COLLEGE OF MEDICINE AND HEALTH SCIENCE DEPARTMENT OF PUBLIC HEALTH

ASSESEMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE ON COMPLICATIONS OF DIABETES MELLITUS AMONG DIABETIC PATIENTS IN AGENA PRIMARY HOSPITAL

Investigators: - Mustefa Bedaso
Dejene Asefa
Tsehayena Birhanu
Tizazu Fikadu

Advisors: Mr. Dereje Mesfin (MPH, Assistant Professor)
Mr. Abdurezak Kemal (BSc, MPH)

A RESEARCH PAPER SUBMITTED TO WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCE DEPARTMENT OF PUBLIC HEALTH FOR PARTIAL FULFILLMENT OF THE REQUIREMENT FOR BACHELOR DEGREE IN PUBLIC HEALTH.

July, 2023, Wolkite, Ethiopia

WOLKITE UNIVERSITY

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LIST OF ABBREVIATIONS

ADA-American diabetic association

DKA-Diabetic ketoacidosis

DM-Diabetic mellitus

EDA-Ethiopian diabetic association

EDHS-Ethiopian demographic and health survey

FBS-Fasting blood sugar

FDRE-Federal democratic republic of Ethiopia

HHS-Hyperglycemic hyperosmolar state

KAP-Knowledge, attitude and practice

MOH-Ministry of health

NGO-Non-governmental Organization

OGTT-Oral glucose tolerance test

Summary

Introduction: Diabetes mellitus is a complex chronic metabolic disease characterized by an elevation of level of glucose in the blood and it caused by a complex interaction of genetics and environmental factors. DM has acute and chronic complications.

Diabetic ketoacidosis, hyperosmolar hyperglycemia, and hypoglycemia are examples of acute complications. Nephropathy, neuropathy, retinopathy, ischemic heart disease, myocardial infarction, stroke, impotence, high cholesterol, impaired kidney function, and the possibility of protein in the urine are examples of chronic consequences.

Objective: To assess knowledge and attitudes about acute and chronic complications of diabetes mellitus and to assess practices needed to prevent those complications of diabetes mellitus in Agena Primary Hospital among diabetes mellitus patients.

Methods: Institutional-based descriptive cross-sectional study was conducted from July 1-30,2023. The sample size was calculated using single population proportion which is 201.Then simple random sampling was used to select participants in Agena Primary Hospital. Data was collected by using questionnaires and face to face interview and then collected data was edited, coded and entered into statical software SPSS version 25 and results was presented in text, tables and graphs. Finally descriptive statistics was done and summarized accordingly.

Result: From a total of 195 respondents 108 respondents (55.4 %) have good knowledge towards complications of DM. Almost half of the respondents 101(51.8%) had good attitude towards the complications of DM. Almost half of the respondents 97(49.7 %) had a good practice towards diabetic complications.

Conclusion: Almost half of the participants had good knowledge, attitude, and practice towards complications of DM. Less than half of the participants believed that regular exercise prevent DM complications. Among study participants more than half of them didn't assumed good glycemic control as way of preventing diabetic complications. Only a few of participants have checked up their kidney and eye regularly.

Recommendation: For Agena primary hospital in Agena town, Gurage zone

A hospital-based intervention program should be implemented in order to improve the KAP of patients regarding prevention of complication of DM.

- To consider developing educational programs that emphasizes life style modification with importance of adherence to treatment would be of great benefit in poor glycemic control.
- Measures should be put in place education for diabetes patients, emphasize more on self-care

activities especially to patients with long duration of diabetes.

For health care providers

- Develop effective patient provider relation and communication skills when counseling diabetic patients.
- Encouraging patients' adherence to physical activity and regular follow up should be emphasized to diabetic patients at every appointment.
- Health care providers should discuss barriers of treatment adherence when counseling patients and solutions should be tailored toward individual needs.

Key words: - knowledge, attitude and practice.

1. INTRODUCTION

1.1 Background of the Study

Diabetes mellitus is a complex chronic metabolic disease characterized by an elevation of level of glucose in the blood. It is a serious, long-term ("chronic") condition that occurs when raised levels of blood glucose occur because the body cannot produce any or enough of the hormone insulin or cannot effectively use the insulin it produces [3,6,9]. Several distinct types of DM are caused by a complex interaction of genetics and environmental factors. Depending on the etiology of the DM, factors contributing to hyperglycemia include reduced insulin secretion, decreased glucose utilization, and increased glucose production. The metabolic deregulation associated with DM causes secondary pathophysiologic changes in multiple organ systems that impose a tremendous burden on the individual with diabetes and on the health care system. DM is classified on the basis of the pathogenic process leading to hyperglycemia, as opposed to earlier criteria such as age of onset or type of therapy. There are two broad categories of DM, designated as either type 1 or type 2 DM. However, there are others like Gestational diabetes mellitus and other non-common types [3, 6, 9, 20].

According to WHO estimates, there are currently 422 million diabetics globally and by 2030, there will be 438 million. The worldwide prevalence of DM has risen dramatically over the past two decades, from an estimated 30 million cases in 1985 to 415 million in 2017. According to recent estimates, diabetes mellitus (DM) causes 1.5 million fatalities yearly and is the seventh biggest cause of mortality in the world [10, 11]. DM is also one of Africa's most prevalent non-communicable diseases. According to WHO estimates from 2011, 14.7 million individuals in Africa have diabetes. By 2030, it is anticipated that adult diabetes cases will rise by 90.5% in the African region. Women are more likely than men to be obese or overweight in sub-Saharan African nations, hence it makes sense that women would have a higher prevalence of DM [5]. According to Ethiopian Diabetes Association report, there were approximately 1.33 million instances of diabetes mellitus in Ethiopia in 2015. According to projections made by the WHO, there were roughly 800,000 instances of DM in Ethiopia in 2000 and by 2030, that number is expected to rise to about 1.8 million [4]. DM has acute and chronic complications. Diabetic ketoacidosis (DKA), hyperosmolar hyperglycemia (HHS), and hypoglycemia are examples of acute complications. Nephropathy, neuropathy, retinopathy, ischemic heart disease, myocardial infarction, stroke, impotence, high cholesterol, impaired kidney function, and the possibility of

protein in the urine are examples of chronic consequences [6, 20].

Getting idea regarding the level of awareness about DM among population is very basic measure in designing the prevention program for diabetes. Studies from India and USA have shown that disease awareness had the potential to modify the attitude of masses about DM. A very deep vacuum amidst knowledge and attitude in diabetic people was observed and the sound and knowledgeable programs can enhance the knowledge of the patients and alter their attitude. Pharmacist can play more role for the diabetic patients than just fill their prescriptions. They can counsel and impart the disease information to the patients. It is imperative that people with DM and their family members understand the basic facts, such as the type they have, signs and symptoms, treatments, preventive measures, and the importance of maintaining good glycemic control [21].

DM is one of the four priority non-communicable diseases (NCDs) targeted for prevention and control by the World Health Organization 2011 [22]. Diabetic retinopathy, one of the main diabetic complications, is an important cause of blindness. Diabetes is also among the leading causes of kidney failure [23]. Most nations spend 5 to 20% of their health budget on diabetes, predominantly to prevent and treat diabetic complications [24]. All major complications of diabetes are preventable by good control of blood glucose levels, blood pressure, and cholesterol levels. This requires a high level of education of the person with diabetes in managing their condition, access to insulin, oral medications, and monitoring equipment [25]. There is an increasing amount of evidence that patient education is the most effective way to lessen the complications of diabetes and its management by improving their attitude and practice [26]. Unfavorable attitudes and psychological problems like depression are common among diabetes patients and can lead to poor diabetes care provoking diabetic complications [27, 28].

