Factors Related to the Use of Complementary and Alternative Medicine among Diabetic Patients in the Phra Pathom Chedi Community Health Centre, Nakhon Pathom, Thailand

ปัจจัยที่สัมพันธ์กับการใช้ การแพทย์ผสมผสานและแพทย์ทางเลือก ในผู้ป่วยเบาหวาน ศูนย์สุขภาพชุมชนองค์พระปฐมเจดีย์ จังหวัดนครปฐม

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Abstract

Objective: This study was to determine the prevalence and factors related to complementary and alternative medicine (CAM) use among diabetic patients in Thailand.

Method: A cross-sectional descriptive study was conducted on diabetic patients that had registered in the Phra Pathom Chedi Community Health Centre, Nakhon Pathom Province, Thailand. Systematic random sampling was employed to enroll the participants aged 15 years and older who were able to provide personal information and willing to participate. Of total 3,250 registered diabetic patients, 369 were selected. A questionnaire was developed based on the PRECEDE (Predisposing, Reinforcing, Enabling Constructs in Educational Diagnosis, and Evaluation) model and was modified according to the patients. Descriptive statistics were used to describe the prevalence of the utilisation of CAM by the respondents and to analyse the variation. A chi-square test determined the relationship between each independent variable and the outcome variable. Multiple logistic regression was applied to identify the predictor of CAM use among the patients.

Results: The study revealed that the prevalence of CAM usage among the patients was 56.6%. The most popular type of CAM was natural products; such as, herbal products (74.1%) and dietary supplements (39.2%). The bivariate analysis identified that the variables were significantly related to the use of CAM among diabetic patients. There were nine
significant associated variables: gender, age, education, employment status, income, diabetic duration, diabetic complications blood, glucose level, and attitude to CAM use. The multivariate analysis showed that there were six significant variables as predictors of CAM use among the patients: male gender (adjusted OR: 1.68; 95% CI: 1.18-2.62), primary and lower educational level (adjusted OR: 2.75; 95% CI: 1.22–6.19),private business owner occupation (adjusted OR: 8.82; 95% CI: 4.48-17.37), income >10,000 Baht per month (adjusted OR: 14.24; 95% CI: 7.81-25.97), diabetic complication (adjusted OR: 3.72; 95% CI: 2.26-6.12), and high attitude level to CAM use (adjusted OR: 1.61;95% CI: 1.03-2.52). This study revealed that most respondents had poor knowledge towards CAM use (78%) but a high attitude towards CAM utilisation (52.5%).

Conclusion: Due to considerable prevalence of CAM use despite a lack of the knowledge, the diabetic patients should strengthen the knowledge about CAM and skills to use it with awareness. Furthermore, healthcare providers, especially traditional medicine practitioners should cooperate with other healthcare providers in both intra and inter sectoral organisations in order to improve the healthcare services and healthcare system.

Keywords : complementary andalternativemedicine , diabetes , prevalence , predictor
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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาความชุกและปัจจัยที่สัมพันธ์กับการใช้การแพทย์ผสมผสานและแพทย์ทางเลือกในผู้ป่วยเบาหวาน

วิธีการศึกษา: การศึกษาเชิงพรรณนาแบบตัดขวางในผู้ป่วยเบาหวานที่ขึ้นทะเบียนกับศูนย์สุขภาพชุมชนองค์พระปฐมเจดีย์ จังหวัดนครปฐม เก็บตัวอย่างจากการสุ่มแบบเป็นระบบโดยผู้เข้าร่วมมีอายุตั้งแต่ 15 ปีขึ้นไป ผู้ซึ่งสามารถให้ข้อมูลได้และสมัครใจ ได้กลุ่มตัวอย่างทั้งสิ้น 369 คน จากผู้มารับบริการทั้งหมด 3,250 คน แบบสอบถามถูกพัฒนาจากรูปแบบของ PRECEDE model (Predisposing, Reinforcing, Enabling Constructs in Educational Diagnosis, and Evaluation) สถิติเชิงพรรณนาจะใช้บรรยายความชุกของการใช้การแพทย์ผสมผสานและแพทย์ทางเลือกในผู้ป่วยเบาหวานส่วนสถิติเชิงวิเคราะห์จะใช้ในการอธิบายหาปัจจัย โดยใช้สถิติ chi-square ในการหาปัจจัยความสัมพันธ์ระหว่างตัวแปรต้นและตัวแปรตาม สถิติ multiple logistic regression จะใช้ในการทำนายหาปัจจัยของผู้ใช้การแพทย์ผสมผสานและแพทย์ทางเลือกในผู้ป่วยเบาหวาน

