KAP STUDY

The use of traditional and complementary medicine among diabetes patients, and the awareness and attitudes of physicians

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Abstract

Objective: To determine the frequency and reasons for use of traditional and complimentary medicines in diabetic patients, and the attitudes and behaviours of physicians towards the issue.

Methods: This cross-sectional study was conducted from April 2015 to April 2016 at Van Yuzuncu Yil University, Van, Turkey, and comprised people aged 18 or more with an existing diagnosis of diabetes. A semi-structured questionnaire was used as the data-collection tool.

Results: There were 386 respondents, and 179(46.4%) of them said they had used at least one type of traditional and complimentary medicine related to their diabetic condition. A significant relationship was noted between such usage and age, educational level, type of diabetes, monthly income, duration of diabetes, diabetic complications, gylcated haemoglobin (HbA1c) levels <10 and ?10, and prescribed treatment. Besides, 135(75.41%) participants said they had not discussed their use of traditional and complimentary medicines with their physicians.

Conclusions: When evaluating diabetic patients, physicians should ask their patients about their use of traditional and complimentary medicines, and should provide them with detailed information on the subject.

Keywords: Diyabetes Mellitus, Physicians, Traditional and Complementary Medicine.

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Introduction

Diabetes mellitus (DM), according to the International Diabetes Federation, is one of the most widespread global health issues of the 21st century, with an estimated 415 million people worldwide, or 8.8 per cent of the global adult population aged 20-79, thought to have diabetes. The estimated uncertainty interval around the global regarding adults with diabetes ranges from 7.2-11.4 per cent. Each year, more and more people are afflicted by the condition, which can result in life-changing complications. Aside from the estimated 415 million adults currently with DM, a further 318 million have impaired glucose tolerance (IGT), which puts them at high risk of developing the disease in the future. About 75 per cent of sufferers live in low- and middle-income countries (LMICs), and it is estimated that the largest increases will be seen in the regions where economies are moving from low-income to middle-income levels.[1]

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In Turkey, the frequency of DM was determined as 13.07 per cent in 2010, according to the Turkish diabetes epidemiology study (TURDEP-II).[2]

There is a growing trend worldwide for patients to take traditional and complimentary medicines (TCMs) or complementary and alternative medicines (CAM) in an attempt to improve the outcomes of their illnesses, as well as to improve their general wellbeing, and TCMs have garnered significant academic, industrial and economic interest due to the high prevalence of use.[3] TCMs are defined as a group of diverse medical treatments and health practices that are not presently considered part of conventional medicine.[4]

Since DM and its complications (micro- and macro-vascular) are among the leading causes of morbidity and mortality, DM constitutes a major public health issue,[5] and many people turn to complementary therapies to help them cope with and control the disease, due to the potential threats to quality of life.[6] The most widely used therapies among diabetic populations are nutritional

supplements, herbal medicines and nutritional advice, as well as spiritual healing and relaxation techniques.[7] In cases of very serious illness, like diabetes, that are characterised by multiple long-term complications, including, but not limited to, renal and hepatic dysfunction, it is always wiser to follow scientifically studied and proven remedies with known drug interactions, and with data on their safety and efficacy in different age groups. CAMs need to be brought under a regulatory framework and assessed to gain insight into their efficacy and safety, which will eventually generate faith in these indigenous systems of medicine.[8]

The current study was planned to determine the frequency and reasons for TCM usage in DM patients, and the attitudes and behaviours of physicians towards the issue. One of the main objectives was to ascertain whether patients discuss their use of TCMs with their physicians.

Subjects and Methods

This cross-sectional study was conducted from April 2015 to April 2016 at the outpatient clinics of the Family Medicine and Endocrinology and Metabolism departments of Van Yuzuncu Yil University, Van, Turkey, and comprised people aged 18 or more with an existing diagnosis of diabetes

Data was collected through a semi-structured questionnaire that was prepared following a review of related international literature, and finalised following a pilot application prior to data collection.[3,4,7] Approval was obtained from the institutional review board and all participants gave written consent prior to being interviewed.

A literature review identified that the rate of use of TCMs in DM patients is between 41 and 49 percent in the Turkish population.[9,10] The sample size was calculated using a 95 percent confidence level, a 5 per cent margin of error, and based on a literature review, the assessed prevalence was accepted as 45 percent. The estimated minimum sample size was 381, which was rounded up to 390 to compensate for any refusal. The DM patients were selected through a random sampling method. The inclusion criteria included a previous diagnosis of diabetes, age 18 years or above, and able to speak and understand.

