Prevalence and patterns of complementary and alternative medicine practices among type 2 diabetics

Abdulrahman S. Solaiman (1)
Mohammed A. Alsaleem (2)
Safar A. Alsaleem (2)

(1) Family Medicine Resident in Abha, Saudi Arabia
(2) Department of Family & Community Medicine, King Khalid University, Abha, Saudi Arabia

Corresponding author:
Dr. Abdulrahman S. Solaiman
Family Medicine Resident in Abha,
Saudi Arabia
Email: abha678@hotmail.com

Received: December 2019; Accepted: January 2020; Published: February 1, 2020.
Citation: Abdulrahman S. Solaiman, Mohammed A. Alsaleem, Safar A. Alsaleem. Prevalence and patterns of complementary and alternative medicine practices among type 2 diabetics. World Family Medicine. 2020; 18(2): 12-19
DOI: 10.5742MEWFM.2020.93755

Abstract

Background: Diabetes mellitus (DM) is a growing global health concern. The conventional therapy options for type 2 diabetes mellitus (T2DM) include life style management and medical nutrition therapy, oral glucose lowering drugs, and injections of insulin. Complementary and alternative medicine (CAM) is neither widely taught in medical schools nor widely practiced in hospitals. Nevertheless, there is worldwide increase in the use of CAM.

Aim: To assess prevalence and identify patterns of CAM utilization among patients with T2DM in Abha City, Saudi Arabia.

Methodology: A descriptive cross-sectional study included a sample of 300 T2DM patients who are registered at the Diabetes Center in Abha City, Saudi Arabia, who were directly interviewed using a pre-structured questionnaire.

Results: Participants' age ranged from 24 to 80 years (Mean±SD: 53.1±14.9 years). CAM utilization was recorded among 78% of the patients. Herbs were the most recorded item used by the patients (53.4%) followed by dietary supplements (52.1%), honey (33.3%), special food (29.1%), and Roqia (Quran) (15.4%).

Conclusions & recommendations: Nearly 3 out of each four diabetic patients use at least one type of CAM, especially females with a recent diagnosis. Herbs are the most frequently used CAM at initial diagnosis of DM.

Key words: Complementary and alternative medicine, Type 2 diabetes, Diabetes control.

Background

Diabetes mellitus (DM) is a growing global health concern. The highest prevalence of DM occurs in the Middle East and North Africa due to rapid economic development, urbanization and changes in lifestyle patterns in the region. It is the most challenging health problem facing the Kingdom of Saudi Arabia (1) .

The conventional therapy options for type 2 diabetes mellitus (T2DM) include life style management, exercise, weight control and medical nutrition therapy, oral glucose lowering drugs, and injections of insulin (2). Pharmacological treatment for T2DM has its own drawbacks, ranging from development of resistance and adverse effects to lack of responsiveness in a large segment of the patient population (3).

Complementary and alternative medicine (CAM) is neither widely taught in medical schools nor widely practiced in hospitals. Nevertheless, there is worldwide increase in the use of CAM. Generally, most people who use CAM do so in addition to, rather than in place of conventional medical treatment, although some do not receive any concurrent conventional medical care (2).

For centuries, people have been using traditional means for treating ailments, and continued to use them alongside modern medicine. Despite all the marvelous advancements in modern medicine, CAM has always been practiced. It refers to health practices, approaches, knowledge and beliefs incorporating plant-, animal- and mineral-based medicines, spiritual therapies, manual techniques and exercises, applied singly or in combination, to treat, diagnose and prevent illnesses or maintain well-being (4).

The National Center for Complementary and Integrative Health in the USA defined Complementary and Alternative Medicine (CAM) as a group of diverse medical and healthcare systems, practices and products that are not generally considered to be part of conventional medicine. These definitions are often blurred, and the list of what is considered to be CAM changes as therapies that are proven to be safe and effective are adopted into conventional medicine (5). More than 80% of the developing world's population still depends on the complementary and alternative systems of medicine, while about half of the population in industrialized countries use CAM. It has always been an 'invisible mainstream' within the health care delivery system (6).

The World Health Organization noted that there has been an unprecedented increasing interest in these systems of therapeutics on a global level (7). In the USA, surveys have generally found that individuals who are more likely to use TM/CAM are females, who live in the western states and have a higher socioeconomic status than do nonusers (8). Egede et al. found that among individuals with diabetes, older age and higher educational attainment were independently associated with CAM use (9).

