

An Empirical Study on Assessment of Knowledge on Diabetes Mellitus, Medication Usage and Complications for Type 2 Diabetic Patients at Kafue General Hospital, Zambia

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Abstract

The research articles is to measure the knowledge on Diabetes, medication usage and its complications for type 2 diabetic patients at the Kafue General Hospital. 50 patients with Diabetes mellitus type 2 were taken in this research. The paper was used by Random sampling method. A cross-sectional and descriptive study as taken on the diabetic type 2 patients. 50 questionnaires were administered to the diabetic type 2 patients to assess their knowledge on Diabetes type 2, its medication usage and complications. Data was entered and analyzed using the Statistical Package for Social Sciences (SPSS) version 16.0. The level of knowledge of the patients' were asked through the questions about on symptoms of hypoglycemia, type of medication taken and when to take their medication in regards to food as well as complications of type 2 Diabetes mellitus. Knowledge about hypoglycemia was considered to be adequate if the patient could correctly identify eating sugary foods as an action to take when the patient's blood sugar level had gone low. Knowledge in terms of gender, more females 26 (58%) than males 24 (48%) contributed to the study. The knowledge about diabetes was higher in patients with tertiary qualification, those with positive family history of diabetes, those with long length of diagnosis and those with type 2 diabetic complications. The present study has shown that type 2 Diabetic patient's diabetic patients in the area under study had a poor level of knowledge about complications, management of hypoglycemia, consumption of alcohol in relation to medication and the regular checkup of blood sugar.

Keywords: Blood sugar, Diabetes, Medication, Patients.

1. Introduction

Generally, diabetes mellitus refers a metabolic condition that which the human body does produce insufficient insulin to regulate the humans' blood glucose levels or where the insulin production is unable to work effectively in the body. It can also be defined as a severe, chronic disease, i.e., to make sure either when the pancreas produce insufficient insulin (whereas the

human body are made hormone that normalizes blood glucose), or when the human body does not successfully utilize the insulin it produces. Raised blood glucose has a general effect of human body's uncontrolled diabetes and may over time, to affect the serious damaging of the human heart, kidneys, nerves, eyes and blood vessels (International Diabetes Federation (IDF), 2013).

Type 2 diabetes mellitus is a chronic metabolic disorder in which its prevalence has been rising constantly all over the world (Rupert R A Bourne *et al.*, 2013). Type 2 diabetes mellitus (formerly stated that as non-insulin dependent diabetes mellitus or NIDDM) is common above the age of 40. In type 2 diabetes, the pancreas preserves some capability to produce insulin but this is not adequate for the human body's necessary and alternatively, the human body becomes challenging to the special effects of insulin and patients are treated with oral hypoglycemic agents and insulin (International Diabetes Federation (IDF), 2009).

2. Background of Study

Out of 32 countries, Zambia is one of the international diabetic federation African region (International Diabetic Federation (IDF), 2013). The mounting prevalence of type 2 diabetes mellitus in Zambia is a problem. It was estimated that among the 45,767 Zambians, 34.5% were living with type 2 Diabetes mellitus (Sarah Lou Bailey *et al.*, 2016).

There were 222.000 cases of type 2 Diabetes mellitus in Zambia in 2017 (International Diabetes Federation (IDF), 2017). Due to of this tendency, it is speedy becoming an epidemic in some parts of the country with the different numbers of people who are affected to expect the double in the following decade due to increase in ageing population, thereby newly added of existing burdens to providers of healthcare, specifically in unwell developed countries (International Diabetes Federation (IDF), 2013).

Looking at a large number of cases being reported at Kafue General Hospital, a total of 14400 (0.3%) had type 2 Diabetes mellitus in 2019. At the Kafue General Hospital, diabetes mellitus is diagnosed using a glucometer reading.

3. Literature Review

This paper explored the knowledge on Diabetes, medication usage and its complications in type 2 diabetic patients at the Kafue General Hospital, Zambia.

American Diabetes Association - ADA, approached in which certain causes of Diabetes like Age and sex, Genetic susceptibility, Gestational diabetes, Obesity (Vittorio Basevi *et al.*, 2011).

The statement of Effective tactics is offered to put off type 2 diabetes and to avoid the difficulties and early death that where the results from all kinds of diabetes. This may include rules and practice crosswise entire populations and within definite settings (workplace, home, school) that supply to good health for everyone, irrespective of whether they have diabetes, such as exercise frequently, controlling blood pressure, avoid smoking, eating healthily and lipids (International Diabetes Federation (IDF),2013).

Management of diabetes using drugs (World Health Organization (WHO), 2014). The Diabetes patients are used to manage by help of medicines that can either be: Insulin injection and Oral blood sugar lowering tablets.