ผลการศึกษา: จากการศึกษาพบว่าความชุกของผู้ใช้การแพทย์ผสมผสานและแพทย์ทางเลือกกับผู้ป่วยเบาหวานที่ศึกษาคือ ร้อยละ 56.6 ที่นิยมมากที่สุดคือ ผลิตภัณฑ์จากธรรมชาติ เช่น สมุนไพร ร้อยละ74.1 ผลิตภัณฑ์

เสริมอาหารร้อยละ 39.2 พบว่า มี 9 ตัวแปรที่มีนัยสำคัญทางสถิติ ได้แก่ เพศ อายุ การศึกษา การจ้างงาน รายได้ ระยะเวลาการป่วยด้วยโรคเบาหวาน ผลแทรกซ้อนของโรคเบาหวาน ระดับน้ำตาลในเลือด และทัศนคติในการใช้การแพทย์ผสมผสานและแพทย์ทางเลือก จากการใช้สถิติ multiple logistic regression พบว่า ทั้ง 6 ตัวแปรที่มีนัยสำคัญทางสถิติในการทำนายการใช้การแพทย์ผสมผสานและแพทย์ทางเลือก คือ เพศชาย (adjusted OR: 1.683; 95% CI: 1.182-2.617) การศึกษาระดับประถมศึกษาหรือต่ำกว่า (adjusted OR: 2.751; 95% CI: 1.223–6.189) อาชีพเจ้าของธุรกิจส่วนตัว (adjusted OR: 8.82; 95% CI: 4.48-17.37) รายได้ที่มากกว่า 10,000 บาทต่อเดือน (adjusted OR: 14.24; 95% CI: 7.81-25.97) ผู้ที่มีภาวะแทรกซ้อนต่อโรคเบาหวาน (adjusted OR: 3.72; 95% CI: 2.26-6.12) ทัศนคติที่สูงต่อการใช้การแพทย์ผสมผสาน และแพทย์ทางเลือก (adjusted OR: 1.61;95% CI: 1.03-2.52) การศึกษานี้ยังพบอีกว่าผู้ตอบแบบสอบถามส่วนใหญ่ร้อยละ 78 มีความรู้ต่อการใช้การแพทย์ผสมผสานและแพทย์ทางเลือกที่ต่ำ แต่มีทัศนคติที่สูงต่อการใช้ถึงร้อยละ 52.5

สรุป: ผู้ป่วยเบาหวานมีผู้ที่ต้องการใช้การแพทย์ผสมผสานและแพทย์ทางเลือกมาก ในขณะที่ความรู้เกี่ยวกับการใช้เรื่องนี้มีน้อย ดังนั้นจึงควรที่จะมีการให้ความรู้เกี่ยวกับการใช้การแพทย์ผสมผสานและแพทย์ทางเลือกกับผู้ป่วยเบาหวานเพื่อที่จะสามารถใช้ได้อย่างถูกต้อง ปลอดภัย นอกจากนั้นบุคลากรทางสาธารณสุขอื่นๆโดยเฉพาะแพทย์แผนไทยและแพทย์แผนไทยประยุกต์ที่ทำงานในระบบบริการ ควรที่จะมีการประสานและทำงานร่วมกับเจ้าหน้าที่สาธารณสุขต่างๆ เพื่อที่จะให้เกิดการพัฒนาระบบบริการการแพทย์ที่มีส่วนร่วมของการแพทย์ผสมผสานต่อไป

คำสำคัญ : การแพทย์ผสมผสานและแพทย์ทางเลือก โรคเบาหวาน ระบบบริการปฐมภูมิ ศูนย์สุขภาพชุมชนความชุก