In the Kingdom of Saudi Arabia (KSA), Al-Habeeb noted that clients of TM/CAM are mostly older females, who are particularly weak, misinformed, uneducated and of poor backgrounds suffering both from the 'evil eye' and 'magic', who also present with an array of somatic symptoms, interpersonal conflicts, and alleged misfortunes (10).

Study rationale

Diabetes mellitus is a growing disease worldwide and it is the most challenging health problem facing the KSA (1). CAM was found to be commonly used by diabetics alongside their conventional medications. Nevertheless, there are no studies about prevalence and types of CAM used for management of DM in KSA. Therefore, it is quite important to explore this field (11-13).

Methodology

A descriptive cross-sectional study was conducted in the City of Abha, which is the capital of Aseer Region in KSA, targeting all T2DM patients who are registered at the Diabetes Center in Abha City. A total sample of 300 patients who attended the diabetes center during the period from October to December 2018 were included. Direct interview of patients was conducted using a pre-structured questionnaire, which was developed by the researchers after intensive review of relevant literature. Validation of the questionnaire was done by two consultants of Family Medicine and one consultant of Diabetology. The study tool covered personal characteristics of diabetic patients including age, sex, nationality, occupation, marital status, and educational level. Moreover, CAM use, causes of use, used type within the last year, outcome, and personal satisfaction were included.

After data were collected, revised, and coded, the Statistical Package for Social Sciences (IBM SPSS version 20) was used for data entry and statistical analysis. Statistical analysis was done using two-tailed tests. Frequency and percent were calculated to describe each category for different variables. Chi square test, Monte Carlo exact test or Fisher's Exact test were used to explore the association between patients' characteristics and their CAM utilization. Exact tests were used if there were small frequencies, where chi square was invalid. P-values less than 0.05 were considered statistically significant.

Results

A total sample of 300 type 2 diabetic patients with ages that ranged from 24 to 80 years and a mean age of 53.1±14.9 years were included in the study. Male patients were nearly half of the sample (49.7%) and 88.3% were from an urban region. Illiteracy was recorded among 16% of the patients while 45% were university graduated. About 40% of the sampled patients had dyslipidemia as a chronic health problem and 35% were hypertensive.

CAM utilization was recorded among 78% of the patients (Figure 1). On relating CAM utilization with patients' characteristics (Table 1), it was clear that 85.5% of patients

old and 74% of patients above 60 years old with recorded statistical significance (P=0.032). As for gender, 84.8% of the females used CAM compared to 71.1% of male patients (P=0.004). Patients from rural areas recorded an insignificantly higher utilization rate than urban residence (80% vs. 77.7%). Also illiterate diabetics recorded insignificantly higher utilization of CAM than highly educated patients (81.3% and 80.7%, respectively).

With regard to distribution of CAM utilization according to diabetes data (Table 2), it was clear that recently diagnosed patients (less than 1 year) showed a significantly higher utilization rate than those who had diabetes for 10 years or more (84% vs. 76.9%) (P=0.021). Also 80% of the patients on oral hypoglycemic pills used at least one type of CAM compared to 66.1% of those on insulin therapy (P=0.039). All patients who had renal and neurological complications used CAM compared to 84% of those with ophthalmic complications with statistical significance (P=0.048). As for patients' satisfaction regarding provided medical service, 90.9% of those who were dissatisfied used CAM compared to 71.7% of those who were highly satisfied (P=0.012).

Table 3 shows the details of CAM utilization. Herbs were the most used by the patients (53.4%) followed by dietary supplements (52.1%), honey (33.3%), special food (29.1%), and Roqia (Quran) (15.4%). As for reasons for using CAM, trust in CAM providers was the most recorded reason (39.9%) followed with lack of drug effect (31.8%), and dissatisfied with physician advice (13.3%). About 60% of the patients started receiving CAM with initial diagnosis while 18.8% used it for complications. As for duration of utilization, 30% of the patients used CAM for more than 3 years and 25.7% used it for less than one year. About two thirds (62.4%) of the patients used CAM without consultation of their physicians and this was due to their opinion of 'no need to tell doctors' among 58.6% of the patients.