There is powerful evidence that individuals who are educated and diligent in their diabetes self-care achieve better and durable diabetic control [29, 30]. Past studies on knowledge, attitude, and practice towards the prevention of diabetes complications consistently revealed the requirements of better awareness on prevention, diagnosis, and risk factor control of diabetes [31]. A good attitude towards DM complications helps patients to change any harmful dietary and lifestyle habits [32].

Though there are some works of literature on the prevalence of diabetic complications, there is very few published data on attitude and practices towards complications of diabetes among diabetic patients in Ethiopia. Thus, this study will be conducted to assess the attitude and practices towards diabetic complications among diabetic patients at Agena Primary Hospital. The information generated from this study will provide important input for designing diabetes complications prevention strategies, which

help to improve the quality of care for diabetic patients and to reduce the burden associated with diabetes complications.

1.2 STATEMENT OF THE PROBLEM

Diabetes mellitus (DM) is one of the most common non-communicable diseases. Globally, 347 million peoples have diabetes in 2011; by 2030 this will have risen to 552 million. One hundred eighty-three (183) million people (50%) with diabetes are undiagnosed. Fifty percent (50%) of people with diabetes die of cardiovascular dieses (primary heart disease and stroke). Diabetic retinopathy is an important cause of blindness. One percent of global blindness can be attributed to diabetes. It is leading cause of amputation and renal failure [6].

The most important and useful tools for managing diabetes on one's own are finger-prick glucose testing and insulin infusions, whether by injections or insulin pumps. Finding a balance between physical activity, insulin delivery, food, and uncontrollable effects like stress, however, is a daily problem for diabetics. These everyday circumstances are when instruments fail to accurately replicate the endocrine functions of people without diabetes and this frequently leads to the short- and long-term risks of hypo- and hyperglycemia. Finger prick tests must be used to assess blood sugar levels multiple times per day so that insulin dosages as well as the development of long-term problems of poorly regulated glucose levels, including kidney failure, heart disease, blindness, and amputations [32].

People with diabetes are at least twice as likely to pass away as people without the disease. According to estimates, 3.4 million people in 2010 passed away as a result of fasting high blood sugar. Diabetes generally resulted in 4.6 million fatalities in 2011. In the following ten years, an increase of more than 50% is predicted in the total number of diabetes-related deaths. By 2030, diabetes is anticipated to rank as the sixth most common cause of death worldwide. It is the fourth or fifth biggest cause of death in the majority of high-income countries, and there is strong evidence that it is widespread in many newly industrialized and developing economies.

Eight percent or more of diabetic are in low- and middle-income nations, deaths do happen. Even in the continent with the lowest prevalence (Africa), an estimated 280,000 fatalities in 2011 were linked to diabetes [6]. Diabetes accounted for 11% of all adult healthcare costs (20-79 years old) in 2011 and cost the healthcare system at least USD 465 billion. Only 20% of worldwide diabetes healthcare spending was made in low- and middle-income nations, highlighting enormous inequities. The differences in diabetic healthcare costs between the areas are very evident. In 2011, the North America and Caribbean region accounted for 48% of all diabetes-related medical costs worldwide, or an estimated USD 223 billion. In contrast, less than 1% was spent in 2011 in the Southeast Asia and Africa Regions. In industrialized nations, most diabetics are beyond retirement age, whereas in developing nations, those

most frequently affected are between the ages of 35 and 64. Europe has the greatest rate of type 1 diabetes in children among the IDF's 7 areas, and the Western Pacific has the highest rate of adults with the disease at 132 million people. One in ten adults in North America and the Caribbean have diabetes, while in South and Central America, diabetes was a factor in 12.3% of all fatalities. Nearly one-fifth of the world's diabetics reside in just seven nations in South-East Asia. Six of the top ten nations in terms of diabetes prevalence are in the Middle East and North Africa. In Africa, 78% of diabetics were undiagnosed [7].

In the 2011 the regional prevalence of diabetes estimated to be 3.8% and 14.7 million persons in the Africa Region were projected to have diabetes in 2011. The disparity in prevalence (%) data between nations is a reflection of the quick-change communities in the region is going through. Reunion Island (16.3%) has the highest prevalence of diabetes in the Africa Region, followed by Seychelles (12.4%), Botswana (11.1%), and Gabon (10.6%). The majorities of diabetics live in some of Africa's most populated nations, with Nigeria having the highest rate (3.0 million), and followed by South Africa (1.9 million), Ethiopia (1.4 million), and Kenya (769,000). A little more than half of all diabetics in the region reside in the top six diabetic-prevalent nations. Although people under the age of 60 were who passed away. In addition, compared to men, women died from diabetes more than twice as often. Men are more likely to die from other causes than their own, which contributes to this [7]. Diabetes was once thought to be diabetes is responsible for 6.1% of all deaths in the African region, with sub-Saharan Africa accounting for an astounding 72.8% of all cases of this rare disease. However, it is believed that more than 12 million people in sub-Saharan Africa had diabetes in 2010, and 330,000 of those deaths were thought to be attributable to the disease. Sub-Saharan Africa is expected to experience the fastest rate of growth in the global prevalence of diabetes over the next 20 years; the region's 2010 projected prevalence is expected to nearly double in that time, reaching 23.9 million by 2030. even among medical professionals, there is a poor level of awareness of the early signs and symptoms of diabetes, which means that up to 85% of cases go undetected and untreated.

An estimated 1.5 million people in Ethiopia have diabetes. The number of DM deaths in Ethiopia reached 21,550, or 2.62% of all deaths, according to 2011 data from the WHO. Ethiopia is ranked number 28 in the world with a 61.96per 100,000 people age-adjusted death rate. In Ethiopia, it is the 7th greatest cause of mortality [9].

Studies keep showing that the highest rates of diabetes are seen in low- and middle-income nations like Ethiopia. However, many governments and public health planners are still largely ignorant of the

extent of the problem, or, perhaps more importantly, the likelihood that the prevalence of diabetes and its serious consequences will rise in the future.

1.3 LITERATURE REVIEW

1.3.1 Prevalence of Diabetes Mellitus

One of the non-communicable diseases with the fastest rate of growth and a significant global public health issue is diabetes. An estimated 246 million individuals or 5.9% of the world's population between the ages of 20 and 79, had diabetes globally in 2007, according to the International Diabetic Federation's (IDF) diabetes atlas. African region is expected to experience the highest increase in coming years with estimated increase in prevalence rates of 98% for sub-Saharan Africa and 70% of these people reside in underdeveloped nations. According to the diabetes atlas, by 2025, there are projected to be 380 million cases of diabetes worldwide, or 7.1% of the adult population, with the majority of these cases occurring in developing-nation regions [4, 10, 1]. For the Middle East and North Africa. 14.7 million adults in the Africa region are expected to have diabetes, with a regional prevalence of 3.8%, according to the IDF Atlas Eighth Edition 2017 Report. By 2030, this will climb to 28 million, representing an 80% increase with a prevalence of 4.3%, outpacing the expected global increase of 55% [1, 4, 5].

Ethiopia, a developing country, is at risk of having more cases of diabetes. More than 21,000 deaths in Ethiopia were attributable to diabetes in 2007. Although Ethiopia has no documented studies on DM, the national estimation is based on adjacent nations with comparable socioeconomic conditions, and as a result, 2-3% of the population is expected to have DM [4].

1.3.2 Knowledge of Diabetes Mellitus

According to a 2009 survey conducted on 366 students at Ziauddin University in Pakistan, 89% of students are aware that diabetes mellitus (DM) is a metabolic illness. 67% of respondents reported polydipsia, 50% reported weight loss, and 18% identified pruritus vulva as a symptom. Another survey conducted at the United Arab Emirates' Ajman University in 2012 with 168 students—47 men and 121 women—shows that 65% of participants are aware that diabetes is treatable, 74% that it is avoidable, and 44% that the chance of developing the disease increases with age. In terms of prevention, 89% of students are knowing that DM is preventable [18]. Nearly 50% of them claimed that polydipsia, polyuria, and weight loss are common symptoms of DM [2].

