KNOWLEDGE, ATTITUDE, AND PRACTICE (KAP) OF DIABETES MELLITUS TYPE II PATIENTS IN MULTIDISCIPLINARY PROGRAM AT DIABETES MELLITUS CLINIC, PHANOMPHRAI HOSPITAL, PHANOMPHRAI DISTRICT, ROI-ET PROVINCE, THAILAND

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ABSTRACT: The aims of this research were to describe the socio-demographic characteristics of Diabetes Mellitus Type II patients joining "Multidisciplinary Program" at Diabetes Mellitus Clinic, in Phanomphrai Hospital and to identify the level of self-care knowledge, including attitude and practice of the patients. The study also focused on the relationship between patients' socio-demographic characteristics and the level of self-care knowledge, attitude and practice. The subjects were DM type II patients who actually joined the program for a number of 430. The study also described the factors influencing the success and the non-success of the patients in their self care through an in-depth interview with 20 subjects in 4 sample groups each of 5 persons, they were 1) nurses 2) care givers of the patients 3) successful patients for their self care 4) unsuccessful patients for their self care. Based on the result of data analysis, DM type II patients joining the program were mostly females (70.9%) with an average age of 51 years old. All of them were Buddhists. Seventy-seven point two percent of them had an educational background lower than elementary school level. Furthermore, 79.8% of the subjects were married and 42.1% of them were farmers. The average patients' household income was approximate 2,422 baht/month while their household expense was about 2,565 baht/month. Out of 38 scores on knowledge, the subjects had a mean of 22.38 scores, out of 60 scores on attitude, the subjects had a mean of 47.55 scores, and out of 69 scores on practice, the subjects had a mean of 53.88 scores. By using Chi-Square Test between personal background, knowledge, attitude, and self-practice, the study has stated that self-practice has its relationship with patients' knowledge, attitude, gender, education, occupation, field of work, frequency of blood sugar test and duration of diabetes suffering (p-value < .05). Factors influencing successful and unsuccessful patients in their self care practice included 1.) living near the hospital 2.) understanding the instructions and suggestions given by the program and could apply them in their daily life and 3) having a care-taker at home (for successful patients). On the other hand, the unsuccessful self-care behavior patients were influenced by 1.) living in a remote area 2.) not understanding the instructions and suggestions given thus no application on their daily living 3.) not having a care-taker at home, and 4.) having an attitude that this program could not improve their health and that there was an unequal treatment thus not motivating them to join the program.

Keywords: self-care behaviors, KAP, Phanomphrai hospital, Multidisciplinary program, Roi Et, Thailand

INTRODUCTION: Diabetes is the unremitting diseases that cause high rate of death around the world. Every year many people are suffering from this disease. Previous research from World Health Organization indicated that 5 percent of people around the world passed away because of diabetes[1]. Thailand has been selected by WHO as the pilot country to solve the diabetes problem. As a result, Ministry of Public Health Thailand created the project to promote the self care for diabetic patients across the country to prevent and reduce the number of diabetic patients[2]. Thailand has a high rate of diabetes patients, especially Diabetes Type II which is as high as 99%[3]. In Phanomphrai Hospital which is located in Phanomphrai District, Roi-Et province and is one of the networking hospitals for diabetes in Roi-Et province, it found that the situation of diabetes and high blood pressure in year 2003,

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there were 1,754 diabetes patients which increased to 2,148 in 2004, and 2,447 in 2005. Out of total Phanomphrai District 100,870 residents, prevalence of diabetes was 5.1% in 2006 (2,460 patients) and 5% in 2007 (2,746 patients) [4].

