

**KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS LIFESTYLE
MODIFICATIONS AMONG TYPE II DIABETIC PATIENTS IN
MUBENDE HOSPITAL, MUBENDE DISTRICT**

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DECLARATION

I, hereby declare that this research work is entirely my original work and has not been submitted to any institution or university for any award or appropriation.

TWINAMATSIKO JACOB

Signed:

Date:.....

APPROVAL

This is to certify that this research report has been submitted for the award of a bachelor of science in Nursing with my approval as the university research supervisor

MS. APIO JUDITH

Signature:.....

Date:.....

DEDICATION

This research report is dedicated to my dear parents, Mr. and Mrs. Eric Sunday who raised me and loved me with all their heart, giving me the opportunity to become what I am.

To my wife Mercyline Masika and my children, Faith and Reagan, these people have been very instrumental to me during the pursuit of this course and without them I think I would not manage

Also to my brothers and sisters for they really supported me financially and psychologically during the pursuit of this bachelors degree.

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OPERATIONAL DEFINITIONS

Lifestyle modification - Change of one's behavior or changing someone's way of living

Knowledge - Information/skills acquired through experience or education or awareness

Attitude - Someone's thinking or feeling about something

Practice - Actual action or implementation

LIST OF ACRONYMS

MRRH	-	Mubende regional referral hospital
BMI	-	Body mass index
DM	-	Diabetes mellitus
IDF	-	International diabetic federation
MOH	-	Ministry of health
KAP	-	Knowledge, attitude and practice
LSM	-	Life style modification
OPD	-	Outpatient department
ADA	-	American diabetic association
WHO	-	World health organization
CDC	-	Centers for disease control
KIG	-	Key informants guide
FGDG	-	Focus group discussion guide

ABSTRACT

Background: The number of persons suffering from type II diabetes mellitus continues to rise worldwide and causes significant morbidity and mortality, especially in the developing world. behavior change and adoption of healthy lifestyle habits help to prevent or manage the disease. however, the knowledge and practice of healthy lifestyles in many diabetic patients are inadequate.

Purpose: This study aimed at establishing the knowledge, attitude and practice regarding lifestyle modification amongst type II diabetic patients in Mubende.

Study Setting: the study was carried out at the diabetic clinic of Mubende regional referral hospital

Methods: A cross-sectional study was done using a structured questionnaire amongst 100 type II diabetic patients seen at the diabetic clinic of Mubende regional referral hospital. baseline characteristics of the participants were obtained and their knowledge, attitude and practice regarding lifestyle modification were assessed.

Results: In this study, majority (81)81% of the respondents had knowledge about lifestyle modification as they were able to mention adherence to diabetic drugs 37%, low sugar consumption 25%, healthy and nutritious diet by 20%, regular exercise 11% and weight management/reduction mentioned by only 7% of the respondents. 62% of the respondents said that Lsms keep blood sugar levels in normal or near normal ranges and 34% said Lsms help to reduce or normalize blood sugar levels. In the study more than (92)92% of the respondents demonstrated good (positive)attitude towards lifestyle modification in the management of diabetes mellitus typeII. in the study, 53% of the respondents do not practice lifestyle modifications/measures to control diabetes mellitus type ii and only 47% Of the respondents do practice Lsms in the management of type II diabetes mellitus

Conclusion: Despite the knowledge and positive attitudes of respondents toward healthy lifestyle modifications, practice of lifestyle modifications amongst type II diabetes mellitus patients at the diabetic clinic in Mubende is generally very low/poor.

good knowledge and attitude towards lifestyle modification in the management of type II diabetes mellitus does not necessarily guarantee practice.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Diabetes mellitus is a metabolic disease characterized by high sugar levels in blood due to absolute or relative deficiency or diminished effectiveness of circulating insulin (Regensteiner et al 1965). It has two broad categories which are type 1 and type II., type 1 diabetes mellitus results from complete or near-total insulin deficiency and commonly occurs below 40 years where as type II diabetes mellitus is a heterogeneous group of disorders characterized by variable degrees of insulin resistance, impaired insulin secretion, and increased glucose production most commonly occurring above 40 years. Diabetes mellitus is a clinical syndrome since ancient times and remains a crippling global health problem today. It's clinical diagnosis is mainly based on to the presence of symptoms such as polyuria polydipsia and unexplained weight loss which is confirmed by abnormal glucose measured as Fasting Plasma Glucose value of ≥ 7.0 mmol l⁻¹, (William et al 2010) & Guyton et al (1972)

American Diabetic Association (2010) reveals that diabetes mellitus type II is the most form of diabetes accounting for 90% to 95% of all diabetes mellitus cases. Type II diabetes mellitus is one of the most common non-communicable diseases globally and it is the 4th - 5th leading cause of morbidity and mortality in most developed countries especially among those aged 40 or more and there is substantial evidence to the effect that type II diabetes mellitus is epidemic in many developing and newly industrialized nations. The number of people with type II diabetes mellitus, worldwide was 194 million by 2003 and it is estimated to rise to 333 million by 2025 and 430 million diabetics by 2030 (Wild et al, 2009).

In South Africa, diabetes mellitus was responsible for the deaths of 22 412 South Africans in 2000 which makes it the fifth leading cause of death (Bradshaw et al 2005). According to (Levitt et al, 2008) Around 3 million South Africans have diabetes mellitus, of which approximately 95% are type II diabetes mellitus. The increased incidence of type II diabetes mellitus in developing countries is largely attributed to obesity, sedentary lifestyle secondary to urbanization and perhaps adoption of a "Western-style" diet hence recurrent ill health/morbidity (Wild et al, 2009). The impact of diabetes on the health of populations and individuals afflicted with the disease is primarily related to late-stage complications including

but not limited to terminal kidney failure, blindness before the age of 65 and amputations. (Levitt et al, 2008)

Experts in Egypt, Greece, Rome and India recognized high prevalence of type II diabetes mellitus and recommended a number of modifications in lifestyle which include physical activity, dietary modifications, and weight reduction. During the previous century's recommendation about dietary carbohydrates from diabetic individuals were based on theory rather than scientific facts and, prior to discovery of insulin, diabetes was treated with low carbohydrate, semi starvation diet and after insulin was discovered in 1921, most eastern diabetes specialists used low carbohydrates, high fat diets planned physical activity to treat diabetic individuals

(Esposito et al 2003). In modern times, essential components of managing diabetes include diabetes self management education, lifestyle interventions, goal setting glucose management and pharmacologic management including the management of hypertension and hyperlipidemia (Kibuuka, 2014)

Lifestyle modification helps in the management and prevention of diabetes mellitus. Alcohol intake by clients with diabetes mellitus exacerbate neuropathy, dyslipidemia and obesity which makes it difficult to prevent and control glycaemia therefore alcohol should be prohibited as much as possible and if used, it must be in moderation (Pombe et al 2014). Similarly (Karugaba et al 2005) contended that smoking and alcohol intake should be prohibited as it increases risk of complication and pointed out a planned physical activity (exercise) and weight reduction as measures that reduce the risk of developing diabetes mellitus type II by 30-50%. Physical activity improves insulin sensitivity by reducing free fatty acid load to the liver there by reducing hepatic insulin resistance, moderate exercise as little up to 30min/day or 150min/week can show the differences.

Lack of lifestyle modifications' knowledge and attitude among diabetic patients affects their practicability and as a measure to control and prevent the development of diabetes mellitus. Improper guidance and communication to type II diabetic patients can lead to poor compliance to both medication and life style adjustment therefore health workers ought to provide counseling/health talks about the need to adhere to treatment modifications that includes pharmacological and non pharmacological. Dietary recommendations for DM

patients should focus on the reduction of fat intake and increase of vegetable consumption with moderate calorie restriction which should be individualized according to the patients' physical activity, co-morbid condition and personal preferences (Jozenet & Harera, 2005).

A study done among type II diabetic patients in Mityana to assess adherence to lifestyle modification, 20% of diabetic patients still drink alcohol and do not exercise or participate in physical activity despite being counseled on life style adjustment, continue to consume a disproportionately high carbohydrate diet and freely take sugar as well as eating meat most of the time as opposed to fish and vegetables. About 80% of type II diabetic patients depend on the pharmacological aspect of which adherence is a problem and consequently complications such as diabetic retinopathy, neuropathy, ketoacidosis and acute hypoglycemia due to poor glycemic control (Kibuuka 2014)

A study done to determine the level of practicability of lifestyle modification among type II diabetics in Mubende in 2010, it was found to be at 15% (Mwetonde C 2010). This poses questions regarding the level of knowledge and attitude of diabetic patients about lifestyle modifications in Mubende. Therefore this study will dig out information about patients' knowledge, attitude and practices regarding lifestyle modification in the management of DM type II in Mubende.

