ORIGINAL ARTICLE

FACTORS ASSOCIATED WITH KNOWLEDGE, PERCEPTION, AND PRACTICE TOWARD SELF-CARE AMONG ELDERLY PATIENTS SUFFERING FROM TYPE 2 DIABETES MELLITUS IN RURAL THAILAND

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Background: Globally, diabetes caused 4.6 million deaths during 2011 and burdened health care systems worldwide with $465 billion. The diabetes prevalence rate in Thailand has risen dramatically in recent years, from just 2.3% in 1991 to 6.9% in 2009. The objective of this study was to explore factors associated with knowledge, perception, and practice toward self-care among elderly type 2 diabetes mellitus patients aged 50–70 years. **Methods:** A cross sectional study design was conducted by enrolling 140 aged people of both gender suffering from type 2 diabetes mellitus and registered at three clinics of Primary healthcare at Taladnoi, Horathep, and Khokyai, Saraburi, Thailand. Participants whose age was 50–70 were rechecked through laboratory testing like Hba1c, FBS, and BMI were included. Data was analysed by using descriptive statistics and chi-square. **Results:** The participants mean age was 62.11±0.59 years and 69.4% were female, 27.8% belonged to indigenous caste and 82.6% were married. About one-fourth of the participants were housewives, 15.2% government employee and 12.1% were farmer. Participants suffering from diabetes since1-5 years were 48.5%. Among the diabetic patients, 51.5% reported to have family history of diabetes. The mean knowledge score of the respondents was 3.61 (±1.80), perception was 4.34 (±1.41), practice was 12.14 (±4.47). A significant different existed between gender with Hba1c (<0.05), knowledge, and work status with Hba1c (<0.05). **Conclusion:** Study concluded that the knowledge, perception, and practice about type 2 diabetes mellitus among patient were significantly poor. However, the factors like; gender, work and practice were found significantly correlated with glycated haemoglobin.

Keywords: Diabetes Mellitus Type 2; Knowledge; Perception; Self-care; Elderly population and associated factors

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INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disorder which affects large portion of population across the world.[1] Increasing burden of DM has been reported in developed and developing countries due to sedentary life style and lack of exercise and increased use of unhealthy diet.[2] The rising affliction of non-communicable diseases in low and middle-income countries is one of the most significant global health challenge.[3] Diabetes Mellitus is one of the non-communicable diseases and reported as an emergent public health apprehension in Thailand.[4,5] The incidence of diabetes in the middle of the populations in Saraburi province of Thailand was 0.4% in 2001 which was drastically increased up to 1.1% by 2012.[5] Mostly the ageing population living in the Thailand regions are suffering from distress from diabetes Mellitus.[6] High prevalence and significant burden of DM is directly affecting the health system of particular country. Recent research has revealed that many aspects of type 2 diabetes can be controlled by using community interventions.[7] Health workers trainings and motivation might play an important role to identify and timely management of health problem in any health system.

Chronic DM effects on patient's eyes, heart, kidneys, and nerves and ultimately develop multiple problems like; retinopathy, nephropathy, neuropathy, macro-vascular disease, delayed wound healing, and periodontal disease.[7,8] The aging population is at high risk to develop the chronic conditions including DM, arthritis, congestive heart failure, and dementia.[9] Diabetes mellitus type 2 can be effectively prevented through using the suitable dietary consumption, physical activity, and proper drugs. The control of diabetes mellitus depends on the level of information that patients has on particular problem. The knowledge and perception of diabetes patients is significant to expand patient's compliance and control of the disease.[10] Multiple factors associated with diabetes mellitus type 2 includes; obesity, diet,

physical activity, family history of diabetes, duration of diabetes, smoking, high blood pressure, LDL cholesterol, and sleep duration.[11] There are many studies emphasized that the level of knowledge, attitude, and practice (KAP) in type 2 diabetes patients would prevent this disease through self-care behaviour.[12]

There are only a few studies which have explored factors associated with knowledge, perception, and practice (KPP) in the elderly with Diabetes mellitus type 2 self-care. However, no such study was conducted in Saraburi, Thailand to explore the factors associated with knowledge, perception, and practice (KPP) toward self-care among elderly diabetes mellitus type 2 patients. The purpose of the present study was to explore factors associated with knowledge, perceive, and practice (KPP) toward self-care among elderly diabetes mellitus type 2 patients, rural, Thailand.

