

Factors Influencing to Health Behavior of Type 2 Diabetes Mellitus Patients in Nakonnakok Province

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Abstract

The purposes of this research were to study the perceptions of health status and three behavioral practices of type 2 diabetes patients in Nakhon Nayok Province, and to determine predictors of three behavioral practices among type 2 diabetes patients in Nakhon Nayok Province. The descriptive research studied the perceptions of health status and three behavioral practices, and predictors of three behavioral practices among type 2 diabetes patients in Nakhon Nayok Province. Population and sample were patients with type 2 diabetes who received treatment at diabetics' clinic of Subdistrict Health Promoting Hospital in Nakhon Nayok Province. The researcher drew lots for Ongkharak and Ban Na districts, followed by lots for the subdistricts, yielding a list of 14 subdistrict health-promoting hospitals. Because the populations in each location got very similar health services, a sample of 337 type 2 diabetes patients was chosen using multistage sampling. The data was analyzed using descriptive statistics, frequency, percentage, standard deviation, mean, One Way ANOVA, correlation coefficients, examining the significance of variations between means, and multiple linear regression analysis to determine the factors affecting three behavioral practices. Results indicated that the mean and standard deviation of patients with type 2 diabetes perceptions in Nakhon Nayok Province were moderate. When each item was determined from high to low, the following were found: stress management behaviors, exercise behaviors, and food consumption behaviors. Perceived susceptibility, perceived benefits, perceived barrier, perceived seriousness, imitation, perceived threat, cues to action all had a positive correlation with food consumption behaviors, exercise behaviors, and stress management behaviors. However, perceived barrier and perceived threat had a negative relationship with exercise behaviors, with a statistical significance of .01. There was a positive association between food consumption behaviors, exercise behaviors, and stress management behaviors, with a statistical significance of .01. The factors that positively affected three behavioral practices for type 2 diabetes patients in Nakhon Nayok Province using Multiple Linear Regression Analysis were perceived benefits and perceived barrier, with a statistical significance. When perceived benefits rose by one unit among type 2 diabetes patients, behavioral practices increased by 0.538 units. However, perceived barrier of patients with type 2 diabetes positively affected three behavioral practices, with a statistical significance. (Constant (a) =24.407, R Square =.218, Adjust R Square =.202, F= 13.114, **P< .01). When perceived barrier rose by one unit among type 2 diabetes patients, behavioral practices increased by 0.261 units. Perceived threat, perceived susceptibility, perceived seriousness, cues to action, and imitation all had positive impacts on three behavioral practices among type 2 diabetes patients, without a statistical significance.

Keywords: Health Behavior, Type 2 Diabetes Patients, Nakhon Nayok Province.

INTRODUCTION

Diabetes mellitus (DM) is a group of metabolic diseases characterized by persistently high blood sugar levels. The nature of diabetes, which causes damage to the body, increases with the duration of the disease. (American Diabetes Association, 2004, World Health Organization, 1996, as

cited in Suthin Sriassadaporn and Wanee Nithiyanan, 2005, pp. 8-13). Thailand had 393,887 new cases of diabetes, with an incidence of 602.03 per 100,000 people. Most of cases were female, with 228,040 cases and a sickness incidence of 685.07 per 100,000 people. There were 41,897 complications, accounting for 10.46 percent, with kidney complications, ocular complications, and neurological complications accounting for 33.63%, 21.75%, and 17.19%, respectively. The reason is that diabetics are unable to control their blood sugar levels. Some of these are the consequence of patients' incorrect eating habits and lack of exercise, resulting in overweight and obesity rates of up to 30.50 percent. Some patients drink alcohol and smoke at rates of up to 36.02% and 21.30%, respectively. These habits are most likely caused in part by stress in daily life. (Office for Epidemiology, 2015).

