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Title:

Self-Medication with Herbal Remedies Among Patients with Type 2 Diabetes Mellitus at Al Jumeih Hospital, Northern State, Sudan, 2026

A Research Proposal Submitted in Partial Fulfillment of the Requirements

for the Degree of Bachelor of Medicine

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CHAPTER ONE

BACKGROUND

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disease requiring long-term treatment, regular monitoring, and appropriate self-management to prevent complications. [1] Many patients also use herbal and traditional medicines alongside conventional treatment. [2]

Globally, the use of herbal and traditional medicines among people with diabetes varies considerably.

In Africa, a systematic review reported prevalence ranging from 12.4% to 77.1%, with a median of 50%. Traditional medicines were often used with conventional medicines, and many patients did not disclose their use to healthcare providers. [2,3]

In Sudan, limited resources and the cost and availability of conventional treatment may contribute to the use of herbal medicines. Sudan has a rich diversity of medicinal plants, with about 3,137 flowering plant species, which supports the widespread use of traditional and herbal remedies. [4] Some patients reduce or stop prescribed diabetes medications or replace them with herbs of unproven efficacy and safety, while concealed use may affect glycemic control. [4,5] Herbal medicine is also widely practiced in Sudan,

and a community-based study in Dongola demonstrated its local relevance. [6,7] However, limited evidence is available on self-medication with herbal remedies among patients with T2DM attending Al Jumeih Hospital. Therefore, this study will assess the prevalence, commonly used herbs, reasons for use, sources of information, and associated factors.

1.2 Problem Statement

Despite the availability of conventional antidiabetic medications, herbal remedies are commonly used by patients with diabetes. However, the efficacy and safety of many herbal medicines remain uncertain. In Sudan, a hospital-based study by Ahmed et al. (2021), involving 260 diabetic patients in Khartoum, found that 73.8% used herbal medicines alongside conventional treatment [8].

The lack of local evidence on herbal self-medication among patients with Type 2 Diabetes

Mellitus (T2DM) in Dongola represents a knowledge gap that may limit healthcare providers' ability to identify potential risks and provide appropriate patient education and safe diabetes care.

Therefore, this study will determine the prevalence of herbal self-medication among patients with T2DM attending Al Jumeih Hospital, as well as the commonly used herbal remedies, reasons for use, sources of information, patterns of use, disclosure to healthcare providers, and associated factors.

1.3 Justification

Type 2 diabetes mellitus is a chronic condition that requires continuous pharmacological and lifestyle management to achieve adequate glycaemic control and prevent complications. In many communities, patients also use traditional and herbal remedies, sometimes without informing their healthcare providers. Previous evidence from Sudan has

documented the use of herbal medicines among patients with type 2 diabetes, including their reported role as a factor affecting adherence to prescribed antidiabetic treatment.

The use of herbal remedies in people with diabetes is particularly important because herbal products may vary considerably in composition, quality, and safety. Their concurrent use with conventional medicines may also result in herb–drug interactions, potentially affecting treatment effectiveness or causing adverse effects. The World Health Organization therefore emphasizes the importance of research, pharmacovigilance, and appropriate monitoring of herbal medicines and their interactions with conventional therapies.

Although self-medication with herbs has previously been documented in Sudanese

populations, available evidence is not sufficient to describe the current pattern of herbal self-medication specifically among patients with type 2 diabetes attending Al Jumeih Hospital. Local information is needed because patterns of traditional medicine use, commonly used herbal remedies, reasons for use, sources of information, and disclosure to healthcare professionals may differ between communities.

Therefore, this study will determine the prevalence and patterns of self-medication with herbal remedies among patients with type 2 diabetes mellitus at Al Jumeih Hospital and identify factors associated with this practice. The findings will provide locally relevant evidence to help healthcare professionals identify potentially unsafe practices, improve patient counselling regarding the concurrent use of herbal and conventional

medicines, and support appropriate pharmacovigilance and patient-safety measures in diabetes care.