According to a study on KAP of DM among degree-seeking Mandya college students, passing too much urine, being too exhausted, and hungry were all indicated as symptoms of DM by 73.15%, 50.15 %, and 46.9% of the 648 participants respectively in city India. Only 40% of participants are aware that excessive water consumption, loss of sensation in the hands and legs, and impaired

vision are symptoms of diabetes mellitus. Regarding the origin of DM, A hereditary element is cited as the cause by 59.94% of respondents, while 22.06% of individuals claimed being overweight was the root of their diabetes. 61.11%, 58.18%, and 53.70% of participants correctly identified kidney, eye, and heart problems as complications of DM, respectively. Only 25% of participants recognized foot ulcer and impotence as complications of diabetes, while 68.82%, 61.88%, and 53.24% of participants believed that small, frequent meals, avoiding sweets and fasting were effective ways to prevent the disease. Only 37.19% of students had the necessary knowledge about insulin requirement treatment of diabetes, while the remaining participants were less knowledgeable [8]. Only 25% of African-American and Hispanic people in a study conducted in the United States identified obesity and physical inactivity as risk factors for diabetes mellitus. More than half of them believed DM could be treated [9]. In a study made in University of Gondar Comprehensive Specialized Hospital Northwest Ethiopia, the majority of the participants were knowledgeable (59% of participants) and (41%) were poorly knowledgeable.[34]

1.3.3 Attitude of Diabetes Mellitus

Study done in Sindh, Pakistan sows that among 2025 of respondents 24.8%, 34.2%, 10%, 25.8% do physical exercise daily, follow proper diet, don't miss doses of their medicine, exercise parameters when meet hypoglycemia respectively [33].

In a study made in University of Gondar Comprehensive Specialized Hospital Northwest Ethiopia, regarding Attitude towards Lifestyle Modifications, more than half of the participants (53%) had had a positive attitude toward lifestyle modification and (47%) participants had a negative attitude [34].

1.3.4 Practice of Diabetes Mellitus

The level of education was found to be significantly related to practice. Patients who can read and write and high school and above were 2 and 2.6 times more likely to have a good practice to prevent diabetic complications than those who cannot read and write, respectively [7]. In a study made in University of Gondar Comprehensive Specialized Hospital Northwest Ethiopia, Regarding Assessment of Practice of Respondents 41% had good practice toward LSM, and 59% had poor practice. More than half (58.1%) worn safety shoes and (55.0%) had regular blood sugar checkups [34].

1.4 SIGNIFICANCE OF STUDY

The finding of this descriptive cross-sectional study will contribute in improving knowledge, attitude and practices regarding acute and chronic complications of DM among diabetic patients coming for follow up Agena Primary Hospital. The results of this study will inform design of acute and chronic complication of DM education intervention strategies targeting known DM patient due to their importance in productive roles in the society.

Besides the health providers, who are interested in patients with DM in general will benefit from this research.

2. OBJECTIVES

2.1. General objective

- ✓ To assess Knowledge, Attitude and Practice of prevention regarding to acute and chronic complications among known diabetic patients in Agena Primary Hospital,2023

2.2 Specific objectives

- ✓ To assess knowledge of known diabetic patients regarding acute and chronic complications of DM in Agena Primary Hospital.
- ✓ To assess attitude of known diabetic patients regarding acute and chronic complications of DM in Agena Primary Hospital.
- ✓ To assess preventive practices among known diabetic patients in Agena Primary Hospital

3. METHODOLOY

3.1 Study Period and Setting

The study was conducted from July 1 to 30, 2023 in Agena Primary Hospital which is Located in Agena town; Ezha woreda Gurage Zone, SNNPR. The hospital is 192 kilometers far from Addis Ababa and 215 kilometers from Hawassa, the capital of the region. There are 105,048 people living in the woreda overall, with 50,423of them being men and 54,625 of them being women. Economic status is farming, government employed and most of them are merchants .There are four functional health centers , 28 functional health posts , one government hospital (Agena primary hospital) in the woreda . They has 2 private clinics, 4 drug store and 1 primary hospital. Agena primary hospital equipped with four department; Internal medicine, Surgery, Gynecology and obstetrics and Pediatrics. The hospital has a total of 80 employees, 37 of whom are Health Professionals and 43 are supportive employees from 80 employees 49 are males and 31 females.

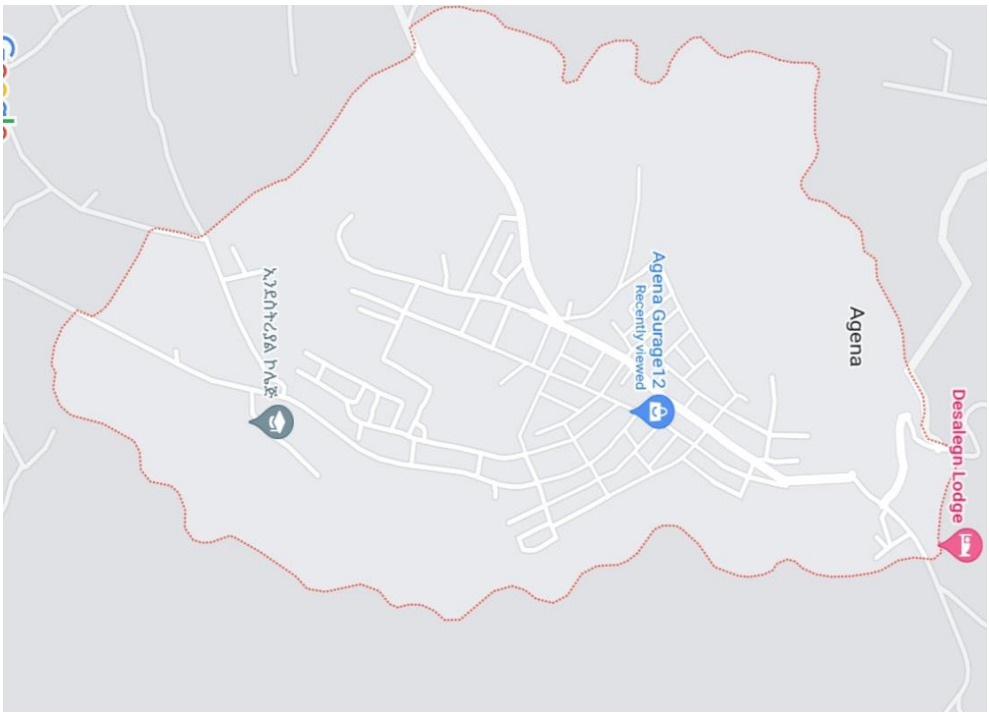


Figure 1:Map of Agena town, Ezha woreda, Gurage zone, SNNPR, Ethiopia,2023

3.2 Study design

Institutional based cross sectional study design was employed for this study.

3.3 Population

3.3.1 Source of population

Target population of this study was all diabetic patients in Agena primary hospital who registered on patient registration book

3.3.2 Study population

Selected Sampled population for institutional diagnosis was our study population.

3.3.3 Sampling unit

Every randomly chosen patient with diabetes in the Agena Primary Hospital.

3.3.4 Study unit

Selected individuals who come to Agena Primary Hospital for follow up.

3.4 Eligibility criteria

Inclusion criteria

-All randomly selected diabetic patients in Agena Primary Hospital.

-Those whose have willingness to participate

Exclusion criteria

-Those patients who are seriously sick and unable to communicate during data collection period.

3.5 Sample size determination

Sample size was determined by using a formula for estimating a single population proportion formula by assuming confidence level of 95%,5% marginal error with of diabetic patients with good knowledge, have good attitude and practices regarding prevention of acute and chronic complication of DM which is 59%,53% and 41% respectively [33] and 5% allowance for non-respondent rate.

