CHAPTER 3

PROJECT EVALUATION

3.1 Introduction

This project evaluated the DM patients who participated in the participatory learning program to improve self-care behavior. Evaluation was divided into 2 phases, first after finishing the training program and the second was 6 months later.

3.2 Purpose

The purpose of the evaluation was focused on output evaluation. There are:

3.2.1 To obtain baseline data of DM patients.

3.2.2 To identify problems within the project.

3.3.3 To evaluate the knowledge and self-care behavior in DM patients.

3.3 Evaluation Design

The project was divided into 2 implementation phases.

Phase 1 was on development of supporting systems including establishment of health promotion policy, environment arrangement and skill development for staff.

Phase 2 was an implementation of a health promotion program.

The program was 4 days intensive training for thirty-DM patients about self-care behaviors relating to health promotion such as food consumption, exercise, treatment and complication prevention by using the participatory learning.

3.4 Evaluation Questions

1. What are the demographic data of the DM patients?
2. Does the participatory learning program lead to improving the knowledge in DM patients?
3. Do the DM patients improve in the attitude of self-care behavior after 4 days participatory learning program?

Training Venue

The training phase took place at the health promotion center of IPD in Saimoon Hospital. There were 5 trainers and 30 participants. Participants were divided into 6 groups, each group participated in health promotion program for 4 days.

The training content was applied from The Diabetes Mellitus Handbook of Medical Department Ministry of Public health (1998). The schedules are as in the appendix.

3.5 Results of the Health Promotion Program

3.5.1 The result for question1:

What are the demographic of the DM patients?

Table 3.1: Demographic Characteristics of DM patients (N = 30)

Characteristic	Frequency	Percentage
Gender		
Male	2	6.67
Female	28	93.33
Marital status		
Single	1	3.34
Married	23	76.66
Widows	6	20.00
Age Group (years)		
< 40	1	3.33
40-49	7	23.33
50-59	21	70.01
60-69	1	3.33
Education Level		
Primary education	29	96.67
Secondary education	1	3.33
Occupations		
Agricultural	26	86.66
Housekeeper	4	13.34
Relations		
Husband/Wife	20	66.67
Children	7	23.33
Son-in law/daughter-in law	1	3.33
Relative	2	6.67

From Table 3.1, there were 2 male (6.67%) and 28 female (93.33%) diabetes patients. The highest number of marital status was 'married' with 76.66 %. Majority of participants were in age group of 50-59 years old (70.01%). There were 96.67% of participants with primary education level. 86.66% of participants worked in agriculture with 66.67 were 90.2% of participants % lived with their family.

3.5.2 The result for evaluation question 2&3.

2. Does the participatory learning program lead to improving the knowledge in DM patients?

3. Do the DM patients improve in the attitude of self-care behavior after four days participatory learning program?

3.5.2.1 The knowledge and behavior of DM patients before and after involving with the program.

The data of DM's knowledge was collected by the researcher on the first day and the last day of training program. Then at 6 months after the program the patients were retested. Details are as following.

I. The knowledge for Diabetes mellitus before participated in training program.

In this study, There were 16 total marks for DM's knowledge. DM patients had the mean of 13.54, 1.556 SD. The level of knowledge at <60% are classified as low level, between 60-80% as medium, >80% and over as high level of knowledge.

Table 3.2: The Mean standard deviation and level of knowledge

Question	DM's knowledge	X (n=30)	SD	level
1.	Diabetes is caused by dysfunction of pancreas.	0.97	0.15	H
2.	If father or mother is a diabetes patient, children are at risk of developing diabetes.	0.92	0.26	H
3.	Fasting Blood Sugar of a diabetes patient is higher than that of a normal person.	1.0	0.0	H
4.	Dizziness and fatigue are the symptoms of hypoglycemia.	0.97	0.33	H
5.	A person who starts to develop diabetes will eat large quantity of food but loose weight.	0.95	0.21	H
6.	Before going for the test of blood sugar level at hospital, food and water are restricted for at least 8 hours.	0.82	0.26	H
7.	Lard is suitable for cooking for diabetes patients.	0.82	0.36	H
8.	DM patients can consume all types of green vegetables with unlimited quantity.	0.83	0.38	H
9.	The DM. patients should limit quantity of food and sweet intakes.	0.95	0.21	H
10.	DM patients should not eat snacks or have irregular meal time.	0.93	0.26	H
11.	Regular exercise can decrease the risk factors and complications of DM.	1.0	0.0	H
12.	Additional food or soft drinks intake is required if DM patient's practice exercises.	0.17	0.46	M
13.	If DM patients feel dizzy after taking medicine, they can adjust medicine dosage by themselves	0.76	0.43	M
14.	Diabetes may cause glaucoma.	0.93	0.26	H
15.	Diabetes may cause hypertension and renal failure.	0.97	0.15	H
16.	DM patients who have injured with small wounds do not have to see doctor or health officer.	0.63	0.49	M