Social factors that can predict behavior to prevent high blood sugar in people with diabetes include relationships between patients and staff who provide good services, warning from officials and care of family members, sickness advice, treatment from close people, campaigning through various media, and instilling in diabetic patients an interest in and willingness to accept and cooperate in their own health maintenance. Natthayan Prasertampaisakul et al. (2008), Chaturong Pradit (1997), Teeraya Wachiramethawee (2007), Kusuma Kanglee (2014), and Tha Kham Subdistrict Health Promoting Hospital (2017). This is consistent with Becker and Maiman's concept that demographic and socio-psychological factors influence social norms and cultural values, resulting in varying disease preventive behaviors. To complete the belief pattern, a person must consider the inducements to practice, which have two sides: internal inducements or internal stimulation (internal cues), which include perceptions of one's own body's status, such as signs of sickness or illness. External inducements or stimulation (External Cues) include providing news through mass media or warnings from loved or respected persons such as wives or husbands, wives, fathers, mothers, and so on. (Becker; Maiman, 1975) This is consistent with Kurt Lewin's theory that people tend to gravitate toward areas where they place positive values. At the same time, avoid negative values. This is because individuals will attempt to follow recommendations for prevention and recovery if the activities are so positive that the challenges that will occur from implementing the advice on the individual's part are avoided. If people are terrified of sickness or believe that it threatens them, they must believe that they have the capacity to overcome it (Kurt Lewin, cited in Prapapen Suwan and Swing Suwan, 1993).

According to previous research, providing education to diabetic patients will support and encourage diabetic patients and their families to maintain a positive attitude until they can change their behavior to be consistent with the treatment plan and appropriate for people with diabetes (Suwat Sirikaensai and Nittaya Panheun, 2010).

Medical personnel should educate diabetics about the risk of acute complications that might lead to death, as well as the long-term negatives consequences of neglect causing family problems. People with diabetes should be aware of the benefits of maintaining their health and should get their blood sugar tested once a month. They must also attend inspections as scheduled. This is because diabetes people will receive advice from health experts on how to properly care for themselves, influencing their own health care practices. (The Kham Subdistrict Health Promoting Hospital, 2002). Furthermore, diabetic patients should be aware of the benefits of following officer guidelines, as well as the perceived severity of diabetes. According to research, they can predict the self-care behavior of type 2 diabetes patients (Amonrat Phiromchom and Anong Hansakul, 2012). However, several research have discovered a negative association between the characteristics influencing diabetes patients' health care practices and their own health care habits. As a result, the researcher is interested in studying type 2 diabetes patients' perceptions and consumption habits of food, as well as exercise and stress management, in order to develop diabetic health promotion programs for diabetic patients.

Nakhon Nayok Province was chosen because the researcher discovered difficulties with diabetes patients' behaviors while doing community visits. It was also the province with the second-highest diabetes patients in the eastern region. The diabetes patient rate was as high as 1,331.32 per 100,000 people. This study included 3,460 people with type 2 diabetes who received treatment at diabetics' clinic of Subdistrict Health Promoting Hospital. (Nakhon Nayok Provincial Public Health Office, 2018)

Research Objectives

1. To study the perceptions of health status and three behavioral practices of type 2 diabetes patients in Nakhon Nayok Province.
2. To determine predictors of three behavioral practices among type 2 diabetes patients in Nakhon Nayok Province.

Research Conceptual Framework

The perception framework used in the research was as follows: 1) perceived threat, 2) perceived susceptibility, 3) perceived seriousness, 4) cues to action, 5) imitation, 6) perceived barrier, and 7) perceived benefits. There were three types of health promotion behaviors: 1) food consumption behaviors, 2) exercise behaviors, and 3) stress management behaviors.

Research Methodology

The descriptive research studied the perceptions of health status and three behavioral practices, and predictors of three behavioral practices among type 2 diabetes patients in Nakhon Nayok Province. Population and sample were patients with type 2 diabetes who received treatment at diabetics' clinic of Subdistrict Health Promoting Hospital in Nakhon Nayok Province. The researcher drew lots for Ongkharak and Ban Na districts, followed by lots for the subdistricts, yielding a list of 14 subdistrict health-promoting hospitals. Because the populations in each location got very similar health services, a sample of 337 type 2 diabetes patients was chosen using multistage sampling.

Scope of Research

Patients with type 2 diabetes received treatment at diabetics' clinic of Subdistrict Health Promoting Hospital in Nakhon Nayok Province. The study was conducted between March and May of 2023.

Scope of Variables Studied

Independent variables were personal factors including gender, age, marital status, education, occupation, duration of illness, blood sugar level, having a friend with diabetes, and counseling people when stressed.

Dependent variables were as follows: 1) perceived treat, 2) perceived susceptibility, 3) perceived seriousness, 4) cues to action, 5) imitation, 6) perceived barrier, and 7) perceived benefits, 8) food consumption behaviors, 9) exercise behaviors, and 10) stress management behaviors.

