FACTORS RELATING TO HEALTH CARE BEHAVIOR AMONG DIABETES MELLITUS PEOPLE

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Abstract

This research was a correlation study targeting to determine the factors relating to health care behavior among diabetes mellitus people. Subjects were 80 diabetes mellitus persons aged 18 and over receiving medical treatment in Surin Hospital that was chosen by random sampling. Data were collected by perceived susceptibility, perceived severity, perceived benefits, and barriers assessment and a demographic questionnaire. The reliability of questionnaires was 0.8 by using Cronbach's alpha coefficient. Percentage, mean, standard deviation and correlation were used for data analysis.

The results indicated that most of the sample were female (63.8%), aged between 61-70 years (41.2%), educated primary school (71.2%) and work as a farmer (37.5%). Most of the sample had 126 mg/dl of blood sugar (70%). The finding showed that health perception had a high level (mean=3.06, SD=0.32) and health care behavior had a moderate level (mean= 2.19, S.D=0.36). It was also found that health perception could be correlated with health care behavior ($r = .338$, $P < .01$). When considering each dimension of health perception, it was found that perceived barriers could be correlated to health care behavior ($r = .543$, $p < .01$). However, the perceived susceptibility, perceived severity, and perceived benefits could not be correlated to health care behavior.

The recommendations from this study suggest that nurses should concern about the health perception of the diabetes mellitus people regard to develop proper intervention programs in order to promote the health care behavior of persons with diabetes mellitus.

Keyword: diabetes mellitus, health perception, health care behavior

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Introduction

Diabetes mellitus is a chronic disease and a major public health problem for the world, including Thailand, because the number of diabetic patients increases every year. According to data from the International Diabetes Federation (IDF), 415 million people worldwide had diabetes in 2015 and the number of diabetic patients is expected to increase to 642 million people by 2040. In other words, one out of ten adults will have diabetes mellitus by 2040. In Thailand, the incidence of diabetes mellitus is escalating with annual increases (Bureau of Non-communicable Diseases, Department of Disease Control, 2015). In addition, many patients have been found to have no dexstrostrix control, thereby leading to complications such as kidney disease, neuropathy and cardiovascular disease leading to illness and death or significant treatment costs. For diabetic patients to have stable or normal dextrostrix levels, they need to have good self-care behaviors (Anucha Kongsomkan and Manirat Tirawiwat, 2012; Ruenjit Petchit, 2015; Pornpatu Pinket, Sunida Tiangkaew and Sujitra Traipayong, 2015). Therefore, to enable patients to control diabetes mellitus, people need to be supported to have good and appropriate health care behaviors in order to have a good quality of life.

Concerning the situation of diabetes mellitus in Surin, the disease is a major public health problem for the province, because the number of diabetic patients rises every year. In 2013 – 2015, the rates for were 852.70 cases, 909.91 cases, and 1,130.72 cases, respectively. The rates for diabetes mellitus have been found to rise every year (Bureau of Non-communicable Diseases, Department of Disease Control, 2015). Due to the escalating trends in the numbers of patients, the fiscal year of 2017 had 6,750 new diabetic patients, thereby resulting in significant treatment costs. Furthermore, the number of patients without dexstrostrix control has also been found to be high. This is evident from examples of reports on the number of diabetic patients who came to use the services of diabetes clinics at hospitals in Surin. Diabetic patients have been found to be unable to control dextrostrix levels. Therefore, the researcher's interest is in exploring the correlations between health perception and health care behaviors of patients with Type 2 diabetes mellitus using the services at the Special Outpatient Clinic of a medical center by using the Health Belief Model in order to use data to plan and develop self-care capacity among diabetic patients.

Research Objective

To study the correlations between health perception and health care behavior among patients with Type 2 diabetes mellitus using the services at the Special Outpatient Clinic of a medical center.

Research Hypothesis

Health perception is correlated with the health care behaviors of patients with Type 2 diabetes mellitus using the services at the Special Outpatient Clinic of a medical center.