Table 3.2, illustrated that participants had high level of DM's knowledge with moderate level in questions 12, 13 and 16. Some of DM patients understand that they should be taking more food and soft drink after exercises. Beside some of them understand that they could adjust DM. drugs by themselves.

II. The Knowledge after participated in health promotion program.

Evaluation at the last day of the health promotion program found that total score of DM patient's knowledge was 16, the overage was 14.73 and SD was 0.932. When analyzing each row of DM patient's knowledge, the score less than 60 percentages was classified as low level, between 60-80 percentage was moderate level and over 80 percentages was high level.

Table 3.3: Mean standard deviation and level of knowledge after participatory learning program.

Questions	DM's knowledge	X (n=30)	SD	level
1.	Diabetes is caused by dysfunction of pancreas.	1.0	0.0	H
2.	If father or mother is a diabetes patient, children are at risk of developing diabetes.	0.97	0.16	H
3.	Fasting Blood Sugar of a diabetes patient is higher than that of a normal person.	1.0	0.0	H
4.	Dizziness and fatigue are the symptoms of hypoglycemia.	1.0	0.0	H
5.	A person who starts to develop diabetes will eat large quantity of food but loose weight.	0.95	0.23	H
6.	Before going for the test of blood sugar level at hospital, food and water are restricted for at least 8 hours.	0.97	0.49	H
7.	Lard is suitable for cooking for diabetes patients.	0.97	0.16	H
8.	DM patients can consume all types of green vegetables with unlimited quantity.	0.60	0.49	M
9	The DM. patients should limit quantity of food and sweet intakes.	0.92	0.28	H
10.	DM patients should not eat snacks or have irregular mealtime.	0.97	0.16	H
11.	Regular exercise can decrease the risk factors and complications of DM.	1.0	0.0	H
12.	Additional food or soft drinks intake is required if DM patient's practice exercises.	0.91	0.39	H
13.	If DM patients feel dizzy after taking medicine, they can adjust medicine dosage by themselves	0.97	0.16	H
14.	Diabetes may cause glaucoma.	1.0	0.0	H
15.	Diabetes may cause hypertension and renal failure.	1.0	0.0	H
16.	DM patients who have injured with small wounds do not have to see doctor or health officer.	0.91	0.31	H

In table 3.3 it was shown that DM patient's knowledge increased excepted for questions 8 where DM patients understood that they could eat any green lefty vegetables.

3.5.2.2 The knowledge of Self-care behavior to control diabetes mellitus

The evaluation in this part was separated to 4 sections, food consumption, exercise, treatment and self-care behavior for complication prevention. The 30 of DM patients were tested for self-care behavior at the first day of training by the research team. Then, they were tested again 6 months later. In this study the researcher was collected for 30 patients. Then the researcher collected the data of pre and post-test in the same patients about 30 cases for analyzing that the results as following:

1. **Self-care behavior to control diabetes mellitus before training.** The mean score on self-care behavior was 17.097 (total 21) and SD=2.896. The level of health-care behavior's knowledge of less than 60 was classified as low, between 60-80 as moderate and over 80 as high. See table 3.4 in the next page.

Table 3.4: Mean standard deviation and level of health-care behavior before participatory learning program.