It can be lead all types of diabetes are complicating in several parts of the human body and it can increase the complete risk of dying earlier. Possible issues of complicating that may containing lever damage, vision loss, leg amputation, kidney failure, strokes and heart attack, etc. In pregnancy type of the human body is unwell to controlling diabetes the results that to risk of fetal death and other complications also (World Health Organization (WHO), 2016).

The paper expresses that improving dietary habits, managing weight, keeping active and using Medication is compulsory to help control risk factors like diabetes, high cholesterol, triglyceride Levels and high blood pressure reduces the overall chance of developing CVDs (Reis, *et al.* 2011).

For those on insulin, knowledge on sites where insulin can be injected, method of injecting insulin, method of mixing insulin and storage of insulin were some of the important areas that were considered (Hamer, *et al.*, 2013).

Metformin decreases the production of glucose and increases the use of glucose. Insulin converts glucose to glycogen for storage. All these diabetes medications help to keep blood glucose level low. It is important for patients to know how and when to take their medications for example, to take glibenclamide with food to minimize the risk of low blood glucose (hypoglycemia). Also, drinking alcohol can reduce the blood glucose level and marks the warning symptoms of

hypoglycemia. Therefore, it is important to avoid binge drinking and have something to eat when drinking alcohol (Michler Bishop F and Jose Luis Rodriguez Orjuela, 2018).

4. Statement of the Problem

Diabetes is a significant public health problem in Zambia. Diabetes has been termed an epidemic and its prevalence has skyrocketed (Sarah Lou Bailey *et al.*, 2016).

Diabetes and its difficulties are substantial reasons of morbidity and mortality, and contribute radically to health care costs (International Diabetes Federation (IDF), 2013).

Diabetes mellitus is the important cause of kidney failure, foot amputation and blindness (International Diabetes Federation (IDF), 2013).

The type 2 diabetes mellitus epidemic has certainly taken its toll on the Kafue population.

It is typical for diabetes mellitus to be asymptomatic for extended periods of time, during which microvascular complications can develop (International Diabetes Federation (IDF), 2009) and to limit the chances of grave complications, diabetes mellitus must be treated in a timely manner.

Therefore, this study was designed to assess patient's knowledge on type 2 Diabetes mellitus, it's medication usage and complications at the Kafue General Hospital.

5. Objectives of the Study

5.1 General Objectives

- To measure the knowledge of diabetic patients in relations of their condition, medication usage and complications.

5.2 Specific Objectives

- To assess the knowledge on diabetes in general with reference to diabetes as a disorder, medication usage and difficulties of diabetes.
- To describe the knowledge in terms of socio-demographic characteristics of the patients.
- To assess awareness of Type 2 Diabetic patients in terms of complications and medication usage at the Kafue General Hospital.

6. Restating the Research Questions

- What is Diabetes Mellitus?

- Where can insulin be injected?
- How often do you check your blood sugar levels?
- When should you take your Diabetes medication in regards to food?

7. Research Methodology

7.1 Scope of the Study.

The study was carried out at Kafue level 2 General Hospital in Kafue District.

7.2 Research design

A cross-sectional and descriptive survey research methods were used. Data collection was done using structured questionnaires during the period of June 2019 to August 2019.

7.3 Target Population

The study target was 50 type 2 Diabetic mellitus patients.

7.4 Sample Method

The research paper covers with a random sampling method with used to select a sample size of 50 type 2 Diabetic patients.

7.5 Sample Size

Where the research is contains that the sample size was 50 type 2 Diabetic patients of both gender above the age of 18 years diagnosed with Diabetes type 2.

7.6 Data collection tools

- Questionnaires

7.7 Data Analysis

The statistical package for social sciences (SPSS) software package was used to analyse and enter the data.

8. Results and Data Analysis

8.1 Gender of the respondents

The study indicates that out of the sample size of 50, 26 (52%) were female and 24 (48%) were male.

8.2 Age of the respondents

The age of the respondents who participated in the study. Those with the age of 18-29years were 6 (12%) while those with the age of 30-39years were 22(44%) and 40 and above years were 22 (44%).

8.3 Patient's Marital Status

11 (22%) of the type 2 Diabetes patients were single, 27 (54%) of them were married while 12 (24%) of the respondents fell under the category of others which meant that they were either on separation or divorced.

8.4 Patient's Educational Level

The study indicates that 14% of the patients had primary qualification, 26% of the patients had secondary qualification while 60% of the patients had Tertiary qualification.

8.5 Patient's Employment Level

27 (54%) of the type 2 Diabetic patients said yes, they were working, 12 (24%) of the patients living with type 2 Diabetes mellitus said no (they were not working) and 11 (22%) were either doing business, farming or retired.

