Knowledge Attitude and Practices towards prevention of Diabetes Mellitus among Patients aged 25-70 years in Wakiso Health Centre IV, Wakiso District. A Cross-sectional Study.

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Abstract

Background:
Africa is estimated to have 15.9 million adults living with DM which is a regional prevalence of 3.1%. The purpose of the study was to determine the knowledge, attitudes, and practices toward the prevention of diabetes mellitus among patients aged 25-70 years in Wakiso health center IV Wakiso district.

Methodology:
The study employed a descriptive cross-sectional design; a simple random sampling technique was used. Data were analyzed manually by use of tally sheets and were entered in the excel computer program to generate tables, graphs, and pie charts.

Results:
The study findings on knowledge towards prevention of DM showed that (88%) of the respondents had never heard about diabetes, (62%) did not know the different types of diabetes, (and 56%) knew that eating too many sugary things causes diabetes, (50%) knew diabetic food as one of the complications of DM, (44%) knew over urinating as a symptom and a sign of diabetes and (50%) agreed that dietary modification is a preventive measure for DM. (60%) agreed that blood sugar can be controlled by having the right diet, (56%) agreed that they needed to check their blood sugar regularly, (and 48%) thought they should be checked for diabetes, (80%) wished to follow advice on preventions of DM and (56%) agreed that DM complications can be prevented.

Conclusion:
Participants had fair knowledge, and with favorable attitude towards the prevention of diabetes mellitus but poor practices were noticed since most patients had never screened for DM, performed physical excises occasionally.

Recommendation:
The researcher recommended that; health workers at Wakiso health center IV should continue to educate patients on the benefits of regular exercise, the right diet, and screening to implement better behavior of change and this will reduce DM cases at the facility.

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1 Background of the study

The global disease burden of diabetes increased greatly from 1990 to 2017. Globally, the incidence of diabetes increased from 11.3 million in 1990 to 22.9 million in 2017, with a 102.9% increase. The age-standardized incidence rate increased from 233.6 to 284.6. The global prevalence of diabetes increased from 211.2 million in 1990 to 476.0 million in 2017, with a 129.7% increase (Lin, *et al*.2020).

Even though the national diabetes prevention program (DPP) can reduce the risk of developing type 2 diabetes by 58%. For people over 60years of age, the program can reduce the risk by 71%. 88 million American adults more than 1 out 0f 3 have prediabetes (ADCES, 2021).

In 2015, 9.4% of the population of the United States had diabetes mellitus. It occurred in an estimated 4.0% of adults aged 18-40 years, 17.0% of adults aged 45-64 years, and 25.2% of adults aged 65 and above (CDC, 2017).

Africa is estimated to have 15.9 million adults living with DM which is a regional prevalence of 3.1%. The African continent has the greatest proportion of people with undiagnosed DM and global projections showed that Africa will experience the greatest future increase in the burden of DM of about 156% by 2045 (Kibirige *et al,* 2019).

In Nigeria, the prevalence of DM among adults aged 20–69 years was reported to be 1.7%. It is widely perceived that prevalence figures reported by the IDF grossly under-report the true burden of DM in Nigeria. From 2% to 12% across the country in recent years. National Non-Communicable Diseases (NCD) survey, where DM was said to occur in 2.2% of the population. There has been no nationwide health (diabetes) survey in Nigeria since then (IDF, 2017).

In Uganda, the prevalence of diabetes mellitus was 1.4% in 2015. In urban areas prevalence were 2.7% and 1.0% in rural areas. The prevalence is lowest in the eastern region of Uganda with 0.8%, and highest in the central region with 1.6%. It was observed that for people with low weight prevalence was 1.9% while in obese people it was 4.0%. DM increased with age from 0.2% (18-29) 2.1%9(30-39) 2.3% (50-59) 50-59years age (Bahendeka *et al,* 2016). The specific objectives of the study were to determine; the knowledge towards prevention of DM among patients aged 25-70 years, attitudes towards prevention of DM among patients aged 25-70 years, and practices towards prevention of DM among patients aged 25-70 years.

2 Methodology

Study design

A descriptive quantitative cross-section study was employed during the study using semi-structured administered questionnaires. The reason why this design was preferred is it generates ideas.

Study area

This study was carried out from Wakiso Health Centre IV in the Wakiso district in central Uganda. Wakiso health Centre IV is located in the Wakiso district in the central region of Uganda approximately 44 km southwest of Mulago National Referral Hospital in Kampala. It is about 18.5 kilometers southwest of the Kampala district. The hospital receives referrals from nearby health Centres such as Wattuba health Centre III, Wamala health Centre II, and Mudduma Health Centre III. Wakiso receives an average number of 250 patients per day with several departments namely; OPD, Inpatients, ART, Dental, laboratory, pharmacy, antenatal care clinic, diabetic clinic, and pediatrics. The researcher selected Wakiso health Centre IV because it is a health facility with a variety of patients receiving various medical services and the health facility is within the researcher's reach.