1.2 Problem Statement

A significant majority (70%) of diabetic patients who visit the diabetic clinic at Mubende hospital were observe to be obese with optimal or near optimal blood glucose levels (Mwetonde C 2010). In addition, some of them continue to present with hypertension, diabetic complications especially retinopathy, neuropathy and diabetic foot. Encounters with these patients reveal that most of them still consume a disproportionately high carbohydrate diet and refined sugars, drink alcohol and do not regularly monitor their blood sugar levels as well as engaging in any physical activity despite nutrition counseling and health education talks about lifestyle modifications towards type II diabetes management. These patients rather depend only on pharmacological aspect of which adherence is also wanting giving little or no attention to lifestyle modification. Failure to modify lifestyle in addition pharmacological management leads to poor glycemic control among DM patients. This translates into numerous complications such as diabetic retinopathy, neuropathy, ketoacidosis and acute hypoglycemia as well as recurrent morbidity and mortality (Mwetonde C 2010).

It is well known that lifestyle modifications such as weight management, diet modification, exercises and regular blood sugar monitoring can improve glycemic control and prevent the development of diabetic complications as well as slowing down the drastic increase of diabetes mellitus (Knowler et al, 2002).

In Mubende, no study has been carried out to ascertain patients' knowledge, attitude and practices about the modification of lifestyle in the management of diabetes. Therefore this study seeks to find out patients' knowledge, attitude and practices regarding lifestyle modification in the management of DM type II with a view of providing baseline information that will be used to enhance lifestyle modification.

1.3 Objectives

1.3.1 Broad objective

To assess the knowledge, attitude and practice of type II diabetic patients about lifestyle modification in the management of diabetes mellitus type II in Mubende Hospital, Mubende district.

1.3.2 Specific objectives

- To determine the knowledge of type II diabetic patients about lifestyle modification in the management of diabetes mellitus in Mubende Hospital.
- To find out the attitude of type II diabetic patients towards lifestyle modification in the management of diabetes mellitus type II in Mubende Hospital.
- To establish the practices of type II diabetic patients regarding lifestyle modification in the management of diabetes mellitus type II in Mubende Hospital.

1.3.3 Research Questions

- What do type II diabetic patients know about lifestyle modification in the management of type II diabetes mellitus in Mubende Hospital?
- What is the attitude of type II diabetic patients towards lifestyle modification in the management of diabetes mellitus in Mubende Hospital?
- What are the practices of type II diabetic patients with regard to lifestyle modification in the management of diabetes mellitus in Mubende Hospital?

1.4 Significance of the study

In this study, the researcher aimed at establishing the knowledge, attitudes and practices regarding lifestyle modifications among type II diabetic patients attending diabetic clinic in Mubende hospital. Studies that have been done aimed at evaluating the knowledge, attitudes and practices about diabetes mellitus among diabetics rather than on lifestyle modifications as a blood sugar control measure (Kibuuka A 2016). Therefore this study will provide the baseline information about patients' knowledge, attitude and practices regarding lifestyle modification in the control and prevention of high blood sugar.

It is also hoped that the findings of this study will be useful to the hospital, and MOH in implementing a community based awareness programme which will promote the importance of lifestyle modifications in the prevention and control of non-communicable diseases with much emphasis on diabetes mellitus type II. With this information nurses will be able to carry out health education campaigns about lifestyle modifications among diabetic patients in Mubende hospital.

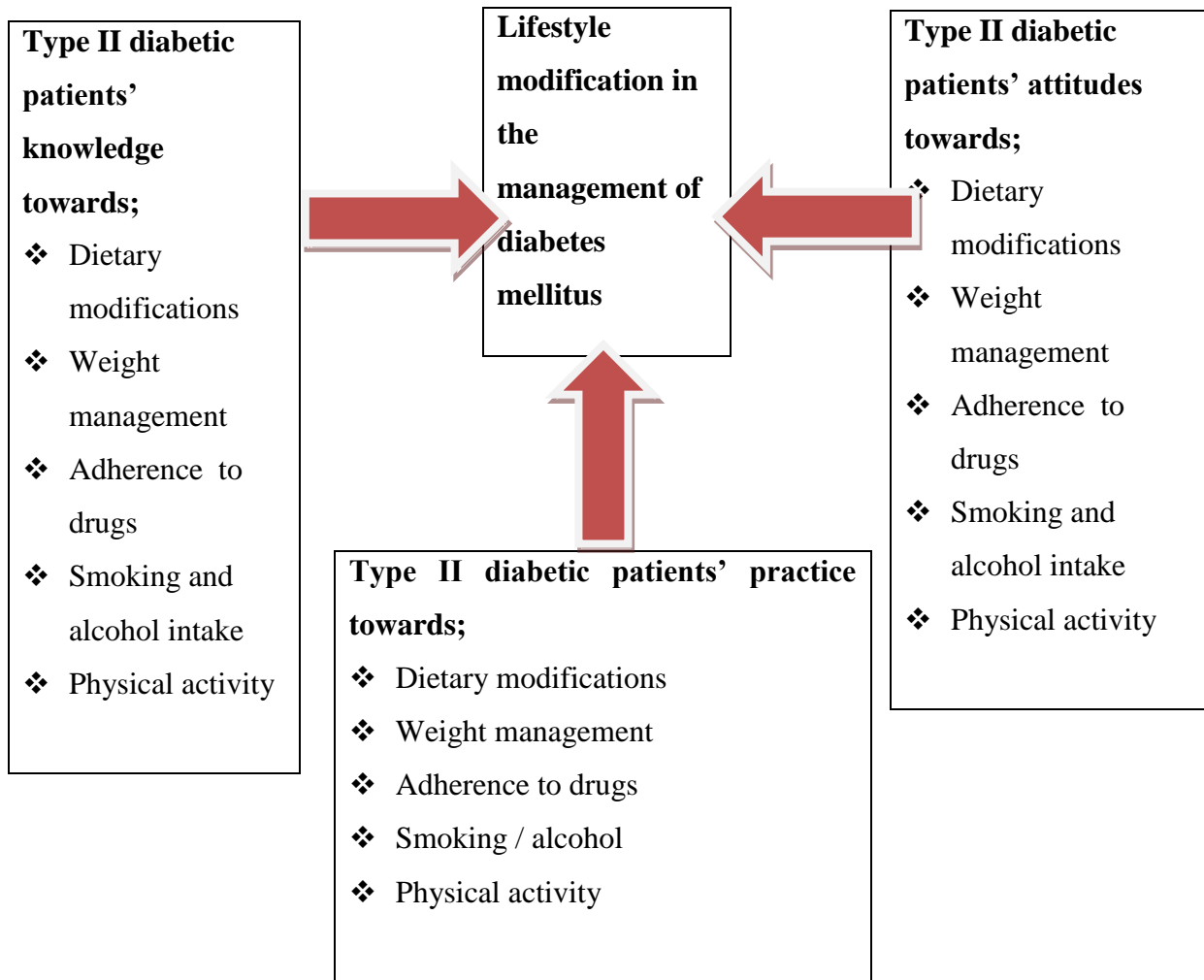
The other benefit of this study is that the results of the study will help health care providers to give education and awareness on LSM management of DM. In addition DM patients and family members will realize the benefit of non pharmacologic management coupled with pharmacological management for the success of controlling the non communicable disease and its complication. Thus the patients' care will improve and the patients' will be benefited.

The findings will also help to promote good services at the diabetic clinic and modify the possible problems between hospital mission of providing both curative and preventive with actual services given by diabetic follow up clinic.

The findings of the study will encourage further research about lifestyle modification among diabetics or act as reference materials for students in institutions and future researches about diabetes mellitus type II

1.5 Conceptual framework of variables

Figure 1: Conceptual framework



1.5.1 Description of the conceptual framework above

The above conceptual framework showed that there is an interaction between the independent and dependent variables as follows

Knowledge about lifestyle modification measures helps to raise curiosity and awareness of patients about the net benefit of implementing LSM which in the long run controls diabetes mellitus.

