CHAPTER FOUR
RESULTS

The previous chapter explained the methodology used in this study. This chapter reports the results of the study which are divided into 4 parts as follows:

4.1 Demographic information of the respondents

4.2 General knowledge of diabetes

4.3 Awareness of diabetes

4.4 Suggestions about diabetic education program

4.1   DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

The demographic information of the respondents is presented in Table 3 below.

Table 3. Demographic Information of the Respondents

	Frequency	Percentage
Gender		
Male	56	45.16
Female	68	54.84
Total	**124**	**100**
Age		
20-30 years	40	32.26
31-40 years	50	40.32
41-50 years	22	17.74
51-60 years	10	8.06
Over 60 years	2	1.61
Total	**124**	**100**
Mean	**36.40**	
SD	**9.59**	

(table continues)

Table 3. (continued)

	Frequency	Percentage
Level of education		
Less than high school	2	1.613
High school/ Vocational school	25	20.161
Diploma	7	5.645
Bachelor's degree	86	69.355
Higher than Bachelor's degree	4	3.226
Total	**124**	**100**
Department/ Section		
Accounts/ Finance	32	25.81
Admin/ HR	17	13.71
Sales/ Marketing	35	28.23
Logistics	7	5.65
Others	33	26.61
Total	**124**	**100**
Income		
Less than 10,000	17	13.71
10,001-20,000	51	41.13
20,001-30,000	28	22.58
30,001-40,000	7	5.65
40,001-50,000	8	6.45
More than 50,000	13	10.48
Total	**124**	**100**
Blood Sugar Testing		
No	30	24.19
Yes	94	75.81
Blood Sugar Level		
Normal	83	66.94
High	11	8.87

Table 3 shows that 54.84% of the respondents are female while 45.16% are male. The age of the respondents ranges from 20 to more than 60 years old, but the majority of the respondents (40.32%) are between 31-40 years old. Almost 70% of the respondents hold a Bachelor's degree. Moreover, most of the respondents work in sales/ marketing department and accounts/ finance department, which are 28.23% and 25.81%, respectively. Regarding income, over 40% of the respondents earn 10,001-20,000 baht per month. Besides, 75.81% of the respondents have had their blood sugar level tested and almost of them (66.94%) have a normal blood sugar level, whereas 8.87% have high blood sugar level.

4.2   GENERAL KNOWLEDGE OF DIABETES

The knowledge score was counted from answering the correct answer in each question. Each question was equivalent to 1 point. The full score for the diabetes knowledge was 18. The knowledge level of diabetes was classified into 3 levels as follows:

Lower than 12 points	=	Low knowledge level
12-15 points	=	Moderate knowledge level
More than 15 points	=	High knowledge level

Table 4. Percentage, Mean and Standard Deviation of Diabetes Knowledge Score

Statement	Mean	SD	Answer (%)		
			Right	Wrong	Do not know
Causes and Risk factors	**4.02**	**1.29**			
7. Diabetes is a condition characterized by high blood sugar level.			94.35	1.61	4.03
8. The usual cause of diabetes is eating too much sugar and other sweet foods.			62.90	30.65	6.45
9. One of the causes of diabetes is genetic abnormality.			80.65	8.06	11.29

(table continues)

Table 4. (continued)

Statement	Mean	SD	Answer (%)		
			Right	Wrong	Do not know
10. Stress causes blood sugar level to increase.			48.39	16.94	34.68
11. Obesity is a risk factor for developing diabetes.			91.94	5.65	2.42
12. Diabetes can be completely cured.			20.97	55.65	23.39
Diagnosis and Symptoms	**1.30**	**0.72**			
13. A sign of high blood glucose level is excessive thirst, frequent urination and extreme hunger.			58.06	9.68	32.26
14. Eating before having a blood test has no effect on the blood sugar level.			13.71	71.77	14.52
Chronic Complications	**3.33**	**1.43**			
15. One of the complications of diabetes is blurred vision.			68.55	2.42	29.03
16. Diabetes can damage the kidneys and make them lose their ability.			55.65	7.26	37.10
17. Diabetic patients are at high risk to have chronic wounds on their feet which may lead to foot amputation.			91.94	1.61	6.45
18. Diabetes can cause loss of feeling in hands, fingers and feet.			48.39	7.26	44.35
19. Diabetes puts you at risk for cardiovascular disease.			68.55	3.23	28.23
Health Care Behavior	**3.53**	**1.07**			
20. You can eat sweet fruits such as watermelon and papaya as much as you want.			17.74	60.48	21.77
21. Drinking alcohol such as liquor, wine and beer affects blood sugar level.			83.87	4,84	11.29
22. Smoking causes blood sugar level to increase.			30.65	16.94	52.42
23. You should avoid eating high fat food such as fried food, coconut cream			83.06	8.87	8.06
24. You should avoid eating carbohydrates and sweet food.			95.16	2.42	2.42
Total Diabetes Knowledge Score	**12.18**	**3.39**			