As for patients' attitude toward CAM utilization and its effect (Table 4), 54.3% of participant patients believed in CAM effectiveness. "To reduce diabetes complications" and "to help in glycemic control" were the most frequently recorded reasons for patients' positive attitude toward CAM (42.9% and 41.7%, respectively). More than one third of patients (35%) felt much improvement, 41.9% of felt somewhat better, 21.7% expressed no benefit, while 1.7% recorded being worse after using CAM. About 71% of diabetics who used CAM were satisfied with its use and 80.8% recorded its low cost.

Finally, on asking about patients' sources of information regarding CAM (Figure 2), the family ranked first (48.3%), followed by friends (33.7%), mass media (25.3%), while medical staff (i.e., physicians and pharmacists) were mentioned by 14% of patients.

Figure 1: CAM utilization among type 2 diabetic patients, Abha, Saudi Arabia

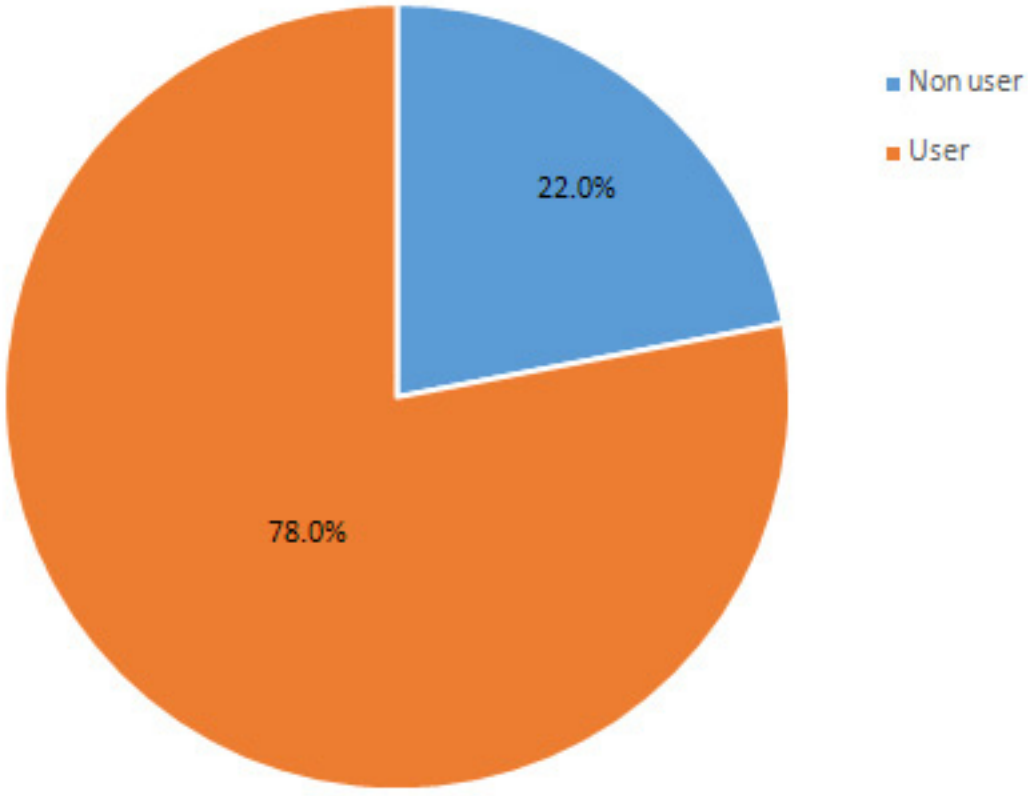

Table 1: Distribution of CAM use by patients' bio-demographic data among type 2 diabetic patients, Abha, Saudi Arabia

Bio-Demographic data		No. (%)	CAM utilization				P
			No		Yes		
			No	%	No	%	
Age in years	< 40 years	55 (18.3)	8	14.5	47	85.5	.032*
	40-	86 (28.7)	13	15.1	73	84.9	
	50-	55 (18.3)	18	32.7	37	67.3	
	60+	104 (34.7)	27	26.0	77	74.0	
Gender	Male	149 (49.7)	43	28.9	106	71.1	.004*
	Female	151 (50.3)	23	15.2	128	84.8	
Residence	Urban	265 (88.3)	59	22.3	206	77.7	.761
	Rural	35 (11.7)	7	20.0	28	80.0	
Nationality	Saudi	274 (91.6)	61	22.3	213	77.7	.794
	Non-Saudi	25 (8.4)	5	20.0	20	80.0	
Marital status	Single	32 (10.7)	4	12.5	28	87.5	.255
	Married	214 (71.3)	47	22.0	167	78.0	
	Divorced / widow	54 (18.0)	15	27.8	39	72.2	
Education	Illiterate	48 (16.0)	9	18.8	39	81.3	.201
	Primary	39 (13.0)	13	33.3	26	66.7	
	Intermediate	32 (10.7)	10	31.3	22	68.8	
	Secondary	46 (15.3)	8	17.4	38	82.6	
	University / more	135 (45.0)	26	19.3	109	80.7	
Chronic diseases	HTN	105 (35.0)	21	20.0	84	80.0	.521
	Dyslipidemia	121 (40.3)	23	19.0	98	81.0	
	Bronchial asthma	24 (8.0)	2	8.3	22	91.7	
	Cardiovascular	22 (7.3)	2	9.1	20	90.9	