Patients' attitude influences the desire to use LSM in the management of diabetes mellitus type II

Practices of LSM helps to provide the desired net benefit of maintaining or bringing sugar levels to normal or near normal. This in the long run ensures a properly managed diabetes mellitus and consequently minimal complications

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter will focus on to the definition of diabetes mellitus type II, epidemiology of diabetes mellitus II, predisposing factors/causes, lifestyle modification, patients' knowledge, attitudes and practices towards lifestyle modification among type II diabetic patients and the summary of literature review

2.1 Type II diabetes mellitus

Diabetes mellitus is a syndrome characterized by high blood sugar due to absolute or relative deficiency or diminished effectiveness of circulating insulin. It is diagnosed when the pancreas does not produce enough insulin (reduced insulin production) and/or the insulin does not work effectively and/or the cells of the body do not respond to insulin effectively (known as insulin resistance) presenting with symptoms such as polyurea (passing more urine), polydipsia (Being excessively thirsty), Feeling tired and lethargic, always feeling hungry (polyphagia), having cuts that heal slowly, Itching, skin infections, blurred vision, gradually putting on weight, mood swings, headaches, feeling dizzy and Leg cramps (Knowler et al, 2002).

Type II diabetes mellitus represents 85–90% of all cases of diabetes and usually develops in adults over the age of 40 years but is increasingly occurring in younger age groups including children, adolescents and young adults (Levitt et al, 2008).

There is no obvious cause of diabetes mellitus but rather runs in the family meaning that there is a strong genetic predisposition and the risk is greatly increased when associated with lifestyle factors such as, overweight or obesity, insufficient physical activity, poor diet and the classic 'apple shape' body where extra weight is carried around the waist. (Ndegwa et al 2001)

While there is good evidence for a strong genetic contribution to both obesity and diabetes mellitus, the increase in these conditions (obesity and DM) in both developed and developing countries appear to be due to a changing balance between energy intake and energy expenditure through physical activity (Mc clean & Shaw et al, 2003).

In developing countries, urbanization and lifestyle changes, perhaps most importantly adoption of a "Western-style" diet contributes to the increase in incidence of obesity and diabetes mellitus type II (Moodley et al 2007).

Overweight and obesity are associated with the phenomenon known as insulin resistance, in which higher levels of insulin are required to have the same effects on its target cells. The beta cells in the pancreas produce more insulin, and the blood glucose level is maintained within the normal range (Jennifer Hicks et al 2008) Overtime, the beta cells cannot cope, some die and insulin production falls. By the time people develop type II diabetes mellitus, about half of the beta cell mass has been lost. (William et al 2010).

Unbalanced diet, obesity and physical inactivity are the major risk factors for diabetes and in people genetically predisposed to the disease, the probability to develop type II diabetes is high once exposed to "unhealthy" lifestyles. The development of type II diabetes mellitus is a slow process that takes a long time involving both genetic and environmental effects

According to the World Health Organization (WHO 2008), sedentary lifestyle is one of the 10 leading causes of death and disability. It accounts for 300,000 premature deaths each year in the United States alone and these deaths are mainly from cardiovascular disease which people with type II diabetes mellitus and pre-diabetes mellitus are at a much higher risk than others

In Africa, physical inactivity is more common in the urban than in the rural regions as most people in rural areas rely on walking for transport and often have intense agricultural activities as their main occupation while in urban areas, due to urbanization, walking time and pace is drastically reduced in the urban region and therefore live a sedentary life (Songwi et al, 2002).

In a South African, the prevalence of sedentary life in Cape Town among subjects age 30 and above was estimated at 39 percent for men and 44 percent for women due to recent development of multiple entertaining TV programs and computer games. Sedentary life can lead to obesity, a major factor in developing type II diabetes mellitus (Reddy et al, 2003).

2.2 Lifestyle modification measures/strategies to manage diabetes mellitus type II

Modification of adverse lifestyle factors is an important aspect in the management of all types of diabetes (Hays et al, 2008). Appropriate management of risk factors such as obesity, smoking, physical inactivity and poor diet is important for the prevention of DM and its associated complications. However helping patients to modify certain behaviours should take account of other factors such as the patient's willingness to change/attitude, their perception of diabetes, and factors which may be indirectly related to their diabetes, such as depression and adverse effects on quality of life (Mukhopadhy et al, 2010).

Type II diabetes can be prevented or delayed in persons at high risk for the disease through weight reduction and increased participation in moderate exercise. (Diabetes Prevention Program Research Group 2002)

Eating a healthy and balanced diet is more important in decreasing the risk for diabetes than the types of food eaten. The amount consumed determines an individual's weight, and being overweight is a significant risk factor for diabetes. A diet low in saturated fat and sugar, and high in complex carbohydrates and dietary fiber such as one with fruits, vegetables, whole grains, and legumes, is strongly encouraged for promoting the overall health (Ndegwa et al, 2010).

According to (Lindgarde et al 2007) overweight (obesity) is the number one risk factor for type II diabetes mellitus and modest weight loss can help prevent type II diabetes from developing, it can also help control or stop progression of type II diabetes mellitus in people with the condition and reduce risk factors for heart disease. Patients should lose weight if their body mass index (BMI) is 25 - 29 (overweight) or higher (obese).

According to (Mburo 2009) people should develop and maintain healthy eating habits and activities that do not contribute to weight gain. Obese individuals at high risk for diabetes can reduce their risk with moderate weight loss though achieving and maintaining a healthy weight is often difficult and is more likely to occur through changes in both eating habits and physical activity, rather than through focusing on eating habits alone.

Regular exercise, even of moderate intensity (such as brisk walking), improve insulin sensitivity and may play a significant role in preventing type II diabetes mellitus regardless of weight loss. (Acharya et al 2006)

According to American Diabetes Association (2010) to improve blood sugar control, it is recommended that at least 150 minutes per week of moderate-intensity physical activity (50 - 70% of maximum heart rate) or at least 90 minutes per week of vigorous aerobic exercise (more than 70% of maximum heart rate). Exercise at least 3 days a week, and do not go more than 2 consecutive days without physical activity. However patients who are taking medications that lower blood glucose, particularly insulin, should take special precautions before starting a workout program, Monitor glucose levels before, during, and after workouts (glucose levels swing dramatically during exercise), avoid exercise if glucose levels are above 300 mg/dL or under 100 mg/dL (Njenga et al 2010)

People who don't take up more leisure activities that involve physical activity, instead of the inactive ones, such as watching television have a greater chance of getting diabetes mellitus type II and the driving force for this current worldwide epidemic of type II diabetes mellitus seems to be mostly environmental especially due to sedentary lifestyle resulting from urbanization and globalization as more of the population move to cities, population overcrowding, increased poverty, high-density traffic, lack of parks, sidewalks and recreational sports facilities lead to a less active lifestyle and discourage participation in physical activity. (Kiberenge et al 2010)

American Diabetes Association (2010) reveals that failure to get enough sleep may impair insulin use and increase the risk for obesity and it is always wise to improve sleep habits. It further says that patients with diabetes mellitus ought not to smoke because smoking is a risk factor for diabetes-related complications. Stress can contribute to diabetes mellitus type II developments as it causes gluconeogenesis which breaks down stored forms of glucose and elevate glucose in the blood.(Bruggen H.C et al 2008)

2.3 Patients' knowledge about life style modification in the management of diabetes mellitus type II.

Very few studies, similar to this current study have been done and most of them aimed at evaluating the knowledge, attitudes and practices about type II diabetes mellitus instead of lifestyle modifications among type II diabetes mellitus patients

A study by (Abigaba &Passy et al 2009) to describe the knowledge, attitude and practice (KAP) among 500 type II diabetes mellitus patients attending the diabetic clinic at Kabale Hospital. 87% of the respondents were able to answer 50% or more questions on knowledge

correctly, while 98% of them had 50% or more score for the attitude questions. Ninety-nine percent of them reported 50% or more score for the questions on practice. However, only 56% of them practice all 4 of the practices that were asked - regular exercise, healthy diet, monitoring blood glucose level, and monitoring body weight/body weight management, stress prevention.

In contrast, (Kibuuka A 2014) contends that diabetic patients have little or no knowledge about life style modifications as a means of managing type II diabetes mellitus. In an encounter with diabetic patients, Kibuuka found out that over 40% of the patients in Mityana don't know that there are other non pharmacological means of controlling blood sugar levels. According to him, patients only know that when you get diabetes you entirely depend on drugs little knowing that other lifestyle changes can help bring down blood sugar levels. Most diabetic patients have little or no knowledge about life style modification as a mode of managing diabetes mellitus. In a similar study in Nigerian study, majority of diabetic patients 59% could not mention any lifestyle measures to control or prevent diabetes mellitus type II. In Napal community Hospital, a study was done to assess knowledge, attitude and practices among diabetic patients, majority of the patients 77.59% were knowledgeable about lifestyle modification strategies to control sugars and prevent development of diabetes mellitus type II. This was followed by (11.21%) patients who were fairly knowledgeable and the other 11.21% patients were poorly knowledgeable. In this study patients were able to mention different modes of non pharmacological management of DM type II and the scholar says there was correlation between knowledge and practice. The scholar attributes this to a number of factors including formal education and health education sessions carried out on every clinic day. (Acharya et al 2006)

In contrast, a study done in Eastern Uganda with 217 of the respondents 92.2% had poor knowledge of the benefits of the exercise, weight management and a healthy diet. In this study, a significant majority had little knowledge about life style modifications especially in light of what effect it might cause with regard to glycemic control. (Onappito 2010).