Since only one of the p-value could be taken, the one close to 50% (which is 53%) is used to calculate the sample size

Sample size calculation formula: $n= z^2pq/d^{2s}$

where n= sample size

z= confidence interval [1.96]

p= proportion of diabetic patients who have good knowledge, attitude and practices

d= marginal of error [0.05]

$n= z^2pq/d^2$

$n= [1.96]^2 \times 0.53 \times 0.47/ [0.05]^2$

n= 382, since population is less than 10,000 [0000] we use correction formula

nf= n/(1+n/N) where N=total number of DM patients in Agena Primary Hospital which is 351

n= initial sample size nf= final sample size

nf= 382/ (1+382/351) =182.9

For the possible non-respondents 10% is added and the total sample size is

nf+(nf*10%):182.9+(182.9*10%) =201

3.6 Sampling Procedures and techniques

A simple random sampling was used to select the study subject and participants was selected by using lottery method. who registered orderly on the patient registration book.so sample size is 201

3.7 Data collection tool and procedures

Structured questionnaires written in English was used to collect the data. The questionnaire was designed with both open-ended and closed-ended questions that cover all pertinent factors in relation to the study's goal.

3.8 Data processing and analysis

The data was entered, and analyzed using SPSS version 25. Descriptive statistics such as frequencies , ratio and proportions summary statistics were used to describe the study population in relation to relevant variables. Texts, tables and graphs were used to present the data that had been analyzed.

3.9 Data quality control

To maintain the quality of information first the objective or purpose of the study was explained to the respondent and oral consent was maintained before the starting of the interview from the respondent. Data collectors were neutral to agree, disagree, and surprise to the response provided by the respondent and also free from influencing them.

The completeness of the questionnaires was checked by the group leader after finding each procedure at the afternoon. Again, to assure the quality of the data we used the respondent of age 15 and above. Data collectors seek skills from adviser how to collect the data and were supervised by him to maintain the accuracy of the data &each student was well informed about the question before the data collection was taking place. This makes the data collector free from confusion when the respondent asks unclear question during interview. Every night each group member exchanged the collected questioner & checked for the possible error that the Collector encountered & every morning every one shares on the information from the questioner. Pretest was done by advisers and it was modified after a pretest.

3.10 Study Variables

- Age
- Sex
- Residence
- Monthly Income
- Educational level
- Occupation
- Marital status
- Husband or wife educational level

- Frequency of visit of health facility
- Family history
- Duration of DM
- Type of medication they use
- Knowledge of diabetes patients toward of complications of DM
- Attitude towards complications of DM
- Practices toward prevention of complications of DM

3.11 Operational definitions

Lifestyle modification: Is about nonpharmacological management including, dietary modification, physical activities, and exercise to control blood glucose level and complications.

Good knowledge: From total DM related questions, if the patient answers 50% and above we say good knowledge.

Poor knowledge: From total DM related questions, if the patient answers <50% we say poor knowledge.

Good attitude: From total DM related questions, if the patient answers> 50% we say as having a good attitude.

Poor attitude: From total DM related questions, if the patient answers <50% we say poor attitude.

Good practice: From total DM related questions, if the patient answers >50% we say as having a good practice.

Poor practice: From total DM related questions, if the patient answers <50% we say as having a poor practice.

Regular follow-up: Patients who have consistent follow-up in their appointment in hospitals having a diabetic unit.

Correct response: If patients answer yes for asked knowledge and practice questions or agree for asked attitude questions.

Incorrect response: If patients answer no or I don't know for asked knowledge and practice questions or disagree or neither agree nor disagree for attitude questions.

3.12 Ethical consideration

All the ethical issues will be considered & requested by using a legal letter written by the health science college before the beginning of process of data collection. The purpose of study will be briefly explained for the respondents and verbal informed consent will be also obtained from the respondents. Participation will be voluntary and every DM patient can participate without penalty or loss of benefit at any time. Confidentiality will be assured and no personal detail will be recorded on any documentation related to the study. Verbally informed consent will be obtained from all participants.

3.13 Dissemination of the results

After writing the report, the result will be submitted to public health department of Wolkite University and Agena health institutions bureau. Also, the result will be presented to disseminate to the public through internet in collaboration with college of Medical and health sciences and Wolkite university administration.

4. RESULTS

4.1 Socio-demographic characteristics of respondents

A total of 195 DM patients were participated in the study with a 97% response rate. Of the total study subjects, 126(64.6%) were male and 69(35.4%) were female. Majority of the respondents were aged between 46-60 years, which is 86(44.1%). Regarding educational status, 82(42.1%) of the respondents were educated up to primary school and 44(22.6%) have secondary school educational status. In this study the majority of the respondents 137(70.3%) were married and only 19 (9.7%) were single. Average monthly income, 102(52.3 %) respondents earn below 5000 per month.

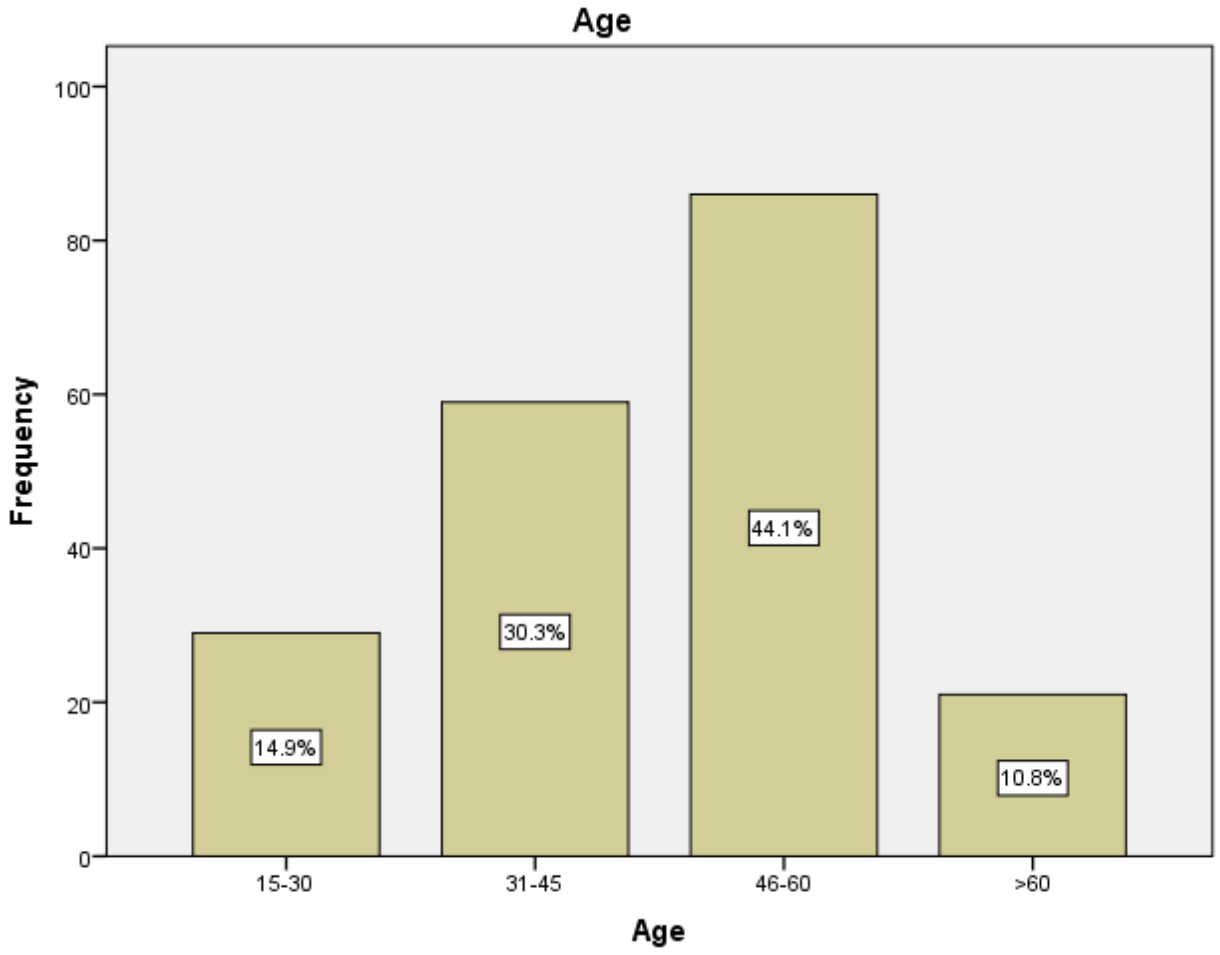


Figure 2: Age of study participants at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNP, Ethiopia, 2023

