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RESEARCH ARTICLE

KNOWLEDGE AND PRACTICES OF TRADITIONAL HEALERS TOWARDS DIABETES MELLITUS IN KHARTOUM STATE

***Hala, Hammad Mohammed Zain Ahmed and Mofida, Yousif Elkhalifa**

National Center for Research, Medicinal, Aromatic Plants and Traditional Medicine Research Institute, Sudan

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ABSTRACT

The main objectives of this study were to determine the knowledge pertaining to diabetes mellitus of traditional healers in Khartoum State, and to explore some of their practices towards their patient's advices, treatments, diagnosis, following up and referral systems. The target population of the study consisted of 40 herbalists. The sample was purposive and interviews guided by semi-structured open-ended questionnaires were used. The results obtained indicated that the healers had a primary knowledge about diabetes and had a willingness to learn more about the disease. 90% of the herbalists stated that diabetes is due to disturbances in the pancreas, and the main causes of the disease were diet high in fats and carbohydrates (22.5%), or due to genetical factors (20%). The most two well known symptoms stated by the studied herbalists were frequent urination (87.5%) followed by thirst (67.5%). More than half of the herbalists (55%) believe that diabetes could be completely cured. Concerning the average number of patients, 55% of healers mentioned that more than 10 diabetic patients usually visit the traditional healers' center per month. For a better monitoring and control of diabetes in Sudan training of traditional healers was urgently needed. Further studies concerning the effectiveness of medicinal plants used for treating diabetes are also needed.

INTRODUCTION

Diabetes is the most common metabolic disorder worldwide and is a major public health problem. Its incidence increases every day in all countries. However, in developing African countries, few people have access to drugs. Thus, many people in these developing countries use plants for the treatment of diabetes. Yet, few studies were focused on these medicinal plants in Africa in general and in Sudan in particular. The prevalence of diabetes in the Sudan, as in many other low-income countries, is increasing to epidemic proportions, leading to the emergence of a public health problem of major socio-economic impact (Moawia, 2006). Until 1970, diabetes was considered a rare problem in Sudan. However, it is now of a considerable important health problem, especially in the North, as it results in more than 10% of all hospital admissions and mortalities in all over Sudan. The increased prevalence of diabetes is attributed to an unhealthy diet and a sedentary life, especially in urban areas (Awad, 2003). There is a growing interest in the possible complementary roles that traditional healers could play within the health system. Training of traditional healers on health education and health care for diabetes was incorporated in many African countries such as in Cameroon (Cameroon Burden of Diabetes Project). This project implemented and evaluated diabetes prevention and control in four cities in Cameroon. The results indicated that the healers had acquired basic knowledge about diabetes, and they were able to pass the knowledge to other healers and all weaknesses were being identified and were corrected (George, *et al*., 2010). In Sudan many herbal medicines were used in the control of diabetes mellitus by many herbalists. Since a considerable number of diabetic patients seek the help of these herbalists, it is a must that health care professionals should know these traditional practitioners, knowledge and practices on matters related to diabetes mellitus. This will probably result in a better control of diabetes. Nonetheless, in Sudan there are very few studies if any on this important area of research. Therefore this study will be focused on the knowledge and practices of traditional healers towards diabetes mellitus.

Corresponding author: Hala, Hammad Mohammed Zain Ahmed
National Center for Research, Medicinal , Aromatic Plants and Traditional Medicine Research Institute, Sudan.

MATERIALS AND METHODS

Study area

The study area selected was Khartoum State, the national capital of Sudan. This area was chosen to be studied because there is cultural interaction and various kinds of traditional treatments and healing methods for diabetes. It has an area of 22,122 km^2 and an estimated population of approximately

7,152,102 (2008/2009 census). The State of Khartoum is divided into seven localities. The tribes living in Khartoum State are a mixture of the majority of tribes living in Sudan.

Target population

The target population of the study consisted of 40 traditional healers mainly herbalists from different parts of Khartoum State. The study covered all the 7 localities of Khartoum State. The selection of the sample was purposive, because there is no reliable data on the number of traditional healers currently practicing in Khartoum State. This study was carried out from may-2010 to June-2011. The data was collected using interviews guided by questionnaires which included:

- Socio-demographic characteristics of healers such as age, sex, educational level, and tribe.
- Knowledge about diabetes: Causes symptoms and signs, types and diagnosis, treatment, referral system and follow up.
- Explore some of their practices including their patient's advices concerning their disease and treatment.

RESULTS AND DISCUSSION

Table 1 shows that the total number of the traditional healers participated in this study were 40. The gender distribution of studied population was 92.5% males, and 7.5% females. Most of the respondents were males; this result agrees with a study in Ethiopia by Getachew, *et al.* (2002). This might be due to that herbalists usually travel widely to obtain their treatments which is culturally difficult for Sudanese females. 25% were 30-40 years of age, 40% were 41-50 years. 72.5% were married, and 15% were single. Half of the healers (50%) have a university level of education.