In line with the above, a study done by (Songwi et al, 2011) at Jimma University specialized Hospital in 2011 to assess quality of care given to diabetic patients showed that there was no attention given to diabetic education in Ethiopia which translated into gross lack of awareness

with regard to lifestyle modifications. The scholars attributed the gross lack of knowledge about LSM to the fact that there were no diabetes nurse educators and diabetes dietician in the country and those who provided health services for diabetes had no special training for diabetes care.

In western Uganda, a study was done by Abigaba P (2009) to assess the level of knowledge of diabetic patients and their care givers with regard to diabetes management in Itojo hospital, it was found out that 77.59% of respondents had inadequate knowledge, 11.21% of respondents had fair knowledge and 11.21% of respondents had poor knowledge of the benefits of exercise, and healthy diet. In his study, respondents could not mention LSM modalities and the associated benefits and this clearly demonstrates lack of knowledge among diabetic patients. These findings are similar to the results from the study done in Nigeria at Kaduna in the year 2012 on 347 patients, 230 non diabetic and 117 diabetic patients. The study recorded a significant majority 76.5% of the respondents with inadequate knowledge about diabetes and its management strategies/modalities (Dunia AH 2013)

In India, a study of 207 T2DM revealed that patients had poor knowledge of LSM as an pharmacological treatment and were not practicing any of the lifestyle modification (Rheeder P. 2006). In Malaysia, 87% of the participants were knowledgeable with a score of 50% or more on knowledgeable question. 99% had a score of 50% or more on lifestyle modification practices scores (Wild S. et al, 2004).

2.4 Diabetic patients' attitudes with regard to life style modification in the management of diabetic mellitus type II.

A study done to evaluate knowledge, attitude and practices about lifestyle modifications among patients with type II diabetes mellitus in Gulu Hospital, 95(81%) had positive attitude and the other 21(19%) had fair attitude because they believed that LSM helps to control and prevent DM and its associated complications. (Komagumu 2008)

In Boswana a study to assess knowledge, attitude and practice on LSM among diabetic patients, majority of the patients 81.89% had positive (good) attitude towards LSM strategies to manage diabetes. No patient had negative attitude to LSM though 18.1% of the patients had neutral attitude. According to the researcher, this was attributed to frequent health

education sessions by the diabetic clinic nurses and expert diabetic patients. (Upadhyay, Shankar & Mishra 2008)

In a study done to evaluate the results of counseling in selected hospitalized type II diabetes mellitus patients about their medications, disease, and lifestyle modifications in terms of knowledge, attitude, and practice outcomes. Knowledge scores in the test group of patients improved but he did not observe significant improvement in attitude or practice outcomes. He concludes that patient counseling by a clinical pharmacist improves knowledge scores, but this improved knowledge does not necessarily lead to appropriate attitudes and may also negatively affect treatment adherence (Rambiritch 2007).

A study conducted in Nairobi Kenya among type II diabetic patients revealed that majority of respondents (83%) had positive attitude towards lifestyle modifications, followed by 17% of respondents who had neutral attitude, and no respondents had a negative attitude. (Ambigapathy 2003) This revealed relatively similar results with study conducted on 100 patients attending diabetic clinic at Kinikkashitan Seri Manjung which recorded 99% of patients answered greater than or equal to 50% of attitude question. Also a study done in South Africa at Mamelodi Hospital found out that majority of respondents (92.7%) had positive attitude towards lifestyle modifications.

2.5 Diabetic patients' practices with regard to life style modification in the management of diabetes mellitus type II

A study conducted in Egypt by (Kamel and Ismael et al 2003) which reported 49.5% of the respondents were not exercise regularly and 48% of the participants were not practices recommended diet and less than 40% exercise regularly and only 56% of the patients were adhere to recommended diet respectively. In a study done to assess diabetic patients' practices with regard Life style modification in California, majority of respondents 50.8% were overweight and only 4.3% had class I obesity which were attributed to lack of physical activities and poor dietary habits among respondents, and this further contributes to the development of type II diabetes mellitus with exacerbations of the associated complications. In the study, about 45% of the patients in the study were overweight which increases the risk of obesity (Rambiritch 2007).

In a study to examine correlation of knowledge, attitude and practice of lifestyle changes in diabetic patients of 45 years and above, (97.7%) demonstrated bad practices in relation to lifestyle modifications although over 84.3% had a positive attitude toward healthy lifestyle modifications but knowledge and practice regarding lifestyle modifications among type II DM patients were generally poor (Komagumu 2009)

According to a study conducted by (Kibuuka 2014) to determine knowledge attitude and practice of lifestyle modification in Mityana, 20% of the diabetic patients still smoke, drink alcohol and do not exercise or participate in physical activity despite being counseled on life style adjustment. Kibuuka found out that some of them continue to consume a disproportionately high carbohydrate diet and freely take sugar as well as eating meat most of the time as opposed to fish and vegetables. In that study, about 80% of type II diabetic patients in Mityana depend on the pharmacological aspect of which adherence is a problem.

In another study to assess knowledge, attitude and practice of type II diabetic patients in Mutale general hospital, almost half of the patients 57(49.1%) had good practice on selected dietary practices, cigarette smoking, alcohol consumption, fruit and vegetable, sweet sugar, buttery and fatty meal. Almost all patients do not smoke and consume alcohol always while 67(57.8%) patients never take sweaty food, 71 patients never take buttery and fatty meal, while only 3(2.6) patients never take fruit and vegetable because of socio-economic constraints. About 54(46.6%) and 37(30.21%) patients take eggs usually and never respectively. (Dunia et al 2013)

A study on knowledge and practices of diabetic patients with regard to LSM and found that 77(66.4%) patients exercise on regular programme or physical active and 39(33.6%) do not exercise on regular programme and were not physically active due to different reasons. Of those who exercised regularly 19(16.4%) exercise less than 15 minute perday,21(18.1%) 15-30minute per day,14(12.1%) patients 30 minute per day,11(9.5%) 30-45 minute per day,2(1.7%) 46-1hour per day and only 8(6.9%) patients exercise for greater than 1 hour per day. Exercise training programmes given to patients during health talks and a significant number of respondents 33.6% to negative attitudes of patients (Pombe 2014)

Another similar cross sectional study done in four provinces of Kenya revealed that, a significant majority of the respondents 67% were not practicing life style modification. In the

study people who participated in the study 75% had poor dietary practices. This finding was in line with the results from a cross sectional study of Adherence to diabetes Self-Management practices among Type II diabetic patients in Ethiopia; in which majority of the study participants 139 (43%) had very low monthly income (Mbuuro 2009)

In United States of America in the year 2008 showed among 69 patients classified as elevated risk of diabetes only 70% had received advice for weight loss, regular exercises and diet modification respectively and only 10% adhered to the advice regarding lifestyle changes. (Hastings Stanley 2004)

2.6 Summary of literature review

Previous studies have shown that a significant number of diabetic patients have a slightly adequate knowledge, good attitude and a low level of practice of lifestyle modifications in the management of diabetes type II . However these studies have been done in areas of different social economic contexts and therefore this particular study seeks to explore the above variables in the local context

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter describes the methodology that were used to establish the level of knowledge attitude and practice of type II diabetic patients about lifestyle modification in the management of diabetes mellitus type II in Mubende Hospital, Mubende district. A description of study design, study population, eligibility criteria, study variables, sources of data collection, data collection tools, sample size determination, data collection procedure, quality control issues, ethical considerations, limitations of the study and the plan for dissemination.

3.1 Study design

The study was descriptive and cross-sectional in design using quantitative methods of data collection and analysis whereby opinions and perceptions of diabetic patients from a relatively large number of subjects was collected in a point in time to cater for the generalizations that was made.

3.2 Study setting

The study was done in Mubende Regional Hospital in Mubende district. Mubende Regional Hospital is a government hospital and operates on a 24 hour basis. It is approximately 172kilometres (107 miles), by road, west of Kampala, the capital city of Uganda. The coordinates of the town are: 0°33'27.0"N, 31°23'42.0"E (Latitude: 0.5575; Longitude: 31.3950). It receives about 500 type II diabetic patients per month and has about 290 staff that includes doctors, nurses, paramedics and support staff in different cadres. The area has been chosen by the researcher because he is familiar with the area and therefore convenient for him

3.3 Data sources

3.3.1 Primary data source

The researcher collected primary data from type II diabetic patients who were the respondents

3.3.2 Secondary data source

The researcher collected secondary data from different sources like textbooks, internet, reports, newspaper, magazines, and journals. This information was reviewed through visiting places like libraries and internet cafes and this type of information were used to supplement the collected data from respondents that were selected from the study area.