Table 1: Socioeconomic and Demographic characteristics of respondents at Agena Primary Hospital, Ezha Woreda, Gurage zone, SNNPR, Ethiopia, 2023

S.NO	Variables		frequency	Percent (%)
1.	Sex	Male	126	64.6
		Female	69	35.4
2.	Residence	Urban	138	70.8
		Rural	57	29.2
3.	Educational status	Not attend formal education	41	21
		Primary school	82	42.1
		Secondary School	44	22.6
		Diploma	18	9.2
		Degree and above	10	5.1
4.	Marital status	Married	137	70.3
		Divorced	36	18.5
		Widowed	3	1.5
		Single	19	9.7
5.	Average monthly income	<5,000	102	52.3
		5,000-10,000	35	17.9
		>10,000	59	29.7
6.	Occupation	Housewife	35	17.9
		Gov. Employee	42	21.5
		Merchant	45	23.1
		Student	10	5.1
		Daily labor	17	8.7
		Other	46	23.6

4.2 DM related characteristics of respondents

Among study participants 129(66.1%) of the respondents were living with DM for 6 years and above. From the total respondents 108(55.4%) used only oral medication while only 8(4.1%) used both

injectable and oral medications. In addition, majority of the respondents which is 53(27.2 %) had family history of DM.

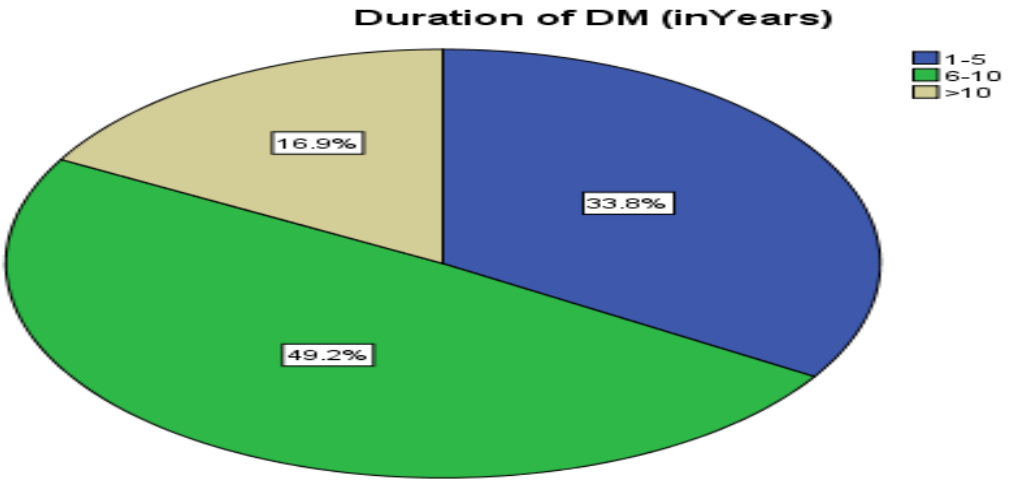


Figure 3: Duration of DM of respondents at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNPR, Ethiopia, 2023

Table 1: DM related characteristics of respondents at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNPR, Ethiopia, 2023

S.NO	Variables		frequency	Percent
7.	Frequency of visit	Monthly	124	63.6
		every 2 months	43	22
		every 3 months	28	14.4
8.	Type of medication	Oral	108	55.4
		Injectable	79	40.5
		Both	8	4.1
9.	Family history	Yes	53	27.2
		No	142	72.8

4.3 Knowledge of Study Participants

From a total of 195 respondents 108(55.4%) respondents have good knowledge and 87(44.6%)

respondents have poor knowledge toward complications of DM. Among the respondents,53 (27.2%) of them stated that DM is a condition caused by insufficient insulin production, 121(62.1%) of them stated healthy diet practice help for management of DM and 142(72.8%) of them stated regular exercise help for the control of dm. Less than half of the participant 83(42.6%) knew that DM affect all parts of the body.89(45.6%) of the participant knew acute complications symptoms of DM like thirsty, excessive sweating ,loss of conscious or abdominal pain .More than half of the respondents 119(61%) knew that DM management cause hypoglycemia. 137 (70.3%) and 79(40.5%) of the participant knew that drug discontinuance and infection precipitate DM complications, respectively.

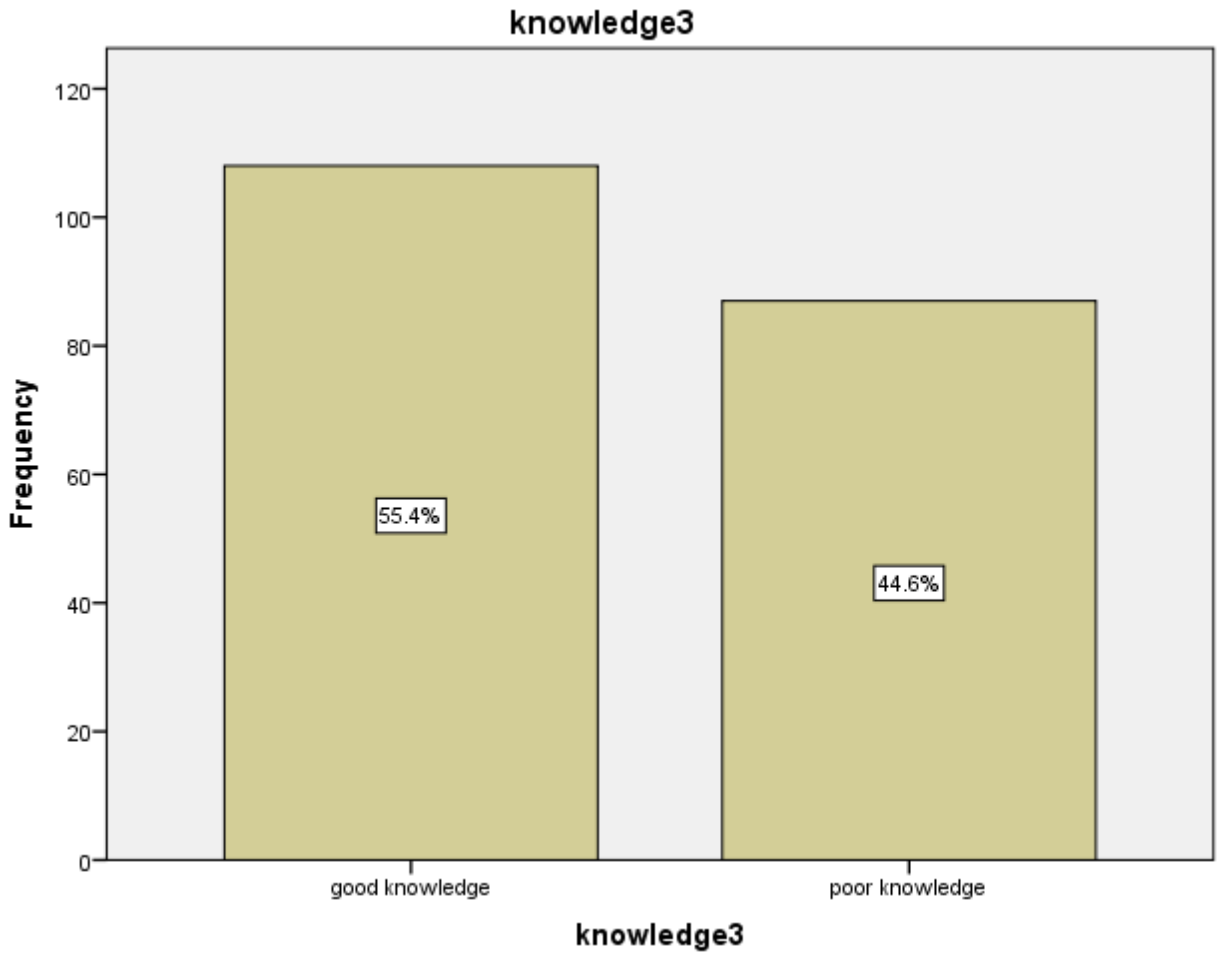


Figure 4: Knowledge status of study participants at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNPR, Ethiopia, 2023