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Introduce

Complementary and alternative medicine (CAM) has become increasingly popular over the past decade.[1-3] Annually, almost half of the Australian people had used at least one complementary remedy[1] and spent almost twice as much on complementary medicines (621 million USD per year) than their contributions to pharmaceuticals. The most popular complementary remedies included chiropractic and homeopathy in the USA and The Netherlands respectively[1-4], and acupuncture in Australia.[4,5] However, there were no specifications in North America, Australia or Europe. On the other hand, the use of CAM has always been very common among Chinese and other Asian patients in various countries: such as, Taiwan, Singapore, and Hong Kong.[6-8] The reasons why patients used CAM have been much discussed, but not fully understood.[9] Moreover, the burden of communicable diseases to chronic non-communicable diseases (NCD) caused mortality of 35 million of the global population in 2008.[10-14], or 60% of all causes of death. In 2009, in Thailand, chronic diseases; such as, stroke, DM, hypertension (HT), chronic obstructive pulmonary disease (COPD), ischaemic heart disease (IHD), musculoskeletal disease, and bone cancer caused the disability-adjusted

life year (DALY) of over 65%.[15, 16] Resources for medical care and rehabilitation have also risen in the last 25 years increasing 17-fold from 2.5 billion THB in 1990 to 43.4 billion THB in 2008. The chronic disease being experienced across the world at present is diabetes. In 2008, cardiovascular diseases (CVDs) were the leading cause of NCD deaths (17 million deaths).Of this number,diabetes caused 1.3 million deaths[15, 16] moreover, the incidence of diabetes has increased worldwide, especially Type 2 diabetes that has a higher prevalence among other health problems in many countries. The latest data from a Thai public health survey found that in the past five years, the prevalence of diabetes has increased twofold.[4,5] The cost of treatment has also significantly increased in the United States, where in 1992, it was estimated to be 250 million USD[17], and was estimated that in 2110, this figure would increase to about 22.5 billion USD. Additionally, a trial study showed that long-term glycemic control found that an average HbA1c gradually increased with the duration of diabetes patients, which inferred that it failed to be controlled over time and increased the overuse of conventional drugs.[4,5] Thus, this disease is caused by the degeneration of the body and organs to control the blood glucose and complications. Furthermore, medical databased evidence showed that over a period of 12 years, HbA1c levels tended to be always higher than 8%; as a result, there is a need to search for alternative medicines and to reduce the cost for diabetic treatment. The use of CAM in Thailand has now become popular, and a survey found that Thailand's current government policy was positive and proactive towards the practice of CAM and had integrated CAM with Western medicine in selected public hospitals. The use of CAM is also a part of the culture and belief in Thailand, and this has attributed to its religiously diverse ethnicity. The Phra Pathom Chedi Community Health Centre in Nakhon Pathom Province was initially established as a riverside pavilion in 1963. By 2012, the Centre had expanded its population base, which became responsible for a population of 30,000 people in the urban areas. The major problems of the area are chronic diseases, diabetesm and HT. In particular, diabetic patients need to maintain continuity because if the control of blood glucose is poor, there are resulting complications Hence, the data above show that diabetes is a major issue that the Phra Pathom Chedi Community Health Centre needs to resolve. For the government policy, it was announced that hospitals should provide more support and focus on primary care services which would enhance a more holistic approach in the community. The driving of an implementation project of CAM in the health system, especially traditional Thai medicine, is to use as optional health services. Therefore, the family physicians should be responsible for these services, particularly for diabetes patients who need continuous care. Nonetheless, there are many factors affecting the healthcare services with little evidence about the knowledge and level of understanding about the CAM used among the patients in Thailand. This would also result in more effective health education programmes

and provide information for the management of the development of CAM usage, which could be integrated with modern medicine, particularly to improve the alternative medicine policy in Thailand in the near future.

Objectives

1. To describe the prevalence of CAM use among diabetic patients.

2. To find the relationship between the CAM use and the socio-demographic factors, predisposing factors, enabling factors, and reinforcing factors. The results would be beneficial as a clinical practice guideline of CAM utilisation among diabetes patients at the policy level, community level, and individual level.