No.	Behavior	X	SD	Level of knowledge
	About food consumption			
1.	You eat rice for 3-meals everyday.	0.76	0.43	M
2.	You eat food of in normal taste.	0.85	0.36	H
3.	You use vegetable oil for cooking.	0.85	0.36	H
4.	You eat fish more than any other types of meat.	0.68	0.47	M
5.	You eat vegetable every meal.	0.53	0.50	L
6.	You drink water over 8 glasses/day.	0.58	0.49	L
	About exercise			
7.	You get exercise by doing aerobic dance (walk, jogging).	0.84	0.40	H
8.	You exercise 3 days or over in one week.	0.43	0.50	L
9.	You exercise for 20 minutes or over each time	0.51	0.51	L
	About treatment			
10.	You take DM drugs on time everyday.	0.88	0.33	H
11.	You take DM drugs only per doctor's order.	0.93	0.25	H
12.	You see doctor every appointment.	0.90	0.30	H
13.	You go to see the doctor before an appointment If you have unusual symptoms.	0.88	0.33	H
	About complication prevention			
14.	You clean your foot everyday.	1.0	0.00	H
15.	You dry your foot everyday.	0.92	0.26	H
16.	You check what wrong with your foot everyday.	0.98	0.15	H
17.	You put shoes on every time when going out.	0.68	0.47	M
18.	Your shoes are prefects fitting.	0.97	0.15	H
19.	You brush your tooth every time after meal.	0.80	0.40	M
20.	You have tension. You talk or express to others When/ meditation / prey	0.39	0.49	L
21.	You take some sweet or soft drink before going to see the doctor when you feel dizzy.	0.78	0.41	M

In Table 3.4, health-care behaviors on food consumption no. 5 and 6 about eating vegetable and drinking water were at low level. Beside that most DM patients were getting aerobic dance for exercise but the frequency of exercise/week was at low level. The score of health-care behaviors on treatment was at high level and a health-care behavior on complication prevention was low score on question 20 about strain relaxation.

2. Self-care behavior to control diabetes mellitus after training. Thirty-DM patients were tested on self-care behavior again by the researcher at three months after training. After the training they have had the average score of 18.666 (total 21), SD 2.309 and the level of knowledge less than 60 were classified as low level, between 60-80 as moderate level and over 80 as high level see the following results.

Table 3.5: Mean standard deviation and level of health-care behavior after three months of participatory learning program.

No.	Behavior	X	SD	Level of knowledge
	About food consumption			
1.	You eat rice for 3-meals everyday.	0.83	0.38	H
2.	You eat food of in normal taste.	0.93	0.25	H
3.	You use vegetable oil for cooking.	1.00	0.00	H
4.	You eat fish more than any other types of meat.	0.90	0.30	H
5.	You eat vegetable every meal.	0.70	0.47	M
6.	You drink water over 8 glasses/day.	0.77	0.43	M
	About exercise			
7.	You get exercise by doing aerobic dance (walk, jogging).	0.80	0.41	
8.	You exercise 3 days or over in one week.	0.57	0.50	
9.	You exercise for 20 minutes or over each time.	0.53	0.51	
	About treatment			
10.	You take DM drugs on time everyday.	0.93	0.25	H
11.	You take DM drugs only per doctor's order.	0.97	0.18	H
12.	You see the doctor every appointment.	1.00	0.00	H
13.	You go to see the doctor before an appointment If you have an unusual symptoms.	1.00	0.00	H
	About complication prevention			
14.	You clean your foot everyday.	0.93	0.25	H
15.	You dry your foot everyday.	1.00	0.00	H
16.	You check what wrong with your foot everyday.	0.93	0.25	H
17.	You put shoes on every time when going out.	0.93	0.25	H
18.	Your shoes are perfect fitting.	1.00	0.00	H
19.	You brush your tooth every time after meal.	0.63	0.49	M
20.	When You have tension You talk or express to others	0.87	0.45	H
21.	You take some sweet or soft drink before going to see the doctor when you feel dizzy.	0.93	0.25	H

After three months of training, the DM patients had an increased level such as food consumption on questions.5 and 6. About eating vegetable and drinking water were changed from low to medium level. But the 9 overage of exercise was at low level for the frequency and time's period. The score of self-care behavior on treatment was high level and score of strain relaxation was changed to high level as well.