Scope of the Study

The present study is descriptive research aimed at studying the correlations between health perception and the health care behaviors of patients with Type 2 diabetes mellitus using the services

at the Special Outpatient Clinic of a medical center. Quantitative data were collected in November 2018 – June 2019. The variables in this study were independent variables (health perception, perceived susceptibility of disease, perceived disease severity, perceived benefits of treatment and disease prevention and perceived barriers). The dependent variables consisted of health care behaviors such as self-care for dextrostrix control and control of food, exercise, and medication adherence.

Related Literature and Theories

This study is descriptive research. The Health Belief Model of Rosenstock, Strecher & Becker, 1988) explained health perception in four aspects consisting of perceived susceptibility, perceived severity, perceived benefits, perceived barriers and literature concerning diabetic patients' self-care behaviors.

Research Methodology

This study was based on a descriptive research design aimed at studying the correlations between health perception and health care behaviors of patients with Type 2 diabetes mellitus using services at the Special Outpatient Clinic of a medical center.

The population was patients diagnosed with Type 2 diabetes mellitus who were using the services at the Special Outpatient Clinic of a medical center.

The sample was patients diagnosed with Type 2 diabetes mellitus using the services at the Special Out-patient Clinic at a medical center and was selected by the researcher by purposive sampling from persons with qualifications meeting the following criteria in this study:

Subjects' Qualifications

Inclusion Criteria

1) Patients came to use services, were diagnosed by a doctor with Type 2 diabetes mellitus and were registered for treatment at a medical center.

2) Patients understand communication and are willing to participate in the study.

Exclusion Criteria

1) Patients using the services and diagnosed by a doctor with diabetes mellitus, but not Type 2 diabetes mellitus.

2) Patients who do not understand communication or consent to cooperate in this study.

Sample Size Calculation

The sample size was determined with power analysis. Pearson's Correlation Coefficient was used to determine the one-tailed test with an effect size of .30, a deviation of .05 and power of the test of .80 (Boonjai Srisatitnarakoon, 2010). Calculation with the G*Power 3.1.2 program resulted in a sample size of 67 subjects. The researcher increased the number of subjects by 20 percent in the

case of the subject's end participation in the research. Therefore, the sample size in this study was 80 subjects.

Research Instruments

Data collection instruments were questionnaires created by the researcher and developed from related studies and modified according to experts' recommendations. Research instruments were divided into the following three parts:

Part 1 – The demographic data questionnaire for diabetic patients collected data on gender, age, marital status, level of education, occupation, mean monthly income and dextrostrix levels (DTX).

Part 2 – The health perception questionnaire consisted of the following:

2.1 The perceived susceptibility questionnaire contained ten questions on a four-level rating scale consisting of "Strongly Agree", "Agree", "Disagree" and "Strongly Disagree".

2.2 The perceived severity questionnaire had ten questions on a four-level rating scale consisting of "Strongly Agree", "Agree", "Disagree" and "Strongly Disagree".

2.3 The perceived benefits questionnaire had ten questions on a four-level rating scale consisting of "Strongly Agree", "Agree", "Disagree" and "Strongly Disagree".

2.4 The perceived barriers questionnaire had ten questions on a four-level rating scale consisting of "Strongly Agree", "Agree", "Disagree" and "Strongly Disagree".

Part 3 – The questionnaire on health care behaviors of diabetic patients contained 15 questions in three areas consisting of food consumption, medication adherence, and exercise. The questions were on a three-level rating scale consisting of "Practiced Regularly", "Practiced Sometime" and "Never Practiced".