Research Instrument

The research tool was a questionnaire, divided into three parts as follows: 1) General basic information and characteristics of the person; 2) Information about the perception of patients with type 2 diabetes, including perceived threat, perceived susceptibility, perceived seriousness, cues to action, perceived benefits, perceived barriers, and imitation; and 3) Information on practices in 3 areas for patients with type 2 diabetes, namely food consumption behaviors, exercise behaviors, and stress management behaviors.

Inspection of tool quality

The content's validity was checked by six experts. The 30 completed questionnaires were tested for reliability and then tried out on patients with type 2 diabetes who shared the sample's characteristics. Cronbach's Alpha Coefficient was used to evaluate the questionnaire's reliability, which was .717.

Data Analysis

The data was analyzed using descriptive statistics, frequency, percentage, standard deviation, mean, One Way ANOVA, correlation coefficients, examining the significance of variations between means, and multiple linear regression analysis to determine the factors affecting three behavioral practices.

RESEARCH RESULTS

The research results regarding patients with type 2 diabetes' personal information, including gender, age, marital status, education, occupation, duration of illness, blood sugar level, having a friend with diabetes, and counseling people when stressed, found that most of them were male, accounting for 73.29%, their ages between 51-60 years old, accounting for 75.37%, completed primary school, accounting for 71.51 percent, marital status, accounting for 81.63%, employment occupation, accounting for 42.13%, having a friend with diabetes, accounting for 74.77%, exercise and cooking your own food, and having an advisor as a spouse, accounted for 68.24, 91.09, 62.01 percent, respectively. The illness lasted between one and five years, with the greatest at 41.24 percent. Blood sugar levels ranged from 126 to 180 mg/dl, with the highest accounting for 53.11 percent.

Table 1: Showed the mean and standard deviation of individual and overall perceptions and behavioral practices of patients with type 2 diabetes in Nakhon Nayok province.

No.	Items	Mean	S.D.	Perceptions
1	Perceived Threat	2.72	.88	Moderate
2	Perceived Susceptibility	2.87	.90	Moderate
3	Perceived Seriousness	3.33	.99	Moderate
4	Cues to Action	3.95	.79	High
5	Imitation	3.67	.78	High
6	Perceived Benefits	3.46	.87	High
7	Perceived Barrier	3.02	.68	Moderate
8	Overall Perceptions	3.19	.57	Moderate
9	Food Consumption Behaviors	2.63	.67	Moderate
10	Exercise Behaviors	3.01	.66	Moderate
11	Stress Management Behaviors	3.60	.86	High
12	Overall Behavioral Practices	2.97	.53	Moderate

According to the table above, the mean and standard deviation of patients with type 2 diabetes perceptions in Nakhon Nayok Province were moderate (Mean = 3.19, S.D. = .57). Cues to action (Mean = 3.95, S.D. = .79), imitation (Mean = 3.67, S.D. = .78), perceived benefits (Mean = 3.46, S.D. = .87), perceived seriousness (Mean = 3.33, S.D. = .99), perceived barrier (Mean = 3.02, S.D. = .68), perceived susceptibility (Mean = 2.87, S.D. = .90), and perceived threat (Mean = 2.72, S.D. = .88) were found when considering each item from high to low. The mean and standard deviation of patients' behavioral practices in Nakhon Nayok Province were moderate (Mean = 2.97, S.D. = .53). When each item was determined from high to low, the following were found: stress management behaviors (Mean = 3.60, S.D. = .86), exercise behaviors (Mean = 3.01, S.D. = .66), and food consumption behaviors (Mean = 2.63, S.D. = .67).

