Patterns of belief and use of traditional remedies by diabetic patients in Mecca, Saudi Arabia

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أنماط المعتقدات واستخدام العلاجات الشعبية لدى السكّرين في مكة المكرمة

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الخلاصة: أجريت مقابلات شخصية مع عينة من السكّرين في المملكة العربية السعودية تضم 1039 مريضاً سكّرياً باستخدام استمارة تتضمّن معلومات حول المعتقدات السائدة حول المعالجات العشبية الشعبية. وتم تقييم العلاقة بين أحراز المعتقدات وبين المتغيرات المتعلقة بالسكري وبالوضع الاجتماعي والديمغرافي باستخدام اختبار خي مربّع. وقد أوضحت الدراسة أن 15.6٪ من أفراد العينة يعتقدون بأن الأدوية الشعبية مأمونة وفعّالة، وأن 25.8٪ منهم يعتقدون بأنها قد تكون مفيدة. وأن ثلث المرضى كانوا يستخدمون العلاجات الشعبية، وظهر ترابط إحصائي هام بين الاعتقاد بفائدة الأدوية الشعبية وبين بعض المتغيرات مثل الجنس الأنثوي ورجود سوابق عائلية للإصابة بالسكري، وفترة الإصابة بالسكري، والامتثال للنظام الغذائي. ولم تكن هناك علاقة بين المتغيرات الخاصة بالامتثال للمعالجة أو بالسيطرة على سكر الدم أو على الوزن. وينبغي بذل الجهود لتعزيز التثقيف لدى السكرين بالاستناد على الممارسات المسندة بالبيّنات.

ABSTRACT A sample of 1039 diabetic patients in Saudi Arabia was interviewed using a structured question-naire about belief in traditional herbal remedies. The relationship of belief scores to sociodemographic and diabetes-related variables was assessed using chi-square tests. The study showed that 15.6% of the sample believed that traditional medicines were safe and effective and 25.8% that they might be beneficial. One-third of patients were using traditional remedies. A statistically significant relationship was shown between belief in traditional medicines and variables such as female sex, positive family history of diabetes, duration of diabetes and compliance with diet. However, there was no relationship with other compliance variables or with glucose and weight control. Efforts should be made to enhance diabetic education among patients on the basis of evidence-based practice.

Degré de confiance et recours des patients diabétiques aux remèdes traditionnels à la Mecque (Arabie saoudite)

RESUME Un échantillon de 1039 patients diabétiques en Arabie saoudite a été interrogé au moyen d'un questionnaire structuré sur la confiance dans les remèdes traditionnels à base de plantes. La relation des scores concernant la confiance avec les variables sociodémographiques et liées au diabète a été évaluée à l'aide du test du khi-carré. L'étude a montré que 15,6 % de l'échantillon croyait que les médicaments traditionnels étaient sûrs et efficaces et 25,8 % qu'ils pouvaient être utiles. Un tiers des patients utilisaient des remèdes traditionnels. Une relation statistiquement significative a été montrée entre la confiance dans les médicaments traditionnels et des variables telles que le sexe féminin, les antécédents familiaux de diabète, la durée du diabète et l'observance du régime alimentaire. Toutefois, il n'y avait pas de relation avec d'autres variables de l'observance ou le contrôle de la glycémie et du poids. Des efforts devraient être déployés pour promouvoir l'éducation diabétique chez les patients sur la base de la pratique factuelle.

Introduction

The use of traditional (alternative) medicine in the management of chronic diseases is well known in developing countries [1–4]. Traditional medicine is also practised to varying degrees in the industrialized countries [5,6]. In 1990, Americans made 425 million visits to alternative practitioners, 40 million more times than they visited their family physicians. A total of US$ 13.7 thousand million was spent on this care and this is increasing [7,8]. In Saudi Arabia, many reports have described the prevalence, pattern, cost and complications associated with types of alternative medicine practised [9–12].

The present time is an era that is characterized by advances in the management of diabetes mellitus in the form of new drugs, new sources of insulin, and new approaches to a diabetic diet; all of which are backed up by evidence-based practices recommended for physicians.

Many patients seek out alternative medicine after they have tried conventional medicine and found it to be ineffective or to result in side-effects [11]. Traditional herbal remedies have been used for the treatment of diabetes mellitus in many communities, especially in Asia [6,13]. The types of traditional therapies used by patients include prayer, faith healing, unusual diets, herbal treatments, pearl therapy and many others [14]. The practice of traditional medicine may result in problems of compliance with the aspects of modern medical management, and may expose patients to hazards of traditional remedies that have not been scientifically tested [12,15,16]. The aim of this study was to assess the frequency and pattern of belief in and use of traditional herbal remedies among diabetic patients in Mecca, Saudi Arabia.

