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**Joseph E Ojobi**

Department of Medicine, Federal  
Medical Centre, PMB 1020204,  
Makurdi, Benue, Nigeria

**Ejiofor T Ugwu**

Department of Medicine, Enugu  
State University of Science and  
Technology, Enugu, Nigeria

**Sule J Bathna**

Department of Medicine, Federal  
Teaching Hospital, Gombe,  
Gombe State, Nigeria

**Gabriel Odoh**

Department of Medicine, Jos  
University Teaching Hospital,  
Jos, Plateau State, Nigeria

**Jones U Uwakwe**

Department of Medicine, Jos  
University Teaching Hospital,  
Jos, Plateau State, Nigeria

**Patrick O Idoko**

Department of Medicine, Federal  
Medical Centre, PMB 1020204,  
Makurdi, Benue, Nigeria

**Monday O Ogiator**

Department of Medicine, Benue  
State University Teaching  
Hospital, Makurdi, Nigeria

**Corresponding Author:****Joseph E Ojobi**

Department of Medicine, Federal  
Medical Centre, PMB 1020204,  
Makurdi, Benue, Nigeria

## Complementary and alternative medicine use in diabetics accessing tertiary out: Patient care in Nigeria

**Joseph E Ojobi, Ejiofor T Ugwu, Sule J Bathna, Gabriel Odoh, Jones U Uwakwe, Patrick O Idoko and Monday O Ogiator**

**Abstract**

Complementary and alternative medicines are groups of medical and health care systems, practices and products that are not presently considered to be aspects of conventional medicine. The study aimed at finding the prevalence and factors related to complementary and alternative medicine use among diabetics in a tertiary out patient clinic. Ethical approval and individual consent were obtained before diabetics were purposively recruited with a questionnaire which captured demographics, clinical characteristics and responses. Three hundred and one individuals made up of 165 (54.8%) males and 136 (45.2%) females with mean age 52.5±9.4 years were recruited. Most had HbA1c levels ≥8%. Hypertension was the commonest co-morbidity (68.2%). Majority (61.8%) used complementary and alternative medicine through the oral route and did not inform their diabetes care providers. The use of complementary and alternative treatment by individuals with Diabetes is common and significant.

**Keywords:** Complementary and alternative medicine, diabetes, disclosure

**1. Introduction**

The National Centre for Complementary and Alternative Medicine defines complementary and alternative (CAM) as a group of medical and health care systems, practices, and products that are not presently considered to be an aspect of conventional medicine <sup>[1]</sup>. Complementary medicines are healthcare approaches used in conjunction with conventional interventions, whereas alternative medicines are used in place of conventional modalities <sup>[1]</sup>. An individual's health behaviour is influenced by his or her social, economic, cultural and physical environment <sup>[2]</sup>. Medical experts have reported on the psychological components of almost all diseases, particularly chronic illnesses such as diabetes mellitus (DM). Psychological well-being is itself an important goal of medical care, and psychosocial factors are relevant to nearly all aspects of diabetes management <sup>[2]</sup>. The results of the Cross-National Diabetes Attitudes, Wishes and Needs (DAWN) Study showed that as many as 41% of the patients had poor psychological well-being. These psychological problems were recognised by providers as affecting patients' diabetes self-care <sup>[3]</sup>. About 85% of Nigerians are known to use and consult traditional medicine for healthcare, social, and psychological benefits because of poverty and dissatisfaction with conventional medical care <sup>[4]</sup>. According to the 'Rule of Halves', only half of people living with diabetes have been diagnosed and only half of those diagnosed receive professional care. Of the people receiving care, only half achieve their treatment targets. And of those achieving treatment targets, only half live a life free from diabetes-related complications <sup>[5]</sup>. While in the developed countries, diabetes care is largely sought in medical health care centers, a rather different, pluralistic approach prevails in Nigeria. Many Nigerians often 'supplement' the care they receive in clinics and hospitals with treatment from traditional healers. The Nigerian with diabetes, no matter how literate, is attuned to the traditional ideas of disease causation and cure, which has served the community well for centuries <sup>[6]</sup>. In the context of these beliefs, the scientific description of diabetes as a chronic non-communicable disease exposes the limitations of biomedical medicine and motivates people who subscribe to these widely held beliefs to consult traditional healers <sup>[7]</sup>. This has made CAM an attractive option.

