# Factors contributing to increased cases of Diabetes Mellitus among patients aged 30-80 years in Kabubbu Health Centre IV, Wakiso District. A Cross-sectional Study.

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**Abstract**

**Background:**
The purpose of the study is to determine the factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years in Kabubbu health centre IV, Wakiso district

**Methodology:**
The study used a descriptive cross-sectional study design on a sample of 50 respondents. A simple random technique was used as a sampling technique, a questionnaire with open and ended questions written in the English language as the data collection tool, and data was analyzed manually by use of tally sheets and presented in tables and figures using Microsoft excel.

**Results:**
(94%) of respondents had ever heard about diabetes mellitus before they contracted the disease, (51%) knew obesity as the risk factor for diabetes mellitus, (40%) got know about having diabetes mellitus when they were within the age bracket of 51-60 years, (48%) commonly fed on high sugar/fat diet and (52%) were inactive in physical activities. (70%) of respondents' houses had cemented floors, (66%) got any kind of social/emotional support from family members or friends regarding their current health status, (60%) had a family history of DM, and (77%) agreed that they get any kind of emotional or psychological distress at work.

**Conclusions:**
Obesity, age, increased sugar/fat diet intake inactive physical activity status, respondent's nature of the job, psychological distress at work, family history of diabetes mellitus, poor health-seeking behaviors, inadequate access to counseling services about diabetes and inability to afford medical services were the main factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years.

**Recommendation:**
Health workers at Kabubbu health centre IV should carry out a comprehensive health assessment to identify the educational needs of individuals with or without diabetes to provide appropriate educational, psychological and clinical support.

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## 1 Background of the study

In 2017, there were 451 million people with diabetes worldwide, which implies that the global prevalence of diabetes in adults has been increasing and these figures were expected to rise to 693 million by 2045. Nearly half of all people living with diabetes (49.7%) were estimated to be undiagnosed (Cho *et al,* 2018).

An estimated increase in DM patients in Indonesia from 8.4 million in 2000 to 13.7 million in 2003

predicted a further increase to around 21.3 million in 2030. The high number of people with DM in Indonesia has resulted in Indonesia ranking fourth in the number of people with DM after the United States, China, and India (Perkumpulan, 2015).

Among the elderly population, the prevalence of diabetes in Sub-Sahara Africa was reported to be lower (3%) as compared to the global prevalence (8.5%) in 2016, there was a rising trend in the past few decades due to the effects of rapid urbanization, globalization and lifestyle changes (WHO, 2017).

In addition, the prevalence of diabetes mellitus was also high in the Middle East and North Africa (MENA) region, amounting to 12.8% in 2019. Fifty-five million adults aged 20 to 79 were living with diabetes in the MENA region in 2019 and it was estimated that this figure will increase to 108 million by 2045 (Zlatko, 2020).

Ethiopia had 2.57 million (5.2%) adult people aged 20-79 years with diabetes in 2017, making it the largest diabetes population in sub –Saharan Africa. Of those, about 1.96 million of them (76%) did "t know that they had diabetes (Haileab, 2020). Uganda is one of the 48 countries in the IDF African region. 463 million people have diabetes in the world and more than 19 million people in the AFR Region; by 2045 it will be around 47 million. The specific objectives of the study were to determine the; individual factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years, community-related factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years, and health facility-related factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years.

## 2 Methodology

**Study design**

A descriptive cross-sectional study design was used to examine the relationship between the study variables in this study. The rationale for choosing this design was due to its convenience, it is a time-saving and least costly alternative.

**Study setting**

Kabubbu health centre IV is located in Kabubbu parish, Nangabo sub-county, Kampala district with 17 kilometers from Kampala. The facility is non-governmental aided by several departments such as outpatient, inpatient, pediatric, major and minor surgery, laboratory, pharmacy, ART, and maternity. The facility received an average of patients daily. The study area was chosen by the researcher because she was familiar with the area and therefore convenient for her.

**Study population**

The study population is the group of subjects from whom the researcher expects to conclude the research topic. Therefore, this was composed of diabetic patients aged 30-80 years in Kabubbu health centre IV willing to participate in the study.