Data analysis was done using SPSS 22. Categorical measurements were expressed in frequencies and percentages, while numerical data was presented as mean and standard deviation. Data assessment for independent samples was performed with a chi-square test and student's t-test, and $p<0.05$ was considered statistically significant.

Results

Of the 390 subjects approached, 386(99%) responded. Of them, 219(56.7%) were female and 167(43.3%) were male.

Table-1: TCM use, and demographic and diabetic related data, including statistical significance of these factors (N=386).

	N (%)	Using TCMs (n=179) n (%)	Not using TCMs (n=207) n (%)	*p* value (Chi-square test)
Age(years)				<0.001*
<65	310 (80.3)	118 (38.1)	192 (61.9)	
≥65	76 (19.7)	61 (80.03)	15 (19.7)	
Gender				0.202
Female	219 (56.7)	95 (43.4)	124 (56.6)	
Male	167 (43.3)	82 (49.1)	85 (50.8)	
Educational level	n=382			0.032*
Illiterate	119 (31.2)	46 (38.7)	73 (61.3)	
Literate	33 (8.6)	11 (33.3)	22 (66.7)	
Elementary school	117 (30.6)	56 (47.9)	61 (52.1)	
Secondary school	29 (7.6)	17 (58.6)	12 (41.4)	
High school	45 (11.8)	27 (60.0)	18 (40.0)	
University	39 (10.2)	17 (43.6)	22 (56.4)	
Monthly income level				0.002*
No income (unemployed)	199 (51.6)	82 (41.2)	117 (58.8)	
Less than 1000TL (Less than 255 USD)	57 (14.8)	19 (33.3)	38 (66.7)	
1001-2000 TL (256-510USD)	82 (21.2)	52 (63.4)	30 (36.6)	
2001-3000TL (511-765USD)		31 (8)	17 (54.8)	14 (45.2)
3001 TL or more (766 USD or more)	17 (4.4)	9 (52.9)	8 (47.1)	
Type of diabetes				0.015*
Type 1	43 (11.2)	27 (62.8)	16 (37.2)	
Type 2	341 (88.8)	150 (44)	191 (56)	
Duration of having DM				<0.001*
<1 years	55 (14.2)	17 (30.9)	38 (69.1)	
1-5 years	120 (31.1)	51 (42.5)	69 (57.5)	
6-10 years	106 (27.5)	50 (47.2)	56 (52.8)	
11-20 years	84 (21.8)	43 (51.2)	41 (48.8)	
20 years or more	21 (5.4)	18 (85.7)	3 (14.8)	
HbA1c				0.002*
<10	242 (62.69)	105 (43.38)	137 (56.61)	
≥10	144 (37.3)	74 (51.38))	70 (48.61)	
Treatment				0.005*
Insulin	108 (28.1)	49 (45.4)	59 (54.6)	
Oral med.	187 (48.6)	87 (46.5)	100 (53.5)	
Insulin+oral med.	77 (20)	42 (54.5)	35 (45.5)	
Diet/exercise only	14 (3.6)	1 (7.1)	13 (92.9)	
Diabetic complications				0.006*
Yes**	208 (53.88)	103 (49.5)	105 (50.4)	
Neurological	144 (37.3)	69 (48)	75 (52)	
Ophthalmic	69 (17.87)	40 (58)	20 (42)	
Renal	41 (10.62)	22 (53.65)	19 (46.34)	
Diabetic foot	18 (4.66)	9 (50)	9 (50)	
No	178 (46.11)	76 (42.7)	102 (57.3)	

*: $p<0.05$, **: some patients reported more than one complication
TCM: Traditional and complimentary. HbA1c: Glycated Haemogloib
USD: United States dollar. TL: Turkish Lira

Table-2: Types of Traditional and Complementary Medicines (TCMs) used by patients (n=179).