From Table 4, the mean of diabetes knowledge score is 12.18 points which means overall the respondents have a moderate knowledge level of diabetes. Besides, when looking at the detail, the knowledge about diabetes is classified into 4 aspects as follows:

4.2.1   Causes and Risk factors of Diabetes

It is found that 94.35% of the respondents know diabetes is a condition characterized by high blood sugar level. Besides, 80.65% and 91.94% of the respondents know genetic abnormalities and obesity are risk factors of developing diabetes. However, only 20.97% know diabetes can not be completely cured. About 40% of them have a misconception that eating too much sugar and other sweet foods is the usual cause of diabetes. Over half of the respondents (51.62%) do not know stress causes blood sugar level to increase.

4.2.2   Diagnosis and Symptoms of Diabetes

Most of the respondents (71.77%) reported that they do not know eating before having a blood test has an effect on the blood sugar level. Moreover, only half of them (58.06%) know the signs of high blood glucose level is excessive thirst, frequent urination and extreme hunger.

4.2.3   Chronic Complications of Diabetes

The majority of the respondents know what chronic complications of diabetes are. About 90% of them know diabetic patients are at high risk to have chronic wounds on their feet which may lead to foot amputation. Besides, their response to the questionnaire also showed that almost 70% know diabetes puts them at risk of blurred vision and cardiovascular disease. However, only half of them know diabetes can damage their kidneys (55.65%) and cause loss of feeling in their hands, fingers and feet (48.39%).

4.2.4   Health Care Behavior of Diabetes

The results of this study showed that 95.16% and 83.06% of the respondents know they should avoid eating carbohydrates and sweet food and high fat food such

as fried food and coconut cream. Also, 83.87% of them know drinking alcohol such as liquor, wine and beer affects blood sugar level while only 17.74% know that eating sweet fruits such as watermelon and ripe papaya has to be limited. However, about 70% do not know that smoking causes blood sugar level to increase.

Table 5. Diabetes Knowledge Score Categorized by Personal Factors

Personal Factor	N	Mean	SD
Gender			
Male	56	11.25	3.63
Female	68	12.94	3.00
Age			
20-30 years	40	11.80	3.54
31-40 years	50	12.52	2.87
41-50 years	22	11.86	3.82
51-60 years	10	12.40	4.40
Over 60 years	2	13.50	4.95
Educational Level			
Less than high school	2	5.50	3.54
High school/ Vocational school	25	11.84	4.11
Diploma	7	10.00	5.00
Bachelor's degree	86	12.57	2.81
Higher than Bachelor's degree	4	13.00	3.56
Department/ Section			
Accounts/ Finance	32	13.03	3.02
Admin/ HR	17	10.59	3.14
Sales/ Marketing	35	12.06	3.55
Logistics	7	9.71	4.64
Others	33	12.82	3.04

(table continues)

Table 5. (continued)

Personal Factor	N	Mean	SD
Income (Baht)			
Less than 10,000	17	11.18	4.11
10,001-20,000	51	12.16	3.49
20,001-30,000	28	11.86	3.50
30,001-40,000	7	13.71	1.70
40,001-50,000	8	11.13	2.36
More than 50,000	13	14.08	2.18
Blood Sugar Testing			
No	30	10.33	3.67
Yes	94	12.77	3.10
Blood Sugar Level			
Normal	83	12.66	3.06
High	11	13.55	3.39

Table 5 indicates that both male and female respondents have moderate levels of diabetes knowledge by mean score as 11.25 and 12.94, respectively. In terms of age, the respondents whose ages are over 60 had the highest score (13.50) while 20-30 year-old-respondents had the lowest score (11.80). Moreover, the respondents whose education level is less than high school had the lowest score of diabetes knowledge (5.50), whereas higher than Bachelor's degree respondents had the highest score (13.00). Diabetes knowledge score of the respondents who work in Accounts/ Finance section is 13.03, which is the highest score and the respondents who had the lowest score (9.71) work in logistic section. Compared with other groups, the group with highest income, more than 50,000 Baht, has the highest score (14.08). Besides, the respondents who have had their blood sugar level tested had the higher score than those who have not and those who have high blood sugar level also had the higher score than those who have normal blood sugar level.