**2. Methodology****2.1 Study Area**

The study was carried out at Federal Medical Centre (FMC), Makurdi, Benue State. FMC, Makurdi is a rapidly expanding tertiary centre currently consisting of 400 bed spread over different complexes such as the mission ward, psychiatric complex, Dento-maxillary complex, the federal staff clinic, the national health insurance Clinics at the riverside / Hospices and

palliative care and the permanent site about 15km from these sites. Benue state is in the North central region of Nigeria. Makurdi, the capital of Benue state is located along the banks of River Benue. It is a metropolitan city with several federal and state institutions including a Federal University, a state University and other government and private tertiary institutions. Benue share boundary with 5 other states within Nigeria; Nasarawa to the North, Taraba to the East, Cross River to the South, Enugu to the South West and Kogi to the West. The state share a common boundary with the republic of Cameroun on the South Eastern border. The 2006 National Census puts the state population at 4,210,244 made of 2,164,058 males and 2,055,186 females.

## 2.2 Research design and study participants

A retrospective hospital based survey that purposively recruited patients aged 20 - 80 years from the Diabetes clinic of Medical Out-Patient Unit over a 3 year period (January 2016 – December 2018).

## 2.3 Data Collection

A validated interviewer-administered questionnaire was used to collect data from each participant. The questionnaire was developed from previous studies on CAM use. It was used to obtain socio - demographic data such as age, gender, marital status, education and religion. Data were also obtained on the prevalence, forms of CAM products used, route of administration, co - administration of CAM with conventional medicine and perceived benefits or lack of it. The questions were both open and closed ended. For participants who were not literate in English language, the questionnaire was interpreted to them in the local dialect. CAM use was considered in this study as the use of it either as a complement or an alternative therapy.

## 2.4 Ethical Considerations

Ethical approval was obtained from the Ethics committee,

FMC, Makurdi for the study. Subsequently, informed consent was completed by each study participant who agreed to participate after the study had been explained in the language they best understood. Each participant was informed that participation was voluntary and assured of anonymity and confidentiality of information. They were all given the option of not participating in the study if they wished to abstain. They were also reassured that there will be no consequences for abstaining. Consenting participants signed or thumb – printed the forms as appropriate. Data collection lasted for three year (January 2016 to December 2018).

## 2.5 Statistical Analysis

Data was analyzed using EPI info 2000 (version 1.12a) statistical programme. Mean (SD) was used to describe continuous variables and proportions for categorical variables. The  $X^2$  (chi-square) test was used to determine the significance of observed differences. A p value of  $< 0.05$  was considered statistically significant.

## 3. Results

### 3.1 Quality of data

Three hundred and thirteen people (313) were enlisted for this study. Twelve forms were incorrectly filled and were disqualified from analysis which was based on the remaining 301 questionnaires, giving a response rate of 96.2%.

### 3.2 Socio-demographic characteristics of participants.

The respondents were made up of up 136 (45.2%) female and 165 (54.8%) males (female to male ratio was 1:1.2) were consecutively recruited from the diabetes clinic of the institution. The mean age was  $52.5 \pm 9.4$  years and their age range was 20 – 80 years. Individuals in the age range 50 – 59 years were the dominant group (32.5%). There was no significant difference in the age distribution,  $p > 0.05$ . Other aspects of Socio – demographic characteristics of participants are depicted in table I.