Types of TCM	Latin name	n*	%
Herbal teas and other herbal products			
Ingredients or names unknown		154	86.03
Mountain banana	Rheum ribes	18	10.05
Pomegranate flower	Hibiskus	13	7.2
Okra seeds and flowers	Abelmoschus esculentus	12	6.7
Stinging nettle	Urtica dioica	9	5.02
Cinnamon	Cinnamomum verum	7	3.91
The leaves of the olive tree	Olea europaea	6	3.35
Cumin	Nigella sativa	6	3.35
Sage and cinnamon mixture	Salvia officinalis and Cinnamomum verum	5	2,79
Almond seeds and flowers	Prunus dulcis	5	2.79
Rosehip seeds and flowers	Rosa canina	2	1.11
The leaves of the plane trees	Platanus orientalis	2	1.11
Crab Apple fruit	Malus sylvestris	2	1.11
Artichoke juice	Cynara scolymus	2	1.11
Avocado leaves water	Persea americana	2	1.11
Quince leaves	Cydonia oblonga	2	1.11
Pills			
Ingredients and names unknown		10	5.58
Animal products or animal and herbal mixtures			
Yogurt and lemon juice mixture		5	2.79
Honey		3	1.67
Spiritual practices and body exercises			
Prayer by religion person (imam)		11	6.14
Tai chi, yoga, etc.		0	0

* "n" is higher due to multiple answers

Table-3: Relationship between TCM use and various variables.

	Using TCMs	Not using TCMs	t	*p* value (Student's t-test)
Age	54.89±49.72	49.72±12.09	3.855	<0.001*
HbA1c	10.74±3.30	7.79±1.85	4.484	<0.001*
Fasting blood sugar	183.97±74.45	178.31±78.45	0.703	0.483
BMI	29.63±6.99	28.40±6.06	0.351	0.729

HbA1c: Glycated haemoglobin.
TCM: Traditional and complementary nedicines.
BMI: Body mass index.

Overall, 310(80.31%) were aged below 65 years, and 119(31.2%) were illiterate. Also, 179(46.4%) patients had used at least one type of TCM related to their diabetes. Statistically significant differences were identified between TCM usage and age, education level, diabetes type, monthly income level, duration of DM, diabetic complications, glycated haemoglobin (HbA1c) level and treatment method ($p<0.05$ each) (Table-1).

Herbal teas and other herbal products, the ingredients or names of which were not ascertained, were the most used TCMs among the participants, and 154(86.03%) participants were unaware of the ingredients or names of the herbal teas or products that they used (Table-2).

Table-4: Sources of recommendations for TCMs and other issues associated with TCM use (n=179).

Variable	n*	%
The sources of recommendations for TCM		
Family	78	43.57
DM patients	48	26.81
Herbalists	21	11.73
TV	19	10.61
Physician	13	7.26
Internet	9	5.02
Book	6	3.35
Where did you get it/them?		
Herbalist	102	56.98
Market	31	17.31
Friend	21	11.73
Salesman	15	8.37
Internet	6	3.35
Pharmacy	7	3.91
How long have you used it/them?		
<1 month	92	51.39
1-6 month	51	28.49
6-12 month	9	5.02
1 year or more	27	15.08
Did they have the desired effect?		
Yes	68	37.98
No	87	48.60
Don't know	24	13.40
Did you suffer because of the method that you used?		
Yes	34	18.99
No	119	66.48
Don't know	26	14.52
Did you discuss the use of such remedies with your physician?		
Yes	44	24.58
No	135	75.41
What was the recommendation of the doctor about the method you use?	n=44	
He/she advised me to stop using	16	36,36
He/she said to me you can use if you want	6	13.63
He/she did not say anything	22	50
Can doctors prescribe TCMs in Turkey?	n=386	
Yes	25	6.47
No	315	80.6
Don't know	46	11.9

* "n" is higher due to multiple answers TCM: Traditional and complementary medicines.
DM: Diabetes Mellitus.

The mean age of the patients was 52.12±13.36 (range: 18-95 years). The mean body mass index (BMI) was 29.33±6.65. The mean fasting blood sugar value was 180.95±76.56. The mean HbA1c value was 9.20±3.01 per cent. Relationships between TCM use and these variables were noted (Table-3).

DM patients mostly started using TCMs following recommendations from their families, other diabetes patients or herbalists, and that they obtained them largely from herbalists (Table-4). The patients used TCM product most frequently for less than one month in 92(51.39%) cases, 68(37.98%) had the desired effects, and 135(75.41%) patients who used TCMs did not discuss the matter with their treating physicians.