**Sample size and sample size determination**

The sample size was determined using the formula below; Burton's formula (1952)

S=2(QR) O: where S=required sample size

Q=number of days the researcher spent while collecting data R=maximum number of people per day O= maximum time the interviewer spent on each participant. 5×10×1hr =50

Therefore, the researcher used 50 respondents.

**Study variables**

Variables are termed as any facet of a theory that can change or vary as part of the interaction within the theory.

**Dependent variable**

The dependent variable was diabetes mellitus.

**Independent variables**

Independent variables were individual, community-related, and health facility-related factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years.

**Selection criteria**

**Inclusion criteria**

The study included only diabetic patients diagnosed with type 1 or type 2 and those who had been treated for at least one month; who consent voluntarily to participate in the study during the time of data collection.

**Exclusion criteria**

The study excluded diabetic patients who were critically ill and diabetic patients not willing to consent voluntarily to participate in the study during the time of data collection.

**Sampling technique**

Simple random sampling was used to select the study participants from the source population and consenting participants in Kabubbu health centre IV. The technique was preferred because it provides ease of use and accuracy in the representation of study findings.

**Data collection methods**

**Questionnaire**

The researcher collected data using semi-structured questionnaires written in the English language with both open and closed questions designed based on the specific objectives. Questions were translated into the local language (Luganda) by the researcher and research assistants for some respondents who could not understand the English language. The researcher considered questionnaires as the most convenient way of collecting data from respondents because it was easy for the researcher to administer and obtain data within a short time from a large number of respondents.

**Interview**

This involved face-to-face conversation between the researcher and the respondents (not critically ill) and the researcher adapted questions as necessary to clarify doubt and ensure that the respondents properly understood the questions without repeating or rephrasing the questions.

**Data collection procedure**

After approval of the research proposal; an introductory letter from the Kampala School of Health Sciences research committee to the study area was obtained. When permission was granted; two research assistants were trained by the researcher, who administered the questionnaire to the respondents through an interview in both English and the local language (Luganda). The sampling procedure started with the diabetic patient in the register on the particular day of data collection based on the register; names of other participants were selected randomly without a specific procedure in the register. Therefore, data were collected within specific days for diabetic patients and this continued on each day of data collection until the required sample size was achieved.

**Piloting the study**

To ensure validity and reliability of the two, the researcher used certain measures; where the researcher was regularly present to draft research tools to the research assistants for advice and assistance. The researcher also prior tested the first draft of the questionnaire among 10 respondents at Buwambo health centre IV to make necessary corrections to produce a final copy. The aim of pretesting was used to refine the accuracy, clarity, and suitability of the research instruments and to check their validity and reliability.

**Quality control**

To achieve validity and reliability, questionnaires were designed in such a way that they capture relevant information to answer research questions.

All data collection tools were given to the supervisor and some research experts who commented on the clarity of the tools and the questions in the tool.

Two research assistants were trained and selected the right respondents through the inclusion and exclusion criteria.

Standard operating procedures for COVID19 were also intensively followed and maintained during the data collection period.

Lastly, respondents were given ample time during data collection.

## 3 Data analysis and presentation

Data was analyzed manually; counted by tallying using a pen and A4 sheets of paper to generate the frequencies and percentages, later presented in tables, bar graphs, and pie charts for easy interpretation of the study findings.

**Ethical considerations**

Before data collection, permission was sought from the Kampala School of Health Sciences research committee introducing the researcher to the in-charge of Kabubbu health centre IV, seeking permission to carry out the study, with the assurance of confidentiality. Once permission was granted; participants were informed about the purpose of the study and privacy during the interview. Informed verbal consent was obtained from each study participant before interviewing. Participants were assured of full right to participate or not in the study as well as to withdraw anytime during the interview. Confidentiality also was maintained through anonymity.

## 4 Study findings

## 5 Respondent's demographic data

From the table 1, most(56%) of the respondents were females whereas the least (44%) were males.

