WHAT IS THE PREVALENCE OF DIABETES MELLITUS IN JUBA CITY, SOUTH SUDAN?

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Abstract

Diabetes is an important public health problem, one of the four priorities in non-communicable diseases (NCDs) recognized as an important cause of premature death and disability. In 2014, the number of cases of diabetes was estimated to be 422 million people in the world, a prevalence of 8.5% among adult population. The prevalence of diabetes in South Sudan in general and in Juba city in particular has not been studied. The estimated prevalence of 7.43% according to world diabetes federation was estimated by extrapolation using the neighboring countries. This study is aimed to determine the prevalence of diabetes mellitus in Juba city among patients visiting Malakia Diabetic Control Center. The prevalence of diabetes was determined using cross-sectional study design by analyzing quantitative secondary data. It was found that the prevalence of diabetes mellitus was 11.8%. By gender, the majority of cases were male (7.2%) compared to female (4.6%). Based on this research finding, it can be concluded that Diabetes Mellitus is increasing in South Sudan. Therefore South Sudan government and its partners should double efforts to establish health centers so that more and regular screening can be done. Health education for high risk group and general population should be carried out routinely.

Key words: prevalence; diabetes, health education, screening and prevention

INTRODUCTION

Diabetes is defined as a group of chronic metabolic disorder characterized by abnormal regulation of glucose resulting in hyperglycemia from defect in insulin secretions to insensitivity

to insulin uptake or both [1]. Diabetes has a public health significant, it is one of the four priorities in non-communicable diseases (NCDs) recognized as an important cause of premature death and disability[1]. In 2014, about 422 million people suffered from diabetes worldwide with a prevalence of 8.5% among adult population [2].

This number is predicted to double by year 2030 with greatest prevalence expected in less developed countries [2]. This means westernization of the disease as predicted is taking place. Diabetes alone caused 1.5 million deaths in 2012. The indirect impact of diabetes with associated risk factors like cardiovascular and other diseases caused additional 2.2 million deaths. The percentage of deaths attributable to diabetes before age 70 is higher in low- and middle-income countries than in high-income countries [2]. In Sub-Saharan Africa, the prevalence is estimated at7.1% which is about 25 million people [2]. The prevalence of diabetes in South Sudan was estimated to be 7.43% [3]. This prevalence was estimated by world diabetes federation through extrapolation using the neighboring countries [3]

Diabetes burden is responsible for increased morbidity and mortality. As a consequence Diabetes decreased life expectancy and reduced quality of life [5]. Diabetes also creates a huge economic burden not only due to the direct costs of treatment of its complications, but also in terms of hours lost due to the debilitating effect the disease has on the individual and his or her family.

In South Sudan, anecdotal evidence shows that the burden of chronic diseases including diabetes mellitus is increasing (4). The ongoing civil war, limited resource and unskilled health care personnel complicate the management of diabetes. The prevalence of diabetes in South Sudan in general and in Juba in particular has not been studied. The purpose of this research was to assess the prevalence of Diabetes Mellitus in Juba city.

Recently established division of non-communicable diseases has a limited capacity and lacking formulation of strategies to deal with prevention, detection and treatment of diabetes [6].Taking control of diabetes to improve quality of life has put spotlight on the need for additional support and education for patients with diabetes [6]. This light of the fact that a significant proportion of the population is undiagnosed and more than half of them are unaware of the condition.

RESEARCH METHODOLOGY

Study Method and Design

The purpose of this research was to determine the prevalence of diabetes mellitus in those who were referred to Malakia diabetic control center for screening. A cross sectional descriptive study design was used. The methodology was based on quantitative secondary data that was collected from the center registry in Malakia diabetic control center, Juba South Sudan. The research was carried out in the period of three months from 1st July to 30th September, 2017.

Populations and Study Samples

The study population included all patients who visited the center for screening for Diabetes. The population includes adults, children, and pregnant mothers, male and female patients. The study used urine analysis using urine deep stick, random blood glucose test (BGT), fasting Blood glucose test (FBG). A sample of 237 were available for analysis.

Collection of Data

Data was collected based on checklists of the patients who have been registered and screened by the center. Data collection from the center was done by investigators going through registry of the clinic. To ensure a high proportion targets numbers were achieved, a time convenient for the center health personnel was agreed upon; the researchers themselves did the retrieval of the information. Data was analyzed using Microsoft excel to generate graphs or charts.