Table 2 Knowledge response of respondents at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNPR, Ethiopia, 2023

	No	Questions	Correct Answer in frequency and in percentage	Incorrect Answer in frequency and in percentage	Correct to incorrect answer ratio
	1.	DM is high level of blood sugar	160(82.1)	35(17.9)	4.6:1
	2.	DM can affect any part of the body	83(42.6)	112(57.4)	1:1.4
	3.	Insulin injection help for management of DM	94(48.2)	101(51.8)	1:1.1
	4.	Stress precipitate DM Complications	53(27.2)	142(72.8)	1:2.7
	5.	DM cause blindness	53(27.2)	142(72.8)	1:2.7
	6.	DM cause kidney disease	18(9.2)	177(90.8)	1:9.8
	7.	DM cause heart disease	31(15.9)	164(84.1)	1:5.3
	8.	DM cause foot ulcers and amputations	179(91.8)	16(8.2)	11.2:1
	9.	DM cause stroke	15(7.7)	180(92.3)	1:12
	10.	DM cause HTN	30(15.4)	165(84.6)	1:5.5
	11.	DM cause impotence	9(4.6)	186(95.4)	1:20.7
	12.	DM cause loss of sensation	48(24.6)	147(75.4)	1:3

4.4 Attitude of study participants

More than half of respondents 101(51.8%) had good attitude while 94(48.2%) had poor attitude toward complications of DM. about three quarters160 (84.1%) of respondents thought they could lead a normal life if they take appropriate measures for diabetes. Below half of the participants which is 77(39.5%) believed that diabetic complications can be prevented by having good glycemic control. Below half of the participants which is 85(43.6%) were agreed that regular exercise can prevent complications of diabetes. Dietary modification and weight reduction were considered important to prevent diabetic complications by 146(74.9%) and 101 (51.8%) respondents, respectively. 88(45.1%) respondents believed that diabetes spoils their social life. Furthermore, 127(65.1%) respondents thought diabetics were the worst thing that ever happened to them. Above half of the participants 111(56.9%) do not tell that have DM. More than half of the respondent 121(62.1) believed that DM complication prevented by controlling the precipitating factors. Among the respondent more than half of the participant 108(55.4) believed that hypoglycemia is preventable.

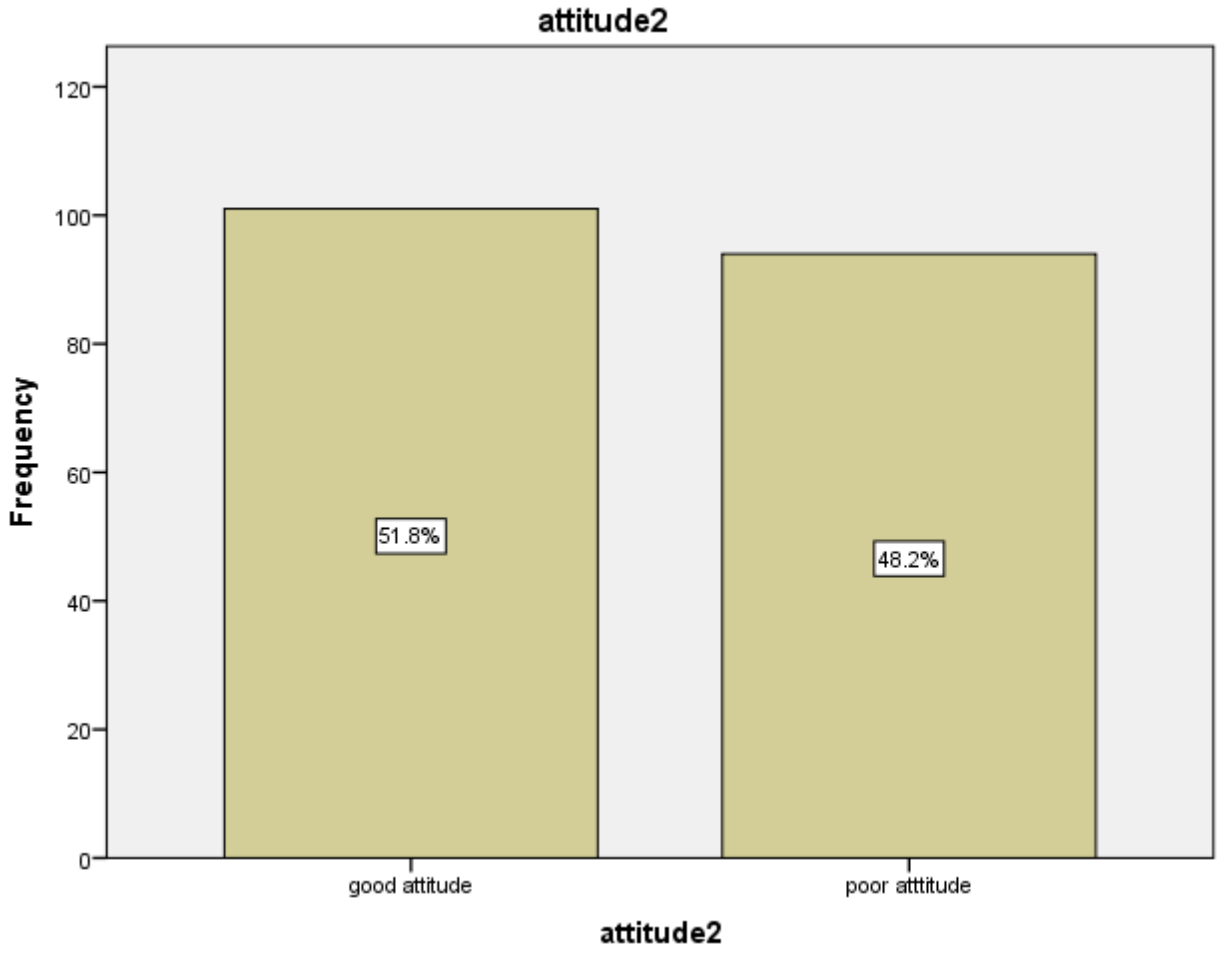


Figure 5: Attitude response of respondents at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNPR, Ethiopia, 2023

Table 3: Attitude response of respondents at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNPR, Ethiopia, 2023

S.NO	Questions	Correct answer in frequency and in percentage	Incorrect answer in frequency and in percentage	Correct to incorrect answer ratio
1.	I could prevent diabetic complications	51(26.2)	144(73.8)	1:2.8
2.	Diabetic spoils my social life	88(45.1)	107(54.9)	1:1.2
3.	I don't tell people as I have diabetics	111(56.9)	84(43.1)	1.3:1
4.	Diabetes is the worst thing that have ever happened to me	127(65.1)	68(34.9)	1.86:1
5.	Hypoglycemia can be prevented	108(55.4)	87(44.6)	2.4:1

4.5 Practice of diabetic patients towards complications of Diabetes

Among respondents 97(49.7%) had a good practice while 98(50.3%) had poor practice toward diabetic complications. From study participants 160(82.1%) went to health facility when they got sick. Among respondents 155(79.5%) of the participant had candy or table sugar or biscuit in their pocket. About 148 (75.9 %) reported that they never forgot to take their medication. 65 (33.3%) and 55(28.2%) respondents said that they stopped their medication when they felt better and felt worse, respectively. Only 32(16.4%) of the participant were careless about taking the medicine. More than half 103 (52.8%) of them change their diet according to the recommendations of their physician. About 109 (55.9%) of respondents monitor their blood glucose levels in the hospital. Less than half of the participant 74(37.9%) did physical exercise last week. Less than quartile of the participants 11(5.6%) were never checking their foot. More than half of the respondents 114(58.5%) were wearing foot wear during physical exercise as physician recommended. Only 43 (22.1%) of respondents use hot water to wash their foot and 142(72.8%) take care when they cut their nails. Regular kidney and eye checkup was practiced by 38(19.5%) and 41(21%) of study participants, respectively. From study participants 181(92.8%) of the respondents never smoke, and 53(27.2%) of the participants never drink alcohol.