Test of the Instrument

1. Content validity testing was performed by three qualified experts consisting of two nursing professors and one nurse with expertise in the care of patients with diabetes mellitus. Questionnaires tested by the researcher were determined for Index Item Objective Congruence (IOC). Only questions with an Index Item Objective Congruence (IOC) of 0.5 were selected. Questions with IOC less than 0.5 were modified based on experts' recommendations.
2. In testing questionnaire reliability, questionnaires considered by the qualified experts were tried out with 30 patients with Type 2 diabetes mellitus who had qualifications similar to the sample group and came to use services at the Special Outpatient Clinic of a medical center. Questionnaires were analyzed for reliability with Cronbach's Alpha Coefficient. Cronbach's Alpha Coefficient for the overall health perception questionnaire was 0.80, 0.83 for the perceived susceptibility questionnaire, 0.79 for the perceived severity questionnaire and 0.76 for the perceived

benefits questionnaire, 0.75 for the perceived barriers questionnaire, 0.89 for the overall health care behavior questionnaire, 0.91 for food consumption, 0.85 for exercise and 0.88 for medication adherence.

Data Collection and Ethical Considerations

This study received confirmation from the research committee of Boromarajajonani College of Nursing, Surin. Research and data collection was carried out with the following steps:

1. The researcher prepared a letter to ask for data concerning the number of diabetic patients and sent the letter to the Head of the Special Out-patient Clinic and the director of the medical center.
2. The researcher coordinated with the Head of the Special Out-patient Clinic to ask for cooperation and convenience in data collection.
3. The researcher explained the right to consent or refuse to participate in this study to the subjects. Personal data collected in this study was kept secret. The presentation or discussion of the findings was entirely in an overall view. The researcher collected data when the subjects consented to cooperate in the study.
4. Data were collected using questionnaires.
5. After completing the data collection, the researcher checked data accuracy and analyzed the data

Data Analysis

1. The demographic data of the patients with Type 2 diabetes mellitus using the services at the Special Outpatient Clinic of a medical center were analyzed using frequency and percentage.

2. Data on the health perception of patients with Type 2 diabetes mellitus using the services at the Special Outpatient Clinic of a medical center in four aspects consisting of perceived susceptibility, perceived severity, perceived benefits, and perceived barriers were analyzed using mean and standard deviation.

3. Data on the health care behaviors of patients with Type 2 diabetes mellitus using the services at the Special Outpatient Clinic of a medical center in three aspects consisting of food consumption, medication adherence and exercise were analyzed using mean and standard deviation.

4. The correlations between health perception and health care behaviors were analyzed with Pearson's Correlation Coefficient.

Research Findings

The results indicated that most of the sample were females (63.8%), aged between 61-70 years (41.2%), educated in primary school (71.2%) and worked as farmers (37.5%). Most of the sample had 126 mg/dl of blood sugar (70%) as shown in Table 1.

Table 1 – Number and Percentage of the Sample Categorized by Demographic Data (N = 80)

Demographic Data	No. (Persons)	Percent
Gender		
Male	29	36.2
Female	51	63.8
Age		
30 – 40 Years	1	1.2
41 – 50 Years	4	5.0
51 – 60 Years	20	25.0
61 – 70 Years	33	41.2
71 – 80 Years	22	27.5
Status		
Single	3	3.7
Cohabiting/Married	75	93.8
Widowed/Divorced/Separated	2	2.5
Educational Attainment		
Uneducated	1	1.2
Primary	57	71.2
Lower Secondary/Mor. Sor. 3	3	3.8
Upper Secondary/Mor. Sor. 6/VC	10	12.5
HVC/Diploma or Equivalent	6	7.5
Bachelor's Degree	3	3.8
Higher Than a Bachelor's Degree	1	1.2
Occupation		
Housework	8	10.0
Agriculture	30	37.5
Hired Worker	8	10.0
Civil Service/State Enterprise Employee	6	7.5
Student	7	8.8
Merchant/Vender	21	26.2
Other	8	10.0
Dexstrostrix (DTX)		
80 - 126 mg %	24	30.0
>126 mg %	56	70.0

Health perception data was high in four areas, namely perceived susceptibility, perceived severity, perceived benefits and perceived severity (M = 3.06, SD = 0.32). When categorized individually, the highest mean score was in the area of perceived benefits (M = 3.39, S.D. = 0.47), followed by perceived severity (M = 3.28, S.D. = 0.39) and the lowest mean score was in the area of perceived barriers (M = 2.65, S.D. = 0.69) as shown in Table 2.