3.4 Study population

Type II diabetic patients enrolled on care in the Clinic at Mubende regional referral hospital formed my study population and were accessed when they came for review on a clinic day

3.5 Study variables

The study comprised of independent and dependent variables

3.5.1 Independent variables include;

Patient's knowledge,

Patient's attitudes

Practices towards

- Physical activity
- Dietary modifications
- Glucose monitoring
- Stress prevention
- Weight monitoring
- Stoppage of smoking and Alcohol intake

3.5.2 Dependent variable

Lifestyle modification in the management of diabetes mellitus type II

3.6 Sample size determinations

Sample size was calculated using Kish and Leslie formula as follows;

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where; n = required sample size

z = reliability coefficient at 95% confidence interval (standard value of 1.96)

p = the proportion of patients of 40 years in Mubende district who have been diagnosed is 7.1% (Mubende hospital annual report 2014)

d = margin of error at 5% (standard value 0.05) therefore from the formula above

q = 1-p (probability measure of the proportion)

$$n = \frac{(1.96 \times 1.96) \times 0.071 \times 0.929}{0.05 \times 0.05}$$

$$n = \frac{3.8 \times 0.071 \times 0.1929}{0.0025}$$

n = 100 respondents

3.7. Quantitative data sampling:

3.7.1 Inclusion criteria

- All type II diabetic patients attending the clinic for 2nd visit and above who consented to participate in the study
- All the patients to participate in the study had to be of sound minds

3.6.2 Exclusion criteria

- Type II diabetic patients who were too sick to answer the questions

3.8 Sampling procedures

In this study, a simple random sampling procedure was employed in which 200 pieces of paper were made and numbers from 1 to 200 were written on these pieces of paper. They were folded and put in a bucket. Patients were made to pick and whoever picked an even number was my respondent. The patients were then screened to assess if they met the inclusion criteria and good enough they all met the criteria. So they were interviewed to acquire the further information.

3.9 Data collection procedure

Data was collected using researcher administered structured questionnaires with both open and closed ended questions that were filled by the researcher and research assistants after asking the respondents and listening to their responses. The patients who were sampled were asked if they were willing to participate in the study. The purpose of the study was explained to them. Research assistants helped the respondents to interpret questionnaires. At the end of

the session, the completed questionnaires were collected immediately and an appreciation note was given to respondents

3.10 Quantitative data collection tool

In the study, the questionnaire was the only quantitative data instrument used with both open and closed ended questions. The researcher administered questionnaires allowed participation by respondents who would not be able to express themselves fluently in English language and allowed clarification of ambiguity.

3.11 Quality control measures

The data collection tool was pre-tested in Mityana Hospital which is the nearest hospital to Mubende Regional hospital. The results of the exercise were used to refine the tool which helped to improve reliability of data. Prior to data collection, pre-visit to the study area was done. All data collection tools were given to the supervisor and some research experts who were asked to comment on the clarity of the tools and the questions in the tools. They were Asked to comment on tool's ability to gather the information required for the set of objective. Their comments were incorporated in the final tool.

All research assistants (3 in number) who helped in data collection especially those carrying out interviews were first trained in data collection techniques.

3.12 Plan for data analysis

The questionnaires used in data collection were checked for completeness and consistency of information at the end of every field data collection day and before storage. The data from completed questionnaires was cleaned, captured, coded and entered into the computer using SPSS software version 16.0 for analysis. Descriptive statistics was performed using frequency distribution and percentages were displayed using tables and figures.

Bivariate analysis using odds ratio at CI was performed to find out the association between dependent and independent variables.

3.13 Data management & analysis

The study findings and results were presented in a summary report providing a comprehensive overview of the patients' perception about lifestyle modifications in the

management of diabetes. The main outcome measure was knowledge, attitude and practices that affect modification of life style in the management of diabetes among diabetic patients.

3.14 Ethical considerations

The ethical study approval was sought from international health sciences' university and Mubende hospital director.

Informed consent was sought from diabetic patients while assuring them of the utmost confidentiality regarding their information in the study

Information from the study sample was sought in a language (luganda , and english) that was understandable to them and the opportunity to ask questions was given and appropriate clarification provided.

Participation in the study was voluntary and no physical risks to patients in this study were anticipated

3.15 Limitations of the study

It was likely that some participants might not be willing to participate in the study, thus the researcher had to assure the potential participants of their privacy and confidentiality of all the information that was given.

3.16 Plans for dissemination

After compiling results, three copies of the report were given to all the stakeholders, a dissemination workshop was held and publication with the consent of the University was sought, the results obtained were disseminated both in person and online.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.0 Introduction

This chapter presents a detailed analysis of the data as described in the third chapter. This is done in reference to the study objectives and the stated earlier. A mixture of tables and graphic presentation techniques were employed to provide a detailed and thorough presentation of the data.

4.1 Analysis of demographic characteristics of the respondents

Table 1: Distribution of respondents by their socio-demographic characteristics

Demographic variable	Frequency (n=100)	Percentage (100%)
Respondents' age (years)		
20 -39	09	09
40 - 49	32	32
50 – 59	41	41
60 and above	18	18
Respondents' gender		
Males	41	41
Females	59	59
Education level of respondents		
Primary	63	63
Secondary	23	23
Tertiary	10	10
No formal education	04	04

Source: primary data 2016

Majority of the respondents 91(91%) were 40years and above, only 9% were below 40years, 59(59%) were females where as males were only 41%. In the study, 51(51%) of the respondents were not married and only 49% were married. Regarding education status, a significant majority 96(96%) of the respondents had formal education and only 4% were illiterate with no formal education.

Table 2: Respondents' knowledge on the type of diabetes mellitus and predisposing factors of diabetes mellitus

Question and response	Frequency (n=100)	Percentage (100%)
What is diabetes mellitus?		
High sugar levels in the blood	80	80
Low sugar levels in the blood	13	13
Not sure	07	07
Type of diabetes mellitus		
Diabetes type I	19	19
Diabetes type II	81	81
Do you know the predisposing causes of diabetes type II?		
Yes	81	81
No	19	19
What are the predisposing factors of diabetes mellitus type II?(tick all that apply)		
Sedentary lifestyle (physical inactivity)	09	11
Hereditary	18	22
Obesity	21	26
Lack of enough insulin in the body	3	4
Diseases of the pancreas	13	16
Over eating sugary foods	17	21

Source: primary data 2016)

In the study, 80% of the respondents defined diabetes as high sugar levels in blood and 13% defined it as low sugar levels in blood and only 7% of the respondents were not sure. Regarding the types of diabetes mellitus, diabetes type II was most mentioned by 81% of the respondents and diabetes mellitus type I was only mentioned by 19%. As for the predisposing causes/factors of diabetes mellitus type II, obesity was the most mentioned by 26% of the respondents, hereditary by 22%, eating sugary foods was given by 21% diseases of the pancreas were mentioned by 16%, 11% gave sedentary lifestyle and only 4% of the respondents said it is due to lack of enough insulin in the body.

Table 3: Respondents' knowledge about life styles modification and where the information on lifestyle modification was got.

Question and response	Frequency	Percentage(100)%
Have you heard about lifestyle modification in the management of diabetes mellitus type II		
Yes	81	81
No	19	19
If Yes, what are they? (Tick all that apply)		
Regular exercise	22	11
Healthy diet	40	20
Low sugar consumption	48	25
weight reduction	14	07
Adherence to diabetic drugs	72	37
How do the above mentioned lifestyle modifications help patients with diabetes mellitus type II?		
They help to reduce or normalize blood sugar levels	28	34
They keep blood sugar levels in normal or near normal ranges	50	62
Not sure	03	04
Where did you get information about life style modification in the management of diabetes mellitus type II?		
Radio	58	48
Health worker	49	40
Television	14	12

Source: primary data 2016)

In this study, majority (81)81% of the respondents had heard about lifestyle modification and only 19 had not heard about LSM., Regarding LSMs known to respondents, Adherence to diabetic drugs was the most mentioned by 37%, followed by low sugar consumption given by 25%, healthy and nutritious diet mentioned by 20% of the respondents, regular exercise was mentioned by 11% of the respondents and weight management/reduction was the least mentioned by only 7% of the respondents. When asked how lifestyle modifications could help patients with diabetes mellitus type II, 62% of the respondents said that LSMs keep blood sugar levels in normal or near normal ranges, 34% said LSMs help to reduce or

normalize blood sugar levels and only 4% were not sure. In the study radios were the major source of information about LSMs as revealed by 48% of the respondents, followed by health workers 40% and then television as revealed by 12% of the respondents.