Methods

A cross-sectional study was carried out during 1999. Mecca is served by 7 government hospitals plus other private hospitals and dispensaries. The study population was the diabetic patients registered at primary health care centres. The total number of patients registered was 11 614, distributed among 67 primary health care centres. A sample size of 10% was selected using a two-stage stratified random sampling technique with proportional allocation. Out of a total sample of 1162 patients interviewed, only 1039 patients gave full data. Those who gave incomplete or unclear data were excluded from the study thereafter, following unsuccessful efforts to recontact them.

Data were collected by pre-trained primary health care physicians by direct interviewing of patients. The tool for data collection was a structured questionnaire. The questionnaire was composed of sociodemographic variables, and questions about management of the illness and compliance with drugs, diet and follow-up visits. For each patient, body mass index was measured, the last 3 fasting blood sugar and positive urinary glucose levels were noted from the patient's records, and any documented complications of diabetes mellitus were noted from the patients' records.

The sociodemographic variables were: age; sex; nationality (Saudi Arabian or not); and education level, categorized as low (no education, primary or preparatory level), average (secondary school level) and high (university level or higher). The diabetes-related variables were: duration of diabetes (< 5 or 5+ years); family history of diabetes mellitus (presence or absent); continuity of care (follow-up always in the same centre or in different centres); regularity of follow-up visits (regularly every 3 months, or irregularly); and annual number of visits to

the health centres (< 6 or 6+ per year) from patients' recall.

The management variables were: blood sugar control (controlled ≤ 126 mg on last 3 measures or uncontrolled); body mass index (normal ≤ 25 mg/kg² or high > 25 mg/kg²); compliance with diabetic drug therapy (compliant or non-compliant from patients' recall); and compliance with diet (compliant or non-compliant from patients' recall).

To assess beliefs, patients were asked about beliefs in herbal therapy and traditional healer prescriptions and were given a list of 16 questions related to the belief in use and benefit of traditional medicinal preparations for treating diabetes mellitus. If a patient's response indicated a belief in benefit from a traditional remedy he or she was assigned a score of 1, otherwise, 0. All scores were totalled to represent an overall belief score for traditional remedies. A high belief score was defined as a score above the median score for the group.

Data were analysed using the *Statistical package for social sciences* (*SPSS* version 8.0). Frequency distributions were generated and a χ^2 test was employed to assess the significance of differences between categories. A P value of < 0.05 was considered statistically significance.

Results

Of a total sample of 1039 subjects, 162 (15.6%) diabetic patients believed that traditional herbal medicines were safe and effective for treating diabetes and 268 (25.8%) believed that traditional healers' medicines might be beneficial. The number of patients who actually used traditional remedies for treatment of diabetes was 313 (30.1%).

As regards belief in the benefits of specific traditional remedies, the highest frequency (55.1% of patients) was for black cumin (*Nigella sativa*). The frequency of belief in 10 bitter substances ranged from almost 6% for *kowshair* to over 47% for *aloe vera*, while sweet substances such as honey and dates were believed to be beneficial by around 36% and 17% of patients, respectively (Table 1).

Examples of traditional herbal remedies actually taken by one-third of patients are shown in Table 2; most of the preparations were extracts of bitter plants. Fenugreek (*halba*) was the most commonly used (by 6.1% of patients).

The total number of diabetic patients who had a high belief score (above the median for the group) for traditional remedies was 404 (37.6%). The score was significantly higher among female patients than males ($P < 0.04$), but it did not show any statistically significant variation with respect to age, nationality or education level (Table 3).

The traditional remedy belief score was significantly higher among patients who had a positive family history of diabetes mellitus ($P < 0.001$) and also among patients who had a disease duration of 5 years or more ($P < 0.05$). However, there was no significant variation in the score regarding continuity of care status, regularity of follow-up or total annual number of visits to the primary health care centre (Table 4).

On the other hand, a high belief score was significantly more frequent among patients who claimed that they were compliant with a diabetic diet ($P < 0.001$). No significant variation in score was observed with respect to diabetic control status as represented by fasting blood glucose, body mass index or (self-reported) drug compliance (Table 5).