MATERIAL AND METHODS

A cross-sectional study was conducted in three rural Basic health centres of Thailand. Total 140 (70 participants at Taladnoi, and 35 per each Horathep, and Khokyai Primary Healthcare Unit) old aged patients who were diagnosed as type 2 diabetes mellitus at least 6 month ago were selected by random sampling method. The patients who had serious systemic diseases and developed other complications like; blood disease, liver damage, kidney disease, communicable disorder and those who could not speak Thai language, were excluded. A written consent was taken prior to start the data collection and Ethical approval was sought from the Ethics Review Committee of Suansunadha Rajabhat University Thailand (COA No.1-014/2016). A structured questionnaire was used to measure general characteristics, Bio-markers: glycated haemoglobin (HbA1c), Body Mass Index (BMI) and Fasting Blood Sugar (FBS), knowledge toward diabetes mellitus self-care, perception toward diabetes mellitus self-care and practice toward diabetes mellitus self-care. Three experts in public health had validated the structured questionnaire. Tool was pretested on 30 diabetes mellitus type 2 patients in Khlongket Primary Healthcare Unit, Khoksamrong, Lopburi province. The Cronbach's Alpha Coefficient of the questions pertaining to knowledge toward diabetes mellitus self-care was 0.90, perception toward diabetes mellitus self-care was 0.92, and practice toward diabetes mellitus self-care was 0.91. All bio-markers (Hba1c, BMI, FBS) measurement was monitored by a team of medical technologist certified by a national board of registry, Thailand. Data was analysed through SPSS statistical package version 16.0. The general characteristics, HbA1c, BMI, and FBS were independent variables and dependent variables were knowledge, perception, and practice (KPP) toward diabetes mellitus self-care. The glycaemic control defined HbA1c <6.5% as controlled glycaemic level and HbA1c ≥6.5% as uncontrolled glycaemic level. The BMI defined as BMI < 25 kg/m2 as normal and BMI ≥25 kg/m2 as overweight. The total score of knowledge toward diabetes mellitus self-care was 7 points and the total score of perception toward diabetes mellitus self-care was 21 points. The mean of knowledge toward diabetes mellitus self-care was used to categorize the score into good and poor knowledge. Good knowledge was defined as the score ≥mean. Poor knowledge was defined as the score <mean. In addition, the means of perceive toward diabetes mellitus self-care was also used to categorize the score into positive and negative perception. Positive perception was defined as the score ≥mean. Negative perception was defined as the score <than mean. Descriptive statistics including frequency distribution, percentage, and mean and standard deviation were used to describe characteristics of diabetes patients. A *t*-test, chi-square, and Fisher Exact test were used to analyse the association between influencing.

RESULTS

Among the 140 diabetes patients, more than half were female (69.4%). The mean age was 62.11 (±7.0) years. In regard to income, 58.3% had income less than 150 US$ per month. Regarding education level, 79.9% had finished primary school. Those who had had family history of diabetes 45.5%. Patients reported an average duration of diabetes, they were suffering was 13.65 years and 82.8% of participants had never smoked. The mean HbA1c was 7.22, FBS was 138.99 (19.37) mg/dl respectively. The mean BMI was 30.03 (1.79) kg/m2 and 30.7% (n=43) of the participants were reported that they were controlled their glycaemic level (HbA1c <6.5). The mean age was 62.11 year (±7.0), most of participants were female, 82.6% were married. Regarding education, 79.9% had completed formal six years of school education. In regarding to retired and living at home 50.7%, non-smoker 82.8% and non-alcohol drinker 70%. The average of body mass index (BMI) was 62.11 (±7.0) kg/m^2, waist circumferences (WC) was 88.0 (±8.1) cm, duration of diabetes type 2 was 13.65 (±6.0) year and duration of taking hypoglycaemic drug taking was 8.9 (±3.3) year (Table-1).

