

Complementary and Alternative Medicine Use among Adults with Diabetes in Muscat Region, Oman

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استخدام الطب المكمل والبديل عند البالغين المصابين بداء السكري في منطقة مسقط، سلطنة عُمان

رحمة الكندية، منى المشرفية، منى الربعانية، إبراهيم الزكواني

الخلاصة: الهدف: إن استخدام الطب المكمل والبديل لداء السكري يحظى بشعبية متزايدة، ولكن لا يعرف الكثير عن مدى انتشار استخدامه عند المرضى المصابين بداء السكري في سلطنة عُمان. الهدف: تقدير معدل انتشار استخدام الطب المكمل والبديل عند مرضى السكري في منطقة مسقط، سلطنة عُمان، وتحديد أنواع الطب المكمل والبديل الأكثر انتشاراً، بالإضافة إلى التعرف على الخصائص الديموغرافية المؤثرة في استخدام الطب المكمل والبديل. الطريقة: تم تنفيذ هذه الدراسة من شهر مايو إلى أغسطس 2009 على مرضى السكري في أربعة مراكز صحية في منطقة مسقط، حيث أجريت مقابلات مع 146 مريضاً. تم الحصول على معلومات عن الخصائص الديموغرافية، ومدى انتشار ونمط استخدام الطب المكمل والبديل. النتائج: استخدم اثنان وستون (42%) من مرضى السكري الذين تمت مقابلتهم الطب المكمل والبديل لعلاج داء السكري. ثلاثون منهم (48%) كانوا راضين عن استخدامه و27 (43%) ينوون استخدامه مرة أخرى. وكانت أنواع الطب المكمل والبديل الوحيدة المستخدمة في هذه الدراسة هي الأعشاب (49 مريضاً، 79%)، و / أو المكملات الغذائية (7 مرضى، 11%). وكان المصدر الرئيسي للمعلومات عن الطب المكمل والبديل في علاج داء السكري هم العائلة والأصدقاء (47/62 مريضاً، 76%) و / أو المعالجين الشعبيين (19 مريضاً، 31%). لم يكن هناك ارتباط معتاد بين الخصائص الديموغرافية واستخدام الطب المكمل والبديل لداء السكري. الخلاصة: يستخدم الطب المكمل والبديل على نطاق واسع لداء السكري في منطقة مسقط، سلطنة عُمان، كما أن لدى المرضى إيمان قوي في الطب المكمل والبديل من حيث السلامة والفعالية. على الأطباء إدراك هذه الحقيقة وأن يكونوا على استعداد للحدوث بحرية أكبر مع المرضى حول استخدام الطب المكمل والبديل والآثار الجانبية المحتملة.

مفتاح الكلمات: الطب المكمل، الطب البديل، الطب المكمل و البديل، داء السكري، عُمان.

ABSTRACT: Objectives: The use of complementary and alternative medicine (CAM) for diabetes mellitus is becoming increasingly popular; however, little is known about the prevalence of CAM use in patients with diabetes mellitus in Oman. The objectives of this study were to estimate the prevalence of use of CAM among diabetic patients in Muscat region, Oman, and to determine the types of CAM used as well as to identify the demographic features influencing the use of CAM. **Methods:** The study was performed from May to August 2009 on diabetic patients from 4 health centres in Muscat region. A total of 146 patients were interviewed. Information was obtained on demographics, and the prevalence and pattern of use of CAM. **Results:** Sixty two (42%) of the participants used CAM for the treatment of diabetes. Thirty (48%) were satisfied about its use and 27 (43%) intend to use it again. The only types of CAM used by participants in this study were herbs (n = 49, 79%), and/or food supplements (n = 7, 11%). Family and friends (n = 47/62, 76%) and/or traditional healers (n = 19, 31%) were the main source of information on CAM in the treatment of diabetes. There was no significant correlation between demographic characteristics and the use of CAM for diabetes. **Conclusion:** CAM is used widely for diabetes in Muscat region, Oman. Patients have strong faith in CAM in terms of effectiveness. Doctors should recognise this and be prepared to talk more freely with patients about its use and potential side effects.