In addition to that, study findings revealed that the majority (68%) of the respondents were married whereas the minority (6%) were widowed.

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

| **Gender** | **Frequency(f)** | **Percentage (%)** |
|---|---|---|
| Male | 22 | 44 |
| Female | 28 | 56 |
| **Total** | **50** | **100** |
| **Respondent's marital status** | | |
| Single | 5 | 10 |
| Married | 34 | 68 |
| Divorced | 8 | 16 |
| Widowed | 3 | 6 |
| **Total** | **50** | **100** |
| **Tribe** | | |
| Muganda | 30 | 60 |
| Munyakole | 4 | 8 |
| Mutolo | 1 | 2 |
| Others | 15 | 30 |
| **Total** | **50** | **100** |
| **Type of diabetes** | | |
| Type I | 2 | 4 |
| Type II | 32 | 64 |
| Gestational | 6 | 12 |
| I don"t know | 10 | 20 |
| **Total** | **50** | **100** |
| **Body mass index (evidence from the measurement scale)** | | |
| Normal | 9 | 18 |
| Obesity | 29 | 58 |
| Under weight | 12 | 24 |
| **Total** | **50** | **100** |
| **Blood pressure status(evidence from the blood pressure Machine)** | | |
| Normal | 11 | 22 |
| Abnormal | 39 | 78 |
| **Total** | **50** | **100** |

The study revealed that more than half of the respondents (60%) were Baganda by tribe whereas the least (2%) were Batooro by tribe

Based on findings related to tribes, the majority (64%) of the respondents had diabetes type II whereas the least (4%) had diabetes type I.

The study further revealed that more than half of the respondents (58%) were obese whereas the least (18%) had normal body mass index.

Findings from the study revealed that the majority (78%) of the respondents blood pressure status was abnormal whereas the minority (22%) their blood pressure status was normal.

## 6 Individual Factors Contributing to Increased Cases of Diabetes Mellitus Among Patients Aged 30-80 Years.

From the figure 1, nearly all respondents (94%) had ever heard about diabetes mellitus before they contracted the disease whereas the least (6%) had never heard about diabetes mellitus.

From the table 2, most (51%) of the respondents knew obesity as the risk factor for diabetes mellitus whereas the least (4%) knew about other risk factors such as high blood pressure and stress.

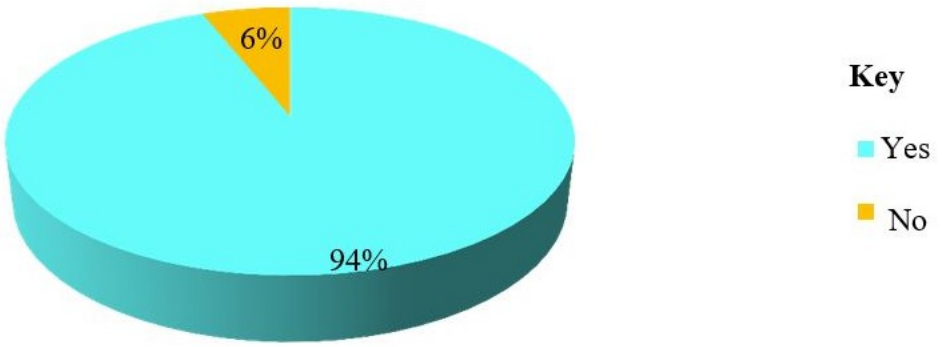


**Figure 1.** Shows the distribution of respondents according to whether they had ever heard about diabetes mellitus before they contracted the disease

**Table 2.** Shows the distribution of respondents according to their knowledge about the risk factors for diabetes mellitus (N=47)

| Response | Frequency (f) | Percentage (%) |
|---|---|---|
| Obesity | 24 | 51 |
| Family history | 9 | 19 |
| Physical inactivity | 8 | 17 |
| I don"t know | 4 | 9 |
| Others | 2 | 4 |
| **Total** | **47** | **100** |

**Table 3.** Shows the distribution of respondents according to when they got to know that they had diabetes mellitus (N=50)

| Age (years) | Frequency (f) | Percentage (%) |
|---|---|---|
| 30-40 | 4 | 8 |
| 41-50 | 12 | 24 |
| 51-60 | 20 | 40 |
| 61-70 | 8 | 16 |
| 71-80 | 6 | 12 |
| **Total** | **50** | **100** |

From the table 3, most (40%) of the respondents got to know about having diabetes mellitus when they were within the age bracket of 51-60 years whereas the least (8%) got to know about having diabetes mellitus when they were within the age bracket of 30-40 years.