Table 2: Relationship between perceptions and behavioral practices of patients with type 2 diabetes in Nakhon Nayok Province (perceived threat, perceived susceptibility, perceived seriousness, cues to action, Imitation, perceived benefits, perceived barrier, food consumption behaviors, exercise behaviors, stress management behaviors) using the Pearson's correlation coefficient formula. (N=337)

Variable	1	2	3	4	5	6	7	8	9	10
1. Perceived Threat	1									
2. Perceived Susceptibility	.656**	1								
3. Perceived Seriousness	.397**	.654**	1							
4. Cues to Action	.083	.164*	.337**	1						
5. Imitation	.120*	.254**	.484**	.607**	1					
6. Perceived Benefits	.101	.226**	.370**	.523**	.618**	1				
7. Perceived Barrier	.378*	.389**	.307**	.112**	.256**	.094	1			
8. Food Consumption Behaviors	.002	.002	.073	.213*	.136**	.178*	.241**	1		
9. Exercise Behaviors	-.108*	-.054	.065	.198**	.223**	.338**	-.272*	.001	1	
10. Stress Management Behaviors	.103	.244**	.278**	.429**	.330**	.331**	.037	.320*	.175*	1

**P< .01

According to the table above, perceived susceptibility, perceived benefits, perceived barrier, perceived seriousness, imitation, perceived threat, cues to action all had a positive correlation with food consumption behaviors, exercise behaviors, and stress management behaviors.

However, perceived barrier and perceived threat had a negative relationship with exercise behaviors, with a statistical significance of .01. There was a positive association between food consumption behaviors, exercise behaviors, and stress management behaviors, with a statistical significance of .01.

Previous research revealed that gender, age, education level, occupation, income, marital status, and duration of disease had no relationship with diabetes patients' blood sugar control and self-care behavior. (A. Non Jiraphong et al. (2011), Pusadee Dankul et al. (2011)) In terms of time, it has been shown that the longer a diabetes patient is sick, the worse their blood sugar control becomes since the severity of the illness has not yet occurred. Patients will only observe emergency situations such as shock and unconsciousness. High or low blood sugar causes rapid death rather than illnesses that result in permanent organ damage, leading to a failure to control blood sugar levels.

(Pornthip Malatham, Piyanan Phromkhong, Prakong Intharasombat, 2010) This may be because diabetes patients perceive the challenge of having to always care for oneself, which causes them to get bored with themselves.

Diabetics who can control their blood sugar levels practice excellent habits such as making their own food at home, avoiding meat on a regular basis, and not eating tiny meals in between meals.

In terms of exercise behavior, most diabetes patients only participate in continuous physical activity, such as cleaning the floor until they sweat, gardening, or walking for at least 20 minutes. Diabetics who recognize the benefits of healthy eating habits, stress relief, exercise, and medical treatment will have greater protection against high blood sugar (Teeraya Wachiramethawee, 2007).

Table 3: Factors affecting three behavioral practices for type 2 diabetes patients in Nakhon Nayok Province using Multiple Linear Regression Analysis (N=337).

Predictors	B	Beta	t	p-value
Overall Perceptions	.118	.400	7.995	.000
Perceived Threat	.010	.008	.126	.900
Perceived Susceptibility	.172	.112	1.419	.157
Perceived Seriousness	-.075	-.080	-1.136	.257
Cues to Action	.217	.083	1.320	.188
Imitation	.134	.075	1.025	.306
Perceived Benefits	.538	.169	2.668	.008
Perceived Barrier	.261	.280	4.848	.000

Constant (a) =24.407, R Square =.218, Adjust R Square =.202, F= 13.114, **P< .01

According to the table above, the factors that positively affected three behavioral practices for type 2 diabetes patients in Nakhon Nayok Province using Multiple Linear Regression Analysis were perceived benefits and perceived barrier, with a statistical significance. When perceived benefits rose by one unit among type 2 diabetes patients, behavioral practices increased by 0.538 units. However, perceived barrier of patients with type 2 diabetes positively affected three behavioral practices, with a statistical significance. (Constant (a) =24.407, R Square =.218, Adjust R Square =.202, F= 13.114, **P< .01) When perceived barrier rose by one unit among type 2 diabetes patients, behavioral practices increased by 0.261 units. Perceived threat, perceived susceptibility, perceived seriousness, cues to action, and imitation all had positive impacts on three behavioral practices among type 2 diabetes patients, without a statistical significance. In other words, perceived susceptibility had a negative effect on three behavioral practices among type 2 diabetes patients, without a statistical significance.

DISCUSSION

The findings revealed that diabetic patients with different genders, marital statuses, occupations, and educational levels differed in their perceived threat, perceived benefits, stress behavioral behaviors, and overall behavioral practices. This contrasts Orem's (Orem, 1991) concept that females are better capable of self-care than men. It is like Kusuma Kanglee's research, which discovered that gender had an impact on blood sugar control; females were 1.72 times more likely than males to be unable to control blood sugar levels (Kusuma Kanglee, 2014).