Study population

The study was carried out among patients aged 25-70 years who were attending the outpatient clinic. It included all men and women without diabetes at that moment.

Sample size determination

The sample size was determined using Burton's formula (1965).

Sample size (n) =PR/O

Where;

P: Total number of days taken for data collection.

R: Maximum number of respondents to be interviewed

O: Maximum time spent on each respondent per day.

P=5days, R=10 respondents, and 0=1 hours.

Therefore, n= (5x1o)/1

n=50

Therefore, sample size was 50 respondents.

Study variables

Dependent variable

Diabetes mellitus was the dependent variable.

Independent variable

Knowledge, attitude, and practices for the prevention of diabetes were the independent variables.

Sampling technique

A simple random sampling technique was used to select respondents. This study design was preferred because the researcher was able to select a sample size that had an unbiased representation of the population.

Selection criteria

Inclusion criteria

These were composed of both male and female patients aged 25-70 years willing to be part of the study and participated after consenting.

Exclusion criteria

Unwilling patients, diabetic patients, patients out of the age bracket that is below 25 and above 70, and every ill patient, were excluded from the study.

Data collection tool

A semi-structured questionnaire with both open and closed-ended questions organized in English and later translated into the local language (Luganda) was used to collect primary data from patients. The researcher considered a questionnaire as the most convenient way of collecting data from respondents because it was easy for the researcher to administer and obtain data within the shortest time from a large number of respondents.

Data collection procedure

The data collection letter was obtained from Kampala School of Health Sciences and taken to the in-charge of Wakiso Health Centre IV. Permission was granted, then the in-charge gave a letter which was to allow the researcher to collect data. Two research assistants were trained on the subject in question and data collection procedures to use; before conducting the process, the researcher and research assistants introduced themselves and explained the purpose of the study to the respondents. In addition, numbers were written on small pieces of paper, rolled up then mixed appropriately in the box, and given to respondents who were able to fulfill the inclusion criteria. They were requested to pick numbers from an enclosed box and those who picked even numbers were requested to take part in the study until the sample size was obtained. The respondents were asked questions following the designed questionnaire to avoid being biased. After the interview, each respondent was thanked for participating in the study. The procedure was repeated each day until the sample size of 50 respondents was attained.

Pre-testing of the questionnaire

The questionnaires were pre-tested in Wattuba health Centre III, Wakiso district. Pre-testing was intended to determine the validity and reliability of the questions in the questionnaire. The results from the pre-tested questionnaires were not included in the final study.

Data management

Data were managed by the researcher only to ensure that confidentiality and security were maintained. Data management also included data editing before leaving the area of study to ensure that there are no mistakes or areas left blank and that any found were corrected before leaving the study area. Data were managed and stored in the computer.

Quality control

Questions from the questionnaire were structured understandably to enable all respondents to interpret the questions without any bias such that responses attained answered the research questions.

Two research assistants with good communication skills, and knowledge were trained on how to interview and collect data under supervision, right respondents were selected through the inclusion and exclusion criteria.

The researcher also ensured that all participants, wash their hands, put on their face masks, and were at a recommended social distance during the sessions.

3 Data analysis and presentation

Data were analyzed manually by use of tally sheets and were entered into the Microsoft excel computer program and results were presented in frequency tables, bar graphs, and pie charts

Ethical considerations

A letter of introduction was obtained from Kampala School of Health Sciences and taken to the in charge of Wakiso health Centre IV where the study was conducted. Once permission was granted the researcher and her assistants introduced themselves to respondents, explained the purpose of the study, informed consent was sought and respondents were assured of confidentiality,

no names were written in the questionnaire. The study was voluntary.

Study limitations

The study was limited by inadequate funds for gathering information from the internet, drafting questionnaires, printing, and typing but this was solved by proper budgeting before the study commenced.

The coronavirus pandemic interrupted the data collection process.

4 Study Findings

5 Demographic Data

From the table above, the majority of the patients (54%) were within the age bracket of 25-40 years of age whereas the least (6%) were within the age bracket of 61-70 years of age.

From the study findings, the majority of the respondents (62%) were females whereas the minority (38%) were male.

Based on occupation, more than half of the respondents (58%) were self-employed whereas the least (8%) were unemployed.

Furthermore, the study showed that more than half of the respondents (64%) had attained a secondary level of education whereas the least (2%) had never gone to school.

In regards to marital status, the majority of the respondents (64%) were married whereas the minority (6%) were widowed.

6 Knowledge Towards Prevention of Diabetes Millitus among Patients Aged 25-70 years.

From the figure above, the majority of the respondents (88%) had ever heard about diabetes mellitus whereas the minority (12%) had never heard about it.

