



## CHAPTER IV

### DISCUSSIONS AND CONCLUSIONS

#### 4.1 Discussions

The study aimed to evaluate the Control and prevention of Diabetes Mellitus and Hypertension Program (CPDP) in Phayao Municipality of Phayao Province. The evaluate consisted of two parts: the program process and the program outcome. Process evaluation emphasized on determining the efficiency of the process. Outcome evaluation was an assessment of knowledge and health behavior of diabetics and people who are at risk. Study population was people age 40 and above, who had and had not participated in the program in 2000, were recruited from 13 communities in Phayao Municipality, 60 persons per group using simple random sampling. The study also involved 15 diabetics into the study. The results of study divided into 2 categories.

##### **Process Evaluation**

It was found that the implementation was done in accordance as planned but the coverage of screening in population aged 40 and over and the risk group was 5.7%, which was lower than the goal of 10%. It was because of inappropriate time of the public relation, the inappropriate time of screening, lack of follow up system of screening non-participant by the village health volunteer and community advisor. For DM screening, the health worker or community advisor should play vital role with

support of village health volunteer e.g. public relation and target group / risk group invitation because of their familiarity with the community and thus they could perform risky behavior surveillance.

DM screening was for diagnosis of non-clinical sign patient to provide early treatment. The principle was screening test should have sufficient sensitivity and specificity, optimum cost, and harmless to subject. The program used glucostrip, which possessed the three qualifications. In general, fasting plasma glucose measurement was considered a reliable test and widely accepted. Those who had 140 mg/dl of blood sugar with no signs needed a confirmation test for DM. (Pongam:orn Bunnak, 1999:16)

Screening for DM every 3 years should be considered for all adults age 45 and above. Testing should be considered at a younger age or more frequently in people with the following risk factors: history of DM in a first – degree relative; more than 20 % over ideals body weight; American Indian, Hispanic, or African American heritage; on previous testing had impaired fasting glucose or impaired glucose tolerance; hypertension, HDL Cholesterol at or below 35 mg/dl and /or a triglyceride level at or above 250 mg/dl; personal history of gestational DM or of one or more infants weighing greater than 9 pounds at birth. (American Diabetes,1991:404-405)

### **Outcome Evaluation**

There are two groups 1) People aged 40 and above and people at risk and 2) Diabetics patients.

Demographic characteristics: gender , age, marital status, educational level , occupation and family income level, we found no significant difference between the intervention and comparison group.

DM risk factors: There was only the significant of a percentage of the group reported of no physical examination in the past 5 years( $P=0.003$ ) .Due to the suggestion on annual health examination for the intervention group from CPDP which has implemented by Department of Social Medicine , Phayao General Hospital since 1999, hence, the increase of awareness and access to health examination.

Knowledge about DM and health behavior of the risk group, attending and non-attending the program, was not different. It was probably because after screening they gained some knowledge about DM from individual health education and appropriate health behavior from health educator and nurse before going home. In case there were many participants, group health education was done with less detail and there was no follow up program for health behavior surveillance.

Knowledge is an important factor for behavior change. Cooperation depended on one's knowledge and understanding, which was in accordance with Orem (1991: 165): knowledge was an important factor enabling person to seek for information and take into consideration for adoption. Moreover, group education is an inducing means for risk group to learn to care for their health because it was participatory education. Besides, taking DM patient as a speaker could demonstrate true example and caused more awareness.

Important health behavior of risk group to prevent DM was exercise and eating habit.

Exercise is a prevention of DM and hypertension. It also controls blood sugar level. Exercise helps increase insulin flexibility or reduce cellular insulin resistance. Consequently, cellular sugar consumption is improved. While exercise, muscles used sugar thus reduced blood sugar (Piyanuch, 2542). From retrospective study in athletics or regular exerciser, risk of DM declined a few folds (Frisch RE Wyshak G, et al. 1986)