**Table 1:** Socio-demographic characteristics of participants

Parameter	Frequency	Percentage	Statistical significance
<b>Diabetes type</b>			p=0.04
1	9	2.9	
2	292	97.1	
<b>Gender</b>			p=0.06
M	165	54.8	
F	136	45.2	
<b>Age</b>			p=0.001
distribution: 20 -29	9	3.0	
30-39	17	5.7	
40 – 49	80	26.5	
50 – 59	98	32.5	
60 – 69	69	23	
70- 79	28	9.3	p=0.09
<b>Residence</b>			
Rural	120	39.9	
Urban	181	60.1	p=0.09
<b>Formal Educational</b>			
None / primary	115	38.2	
secondary	120	39.9	p=0.09
tertiary	66	21.9	
<b>Occupation</b>			
farmers	147	48.8	p=0.09
civil/public servant	117	38.9	
Self employed	27	9.0	
Unemployed (including retired)	10	3.3	

### 3.3 Clinical characteristics of participants

Majority (47.7%) of the respondents had DM for more than a

decade. Most of the respondents had very poor HbA1c levels ( $\geq 8\%$ ) at presentation. High blood pressure was the commonest co-morbidity. Other aspects of clinical characteristics are depicted in table 2.

**Table 2:** clinical characteristics of participants

Parameter	Frequency	Percentage
<b>DM duration</b>		
<5 years	66	22.0
5 -10 years	91	30.2
$\geq 11$ years	144	47.8
<b>Identifiable comorbidity</b>		
Paraesthesia	107	36.6
Hypertension	199	68.2
Foot Ulcer(s)	42	14.1
Visual impairment	29	9.6
<b>HbA1c at presentation</b>		
good (<6.5)	24	22.0
poor (>6.5 – 7.9)	35	32.1
very poor ( $\geq 8.0$ )	50	45.9
<b>Cholesterol</b>		
normal pattern	136	45
abnormal pattern	165	55
▪ Low HDL- c	33	11
▪ High Triglyceride	48	16
▪ High LDL - c	69	23
▪ High Total cholesterol	15	5

### 3.4 Responses of participants

Majority (61.8%) used CAM, mostly through the oral route

and did not inform their diabetes healthcare providers. Other aspects of respondent's responses are depicted in table III.

**Table 3:** Responses of participants

Parameter	Frequency	Percentage
<b>Use of CAM</b>		
- Yes	186	61.8
- No	115	38.2
<b>Types of CAM</b>		
- Oral (tablets, leaves, stem, roots, liquid)	209	100
- Rub (herbs, cream, paste)	55	26.3
- Wear (bracelets, Rings)	51	24.4
- Prayers, yoga, meditation	159	76.1
- Multiple	189	90.4
<b>Duration of CAM use</b>		
- <1 year	49	23.5
- 2 – 5 years	104	49.8
- >5 year	56	26.8
<b>How did you hear about it?</b>		
- mobile human Marketers	201	96.2
- Social media	69	33.0
- Relatives / friends	109	52.2
- Shop	198	94.7
<b>Did it solve the problem for which you used the medicine (efficacy)?</b>		
- yes	80	38.3
- no	100	47.9
- limited extent	29	13.9
<b>Concurrent use of conventional drug(s)</b>		
- Yes	162	77.5
- No	47	22.5
<b>Did you inform your HCP that you were using the(se) medicine(s)?</b>		
- Yes	64	30.6
- No	145	69.4
<b>If no (from above), Why?</b>		
- No reason given	5	2.4
- HCP did not ask	100	47.9
- HCP would not approve	40	19.1
<b>Would you recommend it to others?</b>		
- Yes	99	48.1
- No	110	51.9

HCP (Health Care Provider)

#### 4. Discussion

Out of the 301 individuals living with diabetes mellitus that agreed to participate in this study, 292 had type 2 diabetes, the predominant form of diabetes worldwide [8]. There was no significant difference in the age distribution,  $p > 0.05$ . Respondents 50 – 59 years had the highest representation. The highest impact of diabetes and its complications is thought to be highest in this age bracket [9]. Nigeria is undergoing rapid urbanization, [9] a risk factor for diabetes. This may account for the disproportionate representation of urban dwellers, which was statistically significant. Although more respondent had DM for more than a decade, there was no statistically significant difference within the strata. Cardiovascular diseases are the highest cause of mortality in diabetes [10]. Hypertension is the commonest cardiovascular disease [8]. Hypertension stood out among theco-morbidities, affecting 61.9% of participants. A significant proportion (45.9%) of respondents had very poor HbA1c level, signifying poor glycaemic control over their recent past. Poor glycaemic control is a common accompaniment of many studies from public hospitals in third world countries because of dire financial constraints, poor facilities and low level of education prevalent in such societies [4, 6, 7, 10, 11]. There was no significant difference between the group with normal lipid levels compared to those with dyslipidaemia. Among those with impaired lipid levels, high levels of Low Density Lipoprotein cholesterol predominated as the commonest abnormality. Others include high levels of triglyceride and low levels of High Density Lipoprotein cholesterol. These patterns are commonly observed in individuals living with type 2 diabetes [12], especially where adverse socioeconomic factors are operational [11, 12].