4.3 AWARENESS OF DIABETES

Figure 1 illustrates that 37.90% of the respondents are uncertain whether they are at risk of developing diabetes. However, 29.03% of them agree they are at risk of developing diabetes.

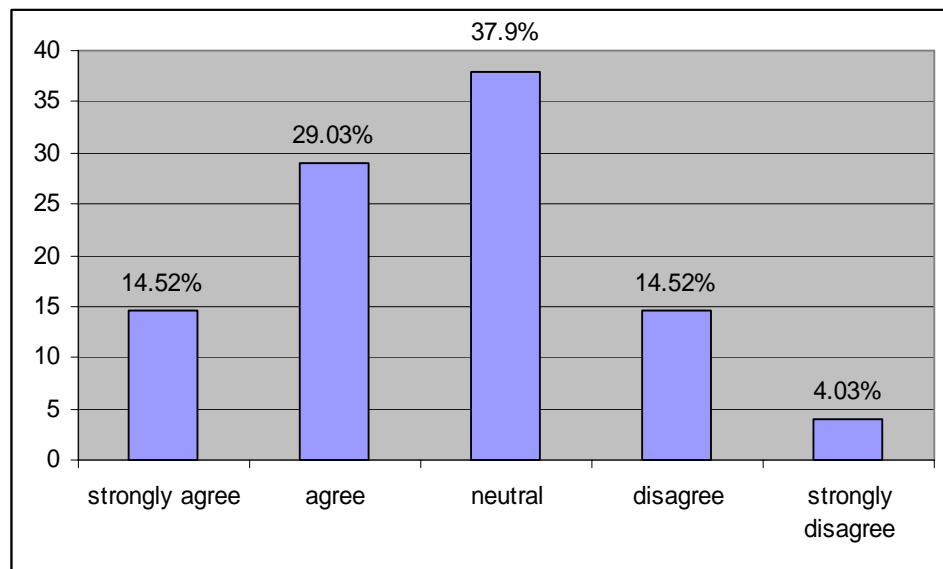*Figure 1* Awareness of the chance to develop diabetes