Table 2 – Mean and Standard Deviation for Overall Health Perception and Health Perception in Individual Areas (n = 80)

Health Perception	Mean	S.D.	Level
Perceived Susceptibility	2.95	0.43	Moderate
Perceived Severity	3.28	0.39	High
Perceived Benefits	3.39	0.47	High
Perceived Barriers	2.65	0.69	Moderate
Overall Health Perception	**3.06**	**0.32**	**High**

Overall health perception data in three areas consisting of food consumption, medication adherence and exercise was moderate (M = 2.19, S.D. = 0.36). When categorized in separate areas, the highest mean score was found to be in the area of medication adherence (M = 2.40, S.D. = 0.66), followed by food consumption (M = 2.35, S.D. = 0.57), and the lowest mean score was in the area of exercise (M = 1.84, S.D. = 0.52) as shown in Table 3.

Table 3 – Mean and Standard Deviation of Overall Health Care Behaviors and Health Care Behaviors in Separate Areas (n = 80)

Health Care Behaviors	Mean	S.D.	Level
Food Consumption	2.35	0.57	High
Exercise	1.84	0.52	Moderate
Medication Adherence	2.40	0.66	High
Overall Health Care Behaviors	**2.19**	**0.36**	**Moderate**

Analysis of the correlations between health perception and health care behaviors found perceived barriers to be correlated with health care behaviors with statistical significance at 0.01 (r = 0.543). Perceived susceptibility, perceived severity, and perceived benefits were not related to health care behaviors with statistical significance. Nevertheless, overall health perception and overall health care behaviors were related to statistical significance at 0.01 (r = .338) as shown in Table 4.

Table 4 – Correlations between Health Perception and Health Care Behaviors

Variables	Perceived Susceptibility	Perceived Severity	Perceived Benefits	Perceived Barriers	Overall Health Perception	Overall Health Care Behaviors
Perceived Susceptibility	1					
Perceived Severity	.612**	1				
Perceived Benefits	.355**	.502**	1			
Perceived Barriers	-.042	.133	.32	1		
Overall Health Perception	.634**	.769**	.659**	.574**	1	.338 **
Overall Health Care Behaviors	.024	.078	.039	.543**	.338**	1

**Significance Level: $p < 0.01$.

* Significance Level: $p < 0.05$.

Conclusion and Discussion of the Findings

Overall health perception (perceived susceptibility, perceived severity, perceived benefits, and perceived barriers) were high (M = 3.06, SD =0 .32). When categorized individually, the highest mean score was found in the area of perceived benefits (M = 3.39, SD = 0.47), followed by perceived severity (M = 3.28, S.D. = 0.39). The lowest mean score was in the area of perceived barriers (M = 2.65, SD = 0.69). The findings did not concur with Anong Hansakun and Amornrat Piromchom (2012) who studied the perceived health and self-care behaviors of patients with Type 2 diabetes mellitus in Nong Bua Ra Haew, Chaiyaphum, and found the subjects to have a moderate perception of personal factors with potential effects on knowledge and perception. Perception is a psychological process with effects on personal behaviors and behavioral expressions. In this study, perception consisted of perceived susceptibility of complications, perceived severity, perceived benefits and perceived barriers (Pender et al., 2011). However, if patients have a good perception, patients are likely to engage in good self-care, particularly among diabetic patients. In addition, the findings did not concur with a study by Chatcharin Kumo and Rungnapa Jantra (2015) who studied the factors correlated with self-care behaviors among diabetic patients at Ban Tro Hak Tambon Health Promotion Hospital, Pattani, who had moderate health perception.