III. The comparisons of the knowledge and the knowledge of self-care behavior in DM patients

a) The comparisons of the knowledge

The study conducted comparisons of mean score on DM patients at pre & post participatory learning program (The first and the last day of training program). The complete data was obtained from 30 cases only Pair simple t-test was used to analyze this data. Results are as shown in Table 3.6

Table 3.6: Comparisons of mean score on the DM patient's knowledge pre-post 4 days participatory learning program (n=30)

The knowledge	X	S.D.	t	Significance
Pre-training	13.351	1.531	4.946	0.000*
Post-training	14.729	0.932		

*p< .05

From table 3.6, the mean score of knowledge of DM patients before participating in training program was 13.351, S. D. was 1.531. After the DM patients participated in training program for 4 days the knowledge score increase to the means

score of 14.729 and S.D. 0.932 with significant p- value less than .05. However, the means score after training was much higher than before training.

b) The comparisons the knowledge of self-care behavior

The study conducted comparisons the knowledge of self-care behavior on DM patients before and after 3 month after participatory learning program. The researcher was able to collect data just for 30 cases only. Because four of them were going to another provinces and could not participated with full project and seven of them could not completed the post-test. Then the researcher collected the data of pre and post-test in the same patients about 30 cases for analyzing that the results as following:

Table 3.7: Comparisons of mean score on the DM patient's knowledge of self-care behavior pre-post participatory learning program (n=30)

The Knowledge of Self-care behavior on	X	S.D.	t	Significance
Food consumption				
Pre training	4.033	1.217	-3.914	0.007
Post training	5.133	0.937		
Exercise				
Pre training	1.780	1.141	-0.191	0.850
Post training	1.904	1.424		
Treatment				
Pre training	3.533	0.730	2.362	0.025
Post training	3.900	0.305		
Complication prevention				
Pre training	6.566	1.025	2.484	0.019
Post training	7.233	0.897		
Self-care behavior on foot and skin care				
Pre training	16.600	3.114	2.887	0.007
Post training	18.667	2.309		

$p < .05$

Table 3.7 showed that the DM patients' knowledge about self-care behavior post training was much higher than that of pre training. When considering each factor it was found that food consumption, treatment and complication prevention was much higher than before with significance at p-value less than .05 unless, on the exercise was without a significance difference.

3.5.3 The result of HbA_1c

The DM patients were tested for HbA_1c by the nurses at IPD in Saimoon Hospital. They were checked on the first day of training and secondly at 6 months after. However, as the research team tried to send the patient's blood exam for HbA_1c checking at the center hospital in Ubonrajchatanee province. The 30 packages of patient's blood exam were sent to checking but there was a problem of blood exam clotting. Due to this reason the researcher could not collect the complete data. Thus, the result presented below only represents in the same samples at pre-post test about 18 cases that below only represent in table 3.8

In this study the researcher wanted to compare the difference of HbA_1c at pre-post training in 18-DM patients who were same cases. Then the Paired Samples T test statistic was used to analyzing that the results in the table below:

Table 3.8 : Paired Samples statistics of HbA_1c in DM patients before and after participating training program. (N=18)

HbA_1c	Mean	Std. Deviation	95% Confidence interval of the Difference		t	Significance (2-tailed)
			Lower	Upper		
Pre-training	14.3656	4.0082	0.7441	4.0537	3.059	0.007
Post-training (6 months)	11.9667	3.2740				

From table 3.8, the mean score of HbA_1c on DM patients before training and after training for 6 months was 14.3656 and 11.9667. The Standard Deviation was 4.0082 and 3.2740. It was found 95% confidence interval of the difference at lower and upper as .7441 and 4.0537. It was found the difference of HbA_1c level between pre-post training with significance (2-tailed) at .007 ($t = 3.059$).

3.5.4 The results of Fasting Blood Sugar

This study the DM patients were tested for FBS on the first day of training and secondly at 6 months after. The researcher compared the difference of FBS level between pre-post training by using Paired Samples Test that the results below:

Table 3.9 : Paired Samples statistics of FBS in DM patients before and after participating training program. (N=30)

FBS	Mean	Std. Deviation	95% Confidence interval of the Difference		t	Significance (2-tailed)
			Lower	Upper		
Pre-training	212.93	51.01	26.74	69.39	40.610	0.000
Post-training (6 months)	164.87	51.92				

From the table 3.9, the mean score of FBS on DM patients at the first day of training and after training for 6 months was 212.93 and 164.87. The Standard Deviation was 51.01 and 51.92.It was found 95% confidence interval of the difference at lower and upper as 26.74 and 69.39. It showed that the difference of FBS level between pre-post training with significance (2-tailed) at pre-value less than .05 (t = 4.610). However, this study found that there was the difference with significance of HbA_1c and Fasting Blood Sugar in the same cases of DM patient before and after training.