8.6 Patient's Income Level

The number of the respondents who earned K3000-K6000 were 20 (40%), those who earned K6000 and above were 5 (10%) and those who fell under the category of others were 25 (50%).

8.7 Knowledge on definition of Diabetes mellitus

19 (38%) respondents said that Diabetes mellitus is as a result of eating too much sugar, 24 respondents which represented 48% said that Diabetes mellitus is as a result of having too much sugar in the blood because of lack of insulin and 7 (14%) did not know what was meant by Diabetes mellitus.

8.8 Patient's knowledge on length of diagnosis

15 (30%) of the respondents were diagnosed with type 2 Diabetes mellitus at the age of 18-29years, 30 (60%) of them were diagnosed at the age of 30-39years and 5 (10%) at the age of 40 years and above.

8.9 Knowledge on Symptoms of Diabetes

28% of the type 2 diabetes had moderately adequate knowledge, 20% had inadequate knowledge and 26% had adequate knowledge of the symptoms of Diabetes.

8.10 Knowledge about treatment or control of Diabetes mellitus

14% of the patients (7) had moderately adequate knowledge on the treatment of Diabetes mellitus and 72% (36) had adequate knowledge in the control of Diabetes mellitus. 14% (7) did not know whether Diabetes can be treated or controlled.

8.11 Knowledge at Blood sugar level check up.

30% of the patients had adequate knowledge on when to check their blood sugar levels, 36% said they checked their blood sugar levels on a weekly basis and 34% fell under the category of others.

8.12 Knowledge of fasting blood sugar level

14% (7) of patients had moderate adequate knowledge of fasting blood sugar level, 46%(23) of patients had adequate knowledge and 40% (20) had inadequate knowledge of the blood sugar levels when fasting.

8.13 Knowledge on normal blood sugar level

58% (29) patients showed adequate knowledge on the normal blood sugar level, 26% (13) had moderately adequate knowledge and 16% (8) of them had inadequate knowledge of the normal blood sugar levels in humans.

8.14 Knowledge of factors increasing Type 2 Diabetes Mellitus

14 type 2 Diabetic patients had inadequate knowledge about their condition (28%), 24 (48%) patients had adequate knowledge and 12 (24%) patients had moderately adequate knowledge of the factors which increase the chances of type 2 Diabetes mellitus.

8.15 Knowledge of the action to take during Hypoglycemia

40% (20) had adequate knowledge on what action to take when their blood sugar levels had gone down, 18%(9) had inadequate knowledge of the action to take while 42%(21) had moderately adequate knowledge on what to do when their blood sugar levels had gone down or low (hypoglycemia).

8.16 Knowledge on Regular eye check up

32 type 2 Diabetic patients said yes, they have their eyes checked regularly, 5 said no to having their eyes checked regularly and 13 patients were not sure whether they needed to have a regular eye check up or not.

8.17 Knowledge on care when cutting toe nails

50% of the type 2 Diabetic patients said yes care should be taken, 12% said no care needs to be taken when cutting toe nails. 38% were not sure whether care is needed or not.

8.18 Slow Wound Healing

52% of the respondents said that wounds heal slowly in type 2 Diabetic patients and 8% of the patients said that wounds do not heal slowly. 40% were not sure whether wounds heal slowly or not in type 2 Diabetic patients.

8.19 Type of medication

36% of the type 2 Diabetic patients were taking Glibenclamide, 17 (34%) were on metformin and 30% of them were on insulin.

8.20 Knowledge on food intake during Medication

22% (11) said that they took their medication before food, 60% (30) said that they took their medication after food while 18% (9) said anytime since they take their medication daily.

8.21 Knowledge on Alcohol consumption during medication

15 respondents said yes they can take alcohol during their medication, 31 type 2 Diabetic patients said no to alcohol consumption during their medication while 4 of the respondents were not too sure.

8.22 Knowledge on site of insulin injection

40% of the type 2 Diabetes mellitus patients had adequate knowledge on the site of insulin injection, 32% had inadequate knowledge on the site of insulin injection while 28% had moderate adequate knowledge on the site of insulin injection.

8.23 Knowledge on storage of insulin

70% of the Diabetic patients had adequate knowledge of the storage of insulin, 6% of the patients had inadequate knowledge and 24% of the patients had little or no knowledge of insulin storage.

8.24 Knowledge on whether insulin can be mixed or not

20% of the respondents said yes, insulin can be mixed, 40% said no it can not be mixed and 40% did not know whether insulin can be mixed or not.

8.25 Source of information

8 type 2 Diabetic patients got the information in regards to their condition from friends, 12 got from family members, 15 got from doctors, 6 from magazines, 3 from TV and Radio while 5 of the patients got from the pharmacists.