MATERIALS AND METHODS: This study was a cross-sectional study design using quantitative and qualitative methods by using both a questionnaire and in-depth interviews to describe the socio-demographic characteristics, to indicate the level of knowledge of self care, to elaborate on the level of attitudes of self care, to assess the level of practice of self care, to determine the relationship between socio-demographic characteristics, patient history, knowledge, attitudes and practice of self care behavior, and also to determine the factor associated with successful self-care behaviors of Type II Diabetes patients between the ages of 18-85 through an established multidisciplinary program of Diabetes Mellitus Clinic at Phanomphrai Hospital, Phanomphrai District, Roi-Et Province, Thailand. The sampling technique in this study was purposive sampling of study site and a systematic random sampling at the study site for the quantitative. The study population for the quantitative portion of this study were Type II Diabetes Mellitus patients between the ages of 18 and 85 years old, both sexes who have participated in the multidisciplinary program for at least 2-8 months. The quantitative portion excluded the Diabetes type I patients, Diabetes type II patients who had complications, who were pregnant, who were not from Roi-Et Province, and who were not willing to participate in the current research. The qualitative section included the 20 interviewees who were selected through convenience sampling and were divided into 4 groups with 5 persons per each group and were as follows: (1) Nurses who possessed certification, had attended five days of training towards becoming a diabetes care taker at the Diabetic Association, and had at least 1 year experience of taking care of diabetic patient., (2) Care takers who were relatives of patient or care takers from the hospital who each normally looked after ten patients, had at least one year experience of taking care of diabetic patient, (3) Successful self-care behavior patients who had HbA1C level of less than 7.0, Fasting Blood Sugar level less than 140 mg/dl, and did not have any complication, and (4) Unsuccessful self-care behavior patients who had a HbA1C level of more than 7.0, Fasting Blood Sugar of more than 200 mg/dl, had complications, had been suffering from diabetes for more than 20 years. The data that was collected from each patient included: (1) Socio-demographic characteristics which included age, gender education level, marital status, religion, work status, occupation, household expense, and household income, (2)Patient history which included duration of having diabetes mellitus, blood sugar level, blood pressure, HbA1C level, risk of complication on feet and eyes (3) Knowledge of diabetes patients on self care behaviors which included diet control, oral hypoglycemic drug taking, self health care (4) Attitude of diabetes patients on self care behaviors which included diet control, oral hypoglycemic drug taking, self health care (5) Accessibility to multidisciplinary program. For the scoring part, it was as follows:

1. Knowledge: the scoring method

Low knowledge	:	0-19 points
Medium knowledge	:	20-29 points
High knowledge	:	30-38 points

Possible scores were ranged between 0-38 points. A mean score and standard deviation of the group were used to classify subjects into 3 groups following Srisaard[5]

2. Attitude: The obtained score were converted in terms of score level and were classified into 3 levels as follows:

Low attitudes	:	20-39 points
Medium attitudes	:	40-49 points
High attitudes	:	50-60 points

Possible scores were ranged between 20-60 points. A mean score and standard deviation of the group were used to classify subjects into 3 groups following Srisaard[5]

The level of attitude in each part was consisted of diet control, drug taking, and self care with percentage of correct responses.

3. Practice:

Rarely/never : 23-35 points
Occasionally : 36-52 points
Always/often : 53-69 points

Possible scores were ranged between 23-69 points. A mean score and standard deviation of the group were used to classify subjects into 3 groups as following Srisaard[5] .The level of self care behaviours in each part was consisted of diet control, drug taking, self care, and exercise. Data were analyzed using SPSS software version 17. Descriptive statistics was used to describe what was observed in the study populations. Chi-square Test was used to find an association between the independent variables and the dependent variables. This study assessed statistical significance of each analysis against a p-value of 0.05.

Results: The majority of patients were females and approximately 305 people (70.9%) were Buddhists, in which most of them had below elementary education level (77.2%), The youngest patient was 43 years old, (mean ± 51.92, SD ± 13). Most patients were between 73 and 82 years old (81.4 %). In addition, 79.8% of patients were married, 5.1% were single, 2.1% were divorced, and 13% were widowed. Seventy one patients (16.5%) worked full time. In terms of personal lifestyle of diabetes mellitus type II patients, 15 (3.5%) had blood sugar test every two weeks, 149 (34.7%) had blood sugar test once a month, and 236 (54.9%) had blood sugar test every three months. The minimum average household income was 200 baht per month, while the maximum was 20,000 baht per month, in which median was equal to 1,000 baht. The minimum average household expense of patients was 60 baht per month, while the maximum expense was 15,000 baht per month, in which median was equal to 1,500 baht. The average of time that patients were afflicted with Type II Diabetes was 7 years.