Keywords: Complementary medicine; Alternative medicine; Complementary and alternative medicine (CAM); Diabetes mellitus (DM); Oman

ADVANCES IN KNOWLEDGE

1. This study is the first in Oman to explore the use of complementary and alternative medicine (CAM) in patients with diabetes. It is the key for further research in this field with the hope of improving management of people with diabetes.
2. This study has shown how common the use of CAM is in Oman.

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3. *This study should generate an open attitude to CAM among Western health professionals and encourage the development of guidelines and regulations on the use of CAM.*
4. *This study should help to identify CAM practices and determine their safety and effectiveness.*

APPLICATION TO PATIENT CARE

1. *Complementary and alternative medicine practices are commonly used, but not totally devoid of risk.*
2. *This information needs to be disseminated to the public and health professionals by: a) educating and training health professionals about CAM and its popularity in our community; b) encouraging doctors to ask patients about their use of CAM and persuading them to talk about it. This would avoid delays in seeking medical treatment and further complications; c) encouraging patients to report side effects of CAM.*
3. *Integration between Western medicine and complementary and alternative medicine could result in both being provided at the same health care facility. This would avoid the risks of negative CAM-drug interactions.*

OMAN HAS A LONG HISTORY OF USING traditional and herbal remedies; however, few studies have been conducted in the country.^{1,2,3} These remedies are supplied by traditional healers, or self-obtained, and are administered in the management of a wide variety of both acute and chronic conditions. Despite the extensive development of the health care system in Oman and the availability and accessibility of free health facilities and drugs, traditional medicine is still widely used.

Traditional medicine, or complementary and/or alternative medicine (CAM) refers to “health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being.”⁴ CAM has maintained its popularity in all regions of the developing world and its use is rapidly spreading in industrialised countries.⁵ For instance, in Africa, 80% of the population uses traditional medicine to help meet their health care needs.⁶ In Europe, North America and other industrialised regions, over 50% of the population have used CAM at least once in their lives.⁷

The use of CAM among diabetics is common. A recent review of 18 studies from 9 countries showed that the prevalence of CAM use among patients with diabetes varied from 17% to 72.8%. Most of the studies reviewed were conducted in developed countries and the majority of papers were derived from the USA and Australia.⁸ In developing countries, such as Saudi Arabia, 17.4% of patients with diabetes in Riyadh⁹ and 30% in Mecca¹⁰ used some forms of herbs. In the United Arab Emirates, 76% of patients with diabetes had previously used herbs and 38% were currently using some forms of

CAM.¹¹ In Bahrain, 63% of patients with diabetes had used CAM within the previous 12 months.¹²

Of all chronic diseases, diabetes mellitus has emerged as a major and growing health problem in Oman. The Oman National Health Survey of Diabetes, conducted in 1991, showed that the prevalence of diabetes is 9.75%, while the follow-up survey in the year 2000 showed an increase in the prevalence to 11.6% among adults over 20 years of age.¹³⁻¹⁵ The prevalence estimate of diabetes mellitus in Oman by the International Diabetes Federation (IDF) in 2010 is 13.4% and is expected to increase in the next 25 years.¹⁶

This makes diabetes the second most common cause of morbidity in males and females above the age of 45 years and the fourth highest cause of death.¹⁷ To our knowledge, no studies have yet emerged from Oman on the use of CAM by patients with diabetes. Therefore, this study was conducted to determine the prevalence of CAM use among patients with diabetes mellitus in the Muscat region and to reveal the types of CAM most commonly used as well as the factors contributing to their use in terms of demographic characteristics and disease features.

Methods

A multi-centric, cross sectional study was conducted over a 4-month period from May to August 2009 in four health centres in the Muscat region namely Ruwi, Wadi Al-Kabir, South Mawaleh, and Al-Khoudh. Each of these health centres serves a population of approximately 500 patients with diabetes. The diabetic clinics in these health centres are well developed in terms of availability of a diabetic register, appointment system, trained family physicians and a wide range of modern

pharmacological anti-diabetic medications.