From the table above, more than half of the respondents (62%) never knew the different types of diabetes mellitus whereas the least (4%) knew the type2.

From the figure 2 above, most of the respondents (55%) knew that eating too many sugary things was the cause of diabetes whereas the least (7%) knew obesity.

From the table above, half of the respondents (50%) knew that diabetes mellitus can result in diabetic foot whereas the least (10%) did not know.

From the table above, almost half of the respondents (44%) knew that over urinating was a sign and symptom of diabetes whereas the least (14%) knew overeating as a sign and symptom of diabetes.

From the figure 3, half of the respondents (50%) knew dietary modification as a preventive measure for diabetes mellitus whereas the least (2%) knew other measures which were comprised of limited salt intake, weight reduction, and avoiding too many fatty things. Attitude Towards Prevention Of Diabetes Mellitus Among Patients Aged 25-70 Years.

From the figure 4, most of the respondents (60%) agreed that blood sugar can be controlled by having the right diet whereas the least (40%) disagreed.

In the figure 5, most of the respondents (56%) were willing to check their blood sugar regularly whereas the least (18%) reported they did not need it.

From the table 5, almost half of the respondents (48%) thought they should be examined for diabetes mellitus whereas the least (8%) did not know.

Findings above, the majority of the respondents (75%) wished to follow advice on the prevention of diabetes mellitus whereas the minority (10%) did not wish.

In the figure above, most of the respondents (56%) agreed that diabetes mellitus can lead to other Complications whereas the least (44%) disagreed.

7 Practices Towards Prevention of Diabetes Mellitus among Patients Aged 25-70 Years

From the table 6, most of the respondents (60%) had never been screened for diabetes mellitus whereas the least (4%) had ever been screened for diabetes mellitus at 8 months and below.

From the table 7, half of the respondents (50%) prevent diabetes mellitus by avoiding taking too much sugar whereas the least (2%) prevent diabetes mellitus thorough checkups.

From the figure above, the majority of the respondents (80%) performed physical exercise occasionally whereas the minority (20%) performed physical exercise regularly.

Table 1. Shows distribution of respondents according to demographic data (N=50)

Variables	Frequency (f)	Percentage (%)
AGE (years)		
25-40	27	54
41-50	12	24
51-60	8	16
61-70	3	6
TOTAL	**50**	**100**
Sex		
Male (m)	19	38
Female (f)	31	62
Total	**50**	**100**
Tribe		
Basoga	2	4
Bakiga	1	2
Baganda	26	52
Others	21	42
Total	**50**	**100**
Occupation		
Employed	17	34
Unemployed	4	8
Self employed	29	58
Total	**50**	**100**
Education level		
Never went to school	1	2
Primary	10	20
Secondary	32	64
Tertiary institutions/university	7	14
Total	**50**	**100**
Marital status		
Single	10	20
Married	32	64
Divorced	5	10
Widowed	3	6
Total	**50**	**100**

Table 2. Shows the distribution of respondents according to their knowledge about the different types diabetes (N=50)

Response	Frequency(F)	Percentage (%)
I do not know	31	62
Type1	12	22
Type2	2	6
Others	5	10
Total	**50**	**100**

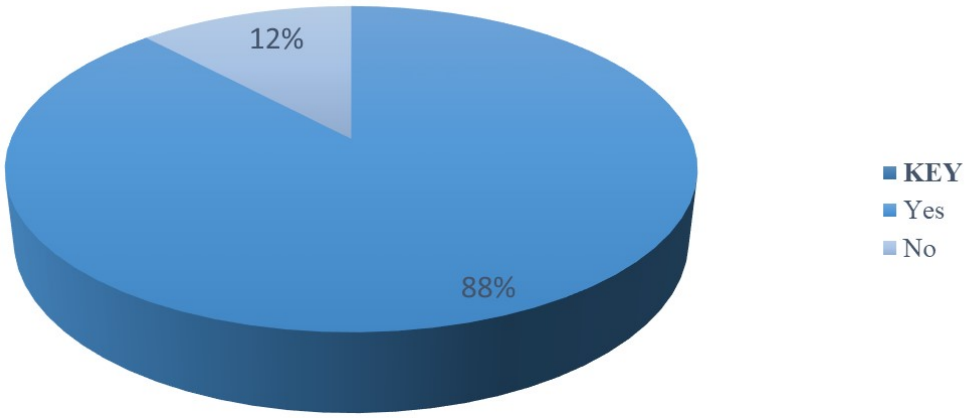

Figure 1. Shows distribution of respondents according to whether they had heard about diabetes mellitus (N=50)