The research revealed that diabetic patients with different occupations, marital status, and educational levels had different perceived threat, perceived benefits, stress management behaviors, and overall behavioral practices. It was consistent with the research of Anne Jirapong et al. (2011), who found that marital status and education level were not related to the self-care behavior of diabetic patients. Pusadee Dankul et al. (2011) discovered no relationship between occupation and blood sugar control in type 2 diabetic patients. However, this contradicted Kritsana Khamloy (2011), who discovered that diabetes patients of different occupations and educational levels showed considerably differed self-care behaviors. (Kritsana Khamloy, 2011) It can be explained that most of the sample were men aged 51-60, so their occupations were similar, such as self-employed and unemployed. The combined number was high, as was the employee career, which covered most of occupations, resulting in no statistical difference.

The research found that diabetic patients with different educational level had no different perceived threat, perceived benefits. It can be explained that most of the study sample were men aged 51-60 years, living in semi-rural communities, and receiving treatment in the diabetes clinic at the Subdistrict Health Promoting Hospital, which provides similar services.

It may affect perceived threat, perceived benefits, stress management behaviors, and overall behavioral practices without difference. The relationship between cues to action, imitation, perceived benefits, perceived barrier, food consumption behaviors, exercise behaviors, and stress management behaviors was positive. It can be explained that cues to action included losing money and time to received treatment but seeing doctors as schedule affected good food consumption behaviors. In terms of exercise, there is both knowledge and regular physical activity. In terms of stress treatment activities, patients must accept the truth of their everyday problems in order to avoid stress. Individuals are considered to orient themselves to locations where they assign positive values while avoiding negative values, which is consistent with Kurt Lewin's idea.

The study's findings revealed a positive relationship between perceived barriers of patients with type 2 diabetes in Nakhon Nayok Province and consumption of food and stress management practices. It is consistent with research by Chaturong Pradit (1997) and Siriporn Parama (2002) finding that perceived barriers to self-care had a favorable connection with diabetes patients' self-care behavior. However, the study discovered that perceived barriers among patients with type 2 diabetes in Nakhon Nayok Province showed a statistically significant negative correlate with their exercise behaviors, with a statistical significance (p -value.05). (p -value.05). This may be because diabetes patients get regular checkups and are encouraged to exercise and have knowledge regarding exercise, yet exercise is a type of effort in daily activities that includes an understanding of exercise. As a result, diabetes people require a program to assist them regulate their blood sugar levels. This is consistent with the assumption that individuals will want to follow recommendations for prevention and recovery as long as the action to prevent disease outweighs the hardship that would occur from following the recommendations.

There must be a fear of sickness or a sense that the disease threatens them, as well as a belief in one's ability to resist the disease (Kurt Lewin, quoted in Prapapen Suwan, Swing Suwan, 1993). The study discovered that diabetes patients who saw different counselors had similar food consumption behaviors, exercise behaviors, as well as overall practices. Siriwatthanapornkul, Nongnuch Oba, and Suchada Inthakamhaeng Na Ratchasima (2007) discovered that family support was favorably connected to patients' blood sugar levels, with a statistical significance ($r = 0.130$, p -value $< .05$) Kusuma Kanlee (2014). It can be explained that spouses, parents, and friends are all considered social support forces. The characteristics of Thai society are related to family and friends. Therefore, no matter which group of people acts as advisors, there will be no examples of food consumption behaviors, exercise behaviors, or overall practices that differ.

The research results found that diabetes patients who practice exercise had different perceived susceptibility, perceived seriousness, cues to action, perceived barrier, and overall perceived, with a statistical significance (p -value.05). It can be explained that diabetes patients who exercise became aware of their perceived susceptibility, perceived seriousness, and cues to action. It resulted in the patients engaging in exercise activities because they eliminated the exercise barriers. According to the concept of Becker, Maiman (1975) stated that in order for a belief pattern to be complete, a person must consider the inducements to practice, which have two sides: internal inducements or cues, such as recognizing the state of one's own body, such as symptoms of disease or illness. External inducements or cues include the dissemination of news through the media or warnings from loved or respected people such as wives and husbands, fathers, mothers, and so on. (Becker & Maiman 1975).