Table 4: Respondents' attitude towards life style modifications in the management of diabetes mellitus type II

Statement and responses	Frequency(n=100)	Percentages (100%)
Physical activities (exercises) can help control blood sugar levels in diabetes mellitus type II		
I agree	45	45
I strongly agree	48	48
I disagree	05	05
I strongly disagree	02	02
Weight monitoring and reduction can help control Diabetes mellitus type II		
I agree	48	48
I strongly agree	44	44
I disagree	06	06
I strongly disagree	02	02
Low sugar consumption can help control blood sugar levels in diabetes mellitus type II		
I agree	46	46
I strongly agree	47	47
I disagree	05	05
I strongly disagree	02	02
Adherence to diabetic drug can help control diabetes mellitus type II		
I agree	78	78
I strongly agree	15	15
I disagree	05	05
I strongly disagree	02	02

Source: primary data 2016)

In the study,(45)45% and(48)48% of the respondents agree and strongly agree respectively that physical activities help to control blood sugar levels in diabetes mellitus type II, while (5)5% and (2)2% disagree and strongly disagree respectively physical activities can that help control blood sugar levels in diabetes mellitus type II , (48)48% and (44)44% agree and

strongly agree respectively that weight monitoring and reduction can help control blood sugar levels in diabetes mellitus type II while (6)6% and (2)2% disagree and strongly disagree respectively that weight monitoring/reduction can help control blood sugar levels in diabetes mellitus type II, (46)46% and (47)47% agree and strongly disagree that low sugar consumption can help control blood sugar levels in diabetes mellitus type II, (78)78% and (15)15% agree and strongly disagree respectively that adherence to diabetic drugs can help control blood sugar levels in diabetes mellitus type II while (5)5% and (2)2% disagree and strongly disagree that can help control blood sugar levels in diabetes mellitus type II

Table 5: Respondents' practices with regard to life style modification in the management of diabetes mellitus II

Question and response	Frequency (n=100)	Percentage (100%)
Do you practice lifestyle modifications/measures to control diabetes mellitus type II in addition to drugs?		
Yes	68	68
No	32	32
If yes, which one? (tick all that apply)		
Exercises	30	25
Weight monitoring	19	15
Low sugar/fat diet	25	20
Glucose monitoring	09	07
Adherence to drugs	40	33
Which exercises or physical activities do you engage in? (Tick all that apply)		
Jogging	04	11
Walking	28	76
Sports	02	05
Aerobics	03	08
How often do you monitor your blood glucose levels		
Before every meal	02	03
Once a day	03	04
Monthly	57	84
Weekly	06	09
None	00	00
Which type of food do you normally feed on? (Tick all that apply)		
Carbohydrates and fats	39	33
Vegetables	06	05
Small amounts of refined sugar	12	10

Large amounts of refined sugar	20	17
Protein containing foods	41	35
Do you adhere to your prescribed anti-diabetic drugs or at times you miss out on your drugs?		
Yes	34	34
No	66	66
If you have not practiced any of the above lifestyle modifications, what could		
If no, what makes you not to adhere to your prescribed drugs? (tick all that apply)	08	17
Sometimes Iam unable to pick drugs due to poor health		
Sometimes I lack of money to buy drugs	20	43
Sometimes I feel O.K and halt drugs	10	22
Sometimes I fear getting very low blood sugar levels	08	18
be the reasons hindering you from practicing (tick all that apply)		
Iam not aware of LSMs	59	44
Low social economic status/poverty	08	06
Lack of care supporter	17	13
Poor health status or sickly	06	04
Sometimes I use herbal medicine	15	11
Scarcity of enough food	15	11

Source: primary data 2016)

In the study, 47 % of the respondents do practice lifestyle modifications/measures to control diabetes mellitus type II and only 53% Of the respondents do not practice LSMs in the management of type II diabetes mellitus. Findings of the study show that most respondents 33% were adhering to drugs, exercises were done by 25%, weight monitoring/reduction was mentioned by 15%, feeding on low sugar/fat diet revealed by 20% and glucose monitoring was only being done by 7% of the respondents.

Regarding the hindrances to practice LSMs, low social economic status/poverty was the most mentioned by 44% of the respondents, lack of awareness about LSMs was mentioned by 22% poor health status or being sickly was revealed by 13%, scarcity of enough nutritious foods was said by 11% and lack of care supporter was mentioned by 6% of the respondents.

CHAPTER FIVE: DISCUSSION OF THE FINDINGS FROM THE STUDY

5.0 Introduction

5.1 Respondents' socio-demographic characteristics in the study

The results of the study reveal that majority of the respondents 91(91%) were 40years and above, only 9% were below 40years. This agrees with the assertions of (Levitt NS et al, 2008) who say that type II diabetes usually develops in adults over the age of 40years. (Guyton AC et al 1972) also said that diabetes mellitus and type II commonly occurs above 40years so explaining the finding of respondents above 40 years of age in the clinic. And because it is more prevalent among adults, it could be the reason it is called disease of adult hood.

In the study, majority of the respondents 96% were found to possess formal education and these included primary, secondary and tertiary levels. In the study, only 4% of the respondents were illiterate. This is important and can positively impact on acquisition of knowledge on issues to do with their health and the attributes of good health hence an improved lifespan among type II diabetic patients, These findings concur with those of (Namadha et al 2011) who in his study revealed that majority of the patients 80% in the diabetic clinic possessed formal education having primary, secondary and tertiary levels. In the study, he says there was a high level of knowledge about diabetes mellitus and lifestyle modifications among respondents who had formal education. He noted a significant level of knowledge and positive health behaviors (lifestyle modifications) like good nutrition, exercises, smoking cessation and seeking for medical care early.

Majority of the respondents 58(58%) were married and were staying with their partners and this is important because it can positively impact on some of the lifestyle modification measures in respect to knowledge, and practice especially in the areas of adherence, physical exercises and dietary modifications whereby the partner acts as a supporter of their spouse to keep remind them of the lifestyle modification measures and also provide socio-economic support to enable the patient carry on with lifestyle modification. However these findings are in disagreement with those of (Kiberenge et al 2010) who in a study aimed at finding out the factors that influence lifestyle modification practices among type II diabetic patients found out that marital status had no significant effect on lifestyle modification since $P > 0.05$. In his study less than 50% of the respondents were not married and there was no statistical significance between the married and unmarried ones

5.2 Respondents' level of knowledge about type II diabetes mellitus

In the study, 80% of the respondents demonstrated a reasonable degree of knowledge about diabetes mellitus. This is because they were able to define it correctly as high sugar levels in blood and 13% defined it as low sugar levels in blood and only 7% of the respondents were not sure. In the study, respondents were able to mention the common types of diabetes mellitus type I and II though type II was the most mentioned by 81% of the respondents. However type II being mentioned by a significant number of respondents could be due to the fact that it is the disease they are suffering from. Respondents also knew the predisposing causes/factors of diabetes mellitus type II, and obesity was the most mentioned by 26% of the respondents. Also in the study hereditary was given by 22%, eating sugary foods was given by 21%, diseases of the pancreas were mentioned by 16%, 11% gave sedentary lifestyle and only 4% of the respondents said it is due to lack of enough insulin in the body. This shows that diabetic patients are knowledgeable about predisposing factors of diabetes mellitus type II and during the discussion respondents further mentioned hereditary predisposition. This clearly shows that genetic predisposition in combination with other factors mentioned above by respondents are responsible for this non communicable disease.

In the study, obesity was the most mentioned by 26% of the respondents. Respondents said that too much weight is a major risk factor associated with type II diabetes mellitus and most of them were heard sharing amongst themselves about the manouvres to reduce or cut weight. This is in line with (Jennifer Hicks, 2008) that obesity is the major risk factor for diabetes. Hereditary was also significantly mentioned by 22% of the respondents who said that majority of the patients had had some in the family either a parent , uncle or an aunt suffer from the same condition. This conquers with the assertions of (Ndengwa et al 2001) that hereditary in people genetically predisposed to the disease, the probability to develop type IIdiabetes is high once exposed to “unhealthy” lifestyles like alcohol consumption sedentary lifestyles and obesity.