The mean of glycated haemoglobin (HBa1c) among respondents were 7.22 (±1.28) %. However, their mean fasting blood sugar was (FBS) reported 138.99 (±19.37) mg/dl respectively (Table-2).

The difference between gender with practice and glycated haemoglobin (Hba1c %) were found significant at *p*-value (<0.05). However, the work status of the participants with glycated haemoglobin (Hba1c %) was also significant at *p*-value <0.05 respectively (Table-3).

Table-1: Socio-demographic characteristics of participants (n=140)

Variables		n	(%)
Gender	Women	100	69.4
	Man	40	30.6
Marital status	Married	119	82.6
	Widow	21	17.4
Education	Six-year formal education	115	79.9
	Illiterate	25	20.1
Occupation	Housekeeper/ retirement	73	50.7
	Unemployed	67	49.3
Addiction	Non-smoker	116	82.8
	Smoker	24	17.2
	Non-alcohol drinker	98	(70.0)
Family history	Family history of hypertension: unknown	99	(70.7)
Variables		**Mean**	**(SD)**
Age (years)		62.11	7.0
Body Mass Index: BMI (kg/ m^2)		30.03	1.8
Waist circumferences: WC (cm)		88.0	8.1
Suffering from diabetes (years)		13.65	6.0
Duration of taking Medication for diabetes (years)		8.9	3.3

Table-2: Clinical outcome variables (n=140)

Measures	Mean	(SD)
Fasting Blood Sugar was (FBS) mg/dl	138.99	19.37
Glycated Haemoglobin (HBa1c) %	7.22	1.28

Table-3: The significant different between independent and dependent variables (n=140)

Independent variable	Dependent variable	*p*-value
Gender	Practice	0.03*
Gender	Glycated haemoglobin (Hba1c) %	0.04*
Work status	Glycated haemoglobin (Hba1c) %	0.04*

* The mean difference is significant at the .05 level.

DISCUSSION

There is a significant difference between gender and Hba1c with practices among the diabetic patients. Furthermore, the significant difference in work status and Hba1c. The association between gender and Hba1c variables might have been due to the fact that aging DM patients who are female have a better health care to control their Hba1c level and have a better access to receive knowledge about how to take a good care of them. Furthermore, the participants with different work status such as who have more free time could control their blood sugar control better than the one who do not have time to take a good care of their Hba1c. Results have showed significant changes among the gender of participants, where women were more health conscious as compare to man. This difference has also supported by similar kind of studies conducted elsewhere.[13,14] Moreover, this assessment did not reveal any differences in other factors like; taking other medicines and history of other diseases etc. Documented checklist in participants who dislike reported more stressful, blood pressure therefore was measured it might higher. Participants during survey might not have followed the their routine drugs sufficiently by themselves because of individual reasons and/or the social environment.[15] The study was taken place during the Thai festival period and these social environmental factors might have posed barriers.[16] Improving blood pressure is not only depending on exercise, the literature has also discussed the importance of the combination with other lifestyle modifications such as: control weight, sodium restriction, DASH diet, smoking cessation and moderation of alcohol consumption.[17] Findings in this study showed significant changes in both gender and those who had different working styles. This may indicate beneficial effects of the study on improving their blood sugar level. Other studies indicated that health education led to lowering blood glucose level and regular exercising might benefits their health.[18,19]

CONCLUSION

Study revealed that the Practices among diabetes mellitus type 2 patients was poor and have significant different were found in factors like; gender and work status with glycated haemoglobin during this survey. However, an intervention to improve their practices for to control their blood sugar level is recommended.

AUTHORS' CONTRIBUTION

RE: Conceptualize, designed the study and prepared the draft of the manuscript. RS: Reviewed, added intellectual part and supervised research and RK: Analysed and interpretation of data and finalized the manuscript.

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