 years old with 5.80 standard deviation.

Marital status. The majorities of the patients were married and living with their spouse, accounting for 74.2 % and 83.9 % for the study and for the control group respectively. The second major group was divorced/widow, accounting for 25.8% and 16.1% for the study and for the control group respectively.

Main occupation. The main occupation of the patients in the study and the control groups was house work representing 64.5% and 48.4 % respectively. The second main occupation was merchant accounting for 25.8 for both groups. It was found that there was no record of agricultural occupation in the study group, compared to 19.4 % of this occupation in the control group.

Education background. The highest education background of the majorities of the patients in both the study and the control groups was at primary school level representing 87.1%, while 12.9 % of the patients finished education at secondary school level.

Average family income. The majorities (51.6%) of the study group had average monthly income of 1001-3000 Baht. The next two major groups had monthly income of 1000 Baht and below and 3001-5000 Baht, accounting for equally 19.4%. In the control

group, 51.6 % of the patients had family income of 1001-3000 Baht per month and the second major group of 19.4 % had family income of more than 10,000 Baht per month.

Source of income. The main source of income of most hypertension patients in the study group were from working/pension and from their spouse/descendants, each sources representing equally 41.9 %. In the control group, the majorities of the patients obtained their income from spouse or descendants (61.3%) and the second major group earned from working or pension, accounting for 25.8 % of all income sources.

Common residence. Majorities of the essential hypertension patients in the study and the control groups were found to live with their spouse and descendants accounting for 38.9 % and 48.4% respectively. In the study group, the second major residence was living with descendants (29.0%) and only small proportion of the patients in this group was found to live alone. In the control group, the second major residence was living with their spouse, representing 35.5 % of all cases.

Caregivers. The major caregivers for hypertension patients in both study and control groups were descendants representing equally 35.5 % of all cases. In the study group, the next major caregivers were spouse/descendants (32.3%) and 6.5 % the patients in this group were found having to take care of themselves during illness. The second major caregivers in the control group were spouse accounting for 41.9 % of all cases.

Medical service entitlement. Most essential hypertension patients in the study group had an elderly privilege card (51.6%). The second major group had health insurance card and was entitled to full refunding of medical fee, representing 22.6 % and 19.4 % respectively. In the control group, the medical service entitlement of most patients was an elderly card and full refunding, each accounting for 35.5% proportion. The next major group of the patients had a health insurance card (12.9 %) and to fully pay medical fees (12.9%).

Other diseases. Over half of essential hypertension patients in the study (54.8%) and the control (58.2 %) groups were found to have at least one other disease. The most common other disease found in those patients was diabetes, which represented 41.2 % and 55.6% in the study and the control group respectively.

Hobbies. 74.2 % of hypertension patients in the study group and 77.4% of those in the control group did not have any hobbies.

Nighttime-sleeping duration. It was found that 90.3 % of hypertension patients in the study group and 67.7% of patients in the control group had 6-8 hours of nighttime sleeping, while 6.4 % of patients in the study group and 29.0% of those in the control group had less than 6 hours of sleeping time each day.

Duration of hypertension disease. Duration of hypertension disease in most patients was 4-5 years accounting for 61.8% and 58.0 % in the study and in the control

group respectively. And equally 35.5% of patients in both groups were diagnosed with hypertension disease for 1-2 years.

2. Knowledge about hypertension and self-care behaviour of hypertension patients between the study and the control group prior to the training program

The evaluation of patients' knowledge at this stage involved assessment of 15 hypertension knowledge items with maximum of 15 points and 27 self-care behaviour items given a maximum of 69 points. The questions about self-care behaviour were classified into 8 sections, which were dietary (total score = 6), exercise (total score = 6), smoking and alcohol intake (total score = 6), stress management (total score =12), environmental restriction (total score =6), healthcare service encounter (total score = 6), anti-hypertensive drug intake (total score =3) and follow up (total score =3).

Table 3.2 Comparison of differences in average scores of knowledge about essential hypertension and self-care behaviour between the study and the control group at baseline

Variable	Study group		Control group		t	p-value
	\bar{X}	S.D.	\bar{X}	S.D.		
1. Knowledge of essential hypertension	10.58	2.97	9.58	3.08	1.29	0.19
2. Self-care behaviour	56.97	6.10	54.87	5.32	1.44	0.15
-Dietary	22.12	2.04	21.83	2.06	0.55	0.58
-Smoking and alcohol intake	5.67	0.74	5.58	0.92	0.45	0.65
-Exercise	4.61	1.40	4.19	1.79	1.02	0.31
-Stress management	9.32	1.68	8.61	1.49	1.75	0.08
-Environmental restriction	5.25	1.09	4.96	1.44	0.89	0.29
-Health service encounter	5.29	1.03	5.58	0.76	1.25	0.21
-Anti-hypertensive drug intake	3.00	1.34	2.35	1.53	1.75	0.08
-Follow up	1.67	0.70	1.74	0.63	0.38	0.70

*p-value < .05

From Table 3.2 it was found that out of the total 15 points, the average score of hypertension knowledge in the study group was 10.58 points and that in the control group was 9.58 points. The score values were not significantly different within 0.05 confidence limit of statistical comparative test (p-value = 0.19).