The target population of this study was patients with diabetes mellitus attending primary health care facilities. All patients (N = 146) attending the diabetes or general clinics in these health centres during the study period were enrolled in the study. The following people were excluded: patients who did not speak Arabic or English; those with dementia or learning difficulties; those with no time to complete the questionnaire; people who visited the health centres for purposes other than patient care, and those who refused to give consent.

Face-to-face interviews were conducted by trained family medicine residents using a pre-coded and pre-tested questionnaire that was developed by the authors based on a pilot study and previous similar studies to assess the use of CAM by patients with diabetes.⁹⁻¹² The types of CAM used were defined based on the US National Center for Complementary and Alternative Medicine (NCCAM) categorisation of CAM.¹⁸ The questionnaire was translated into Arabic and the interview was conducted in Arabic. Inquiry was made into demographic characteristics and type and duration of diabetes. In addition, records were reviewed to determine the presence of complications and co-morbidities, treatment, and the status of blood glucose levels during the three months prior to the study. A glycosylated haemoglobin level of <7% was taken to reflect a controlled blood glucose level.

Participants were also asked whether they had used CAM in general, and in particular for the treatment of diabetes. Among users of CAM, detailed information was obtained on: CAM use during the previous year; current use; type and frequency of use; source of information about CAM; extent of satisfaction and side effects (if any); use with prescribed medication/s; whether information on CAM use had been given to the treating physician, and intention of using CAM again. Finally, interviewees were asked to give their opinion on the safety and efficacy of CAM compared to modern medicine.

Descriptive statistics were used to describe the data. For categorical variables, frequencies and percentages were reported. Differences between groups (CAM status, yes/no) were analysed using Pearson's χ^2 tests (or Fisher's exact tests for cells less than 5). For continuous variables, mean and

standard deviation were used to present the data while analysis was performed using the student's t-test. An *a priori* two-tailed level of significance was set at the 0.05 level. Statistical analyses were conducted using STATA, Version 11.0 (STATA Corporation, College Station, TX, USA).

Informed consent was obtained from all participants before the interview. Ethical approval for the study was granted in 2009 by the Medical Research & Ethics Committee of the College of Medicine & Health Sciences at Sultan Qaboos University, Oman.

Results

This study included a total of 146 patients with diabetes mellitus type 1 (n = 6, 4%) and type 2 (n = 140, 96%). The majority of patients (n = 136, 93%) were Omani nationals. More than half of these patients were women (n = 84, 58%), and in the age group 46 to 65 years (n = 82, 56%) [Table 1].

The duration of diabetes ranged from 2 months to 40 years (mean 8.48 ± 6.5 years). Nearly a third of the patients (n = 56, 38%) reported the presence of one or more complications including retinopathy (n = 21, 14%), ischaemic heart diseases (n = 18, 12%), nephropathy (n = 17, 12%), neuropathy (n = 11, 8%), and transient ischaemic attacks and strokes (n = 4, 3%). Co-morbidities were reported by 105 (72%) of the patients including hypertension (n = 76, 52%), dyslipidemia (n = 17, 12%), gastrointestinal diseases (n = 14, 10%), joint diseases (n = 13, 9%) and mood disorders (n = 44, 30%). A review of the records for these patient for the 3 months prior to the study revealed that 109 (75%) of the patients had uncontrolled blood glucose levels.

Table 1 reveals that users and non-users of CAM for the treatment of diabetes are comparable in regard to their demographic and clinical characteristics. The ever use of CAM was reported by 76 (52%) of patients. A total of 42% (n = 62) of those who had ever used CAM had used it specifically for the treatment of diabetes. Just over a quarter of these patients (n = 41, 28%) had used CAM within the last 12 months and 28 (19%) were current users. The main types of CAM used were herbal remedies (n = 49/62, 79%) and/or food supplements (n = 7/62, 11%). Most herbal remedies were in mixed/compounded forms and more than half of the patients (n = 36/62, 58%) had used

Table 1: General characteristics of the study participants stratified by use of complementary and alternative medicine