Method

A cross-sectional descriptive study was conducted to find the prevalence of complementary and alternative medicine (CAM) use and to identify the factors related to diabetic patients in the Phra Pathom Chedi Community Health Centre, Nakhon Pathom Province, Thailand. The study population comprised diabetic patients in the Health Centre.These people registered with the Health Centre for more than three months as diabetic patients to maintain continuity. The required sample size for achieving the objective was based on the equation of Krejcie and Morgan; therefore, the sample size needed was at least 303. To protect against information loss from any incomplete data and the withdrawal of participants from this study, the sample size was increased by 10%, so the sample size required for this study was around 369. The participants were selected according to the inclusion criteria: aged above 15 years and willing to participate. Secondly, patients data from a diabetic clinic were collected, and a self-administered questionnaire was modified by experts and used. The questionnaire was developed from the concepts of the PRECEDE model (Predisposing, Reinforcing, Enabling Constructsin Educational Diagnosis, and Evaluation)[6] The questionnaire consisted of 50 statements and interrogations, and was divided into five sections: socio-demographic characteristics of the respondents (11 questions), CAM utilisation (4 questions), knowledge about the CAM utilisation of diabetic patients (9 questions), attitude towards CAM utilisation (11 questions), enabling factors towards CAM utilisation (6 questions), and reinforcing factors towards CAM utilisation (4 questions). After obtaining permission from the Director of the Nakhon Pathom Hospital, and receiving the approval letter from the Ethics Committee, a research volunteer from the Phra Pathom Chedi Community Health Centre was invited to meet the researchers to discuss about the objectives and procedures of the study including the questionnaire, the recruitment method of the subjects, and ethical issues. Data were gathered from the affected respondents from a diabetic clinic and they were accepted on a voluntary basis. To test the validity and reliability of the questionnaire before the data collection, a pretest involved 30 diabetic patients from the Nakhon Pathom Hospital. The reliability of the knowledge and attitude parts was determined using Kuder–Richardson

Formula 20 (KR-20) and Cronbach's alpha. KR-20 was 0.636 and Cronbach's alpha was 0.731. All data were

marked and coded by using Epi Data. The data were analyzed using Minitab. The frequency, percentage, mean, and standard deviation were used as the descriptive statistics to describe the prevalence of CAM utilisation of the population and to analyse the variation. The chi-square test determined the relationship between each independent variable and the outcome variable. Multiple logistic regression was applied to identify the predictors of CAM use among diabetic patients, and all statistical analysis used a significance level of .05.

Results

Table 1 shows that more than half of the respondents (56.6%) utilised CAM and nearly half (43.4%) of these respondents used only OADs. With regard to the frequency of CAM use, most of the respondents (60.3%) utilised CAM more than four times per month, followed by 17.2% of them used CAM two times a month, and 9.1% of the respondents utilised CAM three times a month. Moreover, most of the respondents (64.8%) paid less than 500 Baht per month for the utilisation of CAM followed by 29.1% paid more than 1,000 Baht per month.

Table 1 The respondents' characteristics

Variables	Number	Percent
Types of therapy of the respondents (n=360)		
CAM user	209	56.6
Non-CAM user	160	43.4
CAM user (n=209)		
Frequency of CAM use		
1 time/month	19	9.1
2 times/month	36	17.2
3 times/month	19	9.1
4 times/month	9	4.3
> 4 times/month	126	60.3
Average money spent on CAM use		
< 500 Baht	118	64.8
501-1,000 Baht	10	5.5
> 1,000 Baht	54	29.7
Missing =27		