In addition, result scores of self-care behaviour indicated that the average score of the study group was 56.97 compared to 54.87 average score of the control group, out of the total 69 scores. The statistical test found no significant difference between the average scores of both group within 0.05 confidence limit (p-value = 0.15). Comparing

scores of individual self-care behaviour, namely, dietary, exercise, smoking and alcohol intake, stress relaxation, environmental restriction, health service encounter, anti-hypertensive drug intake and follow-up examination, also found no significant difference between scores of the study and of the control group within 0.05 confidence limit.

Phase 2 : Training program by participatory learning (X)

Purpose

To evaluate process and approach of the training program by participatory learning.

Evaluation Question

1. *How were the resources used for the training program, were they efficient?*
2. *Was 2 day intensive training appropriate to deliver the content?*
3. *Was the program beneficial?*
4. *Were the program problems and obstacles identified?*

Evaluation Design

1. Outcome measurement was consistency of the training program with the training schedule and learning activity plan previously set out.
2. Instrument used in data collection
 - Observation.
 - Interviews of training staff and the participants.

3. When to measure
 - During training sessions.
 - After finishing the training.
4. Who responsible for measurement
 - The project manager.

Results

Assessment of resource utilization in this project was made by the responsible project manager by comparing necessary resources such as manpower, financial budget, materials and time used for this program with the allocated amounts previously proposed in the plan and schedule. It was evident that the uses of those resources were sufficient as shown in Table 3.3.

Table 3.3 Comparison of resource allocation with project plan and schedule

Resources Allocation	Plan and Schedule	Performance	Discrepancy
Manpower	4 persons	4 persons	None
Money	16,380 Baht	10,000 Baht	-6,380 Baht
Material	Sufficiency	Sufficiency	None
Time	2 days	2 days	None

Outcome of the training process evaluation

a). Activity

- Relevant to the objectives
- Learning contents were well organized, appropriate and continuously consistent.

b). Timing

- Two-day training duration was sufficient to cover all learning materials and practicing exercises.
- The training session was organized during rainy season when rain was an obstacle and resulted in deferment of the training session.

c). Method

1. Learning approach involved participation of the patients in activities such as group discussion under allocated topics, lecture, role-playing, summarizing discussion contents, presentation, and video show. In the group discussion session, some patients did not express their opinions, the speakers and other group members would encourage them to speak. In addition, most participants were elderly people and had some difficulty in writing and could not write a summary of their opinions themselves. The responsible speaker had to write as dictated by the participants to assist the learning process.
2. Some patients were sitting quietly, neither spoke nor expressed their opinions, the investigator, therefore, had to encourage them to speak and later they were found to express their opinions. Some patients were observed to be dominant and tend to speak too much about their own

story, the investigator, therefore, employed listening techniques and encouraged these patients to summarize the story or by allowing other patients' turn to speak. The group process then went on smoothly.

3. Connection of learning materials between each hour sessions and between the days was found to be consistent and there were entertaining and leisure activities that helped the participants to relax, be energized and stimulated during the learning process.

Outcome evaluation of module 1: Knowledge about essential hypertension

1. The participants participated well in discussion and sharing their experience. Some pairs were uncomfortable and unacquainted with each other at the beginning but later were found to become more acquainted with each other.
2. The patients of each pair paid attention to the story told by their partner.
3. When a representative of each main group presented the group 's experience, the participants were interested and listened including asking questions and sharing their opinions.
4. In a small group session, the participants expressed their opinions and were enthusiastic in joining the activities as the topics interested them and they also shared similar experiences as hypertension patients.
5. Sharing their previous experience under imposed topics.
6. Some patients used herbal medicines in conjunction with contemporary medicines.

7. The participants were able to verbally present the summary of their opinions, however, could not present it in writing. The speaker helped in writing as dictated by the participants.