1.4 Objectives:

General objective:
To assess Self-Medication with Herbal Remedies Among Patients with Type 2 Diabetes Mellitus at Dongola Specialized Hospital, Northern State, Sudan, 2026

Specific objectives:

1_ To determine the prevalence of herbal self-medication among patients with Type 2 Diabetes Mellitus.
2_To identify the commonly used herbal remedies.
3_ To identify the reasons for herbal self-medication.

4_To identify the sources of information about herbal remedies.
5_To determine the factors associated with herbal self-medication.

research Questions:

What is the prevalence of herbal self-medication among T2DM patients?
What herbal remedies are commonly used?
What are the main reasons for their use?
What are the main sources of information about herbal remedies among patients with Type 2 Diabetes Mellitus?
What factors are associated with herbal self-medication?

Research Hypothesis

Null Hypothesis (H_0)

There is no statistically significant association between

selected sociodemographic and clinical factors and self-medication with herbal remedies among patients with Type 2 Diabetes Mellitus (T2DM) attending Dongola Specialized Hospital.

Alternative Hypothesis (H_1)

There is a statistically significant association between selected sociodemographic and clinical factors and self-medication with herbal remedies among patients with Type 2 Diabetes Mellitus (T2DM) attending Dongola Specialized Hospital

CHAPTER TWO

literature review:

2.1 Global Studies

Herbal and complementary medicine use is common among patients with diabetes. A systematic review of 38 studies from 25 countries reported a pooled prevalence of 51% for complementary and alternative medicine use among patients with diabetes, with herbal medicines among the most commonly used therapies. Approximately one-third of patients did not disclose their use to healthcare professionals [2,2].

In India, a study among 400 patients with diabetes reported that 38.75% used complementary and alternative medicine, while 63.2% of users used herbal medicines [10].

In Pakistan, a cross-sectional study among 262 patients with T2DM found that 57.8%

used complementary and alternative medicine, with herbs being the most commonly used type [11].

2.2 Regional Studies

A systematic review of 24 studies from 13 African countries reported that the prevalence of traditional medicine use among patients with diabetes ranged from 12.4% to 77.1%, with a median prevalence of 50%. Concurrent use with conventional medicine ranged from 35.4% to 88.4%, while non-disclosure to healthcare providers ranged from 63.8% to 91.3% [13, 13]
In Cameroon, a cross-sectional study among 403 patients with T2DM found that 59.55% used phytotherapy, including 41.69% who used it concurrently with conventional treatment [14].

.3 Studies from Sudan

In Khartoum, Ahmed et al. (2021) conducted a hospital-based study among 260 diabetic patients and found that 73.8% used herbal medicines concurrently with conventional

antidiabetic treatment. Commonly used herbal remedies included Cinnamon, Fenugreek, Hargal, and Moringa [8,8].

Another Sudanese study among 213 patients with T2DM attending Jabir Abu Eliz Diabetes Centre reported that 12.3% identified herbal medicine use as a barrier associated with antidiabetic medication adherence [1 6 ننه].

In Dongola, Northern State, a community-based cross-sectional study reported that 82% of respondents had good practices toward herbal medicine. About 63.3% considered herbal medicine always useful, while 68.7% reported that they would repeat their experience with herbal medicine. However, 82.7% preferred modern medicine over herbal medicine. Fenugreek (57.3%) and Al-garad (51.8%) were the most commonly used herbal medicines [7,7].

In North Kordofan, a cross-sectional study among 302 residents found that 89.1% used traditional medicine, while 60.3% used

medical herbs or herbal practitioners. Diabetes was one of the health conditions for which traditional medicine was used, reported by 10.3% of participants [18].

In Omdurman, Sudan, a study among 381 Sudanese adults found that 85.9% used herbal medicines. The most commonly used were Peppermint (73.8%), Acacia nilotica (71.4%), Hibiscus (70.9%), Ginger (69.8%), and Fenugreek (66.9%) [19].

However, most available Sudanese evidence is from Khartoum or general community populations, with limited information about self-medication with herbal remedies among patients with T2DM in Northern State, particularly at Al Jumeih Hospital.