* P < 0.05 (significant)

Table 2: Distribution of CAM use by patients' diabetes data among type 2 diabetic patients, Abha, Saudi Arabia

Diabetes data		No (%)	CAM utilization				P
			No		Yes		
			No		No		
Diabetes duration	< 1 year	75 (25.0)	12	16.0	63	84.0	.021*
	1-4	66 (22.0)	9	13.6	57	86.4	
	5-10	94 (31.3)	30	31.9	64	68.1	
	> 10 years	65 (21.7)	15	23.1	50	76.9	
Medication type	Oral pills	190 (63.3)	38	20.0	152	80.0	.039*
	Insulin	59 (19.7)	20	33.9	39	66.1	
	Both	51 (17.0)	8	15.7	43	84.3	
Diabetes complication	Cardiac	32 (10.7)	4	12.5	28	87.5	.048*
	Neurological	14 (4.7)	0	0.0	14	100.0	
	Ophthalmic	63 (21.0)	10	15.9	53	84.1	
	Renal	29 (9.7)	0	0.0	29	100.0	
	Diabetic foot	18 (6.0)	2	11.1	16	88.9	
Last HbA1c	< 7%	79 (26.3)	16	20.3	63	79.7	.076
	7% - 8%	123 (41.0)	20	16.3	103	83.7	
	8% - 11%	74 (24.7)	22	29.7	52	70.3	
	> 11%	24 (8.0)	8	33.3	16	66.7	
Satisfaction with provided health service	Completely satisfied	166 (55.3)	47	28.3	119	71.7	.012*
	Satisfied	123 (41.0)	18	14.6	105	85.4	
	Dissatisfied	11 (3.7)	1	9.1	10	90.9	

* P < 0.05 (significant)