Figure 2 shows that almost 50% of the respondents agree and 30.65% strongly agree that diabetes affects their quality of life.
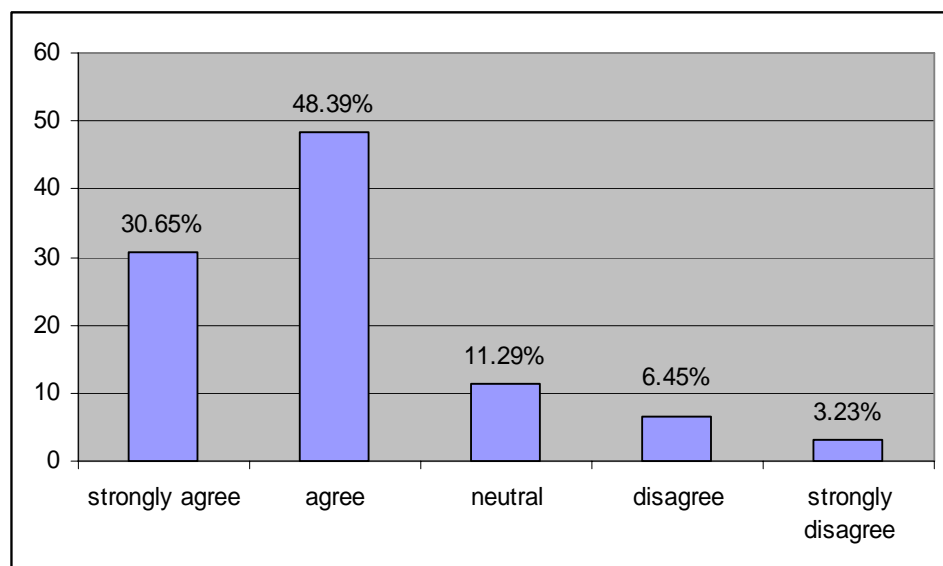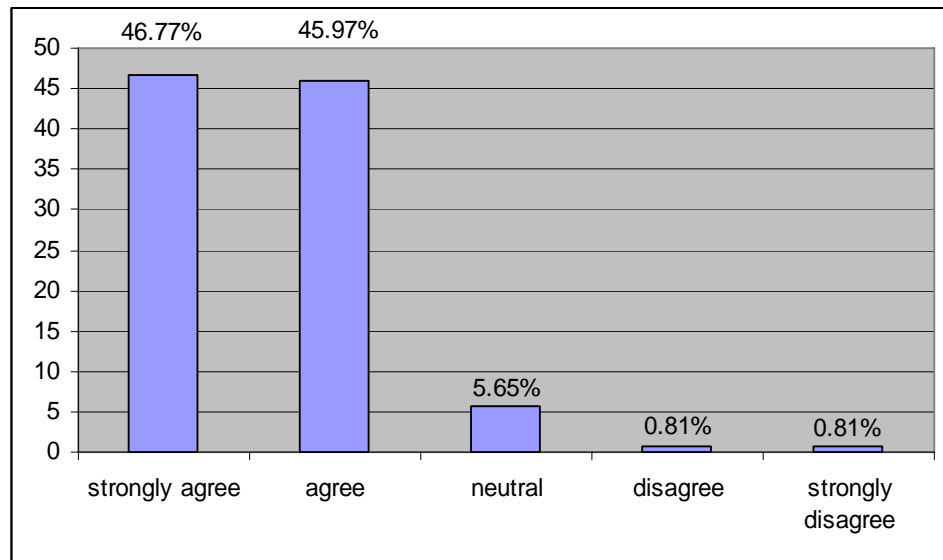
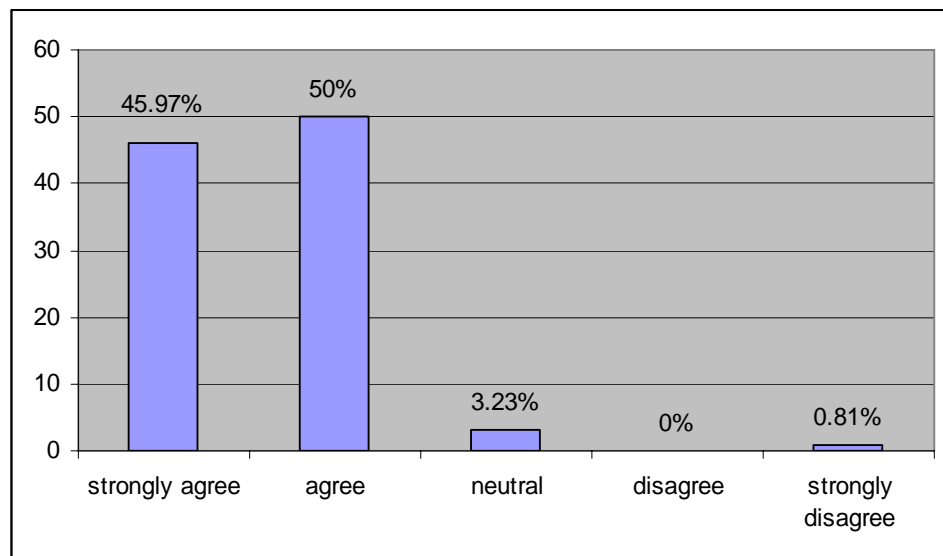*Figure 2* Awareness of diabetes effects

Figure 3 indicates that 46.77% of the respondents strongly agree and 45.97% of them strongly agree that diabetes complications can cause death.

Figure 3 Awareness of diabetes danger

From figure 4, half of the respondents (50%) agree that blood sugar control helps prevent or slow down diabetes complications and 45.97% strongly agree with this idea.