The effect of the predisposing factors, enabling factors, and reinforcing factors on CAM use among diabetic patients is shown in Table 1. The majority of respondents (36.3%) had suffered from diabetes for 10-20 years, followed by those suffering less than five years (34.7%), and those who had endured diabetes for 5-10 years (24.1%). Secondly, 68.3% of the respondents had no diabetic complications, whereas those with diabetic complications comprised 31.7%. Thirdly, 47.5% of the respondents had a blood glucose level of 81-130 mg/dl, followed by 39.7% of respondents with a blood glucose level of 131-200 mg/dl, and those with a blood glucose level more than 200 mg/dl consisted 12.8%. This study revealed that the knowledge of each respondent according to Bloom's criteria was divided into three groups of good, moderate and poor. The sum of each respondent's scores was needed to be known and calculated in a percentage from the total score of the knowledge part. More than 80% of the respondents had a good level of knowledge, 60-80% of respondents had a moderate level of knowledge, and less than 60% had a poor level of knowledge. Nearly 80% (78%) of the diabetic patients had a poor level of knowledge towards the utilisation of CAM, whereas 22% had a moderate level of knowledge. The attitude of each respondent was divided into two groups. A positive attitude level was equal to, or more than, the median of the total attitude scores; on the other hand, a negative attitude level was less than the median of the total attitude scores.

In the univariate analysis, there were nine significantly associated independent variables of the CAM use among the diabetic patients. These were applied in the multiple logistic regression model to find the predictors of the CAM use among the diabetic patients after adjusting the confounding factors. Table 2 presents the significant predictors of CAM use among the diabetic patients. Gender, educational level, employment status, duration of diabetes, diabetic complication, blood glucose, and attitude level of using CAM were the predictors among the diabetic patients. The most significant predictors of CAM use among the diabetic patients were monthly income of more than 10,000 Baht (adjusted OR = 14.24; 95%CI = 7.81-25.9). Diabetic patients who had an income of more than 10,000 Baht per month had a 14.24 more likely chance to use CAM than those who had an income less than 5,000 Baht per month after controlling other factors.

Table 2 Model of the multiple logistic regression regarding the use of CAM.

Variables	Adjusted OR	95 percent CI of OR Regarding CAM use		P-value
		Lower	Upper	
Gender				
Female	1.00	1.18	2.62	.021*
Male	1.68			

Table 2 Model of the multiple logistic regression regarding the use of CAM.

Variables	Adjusted OR	95 percent CI of OR Regarding CAM use		P-value
		Lower	Upper	
Age				
31-50	1.00			
51-70	1.50	0.75	3.00	.26
> 70	0.70	0.29	1.69	.43
Education level				
No	1.00			
Primary and lower	2.75	1.22	6.19	.01*
Secondary and upper level of education	1.85	0.75	4.55	.18
Employment status				
Private company employee	5.44	2.70	10.97	<.00*
Private business owner	8.82	4.48	17.37	<.00*
Housewife	4.20	2.13	8.26	<.00*
Unemployed	1.00			
Income per month				
<5,000 Baht	1.00			
5,001-10,000 Baht	4.63	2.61	8.24	<.00*
> 10,000 Baht	14.24	7.81	25.97	<.00*
Duration of diabetes				
<5 year	1.00			
5-10 year	0.84	0.48	1.46	.53
>10 year	0.49	0.30	0.79	.00*
Diabetic complication				
Yes	3.72	2.26	6.12	<.00*
No	1.00			
Blood glucose level				
81-130mg/dl	0.33	0.15	0.74	.01*
131-200 mg/dl	0.25	0.11	0.56	.00*
>200 mg/dl	1.00			
Attitude level				
Low	1.00			
High	1.61	1.03	2.52	.04*

Discussion

It was found that the prevalence of CAM use among diabetic patients was 56.6%; thus, the prevalence of CAM usage among DM patients in this study's population was high. This was consistent with findings in other studies.[4] In addition, the current use was higher than studies in Australia (23.6%), Turkey (41%), and the United Kingdom (17%).[17-19] This was also comparable to studies in Taiwan (61%) and Mexico (62%)[21,22] and lower when compared to South Korea (65%), India (67.7%) and the U.S. (72.8%)[23-25] The effects of this current study were much higher compared to the local population study in Thailand (47%)[20] Moreover, previous studies reported that the reasons for DM patients to choose such therapies could be linked to the fact that diabetes is a chronic, devastating, and incurable disease. Patients may have positive views of CAM due to its organic nature, which presented fewer side effects, concerns by doctors' listening skills, preferences to be treated holistically, and the increased availability of CAM.[10,30] The chief points were assumed, as most diabetic patients today gave high trust to conventional healthcare providers and many of them cared about the deficient science that has been proved for its exact efficacy, safety and side effects of CAM. These reasons were consistent with the findings of this study as nearly 90% of diabetic patients held this belief. Furthermore, the external elements of the national healthcare policy of the service plan for Thai traditional and alternative medicine affect the decision-making of the CAM care method. Since 2010, Thai traditional medicine has been available and accessible for Thai patients through the government healthcare service and is free of charge by multi Thai healthcare schemes. Hence, it could be implied that the prevalence of the usage of CAM could be due to the positive attitude of the benefits and treatment of CAM.