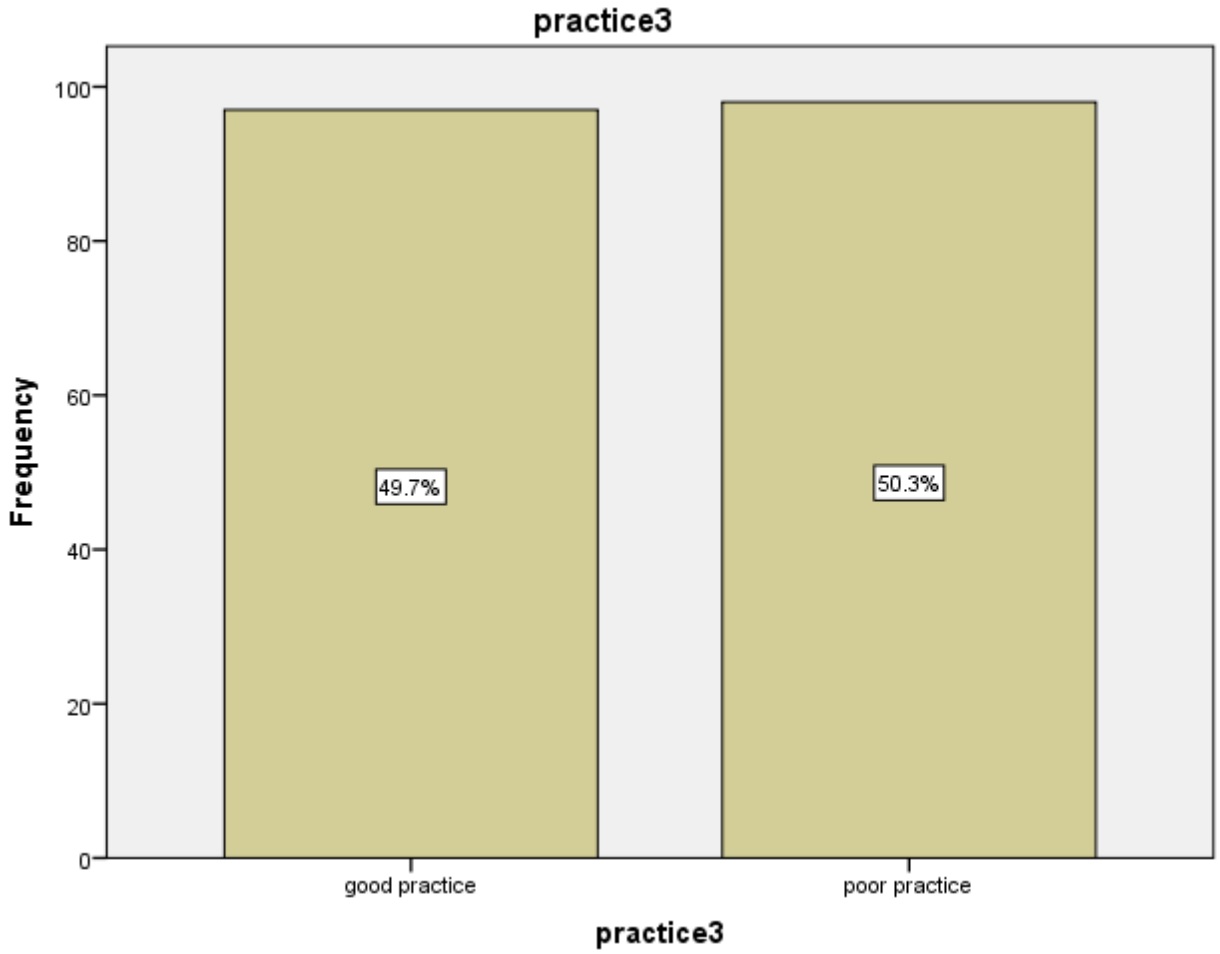


Figure 6: Practice response of respondents at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNPR, Ethiopia, 2023

Table 4: Practice response of respondents at Agena Primary Hospital, Ezha woreda, Gurage zone, SNNPR, Ethiopia, 2023

S.NO	Questions	Correct answer in frequency and in percentage	Incorrect answer in frequency and in percentage	Correct to incorrect answer ratio

1.	Physical work or exercise in the last week	111(56.9)	84(43.1)	1.3:1
2.	Duration of physical work or exercise	86(44.1)	109(55.9)	1:1.2
3.	Type of water used to wash feet	152(77.9)	43(22.1)	3.5:1
	Do you care during cutting toe nail	142(72.8)	53(27.2)	2.7:1
4.	Drinking alcohol	139(71.3)	56(28.7)	2.5:1

5. DISCUSSION

The present study discloses important information on the level of knowledge, attitude and practice towards complications of DM patients in Agena primary hospital, Gurage zone, SNNP, Ethiopia. This study showed that 108(55.4%) of the study participants had good knowledge level. This finding is supported by a study done in Gonder, Ethiopia (62%) [37]; Bale Town, Ethiopia (52.5%) [38]; Debre Tabor, Ethiopia (49%) [39] Which reported that had a good knowledge. Compared to the study done in UAE (33%) [42]; Malaysia (41.9%) [41] and Sudan (15%) [40], the finding was higher. This may be because the study participants were hospital-based and they have better health education access. In contrast, this finding was lower when compared to the study done in Mekelle, Ethiopia (93.7%) [43], and in Assam University Clinic and Mother and Child Hospital Buraydah, India (71.9%) [44]. This might be due to the difference in health education, sample size, and access to sources of information like television, radio, and newspaper.

Our study showed that 101(51.8%) had a good attitude toward complications of DM. This finding was higher than the study done in Bangladesh (18%) [45], Kenya (49%), and India (17.6%) [46, 47]. This might be that studies done in Kenya and India were from rural communities, but this study was hospital-based and they have better access to a health education program than rural communities. This finding was lower compared to the study done in Addis Zemen District Hospital, Northwest Ethiopia that showed over two-third (65.2%) of the study participants had a good attitude [48].

A few 51(26.2%) of the study participants in this study said that they could prevent diabetic complications. This finding is lower when compared to study findings in, India, and Pakistan reported only, 55.6 and 62.3%, respectively [49, 50]. This might be due to difference in sociodemographic and access to health education programs.

In this study, good glycemic control was assumed to prevent diabetic complications by about (39.5%) of respondents. On the other hand, the study done in Bangladesh showed that the only 66.4% of the study participants considered good glycemic control as one way to prevent it [51]. The difference might be due to socio-economic and cultural differences.

Among study participants (43.6%) of them believed that regular exercise prevents further complications. This is less than the study conducted in Bangladesh (70%) [51].

Regarding practice, 97(49.7%) showed good practice towards prevention of DM complications. This finding was higher than the studies done in Harar, Ethiopia, in which 39.2% had good practice [53]. This might be due to difference in socio demographic and access to health education programs.