Table 1. Socio demographic characteristics of the healers

Sex	Number	Percentage
Males	37	92.5%
Females	3	7.5%
Age(years)		
30-40	10	25%
41-50	16	40%
> 50	14	35%
Education		
Khalwa-secondary	20	50%
University	20	50%
Tribe		
North	16	40%
Middle	13	32.5%
West	8	20%
East	3	7.5%

This percentage was much higher than the rest of the Sudanese population. However, the study found that there is no difference between the highly educated and the lower regarding their knowledge or practices concerning diabetes. This result is similar to a study in Cameroon by George, *et al.* (2010) who found that the knowledge of the healers did not differ according to the healer's level of education. The majority of the herbalists were either from the northern parts of Sudan (40%) or from the middle (32.5%). This is probably due to the late extensive migration to Khartoum. In 2000 a study by Mahjoub (2000), concerning factors that led the traditional healers to migrate to Khartoum showed that it is due to economical factors and in Khartoum State there are many health and research centers so that the healer could improve his treatments.

Table 2. Knowledge about diabetes

What is diabetes	Number	Percentage
Disturbance in the pancreas	36	90%
Blood pollution	4	10%
Causes of diabetes		
Higher intake of fats and carbohydrates	9	22.5%
Hereditary	8	20%
Some drugs	4	10%
Cars pollution	4	10%
Psychological stresses	3	7.5%
Supernatural causes	3	7.5%
Lower faith in God	2	5%
Immune deficiency and presence of viruses that cause some change in B-cell	1	2.5%
Symptoms of diabetes		
Frequent urination	35	87.5%
Frequent thirst and dryness	27	67.5%
Fatigue	23	57.5%
Feeling hot in the limbs	16	40%
Increased sweating	15	37.5%
Pain and itching in the genital organs	7	17.5%
Hunger	5	12.5%
Weight loss	4	10%
Coma	1	2.5%
Skin rash	1	2.5%
Can diabetes completely be treated:		
Yes	22	55%
No	16	40%
Sometimes	2	5%

As shown in Table 2 most of the healers (90%) stated that diabetes is a disturbance in pancreas, and only 10% stated it is due to blood pollution. Since in modern medicine diabetes is defined as a metabolic disorder caused by different factors characterized by a chronic high level of blood sugar with disturbances to carbohydrates, fats and protein metabolism resulting from defects in insulin secretion, insulin action or both (Mario *et al*., 2008, it seems that most of these herbalists have a good primary knowledge about what is diabetes. The healers listed many causes of diabetes such as diet high in carbohydrates and fats or more eating and less activity (22.5%), probably the consumption of unhealthy foods with a high sugar and fat content can influence the body weight adversely, thus, increased body weight is a major risk factor for developing diabetes (Huyssteen *et al*., 2004). The second cause was genetical (20%). Indeed it was found that the genetic predisposition might be is a major risk factor to diabetes, along with environmental factors (Mario *et al.*, 2008). Concerning the symptoms, 87.5% of the healers reported frequent urination, followed by frequent thirst and dryness (67.5%), fatigue (57.5%), and feeling hot in the limbs (40%). The description of the herbalists participated in this study to symptoms of diabetes mellitus was very similar to those known in conventional medicine. However, the healers did not exhibit any understanding of signs and symptoms associated with hypo- and hyper-glycaemia. Also, most of the traditional healers (67.5%) don't know what dose glucose level mean. Half of the healers have a very weak knowledge about the different types of diabetes. 50% of the herbalists studied

apparently believe that diabetes could be completely cured; similar results were also reported by Huyssteen *et al*. (2004). These results were different from those known in the conventional medicine, as diabetes can rarely be completely cured but it can easily be well controlled.

Table 3. Types of treatments for diabetic patients

Types of treatments	Number	Percentage
Combination of herbs	32	80%
One herb	6	15%
Food + some herbs + honey + oil	2	5%

As shown in Table 3 the majority of healers (80%) described their treatment in the form of recipes containing 3 plants or more (e.g. cinnamon, fenugreek and *lupinus inermis*), the preparation of these recipes differs from a healer to another. Only 15% of the healers use one herb to treat diabetes, and 5% of the herbalists their treatments contain food regime plus some herbs and bee honey. On the other hand, 42.5% didn't name their herbs (secret herbs).