In addition, the majority of respondents were female (65.3%) compared to male (34.7%). Previous studies found that older female patients with higher levels of education and household income were more likely to use CAM.[30-32] The conclusion from previous studies indicated that CAM use was much higher in females than males. This classification was based on the distribution of income and healthcare services from the guidelines of the United Nations that were divided into four age ranges, which most of the respondents were aged between 51-70 years (77.8%); simultaneously, people who were older (>70 years old) had more chances than those aged 31-50 years. Thus, the high number of respondents were middle adulthood to the aged group, which might be because of the financial support that most respondents were employed; hence, they were able to afford CAM.

This study also showed that nearly 80% (78%) of diabetic patients had a poor level of knowledge towards CAM utilisation, whereas 22% had a moderate level of knowledge. On the contrary [30, 31], the knowledge of CAM interaction

and adverse response to conventional medicine had the lowest score (14%). By confirming the details of "the taking of herbal products, nutrient supplements and vitamins for a long time with OADs could reduce renal failure" became the second lowest correct answer from the respondents (20.2%). Nevertheless, the participants knew the universal concept of CAM correctly. A quarter of the total number of respondents (24.8%) understood the concept of body and mind therapy of CAM; such as, yoga, tai chi, massage, and acupuncture that was emphasised not only for physical rehabilitation, but also relevant to mind rehabilitation. For the attitude towards CAM, the respondents mostly agreed that multiple therapies were more beneficially appropriate than only one therapy (88.3%), and most of the diabetic patients (92.7%) trusted the doctors, nurses, and pharmacists in having the knowledge and quality to take care of diabetic patients. They felt happy after using CAM (80.3%), had better social communication with others (54.4%), a feeling of more healthiness (89.7%), and improved immune system (88.6%). The report found that the attitude of benefits was mainly significantly associated with CAM use. This was because CAM created the benefit of happiness in the mind and more healthiness in the physical body; this was the definition of holistic care from CAM usage. Another study reported that CAM practitioners could provide proper services and product information which the patients' understood the methods of treatment rather well (72.2%).[31] Some reports found that the utilisation of CAM, could reduce the severity of the complications from diabetes (55.6), but CAM could not reduce the side effects of the OADs (38.7%), which seemed to lower the situation and effect of CAM. It was also reported to reduce the side effects of diabetes and the complications of antihyperglycemic drugs.[26] The attitude of CAM to relief the pain of any part of the body from massage, vitamins, dietary supplements and herbal products was high (68.7%). This was consistent with most diabetic patients, who often experienced chronic pain problems and sought alternative medical therapies.[25] Additionally, this was possibly the reason that the policy of opening a parallel Thai traditional medical clinic in hospitals was available, which could significantly increase the number of patients and the use of Thai herbal medicines.[24]

In the multivariate analysis, gender, educational level, employment status, duration of diabetes, diabetic complication, blood glucose, and attitude level to use CAM were predicted among diabetic patients. The odds of using CAM were higher among people who had sufficient income (>10,000 Baht per month) comprising diabetic patients with complications and high attitude levels. The most significant predictor was a high income of > 10,000 Baht/ month. Furthermore, the diabetic patients who used CAM were promoted by sufficient income and the ease of accessibility of a CAM product or service. The research findings about the predisposing factors were the significant predictors of CAM usage, duration of diabetes,