Figure 4 Awareness of complications slow down

46.77% and 40.32% of the respondents strongly agree and agree with the statement that regular exercise helps prevent the onset of diabetes, respectively, as shown in figure 5.
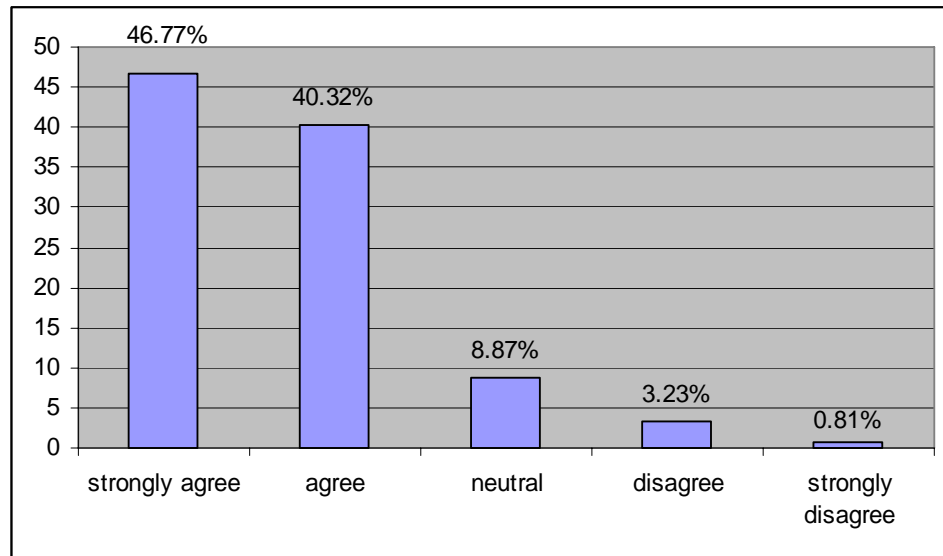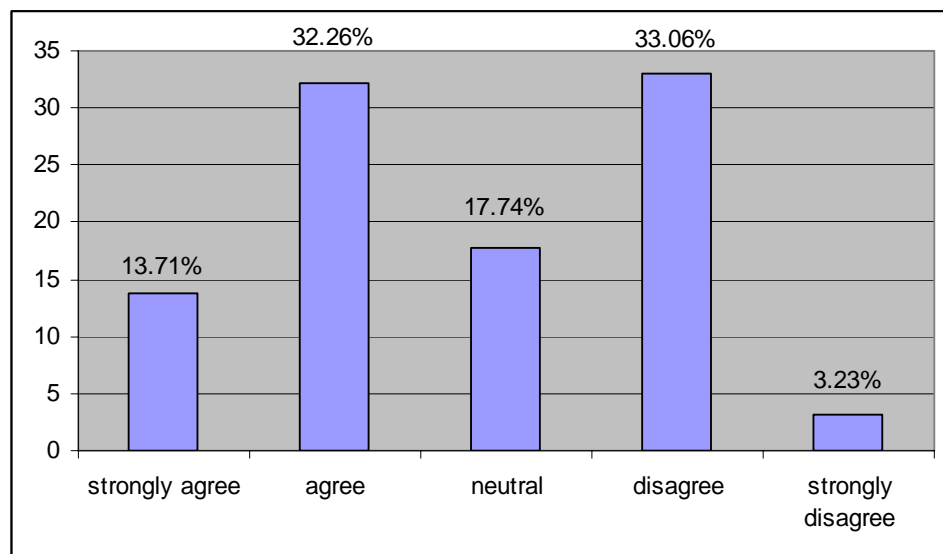
Figure 5 Awareness of regular exercises

Figure 6 reveals that about 32% of the respondents agree it is hard to control blood sugar level to be at a normal range, while there are 33.06% of them who disagree with this.

Figure 6 Awareness of blood sugar control

For the last statement that "you feel that you know enough about diabetes", 44.35% of the respondents are neutral, whereas 37.90% agree with this.

Figure 7 Awareness of diabetes knowledge
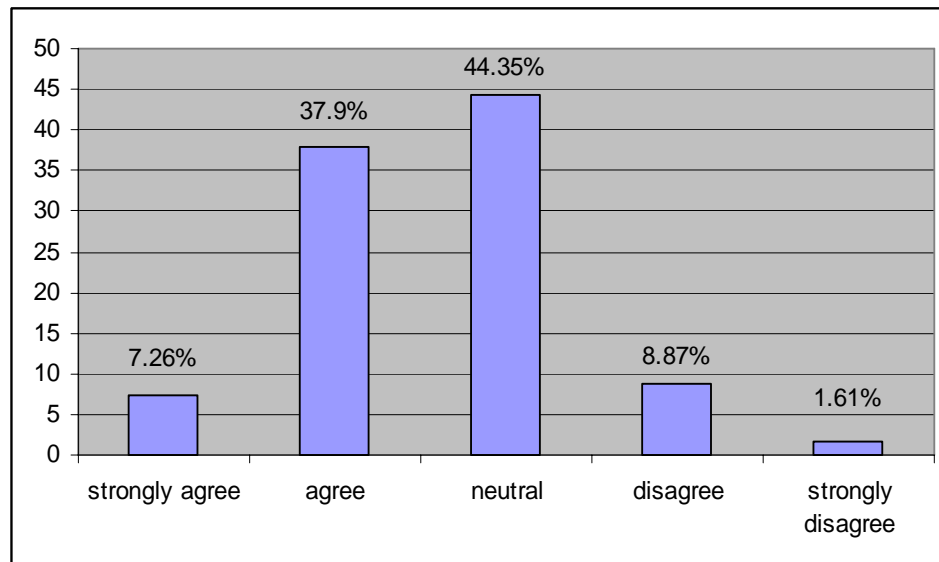
4.4 SUGGESTIONS ABOUT DIABETIC EDUCATION PROGRAM
4.4.1 Respondents' Opinion on Educating People with Diabetes