Among study participants (52.8%) practiced dietary modification which is comparable to previous

studies in Oman [54] and India [52], which reported to be (56%) and (49.7%), of dietary modification practice, respectively.

From study participants (55.9%) had checked their blood sugar level in the last 3 months. This finding was higher than the study done in rural Bangladesh (47.5%) [55], in which the participants had their blood sugar checked at least once in the last 3 months [56]. Because the current study was hospital-based, they might have access to health education programs, which can increase the awareness and practice of the DM patients towards glycemic control.

About 16.9% of the participants had good foot care, this study result was less than the studies done in Iran, in which 33% [57] had a good foot care practice. This might be due to difference in health beliefs, demographic characteristics, and diabetes education programs.

Of the total, (43.1%) had no history of regular exercise activity, which was consistent with studies done in Addis Ababa, Ethiopia (49%) [59]. In addition (7.2%) of the participants smoke cigarette. This finding was consistent with studies done in Addis Ababa, Ethiopia, where only (12%) of all respondents have the habit of smoking [60].

6. CONCLUSION

Almost half of the participants had good knowledge, attitude, and practice towards complications of DM. Less than half of the participants believed that regular exercise prevent DM complications. Among study participants more than half of them didn't assumed good glycemic control as way of preventing diabetic complications. Only a few of participants have checked up their kidney and eye regularly.

Recommendation

For Agena primary hospital in Agena town, Gurage zone

A hospital-based intervention program should be implemented in order to improve the KAP of patients regarding prevention of complication of DM.

- To consider developing educational programs that emphasizes life style modification with importance of adherence to treatment would be of great benefit in poor glycemic control.
- Measures should be put in place education for diabetes patients, emphasize more on self-care activities especially to patients with long duration of diabetes.

For health care providers

- Develop effective patient provider relation and communication skills when counseling diabetic patients.
- Encouraging patients' adherence to physical activity and regular follow up should be emphasized to diabetic patients at every appointment.
- Health care providers should discuss barriers of treatment adherence when counseling patients and solutions should be tailored toward individual needs.

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QUESTIONNAIRE

CONSENT FORM

INTRODUCTION

Good morning/afternoon? My name is _____

In this Study which is undertaken by Students of Wolkite University, College of Medicine and Health sciences, Department of public health, you and me would have a short discussion of about 20-30 minutes only and I am asking you to help us. Before we go to our discussion, I will request you to listen carefully to what I am going to read to you about the purpose and general condition of the study and you will tell me whether you agree or disagree to participate in this study at the end.

The purpose of this study is to assess Knowledge, Attitude and Practices regarding complications of DM among known diabetic patients registered at Agena Primary Hospital in Agena town. The study will be conducted through interviews. I would like to assure you that privacy will be maintained strictly throughout. A code number will identify every participant and no name will be used. Your responses to any of the questions will not be given to anyone else and no reports of the study will ever identify you. If a report of results is published, only information about the total group will appear.

The interview is voluntarily and your participation / non-participation, or refusal to respond or stop responding to the questions will have no effect now or in the future on services that you or any member of your family may receive from the service providers. Are you willing to participate in this study? 1. [Yes]. 2. [No]

Thank you!!!

English version questionnaires for interview

Step 1 A. Sociodemographic Information of Respondent			
No	Questions	Alternative Choices for Response	Skip
101	Sex	1. Male 2. Female	
102	Age (enter number)	----------Years	

103	Occupation	1.Housewife 2. Government employee 3. Merchant 4. Student 5. Daily labor 6.Unemployment 7. Others	
104	Residence	1. urban 2. rural	
105	Educational status:	1. No formal learning 2. primary school 3. Secondary school 4. Diploma 5. Degree and above	
106	Marital status	1. married 2. divorced 3. widowed 4. singles	
107	Your wife or husband educational level	1. No formal learning 2. Primary school 3. Secondary school 4. Diploma 5. Degree and above	
108	Monthly income in Eth. Birr: -	1. < 5000 2. 5000-10000 3. > 10000	
109	Frequency of visit to health center	1. every month 2. every 2 months 3. every 3 months	
110	Duration of DM (in years)	1. 1-5 2. 6-10	

		3. >10	
111	Type of medication they use	1. Oral 2. Injectable 3. Both	
112	Family history of DM	1. Yes 2. No	

Knowledge Questions Regarding Complications of DM					
Questions		Response options			
		Yes	no	Don't know	Remark
	What is DM?				
201	Dm is a condition caused by insufficient insulin production	1	2	3	
202	Dm is a condition caused by body cell non response to insulin	1	2	3	
203	Dm is a condition of high level of blood sugar	1	2	3	
204	Dm is a condition which can affect any part of the body	1	2	3	
	Control and Management of DM				
205	Does insulin injection help for management of dm	1	2	3	
206	Are tablet and capsules available for management of dm	1	2	3	
207	Does regular exercise help for the control of dm	1	2	3	
208	Does healthy diet practice help for management of dm	1	2	3	
	Complications of DM				
209	Do you know acute complications of DM symptoms	1	2	3	
210	Does DM cause hypoglycemia	1	2	3	

211	Does stress precipitate DM Complications	1	2	3	
212	Does infection precipitate DM Complications	1	2	3	
213	Does drug discontinuance precipitate DM Complications	1	2	3	
214	Does DM cause blindness	1	2	3	
215	Does DM Cause kidney disease	1	2	3	
216	Does dm cause heart disease	1	2	3	
217	Does dm cause foot ulcers and amputations	1	2	3	
218	Does dm cause stroke	1	2	3	
219	Does DM cause HTN	1	2	3	
220	Does cause impotence	1	2	3	
221	Does DM cause infection	1	2	3	
222	Does DM cause loss of sensation	1	2	3	

Attitude Questions about DM Complications				
S.NO	variable	Response option		
		Agree	Disagree	Neither agree nor disagree
301	DM Complications prevented by controlling precipitating factors	1	2	3
302	Hypoglycemia can be prevented	1	2	3
303	Regular exercise prevents further complications	1	2	3
304	I could prevent diabetic	1	2	3

	complications			
305	Glycemic control has a role in preventing complications	1	2	3
306	Diabetic spoils my social life	1	2	3
307	Dietary modification is important to prevent diabetic complication	1	2	3
308	Weight reduction is important to prevent diabetic complication	1	2	3
309	I don't tell people as I have diabetics	1	2	3
310	Diabetes is the worst thing that have ever happened to me	1	2	3
311	I can lead a normal life if I take appropriate measures for DM	1	2	3

Practice Questions Toward Prevention of Complications of DM			
S.NO	Variable	Response options	
401	Do you go to health facility if you get sick	Yes	No
402	Do you have candy or biscuit or table sugar in your pocket	Yes	No
403	Forget to take medicine/ insulin	Yes	No

404	Careless at times about taking medicine	Yes	No
405	Stop taking medicine when feel better	Yes	No
406	Stop taking medicine when feel worse	Yes	No
407	Physical work or exercise in the last week	1.Never 2. Once a week 3. 2-3 times a week 4. Almost daily 5. Daily	
408	Duration of physical work or exercise	1. < 10 Minutes/day 2. 10-20 Minutes/day 3. 20-30 Minutes/day 4.> 30 Minutes/day	
409	Diet modification according to the recommendations of physician	Yes	No
410	Monitoring blood glucose within 3 months	Yes	No
411	checking feet	1.daily 2. once a week 3. rarely 4. Never	
412	Wearing footwear during exercise as recommended by health professional	Yes	No
413	Type of water used to wash feet	Cold	Warm
414	Periodic kidney examination	Yes	No
415	Regular checkup of eye-by-eye specialist	Yes	No
416	Drinking alcohol	1.Never 2. Rarely 3. Weekly 4. 2-3 times a week 5. Daily	
417	Cigarette smoking	.Yes 2. No	