Overall health care behaviors (food consumption, medication adherence and exercise) were moderate (M = 2.19, SD = 0.36). Individually, the highest mean score was in the area of medication adherence (X = 2.40, SD = 0.66), followed by food consumption (M = 2.35, SD = 0.57). The lowest mean score was in the area of exercise (M = 1.84, SD = 0.52). This was consistent with a study conducted by Chatcharin Kumo and Rungnapa Jantra (2015) who studied the factors correlated with self-care behaviors among diabetic patients at Ban Tro Hak Tambon Health Promotion Hospital in Pattani and found the subjects to have self-care behaviors at a moderate level. The findings were in agreement with Amornrat Piromchom and Anong Hansakun (2012) who studied self-care behaviors among patients with Type 2 diabetes mellitus in Nong Bua Ra Haew, Chaiyaphum, and found self-care behaviors to be moderate. In addition, the findings were consistent with Kanchana Borisut (2010) who found self-care behaviors among diabetic patients at His Majesty the King's 80th Anniversary Medical Center, Tha Ma Ka, Kanchanaburi, to be moderate. Similarly, based on data from patients with Type 2 diabetes mellitus using the services at the Special Out-patient Clinic, the subjects were found to be aged 61 – 70 years and had the highest level of education at elementary education. These factors may be barriers in performing health promotion behaviors in Pender's framework (1996), causing overall health care behaviors to be moderate.

According to this study on the correlations between health perception and health care behaviors among patients with Type 2 diabetes mellitus using the services at the Special Outpatient Clinic of a medical center, health perception was found to be correlated with health care behaviors with statistical significance at 0.01 (r = .338). When considered individually, perceived barriers were found to be correlated with health care behaviors with statistical significance at 0.01 (r = .543). Patients with high health perception can be explained to have good health care behaviors. The

findings concurred with Kanchana Borisut (2010) who found health perception to be correlated with self-care behaviors among diabetic patients at His Majesty the King's 80th Anniversary Medical Center, Tha Ma Ka, Kanchanaburi. In addition, the findings concurred with Atchara Jindawattanawong, Noppawan Piasue and Patcharin Nintajan (2012) who studied the correlations between perceived health beliefs and preventive behaviors for Type 2 diabetes mellitus among senior high school students and found preventive behaviors for Type 2 diabetes mellitus to be correlated with overall perception of health beliefs, particularly perceived benefits and barriers in disease prevention, indicating feasibility of practice leading to behaviors. The findings were also consistent with Janz & Becker (1984) who stated that, for a person to have healthy behaviors to avoid disease, the person needs to believe health behaviors to be beneficial. Moreover, the aforementioned concept was consistent with previous findings which revealed an overall perception of health beliefs to be positively related to disease prevention behaviors. However, perceived susceptibility, perceived severity, and perceived benefits were not correlated with health care behaviors with statistical significance ($r = .024, .078$ and $.039$), possibly because most of the subjects were aged 61 – 70 years and were older adults with elementary educational attainments and dextrostrix (DTX) $\geq$ 126 mg% (70%). This may be a barrier in performing health promotion behaviors consistent with the findings which revealed overall health care behaviors to be moderate.

Recommendations for Research

Predictors of health care behaviors should be studied in qualitative studies to provide in-depth views of diabetics' personal experiences.

Recommendations for Implementation

1. Diabetic patients should be educated to have accurate health perception with an emphasis on awareness of proper self-care behaviors, which will help diabetics recognize the importance of health behavior adjustment to control dextrostrix levels.

2. Families and relatives should support and encourage diabetics to modify health behaviors and participate in caring for patients to have better health in life.

Acknowledgment

The researcher would like to thank the research committee of Boromarajajonani College of Nursing, Surin, the Head of the Special Out-patient Clinic, the director of a medical center, the staff at the Special Out-patient Clinic and every diabetic patient who cooperated with data collection and enabled this research to achieve success.

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