In the study, 11% of the respondents gave sedentary lifestyle and physical inactivity to be the contributory cause of diabetes mellitus type II. A similar finding is of World Health Organization (WHO 2008), sedentary lifestyle is one of the 10 leading causes of death and disability associated with diabetes mellitus and cardiovascular diseases accounting for 300,000 premature deaths each year in the United States alone and these deaths are mainly

from cardiovascular disease which people with type II diabetes mellitus and pre-diabetes mellitus are at a much higher risk than others

5.3 Respondents' knowledge about lifestyle modifications in the management of type II diabetes mellitus

In this study, majority (81)81% of the respondents had heard about lifestyle modification and 37% mentioned adherence to diabetic drugs, followed by low sugar consumption given by 25%, healthy and nutritious diet mentioned by 20% of the respondents, regular exercise was mentioned by 11% of the respondents and weight management/reduction was also mentioned by 7% of the respondents. When asked how lifestyle modifications could help patients with diabetes mellitus type II, 96% of the respondents had right answers. They said that LSMs keep blood sugar levels in normal or near normal ranges and also help to reduce or normalize blood sugar levels. This clearly indicates that a significant majority of the respondents had adequate knowledge about lifestyle modifications in the management of diabetes mellitus type II.

This is in line with the findings of (Wild et al, 2004) in Malaysia, where 87% of the participants were knowledgeable with a score of 50% or more on knowledgeable question. 99% had a score of 50% or more on lifestyle modification practices scores

However the findings do not support or concur with those of (Kibuuka 2015) who says that diabetic patients have little or no knowledge about life style modifications as a means of managing type II diabetes mellitus. In his study, he found out that over 40% of the patients in Mubende don't know that there are other non pharmacological means of controlling blood sugar levels. The findings are also in disagreement with those of (Songwi et al, 2002) who assert that most diabetic patients have little or no knowledge about life style modification as a mode of managing diabetes mellitus. In a Nigerian rural diabetic clinic study, majority of diabetic patients 59% could not mention any lifestyle measures to control or prevent diabetes mellitus type II. The above disagreement is due to the fact that respondents were able to give some of the lifestyle modification measures including weight reduction, adherence to diabetic drugs, dietary modifications and exercises or physical activities. This high level of knowledge about lifestyle modification among respondents in the current study could be attributed to the formal education that probably raise their curiosity as well as ability to grasp health information/messages disseminated on radios, clinic and television.

5.4 Respondents' attitude towards lifestyle modifications in the management of type II diabetes mellitus

The findings of the study reveal that type II diabetic patients have a positive attitude towards lifestyle modifications in the management of type II diabetes mellitus. This is because in the study, when asked whether physical activities (exercises), low sugar consumption, adherence to diabetic drug and weight reduction could help control blood sugar levels in diabetes mellitus type II, majority of the respondents 93(93%) agreed that lifestyle modifications particularly those mentioned above help to control or reduce blood sugar levels. In the study when asked how they would feel if LSM measures were prescribed to them, a significant majority 80% .These findings are in line with the findings of the study by Shankar R and Mishra P (2008) who found out that majority of the diabetic patients 82% had positive (good) attitude towards LSM strategies to manage diabetes. No patient had negative attitude to LSM though 18% of the patients had neutral attitude This revealed relatively similar results with study by (Ambigapathy2003) conducted on 100 patients attending diabetic clinic at Kinikkashitan Seri Manjung which recorded 99% of patients answered greater than or equal to 50% of attitude question. Also a study done in South Africa at Mamelodi Hospital found out that majority of respondents (92.7%) had positive attitude towards lifestyle modifications. This positive (good) attitude possessed by the respondents could be attributed to health education talks including the advantages associated with lifestyle modifications on radio talk shows and other mediums of communication by health workers and expert clients.

5.5 Respondents' lifestyle modification practices in the management of type II diabetes mellitus

This current study reveals that a small proportion of respondents 47% do practice lifestyle modifications as a measure to control blood sugar levels. This means that a significant majority 57% do not practice LSM and only depend on chemotherapy of which adherence is also wanting. It was found out that only 33% of the study populations were religiously adhering to drugs. In the study, the proportion of respondents who were exercising were 25%, involving themselves in avenues that reduce weight were 15%, dietary modification including low consumption of refined sugars, were 20% and respondents who were monitoring glucose were only 7%. This demonstrates a very low level of practice especially regarding lifestyle modification among type II diabetic patients which explains the reason their blood sugar levels remain uncontrolled and this could be due to majority of the patients had limited

resources and low income which limit their affordability for a well balanced dieting and necessary equipment to exercise. This result is slightly lower than that of a study conducted in Egypt by (Kamel and Ismael et al 2003) which reported 49.5% of the respondents were not exercise regularly and 48% of the participants were not practices recommended diet and less than 40% exercise regularly and only 56% of the patients were adhere to recommended diet respectively.

Also in agreement with the result of a study is by (Mbuuro John 2009) which revealed that, a significant majority of the respondents 67% were not practicing life style modification. He says that; of the people who participated in the study 75% had poor dietary practices, 47% were not exercising but rather living a sedentary lifestyle, 80% were not monitoring their blood sugar levels and adherence levels among respondents were standing at 37% Mbuuro attributed this low level of lifestyle modification practices to low income amongst majority of respondents which limit their accessibility and affordability of a well balanced diet/healthy food and drugs.

On the contrally in another study by (Levitt NS et al, 2008) almost half of the patients 57(49.1%) had good practice on selected dietary practices, cigarette smoking, alcohol consumption, fruit and vegetable, sweet sugar, buttery and fatty meal. Almost all patients do not smoke and consume alcohol always while 67(57.8%) patients never take sweaty food, 71 patients never take buttery and fatty meal, while only 3(2.6) patients never take fruit and vegetable because of socio-economic constraints. However during the interview in this current study, respondents raised a number of issues that affect lifestyle modification practices and these were found to be of low social economic status/poverty which was mentioned by 44% of the proportion of the respondents that was not practicing LSM. This lack of ‘‘money’’ negatively impacts LSM practices and consequently poor management of diabetes mellitus. In the current study, lack of awareness about LSMs was mentioned by 22% poor health status or being sickly was revealed by 13%, scarcity of enough nutritious foods was said by 11% and lack of care supporter was mentioned by 6% of the respondents.

The findings in the current study are in agreement those of a study done by (Komagumu 2009) to examine the correlation of knowledge, attitude and practice of lifestyle changes in diabetic patients of 45years and above, (97.7%) demonstrated bad practices in relation to

lifestyle modifications although over 84.3% had a positive attitude toward healthy lifestyle modifications but knowledge and practice regarding lifestyle modifications among type II DM patients were generally poor.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This chapter presents the conclusions drawn from the findings and appropriate recommendations of the study

6.1 Conclusions

The findings of the survey reveal that a large proportion 81% of type II diabetic patients in Mubende has adequate knowledge about diabetes mellitus and lifestyle modifications in the management of diabetes mellitus type II. Under this, type II diabetic patients mentioned adherence to diabetic drugs, low sugar consumption, healthy and nutritious diet, regular exercise and weight reduction.

The findings of the study reveal that a significant majority of respondents 92(92%) have a positive (good) attitude towards lifestyle modifications in the management of type II diabetes mellitus.

The findings of the current study reveals that a bigger proportion 57% do not practice lifestyle modification and only depend on chemotherapy of which adherence is also wanting. This means a small proportion of respondents 47% do practice lifestyle modifications as a measure to control blood sugar levels.

Basing on the above findings of the survey, knowledge and good (positive) attitude about lifestyle modification in the management of diabetes type II does not necessarily guarantee practice. This is because despite the adequacy of knowledge 81% and the positive attitude 93% towards lifestyle modifications among diabetic patients, practice was very low about 47%.

6.2 Recommendations

- There is a need to reinforce type II diabetic patients' knowledge about lifestyle modifications and the importance of changing their life style.
- There is a need to create avenues aimed at closing the gap between knowledge and attitude with practice among type II diabetic patients.
- Health workers should provide proper health education to their diabetic patients and enforce their attitude, practice and compliance.

- There is a need for ministry of health, Mubende regional referral hospital to train/equip and empower health care providers with adequate knowledge in order to deliver adequate health information to diabetic patients and their caretakers.
- Media and non-governmental organizations should play a role in raising the awareness of the importance of lifestyle modifications in the management of diabetes mellitus type II in a simplified way.
- This study was carried out in outpatient clinics, it may not truly represent all type II diabetics. Therefore there is a need do a nationwide survey in depth research on diabetics' knowledge, attitude, practice on to lifestyle modification and compliance and how they may interrelate.