### **Food consumption**

Eating habit is to be emphasized. It was to reduce volume of food by criteria of nutritionist. After 20 years old, 5% of food was to be reduced every 10 years. For example, one plateful of rice as usual was to be deducted 1 spoonful of rice with foods at the age of 30. That was 5% of deduction. Moreover, less calorie-contained food, increasing of fiber, and sweet food avoiding was recommended. If fiber were consumed with sugar, fiber would absorb sugar and slowly release and that mitigated pancreatic work. Slow released blood sugar slowed down insulin excretion and reduced cellular hardship. (Pyanuth Rakpanith at al,1999) .According to epidemiological and laboratory evidence, a lot of saturated fat consumption and inadequate fiber consumption, increased risk of DM. (Marshall JA.et al.,1994 cited in Pongamorn Boonnak ,1999)

### **Knowledge about DM and health behavior of DM patient**

It was found that average of score of knowledge was 13 (SD=4.68, min=1, max=18) and that was moderate. Average score of knowledge about DM, which was

correctly replied by DM patient was 65%, except knowledge about food, which was 37.5% correctly replied.

It was also found that there were some misconceptions of time of meal in each day and alcohol drinking over 80%. For health education, it should be emphasized that meals were to be small but could take 5-6 times per day, in order to reduce blood sugar (Bertelsen,J,et.al,1993:4,cited in Kanjana Katekan,1998:12). Alcohol drinking was to be avoided. Alcohol provided 7 calorie per gram, which caused DM more difficult to be controled. Patient taking blood sugar reducing pill with alcohol could endanger oneself from severely low blood sugar because alcohol suppress sugar producing from liver and was synergistic with drug effect (Thep Himathongkam et al, Op.Cit,P123)

Moreover, 73% of DM patient also misunderstood that herbs could treat DM. Reports showed that Inthnin leave, Chablu, Teuy, and Ya-Nuad-Maew taking herbal medicine together with modern medicine could reduce sugar level or control DM. Herbs for such purpose could reduce blood sugar of 49.1%. But from the study, herbal medicine could not replace modern medicine, just to fortify the effects.( Duangkamol Channimitr et al.,1999 )

For health behavior: food consumption, smoking, alcohol drinking, treatment compliance, feet care, social and emotional care, it was found that most samples( over 80%) had appropriate behavior, except exercise, only 40% of DM patient had had exercised within the past 1 month. However, it was a non-scheduled exercise, such as short walking or cycling for 20-30 minutes. Most of diabetic patients are female ,aged

between 50-59 . 40 % of these people had never had a schedule exercise and , as being housewives,53.3% had to do house shore. An appropriate exercise for diabetic patients is an aerobic exercise such as jogging cycling, swimming, rod- jumping. An aerobic exercise requires an emphasis, time- length, and continuation. An emphasis means an exercise which stimulates lung and heart to work harder. A time- length is 20 minute minimal. Continuation means an exercise for at least 3 times a week. (Krisada Banchun,1998) .Regular exercise reinforced insulin and better control of blood sugar. Exercise also reduced blood fat level, increased HDL – cholesterol, and reduced body fat (Good Year LJ, Smith R.J., 1994).

## 4.2 Conclusions

This study was aimed to evaluate the result of DM – hypertension prevention and control program in Phayao municipality in 2000. The evaluation was done with participants of the screening provided by Department of Social Medicine and village health volunteer for population aged 40 and above and risk group. The results were that the implementation did not meet the objectives in terms of:

**Process evaluation** : The coverage of screening did not meet the goal

**Outcomes evaluation:** Knowledge and health behavior in people at risk and diabetic patients

We found that no difference between levels of knowledge and behavior between the intervention and the comparison groups. Both group appeared to have improper

knowledge on dietary behavior, however, they had proper behavior on diet. They also have proper behavior of social and emotional factors. As for the diabetics (60%) , they reported not exercising regularly. They have moderate level of knowledge, the same as comparison and intervention groups.

Even though the result of this program did not meet the objective, the program was regarded as beneficial and should be further promoted each year. Because nowadays people's lifestyle is risky to cause DM. Important strategic of control was lifestyle modification, finding interventions for screening, referral, care for risk group; especially those with DM history, to control disease and for risky behavior surveillance. The result from this study would help the program administrator with useful information for the development of DM prevention and control in the future.