Outcome evaluation of module 2: other hypertension-related diseases and prevention

1. Representatives of the participants could perform very well in the role-play activity. They were able to stimulate and entertain other group members, however, all feelings and opinions from the role-play and group talk could not be expressed in writing.
2. The participants shared and discussed their opinions in both small and large groups. They were familiar with one another and the atmosphere was relaxing and entertaining.
3. When a representative of each group presented the group work, the participants showed high level of interest and widely discussed their opinions.

Outcome evaluation of module 3: Self-care behaviours of hypertension patients

1. Members of each pair paid attention to their partner's story.
2. The participants were able to express their opinions and summarize self-care activities according to the assigned topics.
3. The participants were interested in massage for stress reduction and able to practice.

4. Some participants had arthritis problems and could not stand up for a long period of time and could not practice exercise techniques of Aunt Boonmee's model, which requires a use of wood stick. Therefore they practice only sitting or other attainable techniques.

d). Overall outcome

1. The participants could learn well by participatory process, however, required an assistant in learning due to elderly problems, such as, writing.
2. The observation and interview of participants indicated that the participants liked this type of training, which was entertaining and interesting.

e). Factors facilitating the training program

There were some other factors that eased and were beneficial in running this project. Those included a friendly relationship between the investigator and the patients, that occurred long before participation in this project. The project received support, in terms of transportation to deliver patients who had traveling difficulty and producing foods and drinks during the training session.

Phase 3: Supervision (Re-training) by home visit (P₁, P₂, P₃)

Purpose

To analyze and evaluate the home visits to the patients in the study group.

Evaluation Questions A

1. *How was the process of home visit, was it successful?*
2. *Were the home visit problems and obstacles identified?*

Evaluation Design

1. Measure outcome
 - 1.1 Evaluate consistency of the home visit content with the study objectives and experience of the study group.
 - 1.2 Evaluate feedback on appropriateness of the home visit from the home visit nurses and the patients.
 - 1.3 Evaluate administration and management of the home visits.
 - 1.4 Evaluate the home visit process from opinions of the home visit nurses and the patients.
 - 1.5 Evaluate the number of home visits per each patient and ability to solve encountered problems.
2. Instruments for data collection consisted of:
 - In-depth interview form containing date of visit, times of visit, patient's name, address, the open-end question about problem practices (what, why, how), health status, food control, exercise, relaxation, anti-hypertensive drug intake, home environment and other (appendix 3).
 - Observation of such as general atmosphere and environmental conditions within the home and physical status of patients during the visit.
3. When to measure
 - During and after home visits.

4. Data Analysis

- Assessment data of in-depth interview form (patients and their caregivers or relatives)

Results

1. There was consistency of home visit contents with the study objectives.
2. The feedback of the patients and their relatives on appropriateness of the home visits was found to be at satisfactory level.
3. The study group patients were highly satisfied with the home visit program and would like to receive home visits regularly.
4. The outcome evaluation of the home visit to 31 patients by 3 project nurses found that:
 - Every patient received all three home visits as planned.
 - The home visit frequency was scheduled to be one visit per month. However, in some patients the visit interval was longer than one month due to time constraint of the responsible home visit nurse.
 - Interviews of other family members of the patients and their neighbors found that the patients who lived within the same area normally talked and shared their self-care knowledge and experience and this was common practice for people in the community.
 - Among the project participants, there were two female patients who had high body weight for a long time (83 and 85 kgs) and could not lose their weights due to improper eating behaviour. The study period was limited for this issue.

- Most patients in the study group were able to solve problems associated with self-care.

Evaluation Questions B

1. *At home, how were self-care behavior of the patients?*
2. *Was the knowledge and practice of the patients in the study group improved after the training program?*

Evaluation Design

1. Outcome measurement: Self-care behaviour.
2. Data collection instrument: In-depth interviews and observation form (appendix 3).
3. Examination of qualitative data: Data triangulation from relatives or caregivers.
4. Data Analysis: Descriptive method.

Results

In-depth interviews and observation were conducted with 31 hypertension patients in the study group during the 3 home visits with frequency of one visit per month. Data triangulation was obtained from the patients' relatives and caregivers. Evaluation of self-care behaviour during the home visit was to examine 7 key factors as follows:

1. Home environmental status
2. Physical and mental health status

3. Dietary
4. Smoking and alcohol intake
5. Exercise
6. Stress relaxation
7. Anti-hypertensive drug intake and follow up

Home environmental status. Majorities of housing were two-storey wood made houses. Only 2 houses had the Northeastern style, which usually elevates the first floor high and leaves the ground floor through open. Most patients were living with their spouse or descendants and only 1 patient was found to live alone, having a grandchild living nearby as a caregiver. The average number of family members among the study group was 4 people with the largest family of 17 members. Most family members were children of pre-school and primary school age group. During the second visit, there was fighting found between family members of one patient. In the third visit, that particular patient stated that the conflict had been resolved and there was no longer fighting within the family.