Figure 2: Diabetic patients' source of data regarding CAM, Abha, Saudi Arabia

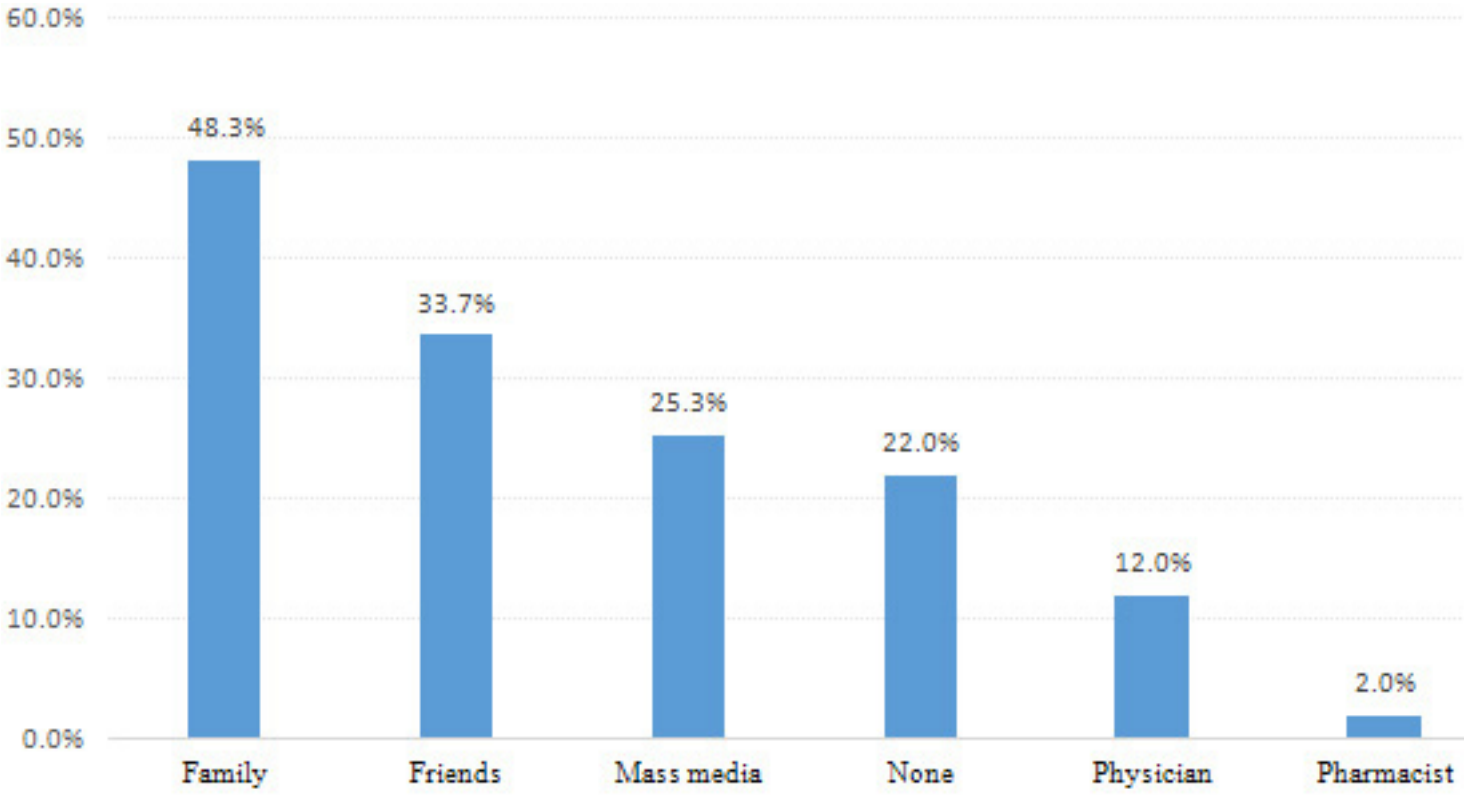

Table 3: CAM utilization data by among type 2 diabetic patients, Abha, Saudi Arabia

CAM utilization data		No (234)	%
Types of CAM used	Herbs	125	53.4%
	Dietary supplements	122	52.1%
	Burning	8	3.4%
	Roqia	36	15.4%
	Honey	78	33.3%
	Message	15	6.4%
	Chinese needles	9	3.8%
	Hijama	19	8.1%
	Special food	68	29.1%
Reason for using CAM	Dissatisfied with physician advice	31	13.3%
	Lack of drugs effect	74	31.8%
	Trust CAM provider	93	39.9%
	Others	35	15.0%
Start using CAM	With DM diagnosis	136	58.1%
	With DM symptoms	54	23.1%
	With complications	44	18.8%
Duration of using CAM	< 1 year	59	25.7%
	1-2	49	21.3%
	2-3	53	23.0%
	> 3 years	69	30.0%
Doctor counseling	Yes	88	37.6%
	No	146	62.4%
If no, why? (n=146)	Not advised by physicians	26	17.9%
	Negative attitude of physician toward CAM	34	23.4%
	No need	85	58.6%

Table 4: Type 2 diabetic patients' attitude toward CAM utilization, Abha, Saudi Arabia

Attitude item		No	%
Believe in CAM benefit for DM	Yes	163	54.3%
	No	137	45.7%
If yes, why? (n=163)	Help in glycemic control	68	41.7%
	Help in weight reduction	48	29.4%
	Reduce DM complications	70	42.9%
	Help in DM cure	20	12.3%
Improvement after using CAM (n=234)	Much better	82	35.0%
	Somewhat better	98	41.9%
	No benefit	50	21.4%
	Worse	4	1.7%
Cost of CAM	High	45	19.2%
	Low	189	80.8%
Satisfaction with CAM	Satisfied	166	70.9%
	Dissatisfied	68	29.1%

Discussion

Apart from the high improvement in management of diabetes, clinical outcomes are still unsatisfactory for some patients, who often turn to non-traditional alternatives. Complementary and alternative medicine (CAM) are health-related methods out of the traditional medicine cycle, with "complementary" meaning added to, and "alternative" meaning used in place of conventional medicine (14). Worldwide, there is a growing number of people with diabetes who seek care for musculoskeletal complaints and overall lifestyle management from natural and/or complementary medicine practitioners (15-17).