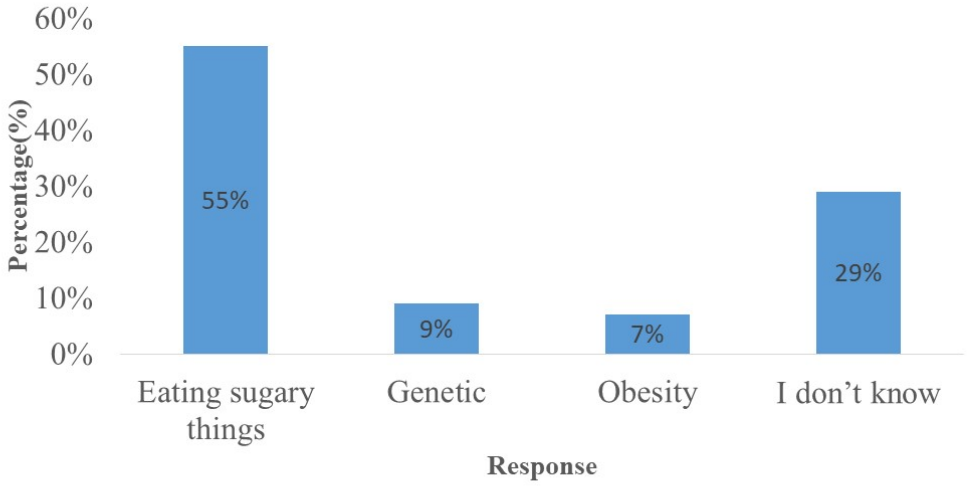

Figure 2. Shows the distribution of respondents according to their knowledge about the causes of diabetes mellitus (N=50)

Table 3. Shows the distribution of respondents according to their knowledge about the complications of diabetes mellitus (N=50)

Response	Frequency (f)	Percentage (%)
Diabetic foot	25	50
Eye problems	13	26
Death	7	14
I don't know	5	10
Total	**50**	**100**

Table 4. Shows the distribution of respondents according to their knowledge about signs and symptoms of diabetes mellitus (N=50)

Response	Frequency (F)	Percentage (%)
Over eating	7	14
Over urinating	22	44
Over thirsting	11	22
I don't know	10	20
Total	**50**	**100**

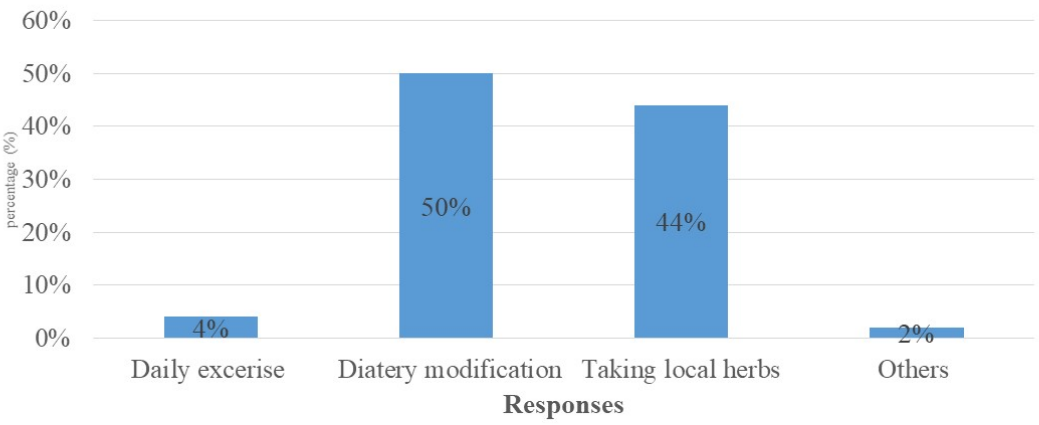

Figure 3. Shows the distribution of respondents according to their knowledge about the preventive measures of diabetes mellitus (N=50)

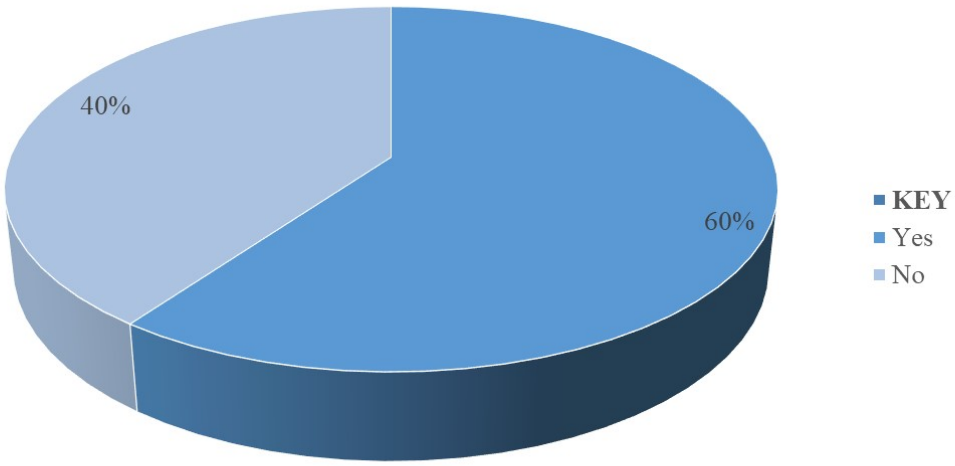

Figure 4. Shows the distribution of respondents according to whether they thought blood Sugar can be controlled by having the right diet (N=50)