Characteristics	Total frequency (N = 146)	Use of complementary and alternative medicine in diabetic patients		P value
		Yes n = 62 (42%)	No n = 84 (58%)	
Age, n (%)				
21–34	8 (5%)	2 (3%)	6 (7%)	0.586
35–45	32 (22%)	16 (26%)	16 (19%)	
46–55	38 (26%)	18 (29%)	20 (24%)	
56–65	44 (30%)	18 (29%)	26 (31%)	
66–88	24 (16%)	8 (13%)	16 (19%)	
Sex, n (%)				
Female	84 (58%)	32 (52%)	52 (62%)	0.214
Marital status, n (%)				
Married	123 (84%)	52 (84%)	71 (84%)	0.915
Education, n (%)				
Illiterate	63 (43%)	23 (37%)	40 (48%)	0.185
School	58 (40%)	30 (48%)	28 (33%)	
Post-school	25 (17%)	9 (15%)	16 (19%)	
Nationality, n (%)				
Omani	136 (93%)	60 (97%)	76 (90%)	0.190
Diabetes mellitus (DM) type, n (%)				
DM Type 2	140 (96%)	60 (97%)	80 (95%)	1.000
Duration of DM, n (%)				
<5 years	42 (29%)	21 (34%)	21 (25%)	0.184
5-7 years	34 (23%)	9 (15%)	25 (30%)	
8-10 years	37 (25%)	17 (27%)	20 (24%)	
>10 years	33 (23%)	15 (24%)	18 (21%)	
Control of blood glucose (<7% HbA1c), n (%)				
Controlled	37 (25%)	14 (23%)	23 (27%)	0.510
Complications* present, n (%)				
Yes	56 (38%)	22 (35%)	34 (40.48)	0.540
Concurrent diseases present, n (%)				
Yes	105 (72%)	47 (76%)	58 (69%)	0.369

* Complications include retinopathy, nephropathy, neuropathy, ischaemic heart diseases, transient ischaemic attacks and stroke.

several types of herbal remedies. “Harmel” (*Rhazya stricta*) (n = 6/62, 10%), fenugreek (*Trigonella foenum*, Arabic “helba”) (n = 5/62, 8%) and black seeds (*Nigella sativa*) (n = 4/62, 6%) were the most commonly used.

Among those who used CAM for the treatment of diabetes, 48% (n = 30) expressed satisfaction with its use and 44% (n = 27) stated that they intend to use it again. In addition, 23% (n = 14) perceived CAM as more effective than modern medicine and 27% (n = 17) as safer. Interestingly, 45% (n =

28) of the participants were taking herbal remedies concurrently with their Western anti-diabetic medications and only 13% (n = 8) of them had informed their treating physicians about CAM use. The main source of information on CAM for the treatment of diabetes was family and friends (n = 47, 76%) and/or traditional healers (n = 19, 31%). The self-reported rate for adverse events associated with CAM use was 13% (n = 8).

Discussion

The present study has shown that 42% of the diabetic patients had used CAM in the treatment of diabetes and 28% had used CAM in the previous 12 months. This is comparable with other similar studies in the Gulf States such as Saudi Arabia (30%),¹⁰ the United Arab Emirates (38%)¹¹ and Bahrain (63%)¹² as well as in the USA (73%),¹⁹ and India (68%),²⁰ but it is higher than in Australia (24%) and the UK (17%).²¹ This variation can be due to the use of different CAM definitions and the different timeframes of the studies as well as to different cultures. In our study, the types of CAM used were defined based on the NCCAM categorisation of CAM.¹⁸

There was no significant association between the use of CAM and the socio-demographic or clinical characteristics of the participants. Furthermore, the use of CAM was not associated with either blood glucose level, glycosylated haemoglobin A1C control or the presence of complications or concurrent illnesses. This could be due to the small sample size and the fact that the participants were health centre patients. This is particularly important as patients in the community may be using CAM more frequently and the way they use it may be different. The common types of CAM used users were herbal remedies and food supplements. The composition of most of these local remedies is not known as they are passed on from generation to generation and purchased ready made from the traditional healers or market (*souk*) outlets. Most of the patients had listed a variety of herbal mixtures and a few specified the name of the herbs used like *harmel*, fenugreek, and black seeds. The number of people taking herbal and modern medicines at the same time was high. The potential for adverse interactions with modern medicines is therefore very likely. This issue needs to be recognised by physicians to ensure that patients are not putting themselves in unnecessary danger. An appreciable number of people reported adverse effects while taking herbal products; however, it is almost impossible to establish causality because most of them took mixed herbs and the survey relied mainly on their recall.