From the figure 2, almost half of the respondents (48%) reported that they commonly feed on high sugar/fat diet foods whereas the least (6%) commonly fed on vitamins.

From the figure 3, most (52%) of the respondents reported that they were inactive in physical activities whereas the least (10%) were very active in physical activities.

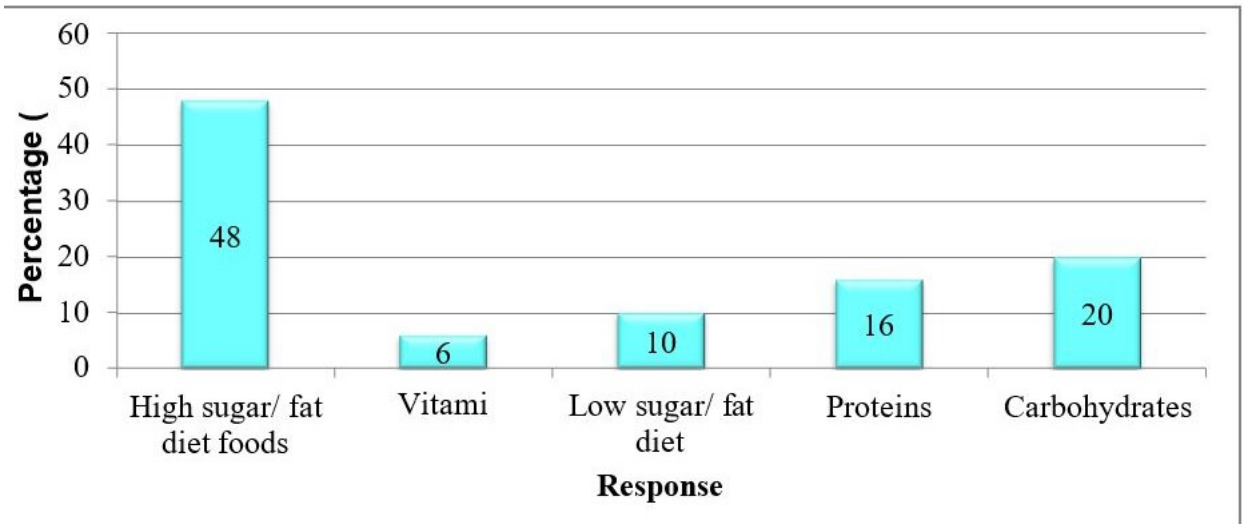


**Figure 2.** Shows the distribution of respondents according to the types of food they commonly fed on

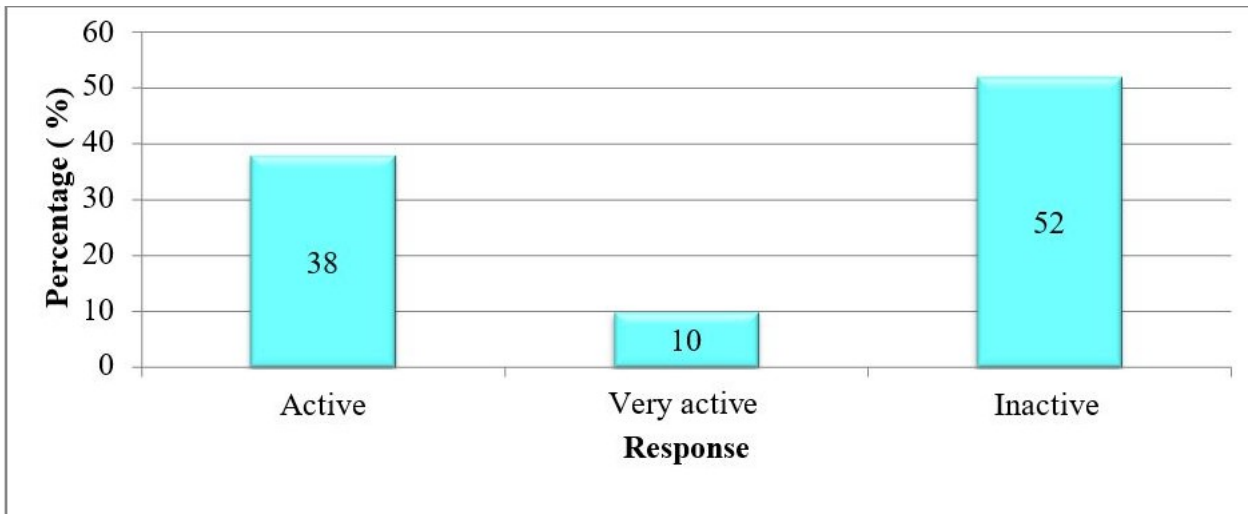


**Figure 3.** Shows the distribution of respondents according to physical activity status

## 7 Community Related Factors Contributing to Increased Cases Of Diabetes Mellitus Among Patients Aged 30-80 Years

From the figure 4, most (54%) of the respondent's homes were located in towns whereas the least (18%) of their homes were located in cities.