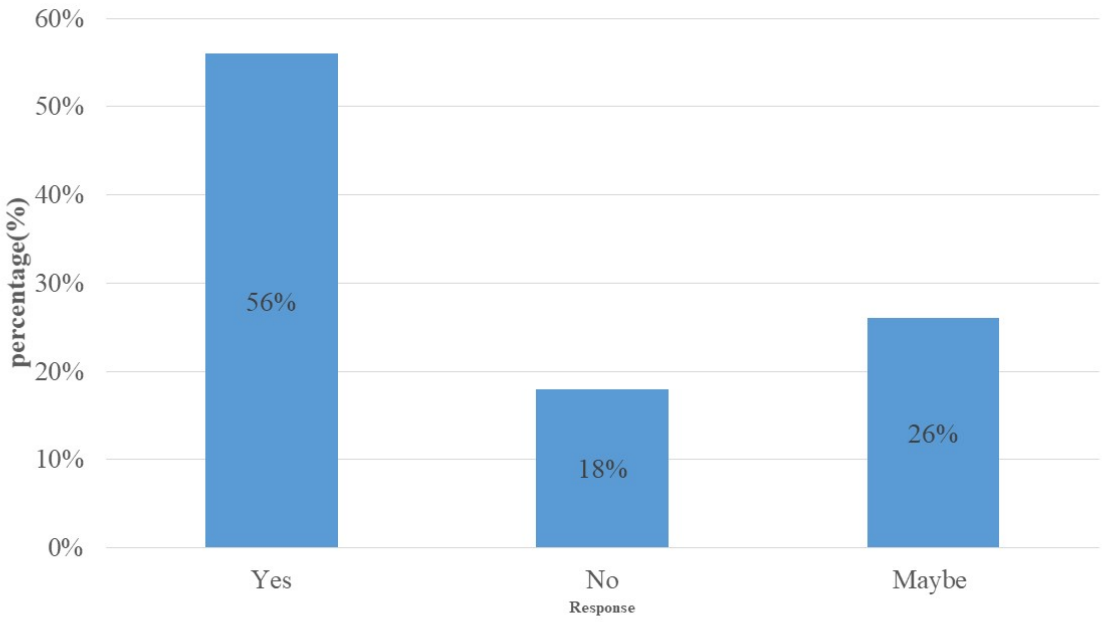

Figure 5. Shows the distribution of respondents according to whether they needed to check their blood sugar regularly (N=50)

Table 5. Shows the distribution of respondents according to whether they should be examined for diabetes mellitus (N=50)

Response	Frequency (f)	Percentage (%)
Yes	24	48
No	22	44
I don't know	4	8
Total	**50**	**100**