diabetic complication, blood glucose level, and attitude to use CAM. These current findings were consistent with previous CAM studies among diabetic patients, which was examined by Hoogbruin.[14]The researchers affirmed many influential factors that caused CAM usage like greater education and financial resources, and other factors also influencing their decisions were the symptoms, adverse effects, immunological change, quality of life, personal beliefs, as well as the quality of the health service.[10,34] There was evidence of a study supported that the predisposing factors, biopsychological beliefs, and the positive attitude to CAM usage should be empowered to improve the health behaviour among diabetic patients.[27,29] The availability and accessibility comprised two required basic standards including the acceptability and quality for the norm of the right to health. Not only did the health facilities and goods require the four key factors, but the healthcare services also needed to support the idea of the patients' rights. The finding found that CAM products or services were easy to access (33.6%) and sufficient (79.6%) among diabetic patient respondents. Additionally, easy access was significantly associated with the use of CAM of diabetic patients with the multivariate analysis in previous studies.[28] This affirmed the importance of the accessibility and availability of CAM use in the healthcare system particularly among diabetic patients because appropriate accessibility would reduce discrimination including the physical, geographic and economic barriers for diabetic people. The finding of the respondents had a high level of support towards their CAM use (53.5%), and the majority in peer support made the decision to buy or use a CAM product or service. Nonetheless, more than 80% of the respondents said that there was rarely any support by a health professional in the decision to buy or use a CAM product or service. However, a study showed that a CAM barrier was a doctor's perception of CAM as a warning consideration. The result was supported by a previous study on the cost and lack of the follow-up receptivity from their physician.[33]

Conclusion

This cross sectional study was conducted to determine the prevalence and factors related to CAM usage among diabetic patients. From the total of 369 respondents who agreed to join this study, the prevalence of CAM use among diabetic patients was 56.6%. The most popular type of CAM was natural products; such as, herbal products, vitamin-mineral products, dietary supplements followed by a group of manipulative and body based practice, and other CAM practices; such as, prayer. The most common reasons for CAM usage among diabetic patients could be categorised into three main aspects. Firstly, to promote health and to prevent any illnesses related to diabetes; secondly, to reduce the appearance of diabetes related symptoms; and thirdly, to fulfil the definition of a holistic approach to respond to the psychosocial demand. Diabetic patient respondents spent an average of approximately

less than 500 Baht per month for CAM and used it more than four times per month. Most diabetic patient respondents had poor knowledge towards CAM utilisation, whereas there was a high attitude towards CAM use. From the chi-square analysis, there were nine factors with significantly associated variables regarding the CAM use of diabetic patients. In the multivariate analysis, gender, educational level, employment status, income, duration of diabetes, diabetic complication, blood glucose and attitude level were the significant predictors of CAM usage among diabetic patients.

Recommendations

As most of the respondents were found to have an inadequate knowledge of CAM usage, diabetic patients should receive support for more knowledge and knowledge sharing and learning of CAM use, which should be promoted even more. From the finding, the respondents had a high level of trust to the conventional healthcare providers. Thus, disclosure and more discussion for the health professionals would be important because the wellness professional could train and motivate the appropriate means for using CAM. Diabetic patients should be informed directly by the physician of any CAM adverse effects occurring, as well as be aware to report to the health professional to monitor and provide the proper management. The database evidence could also be researched through the beneficial relationship between health, medical providers and patients. As CAM usage among the respondents was affected by the enabling factors, including availability and accessibility of the products, family member support, peer and health professional and community influence were other very substantial influences for determining the use of CAM. Additionally, the healthcare provider, especially those who applied Thai traditional medicine practitioner programme services should cooperate with the governmental organisations in order to improve the knowledge of CAM. The 59 healthcare practitioners should also provide evidence-based information on safety issues, efficacy, and potential interactions between the commonly used CAM treatments. Moreover, there was the variation of CAM usage in terms of the prevalence, types of CAM, frequency to use CAM or meeting CAM practitioners, efficacy, adverse effects, and character of life improvement. Thus, a longitudinal design could render more precise data about the variation of CAM use together with patients' disease experience, as well as clinical research study designs should be also conducted to increase clinical verification.

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