The present study found that more than three quarters of diabetic patients used at least one type of complementary or alternative therapy. Herbs and dietary supplements were the most used approaches.

According to the United States 2012 National Health Interview Survey (NHIS), 17.7% of American adults used a dietary supplement added to vitamins and minerals (18). A few studies mapped the use of CAM by diabetics. In a Canadian study of 502 people with diabetes, 44% had over-the-counter supplements with 31% taking alternative medications (19). A United States national survey reported 57% of those with diabetes used CAM in the last year (20).

In Pakistan, Bukhsh et al. (21) recorded that among type 2 diabetic patients, CAM comprised herbs (15.6%), home remedies (9.4%) and homeopathic medicine (6.35%). Strong opinion and pressure by the community and family members, compounded by desires to achieve complete cure, were among the key motivators reported for CAM use in approximately one third of the respondents. These are nearly the same findings of the current study as 48% of the patients who had CAM were due to family advice and 33% were after friends' pressure. Also among the motivations for utilization of CAM among the studied patients was the trust of CAM providers which accommodates with the cultural background of the Arabic region as flak medicine was initiated first and for a long time building a bridge of confidence among the general population. Also CAM providers in the Arabic region usually have a religious background (Holy Quran people, Masjed care givers) which in turn blends their opinion with a solid religious attitude.

As for consulting physicians before using CAM, two thirds of the patients refused physicians' consultation before having the supplements as half of the patients have the attitude of no need to tell doctors due to doctors' negative attitude toward CAM. However, more than 70% of CAM users were satisfied with their behavior and this may be due to low cost or psychological improvement recorded by three quarters of patients.

As for the achieved benefits after utilization of CAM, about 76% of patients recorded having benefits from using CAM due to their belief in its role in lowering blood glucose level and weight reduction. The effect of CAM utilization in glycemic control in the current study is unclear as many patients used CAM after being diagnosed as diabetics. The patients used CAM in combination with medications so the recorded improvement cannot be totally attributed to CAM utilization.

Several studies reported the effect of CAM utilization among diabetics. In a study conducted by Arjuna et al. (22), the incidence of hypoglycemia in CAM users was 21% and 16.6% in non-users. The difference was not statistically significant. Another study by Sadiq et al. (23) found that 32.7% of diabetic patients thought that CAM is safe, effective (20.9%) and less costly (19.1%). Only 16.4% patients disclosed regarding their CAM usage to the attending physician, while 83.6% did not.

CAM utilization was significantly associated with the female gender, young newly diagnosed cases, presence of comorbidities or complications of diabetes. Adequate identification of patients' perspectives toward CAM can help health care professionals achieve a more patient-centered approach, optimize good pharmaceutical care planning and ensure safe practice (23).

Study limitations

Observed improvement among diabetic patients cannot be totally attributed to using CAM. Moreover, a placebo effect can be considered with CAM utilization. So, controlled prospective studies are needed to be able to adjust for confounders and to test the true association between CAM utilization and any observed clinical improvement among type 2 diabetic patients.

In conclusion, nearly three out of each four diabetic patients use at least one type of CAM, especially females with recent diagnosis. Herbs are the most frequently used CAM at initial diagnosis of DM. Satisfaction toward CAM utilization is high, mainly due to trusting CAM providers. More focused studies are needed to test the true association between CAM utilization and the recorded improvement by patients after controlling any confounders and removing temporality bias. Also medical staff should play a more important role in explaining the medical and scientific approach of the role of CAM in diabetic patients based on research and trials in this field.

References

1. Alotaibi A, Perry L, Gholizadeh L, Al-Ganmi A. Incidence and prevalence rates of diabetes mellitus in Saudi Arabia: An overview. Journal of Epidemiology and Global Health 2017(7):211–218.
2. Pandey A, Tripathi P, Pandey R, Srivatava R, Goswami S. Alternative therapies useful in the management of diabetes: A systematic review. J Pharm Bioallied Sci. 2011; 3(4): 504–512.
3. Zia T, Hasnain SN, Hasan SK. Evaluation of the oral hypoglycemic effect of Trigonella foenum-graecum in normal mice. J Ethanopharmacol 2001; 75:191–5.