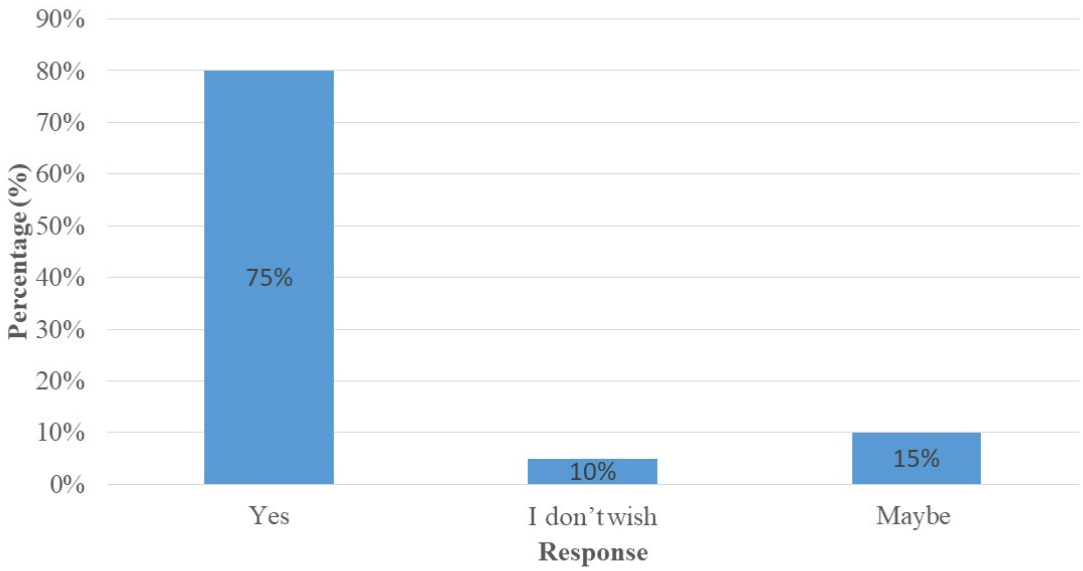

Figure 6. Shows distribution of respondents according to whether they wish to follow advice on prevention of diabetes mellitus (N=50)

Table 6. Shows the distribution of respondents according to when they last had screening for diabetes mellitus (N=50)

Response	Frequency (f)	Percentage (%)
2 months and below	2	4
6 months and below	8	16
Above 6 months	10	20
I have never	30	60
Total	**50**	**100**

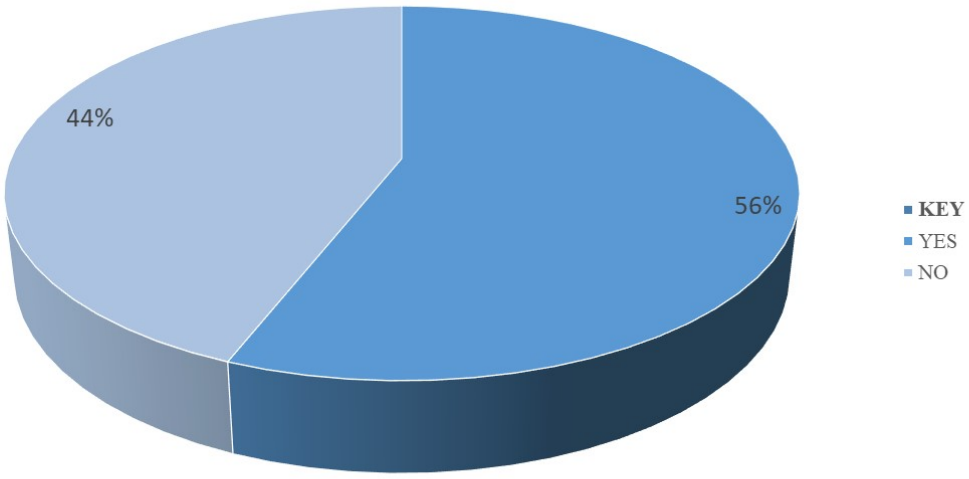

Figure 7. Shows the distribution of respondents according to whether they thought Diabetes mellitus can lead to other complications (N=50)

Table 7. Shows distribution of respondents according to how they prevent diabetes mellitus (N=50)

Response	Frequency (f)	Percentage (%)
Through avoiding taking too much sugar	25	50
Through reducing weight	4	8
Through regular exercise	5	10
Through check ups	1	2
Others	15	30
Total	**50**	**100**

Table 8. Show the distribution of respondents according to types of food they commonly feed on (N=50)

Response	Frequency (f)	Percentage (%)
Carbohydrates	38	76
Proteins	6	12
Fats	3	6
Fruits	1	2
Vegetables	2	4
Total	**50**	**100**

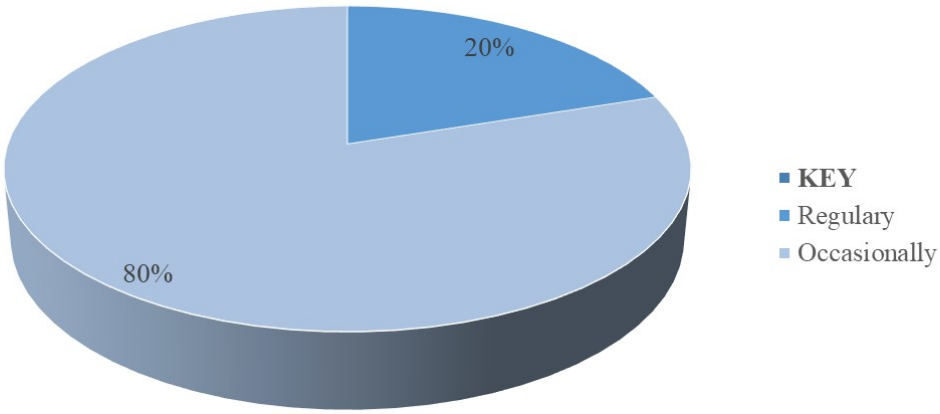

Figure 8. Shows the distribution of respondents according to how often they perform physical exercise (N=50)

From the table above, more than half of the respondents (76%) commonly fed on carbohydrates whereas the least (2%) fed on fruits.