Table 6. Advices of healers for the diabetic patients

Do you stop the doctors treatment	Number	Percentage
Yes	12	30%
No	19	47.5%
Gradually	9	22.5%
Food advices for the patients		
Follow a certain dietary regime	20	50%
Avoid fats	5	12.5%
Eat more vegetables & fruits	5	12.5%
Eat small amounts of food	3	7.5%
Avoid bread	3	7.5%
Avoid soft drinks	2	5%
General advices		
Patients must have good knowledge about diabetes	10	25%
Avoid stress	10	25%
Suitable body weight	7	17.5%
Avoid hard work	6	15%
Be closer to Allah and be happy	4	10%
Exercise	3	7.5%

Table 4. Some herbs commonly used by herbalists for treating diabetes

Local name	Latin name	parts Used	Method of preparation	Dose/day	frequency	Percent
Helba	*Trigonella Foenum graecum L*	Seeds	Powder in combination or alone	Two times	14	67%
Elgerfa	*Cinnamomum Verum*	Park	Powder in combination or alone as tea	One time	11	52.4%
Turmis	*Lupinus Termis L*	Seeds	Powder in combination	Two times	7	33.3%
Demessesa	*Ambrosia Maritima*	All plant	Powder in combination	Two times	4	19%
Elsheh	*Artemisia spp.*	All plant	Powder in combination	In the morning	4	19%
Genzabeel	*Zingiber officinale rosc.*	Rhizomes	Powder in combination	One time	3	14.3%
AlGubesh	*Guiera senegalensis I.F.G mel.*	Leaves	Powder in combination	Two times	2	9.5%
Alsabar	*Aloe Vera*	All plant	Extract	One time	2	9.5%

Many of the plants used by these herbalists were scientifically studied. For example, Fenugreek or Trigonella Foenum seeds (alhelba) have shown some hypoglycemic effects on diabetes in both animal and human studies (Xue, *et al*., 2007). In Sudan Shaheen, (2009) and Ali, (2009) studied the effects of *Cinnamomum Verum* (Elgerfa) on diabetes. Also Ahmed, (1999) studied the hypoglycemic effect of *Guera Senegalensis* (algubesh). Osman, (2007) studied the effect of Aloe Vera (alsabar). All these plants were found to have hypoglycemic effects. From the previous studies regarding hypoglycemic effects of medicinal plants, most of the commonly used plants by the herbalists in this study have been proven pharmacologically to have hypoglycemic effects. Yet, the exact dose and standardization studies are needed.

Table 5. Patients visiting traditional healers

	Number	Percentage
Number of diabetic patients visiting the healer		
1-10 patients	18	45%
More than 10 patients	22	55%
Does the patients go at first to a doctor then come to the healer		
Yes	39	97.5%
No	1	2.5%
Why do you think patients come to herbalists after going to the doctors		
Failure of medicine	27	67.5%
Believing in traditional medicine	6	15%
Unspecific reasons	4	10%
To try new things	3	7.5%

From Table 5 most of the healers (55%) stated that the number of diabetic patients who usually visit the healer's clinic were more than 10 patients per month. 97.5% of diabetic patients seek medical care as first choice then seek the healers care. In the present study most of the healers (67.5%) believe that the diabetic patients come to them due to the failure of the modern medicine in treating the disease, 15% believe in traditional medicine and only 10% for unspecific reasons. The finding of the present study agrees with a study by Getachew, *et al* (2002) in Ethiopia. It seems that the studied herbalists have a very good knowledge about the importance of food in controlling of diabetes. Thus, when the healers were asked about the food advices they usually say to patients, their advices included eating more vegetables and fruits (12.5%), also half of the herbalist's advice their patient to eat frequent meals. These two advices were also highly recommended by the conventional medical health sectors. Other general advices included avoiding of stress (25%), and maintaining a suitable body weight (17.5%). 7.5% of the herbalists advice their patients to exercise. Similar advices were reported by George, *et al*., (2010).

Conclusion

This study provides us for the first time to my knowledge with the knowledge and practices of the traditional healers (herbalists) in Khartoum State concerning diabetes. The study found that most of the traditional healers' knowledge and experiences came from their relatives or other healers. Also the study found that the traditional healers appeared to have a good knowledge about the disease symptoms, signs and causes. But

the healers have weak knowledge about the types of diabetes and glucose level. Half of the herbalists believed that diabetes is a disease which can be completely cured. The study also revealed that most of their advices to diabetic patients included some dietary guidelines, avoid stress and exercise. Some herbalists advice their patients to stop the doctor's treatments. The study also showed that the number of patients who seek the help of traditional healers was high and this cannot be ignored. Therefore, collaboration between herbalists and doctors need to be explored as a potential approach for improving the access to more effective diabetes prevention and care. Most of the herbs used by traditional healers were pharmacologically investigated and found to be effective, while the others needed to be further investigated.

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