The prevalence of CAM use in this study was 61.8%. A significant proportion of respondents used CAM (61.8% vs 38.2%,  $p=0.002$ ). There was a statistically significant difference between the number of respondents who used CAM compared to those who had never used,  $p < 0.5$ . This is in tandem with the observation that individuals with diabetes were 1.6 times more likely to use CAM than individuals without diabetes [13]. In the general population, estimates of CAM use were not significantly different across selected chronic medical conditions, but diabetes was an independent predictor of CAM use [13]. There is evidence that an increasing number of individuals in the developed world use one or more CAM remedies for the treatment of common medical conditions [14]. Every individual in this study that used CAM had consumed it through the oral route at one time or the other. The oral route was the most prevalent route of CAM use in other studies [4, 15-17]. Upto 90% had used more than one method, including orally and another route. This may be serial or concurrent use. More than a quarter (77.5%) of those that used CAM did not stop their conventional drugs. This is a common practice among people living with diabetes that use CAM products and services [13, 15, 17-18]. The prevalence of concurrent usage of CAM along with orthodox drugs was observed to be as high as 94% in some studies [18]. An observation common to many African studies was that individuals with diabetes seem to use CAM as a complement rather than as an alternative to conventional treatment [13, 15, 17, 18]. A significant proportion (76.1%) of respondent's utilised faith based methods such as prayer(s), yoga and meditation. It is reported that a substantial percentages of the U.S. population believe and seek spiritual healing as a form of treatment [13] with as many as 35% of the U.S. population

using self-prayer as a form of treatment [14]. As used in their article, Spiritual healing refers to healing by someone other than self, such as the clergy or a spiritualist, and differs from self-prayer [13]. Egede *et al.* reported this method of treatment as the second most common type of CAM used by individuals with diabetes (21%) in their series [13]. A systematic review of 23 trials and 2,774 patients found that prayer and distant healing yielded statistically significant treatment effects in more than half (57%) of the patients [19]. It has been reported that the way of life of most Nigerians is founded on religion (Islam, Christianity or traditional). Therefore, these worship places and their leadership have a role to play in influencing constructive socio-cultural changes. Such changes are necessary for the transformation of society towards the common good [6]. The vast majority (96.2%) of CAM users in this study became aware of CAM through marketers who move from place to place to sell their wares, targeting places where people gather to socialise. Another very common route (94.7%) was exposure to these products on the shelves of shops. The aggressive manner of marketing these products may also be a factor in the propagation of the products [15]. Another important factor is referral from well-meaning family members, friends, neighbours, people with similar backgrounds and or shared values (cultural, religious) and individuals that had DM and used same or similar modality [18]. Upto 38.3% of respondents believed CAM solved the problem for which they used the product(s). Ogbera *et al.* observed from their study that the proportions of CAM and non CAM users that achieved good glycaemic control were comparable [13]. Indeed, some CAM products may be beneficial [20]. A smaller proportion (13.9%) were not so sure and therefore, admitted that the CAM modality they used helped to some extent. In contrast, the use of herbal remedies has not been shown to improve glucose control and in some instances, may even be harmful in individuals with diabetes [20]. In this study, nearly halve (47.9%) disagreed about the efficacy of CAM for glycaemic control and other complications arising from diabetes mellitus. Because of the limited research on CAM use by people with diabetes in developing countries, the purported benefits of some CAM products may be swamped by the lack of clinical testing. The lack of randomized controlled trials is one of the reasons for the hesitation among most health care workers, thereby making the use of these agents controversial in most clinical outlets [20]. While a number of the practices in traditional medicine can have negative health consequences and constitute a poor alternative to modern medical treatment, the traditional healers themselves, if their knowledge and skills can be properly recognized and harnessed, might prove to be effective partners in the fight against diabetes [7]. Also, there is lack of integration of CAM therapies into African mainstream health care systems. This is in spite of the World Health Organization's recommendation to integrate traditional and CAM therapies into national health care systems [21]. To achieve this, various strategies may be helpful. One of these approaches may include gradual co-operation with traditional healers as recommended by the World Health Organization. Mutual respect between care providers in both fields-traditional and modern-is a pre-requisite for this approach. It would also engender evidence-based research, which would in turn trigger legal reforms to permit the regulated incorporation of traditional healers into healthcare systems [6]. If, under this approach, traditional healers were provided with education on the symptoms and complications of diabetes,