9. Discussion of the Findings

The study showed that more females 26 (52%) than males 24 (48%) participated in the study. The overall knowledge was similar among the males and females. At the Kafue General Hospital, every patient is treated equally regardless of the gender. Therefore, these patients would be getting similar information from their health professionals and thus have similar knowledge.

Overall the diabetes patient's knowledge regarding diabetes, its medications and complications were adequate. A small percentage of the patients 7 (14%) had inadequate knowledge of type 2 diabetes mellitus. There would be a number of reasons for this. Firstly, the patients may be well informed by their health care professionals about diabetes and its impact on their health.

Secondly the patients may be very interested in knowing about the chronic conditions like type 2 diabetes mellitus. Most patients 19 (38%) were able to choose the correct definition of diabetes mellitus. Most patients were able to identify the symptoms of type 2 diabetes mellitus; this could be due to the fact that these patients may have experienced some of these symptoms.

Most patients 29 (58%) knew the normal blood glucose levels. This could be related to those patients who regularly monitor their blood glucose levels.

A very good number of patients 24(48%) were able to identify overweight as a risk factor of increasing type 2 diabetes mellitus. 40% of the type 2 Diabetes mellitus patients said that eating sugary foods was the best action to take during hypoglycemia.

In terms of medication intake 18(36%) patients were on Glibenclamide, 17(34%) of them were on metformin while 15 (30%) patients were taking insulin.

It was surprising to note that about 70% of the patients did not know the name of their diabetic medication. Few reasons for this could be patients not paying enough to read the label, pharmacist not saying the name of the medication when dispensing, patients taking multiple medication and getting confused especially with the medications with similar name. It was more surprising to note that only 30% of the patients correctly knew when to obtain their medications in regards to food.

Another reason patient not knowing about their medication intake in regards to food is probably someone else at their home would be helping in the administration of these medications.

People knew that alcohol can direct to a number of health related problems, but none of the patients were able to associate it with type 2 Diabetes mellitus. No one even from experience said that alcohol was able to increase the risk of hypoglycemia.

The knowledge of patients 62% (31) in terms of identifying signs of hypoglycemia and the action to take in case of hypoglycemia was good. One reason for such a good knowledge in this area is probably through patient's experience. This good knowledge showed that the patients would be able to take appropriate corrective measures sufficiently early in case of hypoglycemia. Patient's (10) 20% knowledge about a set of injecting and storage of insulin 70% was good. For those who did not know whether insulin can be mixed (40%) and those who did not know whether insulin can be mixed was (40%).

There was a relationship between knowledge scores and level of education. Patients with tertiary level of education had more knowledge in terms of type 2 diabetes mellitus, its medications and complications compared to patients with primary or secondary level of education. Due to these facts, patients with tertiary level of education have a better understanding of the information that the patients are provided like from booklets and pamphlets. Positive family history appears to influence one's knowledge on diabetes. In the study, all those with negative family history had

inadequate knowledge. Individuals with positive family history may increase a personal sense of vulnerability which in turn may increase their awareness as was exposed in the present study.

A relationship between time since diagnosis and patient's knowledge suggest that patient's knowledge has accumulated over the span of their illness. As more time passes from the time a patient is diagnosed, there is an increase in the chances of having complications and contact with the health care professionals, thus these patients would be having greater knowledge as seen in the study. Patient knowledge was low for those who did not suffer from diabetic complications.

10. Conclusion

The present study shows patient's knowledge of type 2 diabetic patients at the Kafue General Hospital is low. This was seen especially in terms of knowledge on complication of type 2 Diabetes mellitus in terms of management of hypoglycemia and patient's knowledge of alcohol and medication as well as the regular blood sugar level check up.

Patients had good knowledge regarding the risk factors of diabetes, normal blood sugar levels, Length of diagnosis, regular eye check up, careful when cutting toe nails (50%), 54% of the respondents were working and the patient's level of education and family history of diabetes had a positive relationship with the patients' knowledge scores. A number of recommendations regarding the diabetes education program and some further studies in Kafue area were suggested.

11. Recommendation

1. Future studies on a much similar context, but with wider scope and much larger sample size should be done to further explore other relevant factors leading to type 2 Diabetes mellitus in relation to the level of patient knowledge.
2. Setting up a good patient-provider communication is key to help patients enhance Diabetes self-care behaviours.
3. The outpatient pharmacy could have a check list of the important counseling tips for diabetic patients, especially on the intake of medication in regards to food.
4. More charts should be placed in Kafue General Hospital eg. Charts on normal blood glucose levels pasted on the walls near the waiting area (like the walls of outpatient pharmacy and outpatient clinic).

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