RESULTS

From the total number of 240 proposed sample sizes, 237 samples were collected from screened patients, who attended Malakia Diabetic Control Center between 6th April, 2016 and 6th April, 2017. Making the retrieval rate of 98.75%

Table 1: Frequency of people attending Malakia Diabetic Control Center by age group

	Number of people attending Malakia Diabetic Control Center in Juba			**Marital Status**		**Screening results**		**Type of Diabetes**	
Age Category	Male	Female	Total	Married	Single	Diabetic	Non-diabetic	Type 1	Type 2

15 - 20	3	3	6	3	3	5	1	5	0
21 - 26	7	2	9	8	1	1	8	1	0
27 - 32	13	15	28	27	1	3	25	0	3
33 - 38	20	13	33	33	0	2	31	0	2
39 - 44	22	12	34	33	1	5	29	0	5
45 - 50	22	23	45	45	0	5	40	0	5
51 - 56	21	9	30	30	0	3	27	0	3
57 - 62	15	7	22	21	1	2	20	0	2
63 - 68	13	7	20	20	0	2	18	0	2
69 - 74	5	1	6	6	0	0	6	0	0
75 - 80	2	2	4	4	0	0	4	0	0
Total	**143**	**94**	**237**	**230**	**7**	**28**	**209**	**6**	**22**

Majority of the study participants were male (60%). Most of the study participants were married (97%). Type II Diabetes Mellitus was the most common (79%)

Table 2: Prevalence of Diabetes by screening results

Age Category	Diabetic	Non-diabetic	Total	Prevalence (%)
15 - 20	5	1	6	83.33
21 - 26	1	8	9	11.11
27 - 32	3	25	28	10.71
33 - 38	2	31	33	6.06
39 - 44	5	29	34	14.71
45 - 50	5	40	45	11.11
51 - 56	3	27	30	10.00
57 - 62	2	20	22	9.09
63 - 68	2	18	20	10.00
69 - 74	0	6	6	0
75 - 80	0	4	4	0
Total	**28**	**209**	**237**	11.81

Based on the above table, the prevalence of Diabetes among people who attended screening at Malakia Diabetic Control Center was 11.8%. The patients who were screened were suspected cases as majority were referred from other Non-diabetic health facilities in Juba. The prevalence of Type I Diabetes was highest between age group 15-20 (83.3%)

Summary

Among the study participants who attended screening in Malakia Diabetic control center, the prevalence of diabetes was 11.8 %. This entails diabetes mellitus is increasing in Juba. In relation to associated risk factors: older age was associated with Diabetes mellitus Type II among (39-50). Younger age (15 – 20) was associated with Type 1 Diabetes Mellitus. Majority of study participants were male and were married.

DISCUSSION

The result indicated that there is an increase in prevalence of Diabetes Mellitus (11.8%) in Juba compared to existing prevalence of 7.43% according to world diabetes federation which was estimated by extrapolation using the neighboring countries, such as Kenya with prevalence of 3.5% and Sudan with prevalence of 7.7%. However, this prevalence is not representative of a general population because most of the study participants were suspect referred from other health facilities in Juba. Therefore there is a possibility that the result could have over estimated the real prevalent.

We assessed the demographics in relation to risk factors for Diabetes. Many more males were sent for screening than females. Age appears to affect the prevalent of Diabetes Mellitus type II, as indicated in the result older age is associated with higher prevalence of Diabetes Mellitus type II compared to type I. This is in conformity with the findings in the literature review where Juvenile Diabetes (Type I) is associated with younger age and Type II is associated with older age and obesity. Most of the study participants were married. In this study the variable obesity wasn't assessed as we couldn't measure the BMI of the subjects.

Limitation of the research: Although the research team was able to obtained data with the cooperation of the center's management and staff, the following points presents the limitation of the research findings:

The research team was unable to obtained records of body mass index (BMI) as there were no records for weight and height by the center. Therefore research team was forced to exclude BMI from data analysis, which would have helped in assessing the patients who were obese in relation to diabetes risk.

The researchers solely rely on secondary data, which was collected in one year. Thus we were obliged to use available variables. Research was also restricted to people who were referred

from other health center. So participants were not randomly selected. Therefore, convenience sampling cannot make generalizations about the general population. This entail the prevalence rate of 11.8% could have overestimate the real prevalence.

Conclusion

Based on this research finding, it can be concluded that Diabetes Mellitus is increasing in South Sudan and compared to other countries within the Sub Sahara Africa. Therefore South Sudan government and its partners should double efforts to establish health centers so that more and regular screening can be done. Health education for high risk group and general population should be carried out routinely.

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