The research found that diabetic patients with different durations of illness had different perceptions of the severity of their disease, with a statistical significance (p -value.05). However, diabetic patients with different durations of illness saw examples of overall and each aspect of behaviors with no difference. This was consistent with the findings of Suchada Duangupama (2005),

who discovered that the duration of diabetes was unrelated to the self-care behavior of the elderly with type 2 diabetes. The perceived barriers to engaging in high blood sugar prevention behavior were irrelevant to the high blood sugar prevention behavior of the elderly, who had diabetes and cannot control their blood sugar levels. This was not consistent with the research's results by Kritsana Khamloi (2011), who found that diabetic patients with different durations of illness had different self-care behaviors, with a statistical significance of .01. (Kritsana Khamloy, 2011) The findings of this study, which contradicted Becker's health concept (Becker, 1974), indicated that perceived barriers were variables inhibiting behaviors. It was a negative prediction of a person's future based on disadvantages or obstacles to practice that encouraged people to avoid performing the behavior. It may be explained that diabetic patients receiving treatment in the diabetes clinic at the Subdistrict Health Promotion Hospital, which had the type of services given in the diabetes clinic, may have an impact on the sample's perceptions and practices. More diabetes clinics in subdistrict health promotion hospitals should be studied the nature of the services they provide.

The findings revealed that diabetes patients with different blood sugar levels had different perceived susceptibility and imitation, with a statistical significance level of .05 (p -value .05). It was consistent with the idea that the nature of damage caused to the body increases as the disease progresses. (American Diabetes Association, 2004, World Health Organization, 1996, as cited in Suthin Sriassadaporn and Wanee Nithiyanan, 2005, pp. 8-13). This was consistent with the findings of Pornthip Malatham et al., who studied factors predicting blood sugar levels in the blood of older adults with type 2 diabetes and discovered that longer duration of diabetes was related with higher blood sugar levels. (Pornthip Malatham, Piyanan Phromkhong, Prakong Inthasombat, 2010) It can be stated that diabetes patients' symptoms are not severe in the beginning of the condition.

As a result, only crises like shock, loss of consciousness, or high or low blood sugar resulting in quick death were regarded as greater than a disease that causes permanent organ loss. However, complications take time to develop, and even though they observe other individuals having difficulties, the patient is unaware that complications would occur to them. However, when the patients became unable to manage their blood sugar levels, they understood that their diabetes had progressed to a severe stage. This was followed by an example of a friend who had a leg amputated due to high blood sugar levels.

The findings revealed that perceived benefits and perceived barriers were statistically significant predictors of three behavior practices among type 2 diabetes patients in Nakhon Nayok Province. According to Natthaya Prasertampaisakul et al. (2008), type 2 diabetes patients' practice increased by 0.538 units when their perceived benefit increased by 1 unit. Factors that stimulated the practice of behavior to prevent high blood sugar ($\beta = .38$, $p < 0.001$) included perception of the benefits ($\beta = .21$, $p < .05$) and income ($\beta = -.19$, $p < .05$).

RECOMMENDATIONS

- 1) The findings reveal that diabetic patients of different genders, marital statuses, occupations, incomes, and educational levels differ in their perceived susceptibility, perceived seriousness, cues to action, imitation, perceived barriers, food consumption behaviors, and exercise behaviors, but there is no difference in perceived threat, perceived benefits, stress management behaviors, or overall behavioral practices. Furthermore, diabetic patients with different periods of illness and blood sugar levels show different perceived susceptibility and imitation. Health promotion program suggestions can be employed by people of various genders, ages, marital statuses, vocations, and educational levels, but diabetic patients should be separated from those who have been sick for a long time and have varying blood sugar levels.

- 2) According to study, there is an association between dietary behaviors of people with type 2 diabetes in Nakhon Nayok Province. It is positively associated to stress relief behaviors, with a statistical significance of .05. It can be explained that the patients have a spouse who cares for them, prepares food for them to eat, and acts as a counselor when they are distressed causing them to relieve stress by accepting the truth about problems in their everyday lives, and stress reduction are positively associated. As a result, in stress-relief programs, spouses should be included in food preparation and counseling.
- 3) Factors of perceived benefits and perceived barriers were able to predict effects on three behavioral practices among patients with type 2 diabetes in Nakhon Nayok Province. This recommendation of the health promotion program should promote awareness of benefits and eliminate perceived barriers among diabetic patients.

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