Physical and mental health status. Majorities of the patients were elderly people and usually had problems of arthritis symptoms, waist or back aches, leg fatigue upon long standing or long walk, toothache, loose teeth, and loss of chewing teeth. One patient was found to have gastritis and indigestion problems in conjunction with insomnia resulted from stress and anxiety due to having several grandchildren under caring responsibility. One patient had an accident of falling down causing bruises on the body and at the buttock area. Some patients had a panic disorder and heart

throbbing upon hearing a loud noise such as an explosion of firecrackers. In addition, some family members of 4 hypertension patients had illness conditions such as diarrhoea, dizziness and fatigue, and influenza. Home visit nurses provided advice and suggestion on self-care matters and prescribed medicines for the symptoms. In the next visit, the patients were better. Moreover, a spouse of one female patient was ill and diagnosed with cerebrovascular accident disease. That particular patient was caring for her spouse at all time leading to exhaustion and stress. The nurse encouraged her to speak her story to reduce the stress and advised her to do favorite activities. The patient then traveled for merit making with her friend at the temple in countryside and this helped her in relaxation.

When there was small physical illness, they would treat themselves with self-purchased medicines or observe the symptoms. If the symptoms were not better, they would go to receive contemporary medical treatment at the Urban Community Medical Center or a Hospital. There were two cases that received herbal treatment. The first case took fresh garlic and '*Fa-talai-jone*' herbal water on daily basis and the other patient took '*Chom Het Tate*' daily as believed that they would make the body stronger and beneficial in treating hypertension.

Other hypertension patients, who did not have physical symptoms, were observed to practice self-care activities well according to the training materials, whereas the patients with physical illness encountered some difficulty in self caring such as eating, exercise and stress relaxation. However, overall, patients were able to solve their problems properly with their physical and mental conditions at that time.

Dietary intake. Proper dietary intake is commonly considered by a patient, who normally chooses to eat types of foods that do not affect the health (according to their understanding and knowledge). Most patients were very careful with their dietary intake, except occasionally that they could not insist their favorite food or at a family party that has spicy and strong-taste food such as spicy salad and spicy papaya salad, which stimulates their appetites for the food, however, they were usually stopped by other family members.

Common foods consumed by the patients were of traditional Northeastern style, which could be grill, poached or boiled. Fruits would be seasonal fruits such as longans, sweet tamarinds or ripe mangoes. The patients believed that these types of fruits are not forbidden, like in diabetic patients, and are proper to take. Besides, it was found that one patient normally had 4 meals per day, instead of normal 3 meals, and had also to take 4 courses of medicines each day. After receiving advice from the nurse, the patient could improve the practice with more confidence.

Smoking and alcohol intake. There were two patients who smoke regularly and one patient who occasionally smoke. One of the regular cases intended to quit smoking as well as receiving support from the family members, so was able to quit smoking on completion of this project. The other patient could not quit smoking due to very long smoking habit (40 years). The patient was also found to occasionally drink alcohol and trying to cut down amount of cigarettes from 10 down to 3-4 cigarettes daily.

Exercise. The study group received training of exercise techniques and was explained that only daily activities and working do not contribute to sufficient amount of exercise. At post intervention, the patients were found to increase amount of their daily exercise and continuously practice due to positively reviving result of the exercise. Main exercise technique was walking around the house in conjunction with aerobics and some patients jogged and rode a bicycle. Monitoring of Aunt Boonmee's exercise technique by using of wood stick showed only few patients practicing due to arthritis problems and lack of group exercise members. The patients, who practiced Aunt Boonmee's technique, also trained other family members and interested neighbors to practice the same technique and all were found to be satisfied and able to practice the exercise.

Stress management. Most patients were not under stress or anxiety due to hypertension disease. However, due to the family and economic problems such as disobedience of young family members, debt, conflict of ideas, obligation of caring for ill family members, and imbalance between income and expenses, stress signs would show up as insomnia, frustration, and headache. Several stress relaxation techniques often found to be useful were:

1. Sharing and discussing problems with family members.
2. Sharing with neighbors.
3. Planting vegetables and caring trees and flowers.
4. Amusement activities such as watching TV and listening to music.
5. Avoid perception of bothered matter by walking or turning away.
6. Religious activities such as going to a temple or making merit.

In addition, it was found that 61.3% of the study group used a prayer in conjunction with meditation and 48.4% employed muscular relaxation as their stress management technique.