REFERENCES

Abigaba R.P (2009) *Assessment of knowledge, attitude and practices of type II diabetic patients towards lifestyle modification in Kabale Hospital, West. Uganda*

Ambigapathy R, Ambigapathy S, Ling HM A (2003) *Knowledge, attitude and practice (KAP) study of diabetes mellitus among patients attending Klinik Kesehatan Seri Manjung. 2(2)*

American Diabetes Association (2010) *Jan of med 3(2)*

Boule N.G, E. Haddad (2001) *Effects of exercise on glycemic control and body mass in type II diabetes mellitus: a meta-analysis of controlled clinical trials JAMA, 286 (2001).*

Dunia A.H, A.S. Nazmi, (2013). *Self monitoring of blood glucose (SMBG) among diabetic patients in Muscat, Oman – a pilot study Saudi J. Health Sci., 2 (1)*

Erasmus R, Blanco E, Okesina A, (1999)*Assessment of glycemic control in stable type II black South African diabetics attending a peri-urban clinic. Postgrad Med J. 1999*

Hicks J (2008). *A sedentary lifestyle and diabetes. Jan of med 5(3).*

Izimba D (2015) *The importance of patient education and patient involvement in the treatment of diabetes mellitus in Kumi Hospital uganda*

Kamel MH, Ismail MA, El Deib A, and Hattab MS (2003): *Predictors of self-care behavior in adults with type II diabetes mellitus in Abu Khalifa Village-Ismalia -Egypt. Suez Canal Univ Med J; 6 (2) :185-95.*

Kiberenge WM, Ndegwa ZM, Njenga EW, (2010) *Knowledge, attitude and practices related to diabetes among community members in four provinces in Kenya: A cross-sectional study.*

Kibuuka A (2015) *knowledge and practices of diabetic patients towards lifestyle modifications in Mubende Hospital*

Knowler WC, Nelson K.M , G. Reiber, (2002) *Diet and exercise among adults with type II diabetes-findings from the third national health and nutrition examination survey Diab. Care, Vol. 3*

Levitt NS, et al.(2008) *Knowledge, attitude and practices of lifestyle modification among patients visiting a diabetes care unit Pak. J. Nut., 1*

Malathy R, Narmadha M, Ramesh S, (2011) *Effect of a diabetes counseling programme on knowledge, attitude and practice among diabetic patients in Erode district of South India. 3(1),*

Moodley. L.M , V. Rambiritch (2007) *An assessment of the level of knowledge about diabetes mellitus among diabetic patients in a primary health care setting 49 (10)*

Mukhopadhyay P, Paul B, Das D,. (2010) *Perceptions and practices of type II diabetics: A cross-sectional study in a tertiary care hospital in Kolkata. Int J Diab Dev Ctries. 30(3).*

Palaian S, Acharya LD, Rao PGM. (2006) *Knowledge, attitude and practice outcomes: Evaluating the impact of counseling in hospitalized diabetic patients in India 31(7)*

Regensteiner J (2006) *The effects of un effective pancreas, Jan of med 11(3)*

Rheeder P (2006) *Type II diabetes: the emerging epidemic. SA Fam Pract.*

Upadhyay D.K, S. Palaian, (2008) *Knowledge, attitude and practice about diabetes among diabetes patients in western Nepal Rawal Med. J., 33 (1)*

APPENDIX I: CONSENT FORM

Iconsent to participate in the study entitled lifestyle modification among type II diabetes mellitus. I am aware that the study is purely academic, my participation is voluntary, my responses are to the best of my knowledge and belief and will be treated with the utmost confidentiality.

Signed Date.....

(Respondent)

Signed Date.....

Principal researcher

APPENDIX II: QUESTIONNAIRE

Dear respondent,

My name is Twinamatsiko Jacob, I am a student of International Health Sciences University. I am conducting a research about lifestyle modification among type II diabetes mellitus as partial fulfillment for the award of a bachelor's degree in nursing. The study is purely academic and your responses will be treated with the utmost confidentiality. You are therefore requested to answer the following questions to help me get the required data.

Part A: Socio – demographic characteristics

1. What is your age?
20-30 41-50
31- 40 51 and above
2. What is your marital status?
Married Divorced
Single Cohabiting
3. What is your educational level?
Primary Secondary
Tertiary No education

Part B: Respondents' knowledge a bout of diabetes mellitus type II

4. What is diabetes mellitus?
High sugar levels in the body
Low sugar levels in the body
Not sure
5. Which types of diabetes mellitus do you know?
Diabetes mellitus type I
Diabetes mellitus type II
I don't know
6. Do you know what causes diabetes mellitus type II?
Yes No
7. If yes, what are the predisposing causes of diabetes mellitus type II?

.....
.....
.....

8. What are the predisposing factors of diabetes mellitus type II?

Obesity Hereditary
Physical inactivity others (specify)

Part C: Respondents' knowledge about lifestyle modification in the management of diabetes mellitus type II

9. Have you heard about lifestyle modifications in the management of diabetes mellitus type II?

Yes No

10. If yes, what are they?

Regular exercise	<input type="checkbox"/>	Stress prevention	<input type="checkbox"/>
Healthy diet,	<input type="checkbox"/>		
Weight management	<input type="checkbox"/>		
Smoking / alcohol	<input type="checkbox"/>		

11. Where did you get information about lifestyle modification in the management of DM type II?

Radio Television
Health worker

Part D: Respondents' attitude towards lifestyle modification in the management of diabetes mellitus type II

12. Do you think that physical activity, weight monitoring, stress management and low sugar consumption can help you control DM type II? (choose only one)

Agree disagree
Strongly agree strongly disagree

13. How do you feel if the following lifestyle modifications are prescribed for you as a measure of controlling diabetes mellitus type II? (Indicate O if it is O.K and N if not O.K)

Exercises	<input type="checkbox"/>	Low sugar consumption	<input type="checkbox"/>
Weight monitoring	<input type="checkbox"/>	Glucose monitoring	<input type="checkbox"/>
Stress prevention	<input type="checkbox"/>	Adherence to DM drugs	<input type="checkbox"/>

PART E: Respondents' practices with regard to life style modification in the management of diabetes mellitus type II

14. Have you practiced any of the lifestyle modification/measures to control diabetes mellitus type II? Yes No

15. If yes, which one? (Tick all that apply)

Exercises	<input type="checkbox"/>	Glucose monitoring	<input type="checkbox"/>
Weight monitoring	<input type="checkbox"/>	Adherence to drugs	<input type="checkbox"/>
Low sugar/fat diet	<input type="checkbox"/>		

16. Which exercises do you engage in? (Tick all that apply)

Jogging	<input type="checkbox"/>	Sports	<input type="checkbox"/>	Others (specify).....
Walking	<input type="checkbox"/>	aerobics	<input type="checkbox"/>	

17. How often do you monitor your blood glucose levels? (Tick all that apply)

Before every meal	<input type="checkbox"/>	Monthly	<input type="checkbox"/>	Non	<input type="checkbox"/>
Once a day	<input type="checkbox"/>	weekly	<input type="checkbox"/>		

18. Which type of foods do you normally feed on?

Carbohydrates	<input type="checkbox"/>	Small amounts of refined sugar	<input type="checkbox"/>
Vegetables	<input type="checkbox"/>	Proteins	<input type="checkbox"/>

19. Do you sometimes miss taking your drugs?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
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20. If you have not used any of the above, what could be the reasons hindering you from practicing? (Tick all that apply)

a) Lack of knowledge about LSM	<input type="checkbox"/>
b) Low social economic status/poverty	<input type="checkbox"/>
c) Lack of care supporter	<input type="checkbox"/>
d) Poor general health	<input type="checkbox"/>

APPENDIX III: INTRODUCTORY LETTER AND CORRESPONDENCE



making a difference in health care

Office of the Dean, School of Nursing

Kampala, 23rd September 2016

TO THE HOSPITAL DIRECTOR
MUBENDE R-R HOSPITAL
P.O. Box 4
MUBENDE

*Dr. Koryed,
I Decided wd
to guide
Deborah
15/11/2014*

Dear Sir/Madam,

RE: ASSISTANCE FOR RESEARCH



Greetings from International Health Sciences University.

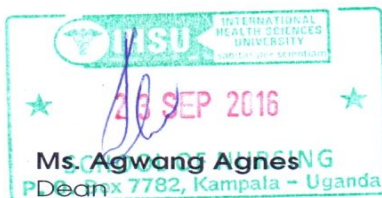
This is to introduce to you **Twinamatsiko Jacob**, Reg. No. **2013-BNS-TU-042** who is a student of our University. As part of the requirements for the award of a Bachelors degree in Nursing of our University, the student is required to carry out research in partial fulfillment of his award.

His topic of research is: **Knowledge, attitude and practice of lifestyle modifications among type II diabetic patients in Mubende Regional Referral Hospital**

This therefore is to kindly request you to render the student assistance as may be necessary for his research.

I, and indeed the entire University are grateful in advance for all assistance that will be accorded to our student.

Sincerely Yours,



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