8 Discussion.

Knowledge towards prevention of diabetes mellitus among patients aged 25-70 years

From the findings of the study, the majority of the respondents (88%) had ever heard about diabetes mellitus this implies they were aware of the study and can be attributed to the information provided from different sources through health education, media, and health facilities. The study results were in line with Wondimeneh *et al* (2020), where results showed that only (47%) of the participants knew about diabetes.

More than half of the respondents (62%) did not know the different types of diabetes mellitus. This could be attributed to the fact that most of the respondents had never been diagnosed with DM and therefore the response had to be beyond average. These results were in disagreement with Aljofan *et al* (2019), where results showed that (57%) of the respondents knew the different types of diabetes such as type1 and type 2.

In regards to the causes of DM, most of the respondents (56%) knew that diabetes mellitus can be caused by eating sugary things. This is because a substantial number of the study participants had never been sensitized to diabetes mellitus and therefore, the probability of being aware of the cause was expected to be average. This was not in line with Asmelash *et al* (2019), where results showed that (84.6%) knew that DM was due to extra salt intake.

According to the study finding got, half of the respondents (50%) knew that diabetes mellitus can result in diabetic foot. This is attributed to common diabetic foot complications in diabetic patients which respondents might have been told or had ever observed. This was not in line with Faisal *et al* (2018), where results showed that most of the participants (75.62%) knew diabetes mellitus can result in complications of the eyes.

In regards to signs and symptoms of diabetes mellitus, almost half of the respondents (44%) reported that over urinating is a symptom. This could be attributed to the fact that most of the participants might have got a chance to be sensitized about signs and symptoms of DM from different sources. This was in line with Alqahtani *et al* (2020), where results showed that (95.1%) of the respondents reported frequent urination as a sign and symptom diabetes mellitus.

Also, the study showed that half of the respondents (50%) knew that dietary modification is a preventive measure for diabetes mellitus. This is attributed to health education provided by the health workers. This was in line with Ramzi *et al* (2021), where results showed that dietary modification as a preventive measure was mentioned by (79.1%).

Attitude towards prevention of diabetes mellitus among patients aged 25-70 years

In regards to the control of blood sugar, most of the respondents (60%) agreed that blood sugar can be controlled by having the right diet. This could be attributed to the fact that most of the participants knew the right diet to control DM. This was in agreement with Ramzi *et al* (2021), where results showed that approximately half of the participants (51.9%) thought that glucose can be controlled by having the right diet.

Furthermore, most of the respondents (56%) were willing to check their blood sugar regularly and this might be attributed to the fact that the respondents knew that DM is a public threat that can lead to death/loss of life. This was not in agreement with Aljofan *et al* (2019), where around (44%) of the participants believed that it was not necessary to go for regular checkups.

Surprisingly, almost half of the respondents (48%) thought they should be examined for DM. This was because the respondents were willing to know their stand. This was in line with Abiy *et al* (2021), where results showed almost one-third (35.84%) of the participants strongly agreed to be examined.

The study findings showed that the majority of the respondents (80%) wished to follow advice on the prevention of DM. With such a percentage rate, this implies patients wished to follow the advice given to them by health workers through health education and were concerned with their health since most of the respondents (54%) were within the age bracket (25-40). This was in line with Yitayeh *et al* (2020), where results showed that (93.0%) of the participants believed a doctor's advice was important.

According to the study findings gathered, most of the respondents (56%) agreed that diabetes mellitus complications can be prevented. This could be attributed to the fact that the participants had a positive attitude towards the prevention of DM a chronic illness. This was in line with Hearth *et al* (2017), where (74.1%) of the respondents agreed that diabetes mellitus complications can be prevented.

Practices towards prevention of diabetes mellitus among patients aged 25-70 years

From the study results, most of the respondents (60%) had never been screened for diabetes mellitus. This is attributed to some reasons that the study is yet to ascertain. This was not in line with Aljofan *et al* (2019), where findings showered that (61.5%) of the respondents checked their blood glucose once yearly.

Among those who prevented diabetes mellitus, half of the respondents (50%) prevented diabetes mellitus by avoiding sugar. This is attributed to the fact that most of the respondents were aware of the preventive ways for DM and therefore, they were most likely to prevent themselves from risks of having DM. This was in line with Mohammed *et al* (2018), where (55.9%) of the respondents tried to avoid refined sugar.

The study findings further showed that the majority of the respondents (80%) of the respondents performed physical exercise occasionally. This reveals that a substantial number of study participants were reluctant with physical exercises and hence increasing the risk of being exposed to DM. This was in disagreement with Herathl *et al* (2017), where (80%) of the respondents did not involve themselves in regular exercises.