Anti-hypertensive drug intake and follow-up examination. Most patients took medicines regularly and never missed medical appointments. Two patients stated that their medicines ran out early and had to see a doctor before the intended date. They sometimes forgot to take medicines or not on time due to working time constraint (caring for young children). Some patients stated that they had to wait for medical service for a long time at the Hospital due to great numbers of waiting patients; however, the examination period was relatively short. Relocation of the hypertension clinic previously from the ground floor of the old building to the first floor of the new building led to some difficulty in walking up stair of the patients due to arthritis symptoms and they were afraid and nervous about using the elevator. Most patients understood about the method of anti-hypertensive medicine intake and present for follow up examination.

Phase 4: Post Intervention (O₂ and O₃)

Purpose

To evaluate knowledge about hypertension and self-care behaviours of the study and the control groups.

Evaluation Question

1. *Did the study group improve their knowledge and self-care behaviour after intervention?*
2. *Did the mean score of knowledge and self-care behaviour differ between the study and the control groups after intervention?*

Evaluation Design

1. Compare the study group with the control group and self-control between baseline (O_1), post intervention 1 (O_2) and post intervention 2 (O_3).
2. Measure outcome.
 - Mean score of knowledge and self-care behavior of both groups.
3. Data collection instrument.
 - Hypertension patients' interview forms same as in Phase 1.

Data analysis

The SPSS version 8.0 for window data analysis was used to analyze the data as follows:

1. Pair t-test was used to compare mean score of knowledge and self-care behavior satisfaction before and after intervention in the study group.
2. Independent t-test was used to compare mean score of knowledge and self-care behavior' satisfaction before and after intervention between the study and the control group.

Results

1. Analysis of patients' knowledge in essential hypertension

The baseline evaluation (O_1) was conducted to assess background knowledge in essential hypertension of 31 patients in the study group before the training program. The first outcome evaluation (O_2) was conducted after completion of the home visit program (3-month duration with frequency of 1 visit per month, so total of 3 home visits to each patient) and the second outcome evaluation (O_3) was carried out three months later. In this second session, only 30 patients were able to attend as the other patient relocated to live in another province.

1.1 Comparison of knowledge in essential hypertension within the study group between baseline (O_1), post intervention 1 (O_2) and post intervention 2 (O_3).

Table 3.4 indicated that out of the total 15 points, the scores above 12 of the study group at baseline (O_1), post intervention 1 (O_2) and post intervention 2 (O_3) accounted for 48.4, 87.1 and 86.7 respectively. This demonstrated that there was nearly doubled increase of hypertension knowledge level of the study group after the 2-day intensive training program and the home visits and the knowledge remained the same after 3 months without additional intervention.

In the control group, nearly half of the patients fell within the 9-11 score level at baseline, however, the major percentages moved to higher score levels with 38.7 % and 61.3 % of score above 12 at post intervention 1 (O_2) and post intervention 2 (O_3)

respectively. This showed that the control group had also improved their knowledge but with lesser extent.

Table 3.4 Percentage scores of knowledge in essential hypertension between baseline (O₁), post intervention 1 (O₂) and post intervention 2 (O₃) in the study group and control group

Score level	Study group (n=31)			Control group (n=31)		
	Baseline (o1)	Post intervention1 (o2)	*Post intervention2 (o3)	Baseline (o1)	Post intervention1 (o2)	Post intervention2 (o3)
	%	%	%	%	%	%
1-8 points	19.3	19.3	3.3	25.8	32.3	12.9
9-11 points	32.3	32.3	10.0	45.2	29.0	25.8
12-15 points	48.4	48.4	86.7	29.0	38.7	61.3
\bar{X}	10.58	13.38	13.63	9.58	10.06	11.58

* n =30

1.2 Analysis of knowledge characteristics about essential hypertension in the study group.

Table 3.5 compared proportions of hypertension knowledge between baseline (O₁), post intervention 1 (O₂) and post intervention 2 (O₃) in the study and the control groups. It was found that after the 2-day intensive training program and the home visits, there was a significant increase in knowledge level of the study group especially about causes of the disease (Item 1 and 2), other hypertension-related disease (Item 3), anti-hypertensive drug therapy (Item 4,5,6 and 7), exercise (Item 8), and follow-up

examination (Item 9). The knowledge level remained after a 3-month period without additional intervention.

In the control group, there was improvement of knowledge in causes of hypertension (Item 1), other hypertension-related diseases (Item 3), intake of anti-hypertensive drug (Item 4 and 7), and exercise (Item 8), however, with lesser extent than the improvement in the study group.