Table 1 **Diabetic patients' belief in some traditional remedies used for diabetes mellitus**

Traditional remedy			Believe in remedy (n = 1039)	
English name	Local name	Latin name	No.	%
Black cumin	Habbah soda	Nigella sativa	572	55.1
Aloe vera	Saiber	Aloe vera	492	47.4
—	Murrah	—	446	42.9
Garlic	Thoum	Allium sativum	437	42.1
Onion	Basal	Allium cepa	433	41.7
Honey	Aasal	—	369	35.5
Pomegranate	Roman, queshr	Punica granatum	328	31.6
Rosemary	Loban	Rosmarinus officinalis	300	28.9
White lupin	Termis	Lupinus albus	294	28.3
Asafoetida	Haltit	Ferula assa-foetida	216	20.8
Barley	Shaeer	Hordeum vulgare	211	20.3
Wormwood	Sheeh	Artemisia judaica	201	19.3
Dates	Tamer	—	181	17.4
Fenugreek	Halba (hilbatu-alkhail)	Trigonella foenum-graecum	145	13.9
—	Raes mahakim Tabuk prescription[a]	—	87	8.4
—	Kowshair	—	61	5.9

n = total number of patients questioned.

[a]Patients are instructed to drink a lot of water to "wash out diabetes".

Discussion

This study found a high prevalence of use of traditional medicines (30.1%) among patients with diabetes mellitus in Saudi Arabia. This figure is higher than those of 13% and 19% reported from Riyadh for use of traditional medicines in diabetes and different illnesses, respectively [10] and those observed in other developing countries [11]. The rates of use of dates, honey and black cumin (*Nigella sativa*) were also found in this study to be much higher than rates of 8.7%, 4.5% and 3.0%, respectively, reported by the Riyadh study [10]. This may be a reflection of poor health care de-

livery, especially with respect to proper diabetic education. Most of these patients are suffering from chronic illness. Others may have used traditional therapy as a complement to conventional substances. Physicians' attitudes towards traditional medicine, and poor patient–doctor communication or rapport may be other reasons why patients use alternative medicine.

Most types of traditional remedy believed to be beneficial or actually consumed by patients involved in this study contain substances that are characterized by a bitter taste. This is based on a widely-held belief among patients that a bitter-tasting

Table 2 **Diabetic patients' use of herbal remedies for treating diabetes mellitus**

English name	Local name	Latin name	Use remedy ($n = 313$) No.	%
Fenugreek	Halba	Trigonella foenum-graecum	19	6.1
Chinaberry leaves	Neem	Molia azadaraoh	16	5.1
—	Harmal	Rhazya stricta	15	4.8
Yellow wood sorrel	Barseem	Oxalis corniculata	6	1.9
Olive leaves	Zaitoon	Olea europaea	5	1.6
Bitter apple	Hanthal	Citrullus colocynthis	4	1.3
Radish	Fejel	Raphanus sativus	3	1.0

n = total number of patients using traditional remedies.

substance is capable of neutralizing sugar in the blood. This is a superficial understanding of the essentials of a common disease such as diabetes mellitus [17].

However, this belief may not be always incorrect, as certain bitter-tasting plants, such as bitter melon (*Momordica charantia*), do exert an antidiabetic effect [18].

Table 3 **Sociodemographic characteristics of patients with high or low belief scores for traditional remedies**

Variable	High belief score No.	%	Low belief score No.	%	χ^2	P-value
Age (years)						
15–34	15	30.0	35	70.0	5.255	0.07
35–54	189	42.1	260	57.9		
55+	247	45.8	292	54.2		
Sex						
Male	288	41.6	405	58.4	3.203	0.04
Female	164	47.4	182	52.6		
Nationality						
Saudi Arabian	427	43.9	546	56.1	0.907	0.2
Non-Saudi Arabian	25	37.9	41	62.1		
Education level						
Low	343	45.1	418	54.9	1.822	0.3
Average	77	39.7	117	60.3		
High	27	43.5	35	56.6		

n = 1039 patients; data were missing in some categories.

Table 4 **History of diabetes and continuity of care of patients with high or low belief scores for traditional remedies**

Variable	High belief score		Low belief score		χ^2	P-value
	No.	%	No.	%		
Family history of diabetes						
Yes	267	49.4	273	50.6	16.147	< 0.001
No	185	37.1	314	62.9		
Duration of diabetes mellitus						
< 5 years	106	36.9	181	63.1	6.906	< 0.05
5+ years	339	46.0	398	54.0		
Continuity of care						
Follow-up always in the same centre	399	43.3	522	56.7	0.083	0.4
Follow-up in different centres	51	44.7	63	55.3		
Follow-up regularity						
Regular	381	43.8	488	56.2	0.212	0.4
Not regular	70	41.9	97	58.1		
Annual number of follow-up visits						
< 6 per year	74	46.0	87	54.0	0.401	0.3
6+ per year	375	43.2	493	56.8		

n = 1039 patients; data were missing in some categories.