Table 1: Knowledge Level of Diabetes Mellitus Type II Patients

Level of Knowledge	Scores	Patients	Percentage (%)
Low	0-19	178	43.5
Moderate	20-29	140	34.2
High	30-38	91	22.2
Total		409	100

The scores of knowledge of Diabetes Type II patients ranged from 9 points to a maximum of 38 points. Based on Table 1, the level of self-care knowledge found among Diabetes Mellitus Type II patients could be divided into 3 levels, in which 178 patients (43.5%) of all patients had a low level of self-care knowledge, 140 patients (34.2%) had a moderate level of self-care knowledge, and another 91 patients (22.2%) had a high level.

Table 2: Knowledge Level of Diabetes Mellitus Type II Patients in Diet Control, Drug taking and Self-Care Part

Group of Knowledge	Level of Knowledge	Percentage (%)	Total %
Diet Control	Lowest	54.17	100
Drug	Highest	70.58	100
Taking	Moderate	59.55	100

The percentage of knowledge level in each part which were consisting of diet control, drug taking, and self care of diabetes type II patients, The study showed that 54.17% of respondents had knowledge about diet control. This is considered as the lowest component out of the three. Questions were asked regarding the self-care and the results revealed that 59.55% of the total score had knowledge about self-care. Whereas on the summit end the questions has positioned itself on the knowledge about the drug taking, and came out with the result equals to 70.58 %. Thus, it can be said that knowledge about diet control and self-care is low.

Table 3: Attitudes Level of Diabetes Mellitus Type II Patients

Level of Attitude	Scores	Patients	Percentage (%)
Low	20-39	16	3.8
Moderate	40-49	288	68.2
High	50-69	118	28.0
Total		422	100

The scores of attitude of diabetes type II patients had the lowest score 38 points and a maximum of 59 points. According to Table 3, the study found that the attitude level relating to self-care of diabetes mellitus type II patients could be divided into 3 levels, in which 16 patients (3.8%) of total patients interviewed had a low level of attitude towards self-care, followed by 68.2% with a moderate level, and finally, 28% with a high level.

Table 4: Attitude Level of Diabetes Mellitus Type II Patients in Diet Control, Drug taking and Self-Care Part

Group of Attitude	Level of Attitude	Percentage (%)	Total %
Diet Control	Highest	80.19	100
Drug Taking	Lowest	71.86	100
Self Care	Moderate	79.34	100

Attitude level was divided into three parts: diet control, drug taking, and self care of diabetes type II patients. According to the fact that there were only 1 out of 20 questions that involved the attitude of drug taking and the answers given had been divided into 3 levels, with the minimum equals to 1.00 and the maximum equals to 3.00. The results revealed that the average score for an attitude on drug taking was 71.86%, which had shown to be the lowest out of the three categories. The highest level of attitude proved to be in the category of diet control with a score of 80.19 %. This illustrated that most of the patients had a positive attitude towards the diet control; and attitudes towards self care was 79.34%.

Table 5: Self-practice Level of Diabetes Mellitus Type II Patients

Level of Self-Practice	Scores	Patients	Percentage (%)
Low	1-35	3	0.7
Moderate	36-52	173	41.1
High	53-69	245	58.2
Total		421	100

The scores among respondents on the self-practice index ranged between a minimum score of 35 to 66. As shown in Table 5, the level of practice was divided into low, moderate, and high, wherein 0.7% of total patients never practiced self- care properly, 41.1% of total patients had moderate self care behaviors, and 58.2% had a high level of self-care.

Table 6: Self-practice Level of Diabetes Mellitus Type II Patients in Diet Control, Drug taking, Self-Care and Exercising

Group of Self care	Level of Self care	Percentage (%)	Total %
Diet Control	Lower	77.30	100
Drug Taking	Highest	84.38	100
Self Care	Moderate	77.51	100
Exercising	Lowest	71.01	100

When further dividing the level of practice to assess for diet control, drug taking, self care, and exercising, it could be seen that the lowest percentage of patients exercised was 71.01%, followed by diet control (77.30%), self care (77.51%), and finally drug taking (84.38%).