Discussion

TCM and CAM practices are in widely prevalent among DM patients all over the world,[6] and in the Turkish context, people have turning to such remedies for centuries in Anatolia.[10-14]

There have been many studies exploring the use of TCMs in DM in different countries. In a study of nine countries, the rate of TCM use in DM cases was between 17% and 72.8%,[6] while other studies identified rates of 73% in the United States, 62% in Mexico, 48-53% in southern Australia, 46% in the United Kingdom, 68% in India, 30% in Saudi Arabia and 41-48.1% in Turkey.[4,8,9,15-20] In the present study, 46.4% DM patients claimed to have used TCMs.

A comparison of TCM use among the respondents with different levels of education revealed statistically significant differences, with less frequent use identified among the illiterate respondents or those with a lower level of education. This finding is consistent with previous studies.[9,21] In the present study, a significant relationship was also identified between TCM use and income, being more common among the patients with a higher monthly income.

In contrast to the findings of several other studies, the present study found that TCM use was more common among men diagnosed with DM than women, and that it was more common among DM patients over 65 years old with diabetic complications,[9,21-23] which can be attributed to the fact that those aged over 65 are more likely to develop complications and other illnesses as they get older, and, faced with the likelihood of being prescribed too many different drugs, they prefer to try TCMs. Consistent with previous studies, our study found that the rate of TCM use increased as the duration of DM increased.[4,9,21]

Considering the different types of diabetes, previous studies have shown that TCM use is more common among those with type I diabetes, while others report more prevalent use among those with type II DM.[4,5,21] In our study, it was found that TCM use was significantly higher among type I diabetics, which may be due to the increased tendency of type I diabetic patients to search for different treatment methods other than insulin injections.

Similar to the findings of a study conducted in Australia, a statistically significant relationship was identified between TCM use and HbA1c levels,[4] being higher among those with an HbA1c level of ≥10. This finding is important, as it shows that individuals may be more inclined towards TCMs, and may turn to them more as their DM-related problems increase.

In our study, contrary to a number of previous studies, a significant relationship was found between TCM use and the type of treatment,[3,4] with TCM use being most common among patients taking both insulin and oral medications. Our study found no significant relationship between TCM use and fasting blood sugar level or BMI.

Consistent with previous studies, the most frequently used TCMs in the present study were herbal teas and other herbal products,[9,21] although 86.03% patients were unaware of the ingredients or name of the herbal teas or products they used. It is clear that such behaviours are inadvisable, and may complicate the treatment course if leading to poisoning or other complications.

In our study, confirming the finding of a previous study in Turkey, most patients said that they obtained TCMs from herbalists,[10] where it is easy to find such products.

Our study showed that 18.99% participants who admitted using TCMs had experienced adverse effects, confirming that the uninformed use of TCMs can have adverse effects on the treatment course and can be life-threatening. A total of 75.41% participants said that they had not discussed their use of TCMs with their treating physicians. This may indicate that physicians do not question their patients sufficiently on the subject, or the patients avoid discussing the issue with their physicians. Of the patients who discussed their use of TCMs with their physicians, 16(36.36) said that their physician had advised them to discontinue the practice, although it would be a sensible approach for doctors to warn patients of potential complications with TCM use as a matter of course, no matter which product their patients are using, and even if they are not using any at all. TCMs are not covered in medical education in Turkey, and so physicians do not have the authority to prescribe TCMs as treatments. It was found that 25(6.47%) participants were misinformed on the subject of TCMs, and believed that physicians should be educated in this regard, and able to prescribe such products.

In a recent review, in which it was reported that the use of CAM therapies among diabetes patients was prevalent, care-providers were encouraged to consider the potential risks and benefits. Awareness programmes on the use of CAMs may be useful for individuals with

diabetes, and may make them more likely to communicate openly with their healthcare practitioners about the pros and cons of their use, with due attention given to their disease history and health status.[24]

Conclusion

The probability of using TCM increased in patients aged ≥65 years, with a higher level of education, with a higher income, with diabetic complications, with a type-I diabetes diagnosis, using insulin and/or oral anti-diabetics, with a HbA1c level of ≥10, and, particularly, as the duration of having the disease increased. A huge majority of those opting for TCM refrained from discussing the matter with their treating physicians.

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