Table 5 **Disease control and compliance of patients with high or low belief scores for traditional remedies**

Variable	High belief score		Low belief score		χ^2	P-value
	No.	%	No.	%		
Blood sugar control						
Controlled	87	36.4	152	63.3	2.778	0.055
Uncontrolled	279	42.6	376	57.4		
Body mass index						
Normal	104	42.3	142	57.7	0.806	0.2
High	320	45.6	382	54.4		
Compliance with drugs						
Compliant	363	44.1	460	55.9	0.616	0.2
Non-compliant	88	41.1	126	58.9		
Compliance with diet						
Compliant	160	54.2	135	45.8	19.435	< 0.001
Non-compliant	290	39.2	450	60.8		

n = 1039 patients; data were missing in some categories.

The problems that exist regarding patients' understanding is that they usually take these medications without the knowledge of their physicians [18]. It has been noted that more than 70% of patients were found to use such therapies without telling their doctors that they are doing so [11]. This is because most physicians are not in a position to answer many of the questions raised by their patients towards traditional medicine. This may reflect lack of or inadequate doctor–patient communication during consultations. Some physicians become defensive, angry and dismissive when the patient considers the use of a traditional therapy [11]. Therefore, physicians may need to acquaint themselves with at least the common traditional medicine substances used by their patients. Furthermore, the cost incurred on purchase of traditional remedies may be equal to that paid for purchase of drugs for diabetes [5], which increases the financial burden on patients. A previous study published in 2000 found that the average cost of a visit to a traditional medicine provider was 166 Saudi riyals (43 dollars equivalent) while the average cost per course of treatment for purchasing herbs and black cumin (*Nigella sativa*) was 200 riyals (52 dollars) [10].

On the other hand, our study revealed a belief among many patients in the usefulness of honey and dates in the diet of diabetes mellitus patients. In this respect, physicians should be diligent in educating patients about the amounts of carbohydrates to be consumed, preferably by training them on techniques of carbohydrate counting, in order to avoid excessive rises in blood glucose levels.

The finding that females had significantly higher belief scores for traditional remedies supports earlier work [10] and indicates that women should be targets for appropriate health education. Moreover, the study revealed significantly higher belief scores among patients with a positive family history of diabetes. This may indicate that well-established health beliefs within the family setting continue from one generation to another. The significant association between belief in traditional remedies and long duration of diabetes confirms the already known association between frequency of use of traditional medicine and the chronicity of the illness [11]. On the other hand, this study has shown that the use of traditional medicine is not affected by education level or age of patient. This supports earlier reports that people in different age groups [10] and with high educational levels, including physicians, have used one or more substances of traditional medicine one or more times by themselves or by one of their family members [7,8,11].

The lack of a significant association between use of traditional medicines and continuity of care, regularity of follow-up, compliance with drug therapy or annual number of visits to the health centre is in accordance with previous published findings [11]. This suggests that patients use traditional remedies as complements to conventional treatments. Blood sugar control and body mass index were not significantly different between those who used traditional remedies and those who did not, indicating that the effect of these non-conventional substances may not be important.

The issue of traditional medicine use for diabetes has been dealt with in publications that claim some benefits from some traditional herbal remedies for diabetes mellitus [19–21]. This should not deter physicians from inquiring about use of these medicines and close follow-up of patients who wish to use traditional medicines. Physicians should also stick to the principles of

evidence-based practice and patient-oriented evidence in order to achieve the goals of patient care effectively [22]. Finally, it may be recommended that these traditional remedies should be evaluated for safety and efficacy, so that the public can be advised whether to use them or not.

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WHO training workshop on regulation of herbal medicines in the Eastern Mediterranean Region

The WHO Regional Office for the Eastern Mediterranean organized the above-mentioned meeting in Teheran, Islamic Republic of Iran from 14 to 16 December 2002. The purpose of the meeting was to develop mechanisms for regional harmonization of regulatory requirement of herbal medicines. Participants from Afghanistan, Egypt, Islamic Republic of Iran, Jordan, Morocco, Pakistan, Sudan, Syrian Arab Republic and United Arab Emirates attended the workshop.