Table 3.5 Percentage knowledge of essential hypertension between baseline (O₁), post intervention 1 (O₂) and post intervention 2 (O₃) in the study group and the control group

No	Items	Study group (n=31)			Control group (n=31)		
		Baseline (o1)	Post intervention1 (o2)	*Post intervention2 (o3) *n=30	Baseline (o1)	Post intervention1 (o2)	Post intervention2 (o3)
		%	%	%	%	%	%
1	Hypertension disease cannot be completely cured.	51.6	77.4	90.0	35.5	41.9	58.1
2	Hypertension is implicated with genetic inheritance.	41.9	67.7	66.7	25.8	22.6	35.5
3	Hypertension may lead to heart disease and kidney disease, if not treated.	67.7	90.3	90.0	64.5	71.0	83.9
4	If forgetting to take one set of medicines, should not take double doses when recall or in the next session.	74.2	90.3	100.0	71.0	74.2	90.3
5	When the symptoms are better, should not discontinue the medicines.	71.0	90.3	96.7	71.0	71.0	71.0
6	If there is no sign of headache or dizziness, must continue taking anti-hypertensive drugs	71.0	100.0	83.3	71.0	71.0	71.0
7	Symptoms of frequent urination and fatigue are side effects of anti-hypertensive drugs.	45.2	80.6	80.0	38.7	54.8	74.2
8	Exercise does not increase high blood pressure level.	54.8	83.9	90.0	51.6	61.3	61.3
9	Even high blood pressure is reduced to a normal level, still need an examination by a doctor as appointed.	74.2	83.9	90.0	83.9	83.9	87.1

1.3 Comparison of hypertension knowledge between baseline (O_1), post intervention 1 (O_2) and post intervention 2 (O_3) in the study group.

Table 3.6 illustrated that prior to the training program, the average knowledge score of the study group was 10.58 points and increased to 13.39 points at post intervention 1 (O_2). The statistical comparison showed a significant difference between the two values (p-value < 0.001). Similarly, comparing the baseline data with the post intervention 2 (O_3) data indicated an increase of the average knowledge score from 10.58 to 13.63 and there was a significant difference between the two mean values by statistical test (p-value < 0.001).

Table 3.6 Comparison of difference in average scores of essential hypertension knowledge between baseline (O_1), post intervention 1 (O_2) and post intervention 2 (O_3) in the study group

Variable	n	\bar{X}	S.D.	t	p-value
Baseline (O_1)	31	10.58	2.97	5.29	0.000*
Post intervention 1 (O_2)	31	13.39	2.26		
Baseline (O_1)	30	10.53	3.01	5.84	0.000*
Post intervention 2 (O_3)	30	13.63	1.69		

*p-value < .001

1.4 Comparison of difference in mean scores of knowledge in essential hypertension between the study and the control group at post intervention 1 (O₂) and post intervention 2 (O₃).

According to Table 3.7, there was a significant difference in the mean scores of hypertension knowledge at post intervention 1 (O₂) and post intervention 2 (O₃) between the study and the control group by statistical comparison (p-value < 0.001). The study group tended to have better knowledge than the control group.

Table 3.7 Comparison of average scores of essential hypertension knowledge between the study and the control group at post intervention 1 (O₂) and post intervention 2(O₃)

Variable	N	\bar{X}	S.D.	t	p-value
Post intervention 1 (O₂)					
Study group	31	13.39	2.26	5.35	0.000*
Control group	31	10.06	2.61		
Post intervention 2 (O₃)					
Study group	30	13.63	1.69	3.90	0.000*
Control group	31	11.58	2.35		

*p-value < .001

2. Analysis of self-care behaviour of the target groups

2.1 Comparison of score level of self-care behaviour in the study and the control group at baseline (O₁), post intervention 1 (O₂) and post intervention 2 (O₃).

According to Table 3.8, 64.5 % of the study group fell within moderate score level (48-61 scores, out of 69 total scores) at baseline and major percentages moved to higher score level, namely 71.0% and 63.3 % at 62-69 score level, at post intervention 1 (O₂) and post intervention 2 (O₃) respectively. This data demonstrated that self-care behaviour of the study group improved after the intervention, but decreased after 3 months without home visits.

Self-care behaviour of the control group during the same study period evaluated using the same questionnaire were found to be mainly at moderate level for all baseline (O₁), post intervention 1 (O₂) and post intervention 2 (O₃) data. There was a slightly increase in the proportion of the good level self-care (with 62-69 points) at post intervention, compared to the baseline data.