they might be able to act as frontline players in primary diabetes care [6]. To be able to achieve these, another major concern which is the lack of regulation of CAM use in Africa and other developing countries must be tackled. Unregulated health products expose the population to potential harm. There exists limited quality assurance with most CAM regulatory processes falling outside the scope of most government drug and therapeutic agencies in Africa [20]. Majority (69.4%) of respondents did not disclose to their healthcare providers (HCP) that they were using or had used CAM. This was a common observation in many studies [13, 15, 17-20]. As many as 47.9% did not disclose because the healthcare personnel did not specifically ask for history of past or current use while 19.1% felt the health care personnel would not approve of use of CAM. It would therefore appear that health care workers were not fully aware that so many of their diabetic patients use CAM therapies and the type(s) and extent of use. HCPs should therefore have this in mind, and routinely take a thorough history to document any such therapies and discuss these practices with their patients in order to safeguard their health [17]. Paradoxically, some clinicians interpreted the low levels of communication about CAM as a sign of low use in their clinical practices [22]. This assumption, together with the clinician's lack of understanding about CAM, appeared to limit discussion of CAM in the (usually brief) clinical encounter. Many clinicians expressed skepticism about CAM safety and effectiveness out of genuine concern for their patients, and some believed their duty is to protect patients from the potential adverse effects of certain practices or possible delay of effective conventional care resulting from CAM use. Other clinicians, while still skeptical, see nonjudgmental discussions with their patients about CAM to be a way to improve their understanding of and relationships with their patients [22]. There are numerous studies, however, documenting a lack of communication in the conventional care setting between patients and their primary care clinicians about patients' use of CAM [23, 24]. Patient-centered communication is an evolving construct unified by a set of core values defined by Epstein *et al.* as a set of strategies designed to enhance a sense of partnership in the patient-clinician relationship [25]. Applied to CAM use, patient-centered communication can be important because it may (1) result in closer agreement between the clinician and patient about treatment plans, (2) reduce misunderstandings between patients and clinicians, (3) uncover potential herb-drug interactions, (4) strengthen the quality of the patient-clinician relationship, and (5) provide an opportunity to discuss specific CAM modalities with high-quality evaluative evidence [26]. Clinicians who advocate patient-centred communication principles pointed out that the language used to introduce and discuss CAM was critical; they therefore emphasized an open and nonjudgmental approach [22]. While rejecting the idea of themselves as content experts in CAM, they emphasized the importance of not dismissing the patient's use of CAM as a way to support a positive therapeutic relationship with potentially greater benefits than what might come from criticizing the CAM practice [22]. A worrisome observation was that there was no statistical difference between those that used CAM and would recommend for others to use as compared to those who would not recommend. This, coupled with the wide - spread use of CAM products and services as well as the fact that not much is known about CAM implies that Diabetes Care Providers will need to acknowledge that their clients use CAM, learn to discuss CAM and CAM use with their patients and be able to

do so candidly and without prejudice [13].

## 5. Conclusion

In this study, the use of complementary, alternative or traditional means of treatment by individuals with DM was noted to be common and significant. Practitioners need to ask their clients for history of use, type and whether it supplanted or was concurrently used with conventional drugs. Further studies are needed to assess the impact on metabolic profile and survival.

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