CHAPTER THERE

Methodology

3.1.Study design

An analytical cross-sectional study will be conducted.

3.2.Study area

Diabetes clinic, Al Jumeih Hospital, Northern State,
Sudan

3.3.Study period

The study will be conducted from September to November 2026.

3.4.Study population

Adult patients diagnosed with Type 2 Diabetes Mellitus who attend the diabetes clinic at Al Jumeih Hospital during the study period.

Inclusion criteria:

Adults aged 18 years or older who are diagnosed with Type 2 Diabetes Mellitus and attend the diabetes clinic during the study period.

Exclusion criteria

Patients who are unable to provide reliable information.

Patients who decline to participate or do not provide informed consent.

3.5.Sampling:

The simple formula for sample size determination (N = PQZ2/d2) has been used to estimate the present sample size

Where

N = Sample size

P = Prevalence factor

Q = 1-p

Z = Constant 95% occurred 1.96

d = Desired margin

3.6.Sampling procedure:

A systematic random sampling technique will be used. The sampling interval (k) will be calculated by dividing the estimated number of eligible patients attending the diabetes clinic during the study period by the required sample size. A random starting point will then be selected, followed by recruitment of every kth eligible patient until the required sample size is reached.

3.7.Study Variables:

Dependent:

Self-medication with herbal remedies: use of herbal remedies without recommendation or prescription from a qualified healthcare professional.

Independent variables

Age
Sex
Education
Occupation
Income
Diabetes treatment
Diabetes complications
Family history
Source of information
Residence
Marital status
Presence of complications

Previous experience with herbal remedies
Accessibility/cost of conventional treatment
Family/friends influence
Previous advice from traditional healers
Knowledge about herbal medicine
Whether the healthcare provider knows about herbal use

3.8.Method of data collection:

Data will be collected using a structured interviewer-administered questionnaire

The questionnaire covered all the important parameters, including the patients' personal information, diabetic history, medications, complementary medications history and experience.the type of herbals used, source of prescription, frequency of use, adherence to use, experience of any effect(s) and if he/she had informed his/her doctor

.

3.9.Data Processing and analysis:

The collected data will be checked for completeness, coded, entered, and cleaned before analysis. Data will be analyzed using the Statistical Package for the

Social Sciences (SPSS), version 22. Descriptive statistics will be used to summarize the study variables. Categorical variables, such as the use of herbal remedies, types of herbal remedies used, reasons for use, and sources of information, will be presented as frequencies and percentages. Numerical variables, such as age and duration of diabetes, will be summarized using means and standard deviations where appropriate.

Chi-square test will be used to assess the association between the use of herbal remedies and selected categorical variables, such as sex, educational level, occupation, duration of diabetes, and use of conventional antidiabetic medications. Where appropriate, other suitable statistical tests will be applied according to the type and distribution of the variables. A p-value of less than 0.05 will be considered statistically significant.

3.10. Validity, Reliability and Pilot Testing

The questionnaire will be reviewed by the supervisor and relevant experts to assess content validity.
A pilot test will be conducted before the main data collection to assess clarity and feasibility of the

questionnaire. Necessary modifications will then be made.

3.11. Ethical consideration:

The study will be conducted after obtaining ethical approval from the Department of Community Medicine, Faculty of Medicine and Health Sciences, Dongola University. informed consent will be obtained from all participants before data collection. Participants' confidentiality and privacy will be maintained throughout the study.

CHAPTER FOUR

- **4.1Workplan:-**

Activities	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11
Preparation of Research proposal											
Review of the research proposal											
Literature review											
Preparation of study tool											
Review of study tool											
Data collection											
Data organizatio n& analysis											
Writing the results											
Discussion & recommen dation											
Writing introductio n & conclusion											
Final review											

◆ **Budget**

No	Budget category	Totalcost(SDG)
1	Transportation	60000
2	Print	40000
3	Data Analysis	60000
	Total	160000SDG

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