Table7: The relationship between patients' personal background, knowledge, attitude, and self-practice behavior

Variables	χ^2	df	p-value
Gender	9.78	1	.002
Education	28.12	3	<.001
Field of Work	9.97	2	.007
Occupation	25.58	3	<.001
Blood Test Group	8.91	3	.031
Knowledge Group	70.17	2	<.001
Attitude First	70.40	2	<.001
Diagnosis	33.03	2	<.001

The relationship between personal factors such as gender ,education ,occupation ,field of work, frequency of blood sugar test ,knowledge , attitude ,duration of diabetes mellitus and self-practice was associated using the Chi – square Test, which demonstrated statistically significant (p <0.05) and can be seen in Table7. Furthermore, the findings from interviewing the nurses indicated that the factors which contributed to the Self-Care Program's success were the patient's realization of the importance of program and their joining of the activities held regularly, including following the advice provided until patients were able to control their consumption and exercise themselves

appropriately. In terms of obstacles, the results found that in this program, patients lived in the remote areas away from the hospital and had difficulty in traveling to the hospital for medical care. Due to the far distance between houses and hospital and the lack of caretakers for their families, patients needed to leave the clinic before the end of the program. From interviewing caretakers, the results indicated that patient's cooperation was the most important factor in the success of the self-care program, including guidance to control consumption behavior and exercise appropriately. In addition, results revealed that patients tended to live far away from hospital and lacked transportation to travel to the hospital for medical care. Additionally, the lack of medical personnel and medical equipment were found to be a problem with the program. According to the interviews, the caretakers had suggested that the hospital should increase the number of professionals. After interviewing patients with successful self care, the results showed that patients expected that they would not have any unexpected health complications or fatigue symptom or faint. Patients learned useful knowledge from the program, even though some of technical vocabularies were difficult and it took them long time to understand. However, once patients understood, they would follow instructions strictly. These patients tended to have less fatigue than they did before joining the program. The patients also stated that they would recommend this program to others. For the patients who had unsuccessful self-care they tended to have underlying complications and they needed to travel long distances to reach the hospital which was inconvenient for them.

DISCUSSIONS: All patients were Buddhists and most of them were female, married, graduated in the level of elementary school or below, and worked in agriculture. Such information found in this research is associated with a study conducted by Piyamal Archasantisuk[6] that also indicated all patients were Buddhists, most of them were female, married, possessed a low level of education, and worked as farmers. Nevertheless, Pissamai Rattanadate[7] stated in her research that the reason there were more female than male patients was that males had their self-practice, especially, in terms of exercising. The average age of patients in the current study was 51 years old which is in accordance with the study by Son Yong Kim[8] that showed that the most subjects were female (73.3%) between the ages of 45-74 (87.3%). Also, in another study by Song Ho Ja[9] who stated that most of the diabetes patients were female, married, had a low level of education. Furthermore, the level of attitudes was moderate (44.3%) and the results revealed a relationship between self care practice and knowledge of diabetes mellitus. However, it is contrary to finding by Srinual[10] in which there was an association between knowledge and practice. This is similar to a study by Koh & Song[11] that demonstrated a significant association between foot care practice activities based on level of knowledge. Research has shown that knowledge and attitude are associated with self-practice, which suggested that patients were able to understand their diseases. This is related to a study undertaken by Laigden Dzed[12] which stated that knowledge and attitude were associated with self-practice, which meant that having the correct knowledge about their disease would enable them to manage the illness better. Hence, the clinic should increase program effectiveness by increased patient's knowledge, eliminating any barriers in patient's understanding, and providing the support to patients to improve their self-practice behaviour. The aforementioned study indicates only the related analysis found among group of diabetes mellitus type II patients in Self-Care Program at Diabetes Mellitus Clinic, in Phanomphrai Hospital, Phanomphrai District, Roi-Et Province, Thailand. The study has shown that the attitude level of Diabetes Mellitus type II patients in drug taking is low. Thus, further studies should be conducted to

address this issue and improve attitude level of the Diabetes Mellitus type II patients. The study has demonstrated that the knowledge level of Diabetes Mellitus type II patients in diet control was very low, thus further studies should be done to promote positive attitudes in this aspect. The study has shown that diet control and exercising level of Diabetes Mellitus type II patients were also low, thus additional studies on how to improve self care behaviors in these perspectives should be carried out. A more complex intervention program should be created to help the Diabetes Mellitus type II patients to understand their status and their disease. After the program is over, the patients should remain continuing their good self care behaviors by controlling their blood sugar level, blood pressure as well as taking care of their eyes and feet.

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