Table 3.8 Percentage scores of self-care behaviour between the study and the control group at baseline (O₁), post intervention 1(O₂) and post intervention 2 (O₃).

Score level	Study group (n=31)			Control group (n=31)		
	Baseline (o1)	Post intervention1 (o2)	*Post intervention2 (o3)	Baseline (o1)	Post intervention1 (o2)	Post intervention2 (o3)
	%	%	%	%	%	%
≤ 47 points	6.5	3.2	0	9.7	6.4	6.4
48-61 points	64.5	25.8	36.7	83.9	80.6	54.8
62-69 points	29.0	71.0	63.3	6.4	12.9	38.7

* n=30

2.2 Comparison of mean scores of different aspects of self-care behaviour between the study and the control group.

From Table 3.9, the study group was found to significantly improve their self-care behaviours after the two-day intensive training and the home visits, however, after three months without retraining (at post intervention 2), the score of exercise and anti-hypertensive drug intake declined while the score of dietary increased. The control group also improved their self-care behaviours during the same study period and similarly to the study group, the exercise score was found to slightly decline at post intervention 2.

Table 3.9 Average scores of self-care behaviors at baseline (O₁), post intervention 1 (O₂) and post intervention 2 (O₃) in the study and the control group

Items	Study group(n=31)			Control group(n=31)		
	Baseline (o1)	Post intervention1 (o2)	*Post intervention2 (o3)	Baseline (o1)	Post intervention1 (o2)	Post intervention2 (o3)
	%	%	%	%	%	%
Total mean score	56.97	63.48	62.50	54.87	56.51	58.58
*Dietary	22.13	24.48	24.80	21.84	22.71	23.29
*Exercise	4.61	5.51	5.10	4.19	4.52	4.22
*Anti-hypertensive drug intake	3.00	3.45	3.33	2.35	2.35	2.61

n=30

Given a total of 69 points with a maximum score of each aspects as follows:

dietary score = 6, exercise score = 6, anti-hypertensive drug therapy score = 4.

2.3 Analysis of self-care behaviours between the study and the control group

Table 3.10 indicated that dietary and exercise behaviours of the study group after the intervention were better than those at pre intervention (baseline) and these behaviour improved after three-month post intervention without retraining by home visits. However, some improper eatings were increased, such as desserts, carbohydrates and fried food without control, and consumption of fruits with high sugar and fat

content such as durian, ripe mangoes and sweet tamarinds. Moreover, there was a decrease in the amount of exercise and only small proportion practice stress relaxation techniques by meditation or muscular relaxation (see appendix 1).

In the control group, the dietary behaviour was better at the third home visit (O₂) than at baseline with lesser discrepancy than in the study group. There was no difference in exercise and medicine intake behaviour between the baseline and the third home visit (O₂) data. At 3 month after the third home visit (O₃), it was found that eating of fish was reduced, while there was an increase in consumption of other high calorie foods such as curry, sweet desserts and sweet fruits. However, exercise and anti-hypertensive drug intake behaviour were found to remain at the same level.

Table 3.10 Percentage of self-care behaviour scores between baseline (O₁), post intervention 1 (O₂) and post intervention 2 (O₃) in the study and the control group.