The respondents were asked whether they think that educating people with diabetes nowadays is sufficient enough. 18.55% of them answered yes while 81.45% of them thought it is not sufficient enough. The result is showed in Table 6 below.

Table 6. Frequency and Percentage of the Respondents' Opinion on Educating People With Diabetes

Opinion	Frequency	Percentage
Sufficient enough	23	18.55
Not sufficient enough	101	81.45
Total	**124**	**100**

4.4.2 The Channel to Give Information About Diabetes

For those who thought that educating people with diabetes is not sufficient enough, they were asked further to rank the first three channels they want most in order to give more information about diabetes. The first answer they rated got three

points, the second one got two points and the third one got one point. The result is showed in Table 7 below.

Table 7. Channel Score and Percentage

Channel	1st channel		2nd channel		3rd channel		Total score	Percentage
	N	score	N	score	N	score		
TV	76	228	8	16	7	7	251	**41.42**
Radio	1	3	34	68	13	13	84	**13.86**
Magazine/ Journal/ Newspaper	8	24	35	70	40	40	134	**22.11**
Leaflet from hospital	1	3	12	24	9	9	36	**5.94**
Training/ Seminar	10	30	3	6	11	11	47	**7.76**
Medical/ Health Professional	5	15	9	18	17	17	50	**8.25**
Others	0	0	0	0	4	4	4	**0.66**
Total	101	303	101	202	101	101	606	**100**

N = Number of respondents.

According to Table 7, the channel that gets the highest score, 251 out of 606 points or 41.42%, is TV which means TV is the first channel that the respondents choose in order to get more information about diabetes. The second channel is magazine/ journal/ newspaper. This channel gets 134 point or 22.11%, followed by radio which gets 84 point or 13.86%.

4.4.3   Diabetes Topic the Respondents Are Interested In

This part is a rating based question which is designed to study the opinion of the respondents about what the first three diabetic topics they are most interested in are. There are six choices for them to choose. The answers are arranged from the most interesting topic to the second and third one.

Table 8. Diabetes Topic Score and Percentage

Diabetes topic	1st topic		2nd topic		3rd topic		Total score	Percentage
	N	score 3	N	score 2	N	score 1		
Causes and Risk Factors	63	189	24	48	12	12	249	**33.47**
Sign and Symptoms	21	63	27	54	30	30	147	**19.76**
Complications	6	18	17	34	17	17	69	**9.27**
Treatment	4	12	13	26	30	30	68	**9.14**
Prevention and Practice	30	90	43	86	35	35	211	**28.36**
Total	124	372	124	248	124	124	744	**100**

N = Number of respondents.

From Table 8, diabetic topics that the respondents are interested most are causes and risk factors of diabetes. This topic gets the highest score which is 249 out of 744 points or 33.47%. Next diabetic topics are prevention & practice and sign & symptoms which get the score 211 or 28.36% and 147 or 19.76%, respectively.

4.4.4 Other Comments and Recommendations

13 out of 124 respondents provided their comments and recommendations which are grouped into the following statements:

- In order to provide diabetes knowledge to people, a wide variety of media should be used so that everyone can easily get access the information.

- Many people still ignore or overlook the dangers of diabetes, so it is necessary to give more knowledge about diabetes to them.

- Because diabetes treatment cost is quite high, it is better to let people know how to protect themselves from diabetes rather than how to treat it.

- The government should provide free of charge mobile unit services for testing people's blood sugar levels.

- Both government and related organizations should take more action to publicize diabetes information through media.

- The leaflet contained with diabetes information should be distributed around BTS stations, ports, transport stations and bus stops.

- There should be detailed information about diabetes provided for people and repeated advertising is necessary.

- It is important to educate people with diabetes; diabetes dangers, diabetes prevention and diabetes treatment.

- Health professionals should provide suggestions to patients on how diabetes can be treated without drug use so that they will have more alternatives for diabetes treatment.

- People should be aware that being diabetes is the beginning of other diseases.