Participants relied heavily on family and friends for advice on CAM use. Health education on this matter should be simultaneously provided to patients and their families. Moreover, education

is recommended to inform their doctors about its use since the majority of patients did not inform their doctors, while simultaneously almost half expressed satisfaction with CAM use and intended to use it again. Patients may be worried regarding the negative attitude of doctors towards the use of CAM so they do not inform their doctors about it. Therefore, a more positive attitude from doctors may encourage patients to talk more freely regarding their use of CAM.

Participants had a strong faith in herbal medicines with regard to their effectiveness and safety. Nearly 25% of respondents indicated that CAM is more effective and safer than modern medicine in treating diabetes. This result will have important health implications if confirmed on a larger sample. Over-reliance on ineffective herbal remedies could lead to people either refraining from using or delaying the use of more effective modern medicine. This study also shows that CAM users have higher expectations of CAM than they do of conventional therapies. Therefore, physicians should recognise their patients' underlying desire for improving their health status and be able to advise patients on the use of CAM.

Faith in CAM use is probably part of national heritage. These products have been used for generations with no apparent harm. This view is reinforced by family and friends who are the main influences on respondents' decisions to use CAM. This, however, is not culturally unique as other studies in the region have shown that family and friends are intensely involved in decision making regarding the use of herbal medicine.^{9,11} Many researches have studied the anti-diabetic effects of some herbs and plants. However, the safety and efficacy of these herbal treatments are still to be determined.²² Patients may be putting themselves at risk by the use of these treatments.²³ Some herbal products contain powerful substances that can be toxic either alone or in combination with other medications.²⁴ The most important risk is that CAM is used as a true alternative to conventional treatments for serious medical conditions. In addition, there is no control over the quality of these products, which can be easily purchased in special outlets in the market (*souk*). Herbal remedies are widely considered to be inexpensive, but this is often not the case. This specific aspect of CAM use needs to be studied in a proper clinical setting.

With the increasing importance of CAM in modern health care, medical and nursing education should include information about complementary practices.²⁵ Physicians will be increasingly expected to address issues related to CAM use, but may not be able to become knowledgeable about all CAM practices. However, they can apply the principles of evidence-based medicine to CAM as to any area of health care.²⁶ Physicians can search the published medical literature and evaluate the applicability of CAM for specific patient problems.

The study has several limitations. The real percentage of CAM use in the treatment of diabetes might be found to be higher than that reported if the duration of the study were extended, and especially if extended to the community level. This is particularly important as patients in the community may be using clinical services less frequently and the way they use CAM may be different. This study was conducted in only one region and the results may not be generalisable to diabetic patients in other regions of Oman or to the entire country.

In addition, this study did not investigate the objective effectiveness of CAM on diabetes, such as showing that patients' blood glucose was not controlled on their conventional therapy, but became controlled when CAM was added or substituted. Further research will be required involving many regions and to obtain data on any health benefits achieved through CAM usage.

Conclusion

This study found out that many diabetic patients used CAM and most of those patients used herbal remedies. Family and friends played a significant role as sources of CAM information. Many patients did not inform their doctors about CAM use, taking them simultaneously with anti-diabetic medications, and had the intention to use them again. Doctors should recognise that CAM is widely used by diabetic patients and should appreciate that these medicines can cause adverse effects. Doctors should therefore be prepared to question their patients and try to encourage them to talk about their use of CAM as it may affect the outcome and the management of their disease.

CONFLICT OF INTEREST

The authors reported no conflict of interest.

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