No	Items	Study group (n=31)			Control group (n=31)		
		Baseline (o1) %	Post intervention 1 (o2) %	*Post intervention2 (o3) %	Baseline (o1) %	Post intervention1 (o2) %	Post intervention2 (o3) %
1	Dietary control						
1.1	Intake of mild diets						
	Regularly	54.8	80.6	80.0	22.6	32.3	54.8
	Occasionally	45.2	19.4	16.7	71.9	61.3	35.5
	Never	0	0	3.3	6.5	6.5	9.7
1.2	Extra fish sauce, soy sauce or salt addition during meal						
	Regularly	9.6	3.2	0	9.7	16.1	9.7
	Occasionally	32.3	25.8	30.0	45.2	16.1	9.7
	Never	58.1	71.0	70.0	45.2	38.7	61.3
1.3	Intake of sweets, carbohydrates or fried foods without control						
	Regularly	3.2	3.2	0	0	3.2	0
	Occasionally	58.1	22.6	50.0	71.0	58.1	51.6
	Never	38.7	74.2	50.0	29.0	32.3	48.4
1.4	Intake of coconut milk added curry, poached pork leg, chicken with oily rice and coconut milk added desserts						
	Regularly	3.2	3.2	0	0	0	0
	Occasionally	35.5	22.6	26.7	35.5	35.5	45.2
	Never	61.3	74.2	73.3	64.5	64.5	54.6
1.5	Use of vegetable oil in food preparation						
	Regularly	71.0	80.6	90.0	93.5	93.5	93.5
	Occasionally	19.4	12.9	10.0	6.5	6.5	3.2
	Never	9.6	6.5	0	0	0	3.2
1.6	Intake of fish						
	Regularly	67.7	74.2	96.7	67.7	90.3	87.1
	Occasionally	32.3	25.8	3.3	29.0	9.7	12.9
	Never	0	0	0	3.2	0	0
1.7	Intake of fat contained meat						
	Regularly	3.2	3.2	3.2	0	9.7	6.5
	Occasionally	77.4	29.0	20.0	77.4	51.8	48.4
	Never	19.4	67.7	80.0	22.8	38.7	45.2
1.8	Intake of fruits and vegetables						
	Regularly	58.1	77.4	90.0	54.8	71.0	77.4
	Occasionally	38.7	19.4	10.0	38.7	25.8	22.6
	Never	3.2	3.2	0	6.5	3.2	0
1.9	Intake of fruits with high sugar/fat content e.g. durians, ripe mangoes and sweet tamarinds						
	Regularly	3.2	3.2	0	12.9	0	3.2
	Occasionally	77.4	22.6	46.7	64.5	45.2	58.1
	Never	19.1	74.2	53.3	22.6	54.8	38.7
2	Exercise						
2.1	Walking or aerobics to sweat 3 days per week						
	Regularly	45.2	77.4	60.0	41.9	41.9	38.7
	Occasionally	38.7	22.6	36.7	22.9	41.9	35.5
	Never	16.1	0	3.3	35.5	16.1	25.8
2.2	Walking or aerobics to sweat with each session of 15-30 minutes						
	Regularly	45.2	77.4	56.7	48.4	19.4	29.0
	Occasionally	41.9	22.6	40.0	16.1	35.5	32.3
	Never	12.9	0	3.3	35.5	45.2	38.7

Table 3.10 (continue)

No	Items	Study group (n=31)			Control group (n=31)		
		Baseline (o1) %	Post intervention 1 (o2) %	*Post intervention2 (o3) %	Baseline (o1) %	Post intervention1 (o2) %	Post intervention2 (o3) %
3	Intake of anti-hypertensive drugs						
3.1	During the last month, had completed all set of medicines and every time	77.4	93.5	90.3	74.2	71.0	74.2
3.2	During the last month, intake the medicine at correct time, every time	77.4	90.3	93.3	71.0	71.0	64.5
3.3	During the last month, never forget to take medicines	77.4	93.5	93.5	67.7	67.7	67.7
3.4	If forgetting, would take immediately upon recall.	67.7	67.7	73.3	22.6	25.8	51.8

* n=30

2.4 Comparison of difference in mean scores of self-care behaviour between baseline (O_1), post intervention 1 (O_2) and post intervention 2 (O_3) in the study group.

Table 3.11 illustrated that self-care behaviour of the study group were better at the third home visit (O_2) than those at baseline. The statistical comparison of the mean scores found a significant difference between baseline and the third home visit (O_2) values and baseline and 3 month after the third home visit (O_3) values (both p-value < 0.001).

Table 3.11 Comparison of mean self-care behavior scores of baseline (O₁), post intervention1 (O₂) and post intervention 2(O₃) in the study group.

Variable	n	\bar{X}	S.D.	t	p-value
Baseline (O ₁)	31	56.97	6.11	4.61	0.000*
Post intervention 1 (O ₂)	31	63.48	7.13		
Baseline (O ₁)	30	56.80	6.14	6.00	0.000*
Post intervention 2 (O ₃)	30	62.50	5.16		

*p-value < .001

2.5 Comparison of difference in mean scores of self-care behaviour in the study and the control group

Table 3.12 indicated that at post intervention 1, self-care behaviour of the study group were better than those of the control group and there was a significant difference between two mean score values when comparing by statistical test (p-value < 0.001). The statistical comparison also found significant difference between mean scores of self-care behaviour in the study and the control groups at post intervention 2 (p-value < 0.05) with higher score in the study group.

Table 3.12 Comparative average scores of self-care behaviour in the study and the control group at post intervention1 (O₂) and post intervention 2 (O₃)

Variable	n	\bar{X}	S.D.	t	p-value
<u>post intervention1 (O₂)</u>					
Study group	31	63.48	7.13	4.35	0.000*
Control group	31	56.51	5.35		
<u>post intervention2 (O₃)</u>					
Study group	30	62.50	5.16	2.56	0.013**
Control group	31	58.58	6.68		

*p-value < .001 and **p-value < .05