Finally more than half of the respondents (76%) commonly fed on carbohydrates. This is attributed to the fact that carbohydrates are the most common types of food accessible and therefore, there was a possibility of lowering their immune system. This was not in agreement with Yitayeh *et al* (2020), where (86.6%) fed on all types of food.

9 Conclusion

From the study findings, the following conclusions were made.

The study established fair knowledge of the prevention of diabetes mellitus since (88%) of the respondents had ever heard about diabetes, (56%) knew that eating sugary things caused diabetes, (and 50%) knew diabetic foot as one of the complications of diabetes mellitus, (44%) knew over urinating as a symptom and a sign of diabetes and (50%) knew that dietary modification is a preventive measure for diabetes mellitus.

The overall attitude of respondents towards the prevention of diabetes mellitus was favorable because (60%) agreed that blood sugar can be controlled by having the right diet, (56%) reported that they needed to check their blood sugar regularly, (and 48%) thought they should be checked for diabetes, (80%) wished to follow advice on preventions of diabetes mellitus and (56%) agreed that diabetes mellitus complications can be prevented.

Regarding the overall practices, the study recognized poor practices towards prevention of DM since (60%) had never screened for diabetes, (50%) prevented DM through avoiding sugar, (80%) performed physical excises occasionally, and (76%) commonly fed on carbohydrates.

Finally, the researchers concluded that participants had fair knowledge, and with favorable attitude towards the prevention of diabetes mellitus but poor practices were noticed since most patients had never been screened for diabetes mellitus, performed physical exercises occasionally, and fed on carbohydrates.

Recommendations

Given the above findings, the researcher recommended that the ministry of health at both national and county levels should formulate and implement a policy targeting patients on in-depth understanding related to the prevention of DM

Community outreaches and consoling should be continuously carried out by health workers at Wakiso health center IV to establish more in-depth favorable practices for the prevention of DM to close the research gap.

The fact that a large proportion of participants practiced poor prevention of DM practices; Patients should be health educated regularly, home visits conducted and encouraged to embark on practices towards prevention of DM by health workers at Wakiso health center IV.

Health workers at Wakiso health center IV should continue to educate patients on the benefits of regular exercise, the right diet, and screening to implement better behavior of change and this will reduce DM cases at the facility.

Although the study was conducted in one health facility on a small sample, the researcher, therefore, recommends further studies in different areas to close the research gaps.

10 Acknowledgement

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Finally, I am sincerely grateful to all my classmates for their assistance and did what they could in their various capacities.

To all of you! Thank you very much and may God bless you for your help.

11 List of Abbreviation and Acronyms

ADCES : Association of Diabetes Care and Education Specialists

CDC : Centre for Disease Control

DM : Diabetes Mellitus

DSMET : Diabetic Self-Management Education and Training

GDM : Gestational Diabetes

HbA1C : Hemoglobin A1C test

HBP : High Blood Pressure

HMIS : Health Management Information System

IDDM : Insulin Dependent Diabetes Mellitus

IDF : International Diabetes Foundation

IGT : Impaired Glucose Tolerance

SMG : Self-Monitoring Of Blood Glucose

MoH : Ministry of Health

NCD : Non communicable diseases

OPD : Outpatient department

T1DM : Type1 Diabetes Mellitus

T2DM : Type2 Diabetes Mellitus

WHO : World Health Organization

12 OPERATIONAL DEFINITIONS OF KEY TERMS

Attitudes : The opinion and feelings that someone has about something.

Diabetes mellitus : A metabolic disease resulting from insulin insufficiency or

Ineffectiveness due to decreased insulin secretion or peripheral resistance to action of insulin.

Gestational diabetes : A pregnancy induced diabetes.

Hormone : This is a chemical substance secreted into the blood steam and

Carried to a specific target organ or tissue to exert its function.

Insulin : A hormone produced in the pancreas by the beta cells of the islets

of Langerhans that regulates the amount of glucose in the blood stream.

Incidence : The measure of the risk that a person develops new condition

Within a period of time.

Knowledge : Refers to the extent of exposure of an individual.

Mortality rates : Is the measure of the number of deaths in a particular population.

Prediabetes : This is situation in which an individual has a high blood glucose

or glycosylated hemoglobin levels but not sufficient high to be

classified as diabetes rather it's a risk factor to diabetes. This is

also referred to as impaired glucose tolerance.

Prevalence : This is the statistical concept referring to the number of cases of

12.1 Disease that are present in a particular population at a given

time.

Practice : This is the usual action, habit, manner or routine of an individual

Type 1 diabetes : (previously known as insulin-dependent, juvenile or childhood-

Onset diabetes) is characterized by deficient insulin production in the body.

Type 2 diabetes : (formerly called non-insulin-dependent or adult-onset diabetes) Results from the body's ineffective use of insulin.

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