4. Shaikh BT, Hatcher J. Complementary and Alternative Medicine in Pakistan: Prospects and Limitations. eCAM 2005;2(2)139–142.
5. National Center for Complementary and Integrative Health. Complementary, alternative, or integrative health: what's in a name? (2015-03) [2015-12-03]. https://nccih.nih.gov/ health/integrative-health.
6. Penson RT, Castro CM, Seiden MV, Chabner BA, Lynch TJ. Complementary, alternative, integrative, or unconventional medicine? Oncologist 2001; 6:463–73.
7. World Health Organization. The ICD-10 Classification of Mental and Behavioral Disorder 1992; Geneva: WHO.
8. Nahin RL, Dahlhamer JM, Taylor BL, Barnes PM, Stussman BJ, Simile CM, Blackman MR, Chesney MA, Jackson M, Miller H, McFann KK. Health behaviors and risk factors in those who use complementary and alternative medicine. BMC Public Health 2007, 7:217.
9. Egede LE, Ye X, Zheng D, Silverstein MD. The prevalence and pattern of complementary and alternative medicine use in individuals with diabetes. Diabetes Care, 2002; 25(2):324-9.
10. Al-Habeeb TA. A pilot study of faith healers' views on evil eye, jinn possession, and magic in the Kingdom of Saudi Arabia. SSFCM Journal, 2003; 10(3):31-38.
11. Birdee GS, Yeh G. Complementary and Alternative Medicine Therapies for Diabetes: A Clinical Review. Clinical Diabetes 2010; 28(4): 147-155.
12. Gardiner P, Graham RE, Legedza AT, Eisenberg DM, Phillips RS. Factors associated with dietary supplement use among prescription medication users. Arch Intern Med 2006; 166:1968–1974.
13. Kennedy DA, Seely D. Clinically based evidence of drug-herb interactions: a systematic review. Expert Opin Drug Saf 2010; 9:79–124.
14. National Center for Complementary and Integrative Health. Complementary, alternative, or integrative health: What's in a name? National Institute of Health (NIH), U.S. Department of Health and Human Services, Bethesda; 2016
15. Nigil Haroon, N., Anton, A., John, J. et al. Effect of vitamin D supplementation on glycemic control in patients with type 2 diabetes: A systematic review of interventional studies. J Diabetes Metab Disord. 2015; 14: 3.
16. Forouhi, N.G., Menon, R.K., Sharp, S.J. et al. Effects of vitamin D2 or D3 supplementation on glycaemic control and cardiometabolic risk among people at risk of type 2 diabetes: Results of a randomized double-blind placebo-controlled trial. Diabetes Obes Metab. 2016; 18: 392–400.
17. Ghavamzadeh, S., Mobasseri, M., and Mahdavi, R. The effect of vitamin D supplementation on adiposity, blood glycated hemoglobin, serum leptin and tumor necrosis factor-alpha in type 2 diabetic patients. Int J Prev Med. 2014; 5: 1091–1098.
18. Clarke, T.C., Black, L.I., Stussman, B.J. et al. Trends in the use of complementary health approaches among adults: United States, 2002–2012. Natl Health Stat Report. 2015; 1–16.
19. Ryan, E.A., Pick, M.E., and Marceau, C. Use of alternative medicines in diabetes mellitus. Diabet Med. 2001; 18: 242–245.
20. Yeh, G.Y., Eisenberg, D.M., Davis, R.B. et al. Use of complementary and alternative medicine among persons with diabetes mellitus: Results of a national survey. Am J Public Health. 2002; 92: 1648–1652.
21. Bukhsh A, Gan SH, Goh BH, Khan TM. Complementary and alternative medicine practices among type 2 diabetes patients in Pakistan: A qualitative insight. European Journal of Integrative Medicine. 2018 Oct 1; 23:43-9.
22. Medagama AB, Bandara R, Abeysekera RA, Imbulpitiya B, Pushpakumari T. Use of complementary and alternative medicines (CAMs) among type 2 diabetes patients in Sri Lanka: a cross sectional survey. BMC complementary and alternative medicine. 2014 Dec; 14(1):374.
23. Sadiq S, Kaur S, Khajuria V, Gupta S, Sharma A. Complementary and alternative medicine use in medical OPD patients of rheumatoid arthritis in a tertiary care hospital. Natl J Physiol Pharm Pharmacol. 2016; 6(4):305-9.