From the figure 5, more than half of the respondents (60%) reported that they had a family history of diabetes mellitus whereas the least (40%) reported that they never had a family history of diabetes.

From the figure 6, the majority (70%) of the respondents houses had cemented floors whereas the minority (4%) their houses had earth floors.

From the figure 7, more than half of the respondents (58%) were self-employed whereas the least (12%) were employed.

From the table 4, the majority (77%) of the respondents agreed that they get any kind of emotional or psychological distress at work whereas the minority (23%) disagreed.

From the figure 8, the majority (66%) of the respondents reported they get any kind of social/emotional support from family members or friends on their current health status whereas the minority (34%) reported that they don"t.

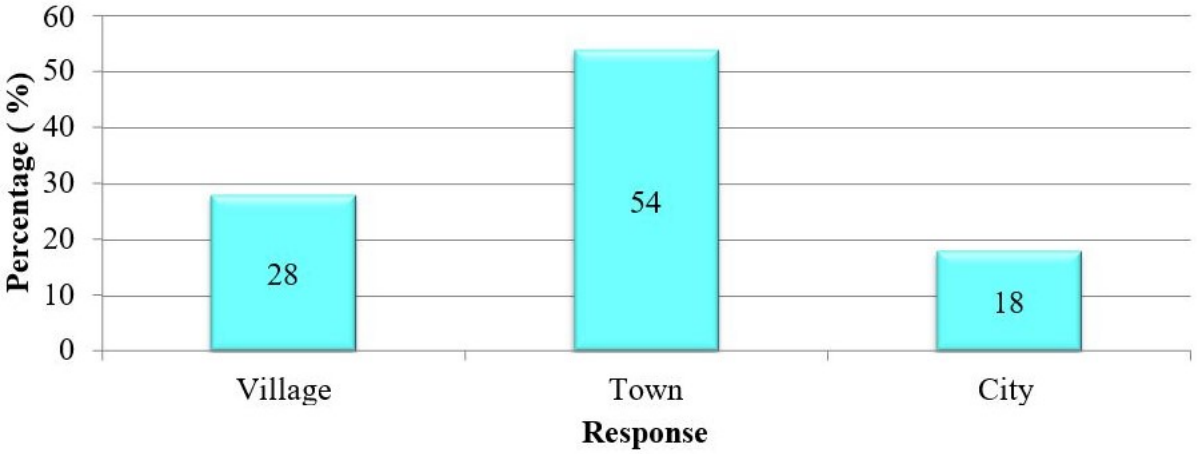


**Figure 4.** Shows the distribution of respondents according to the location of their homes

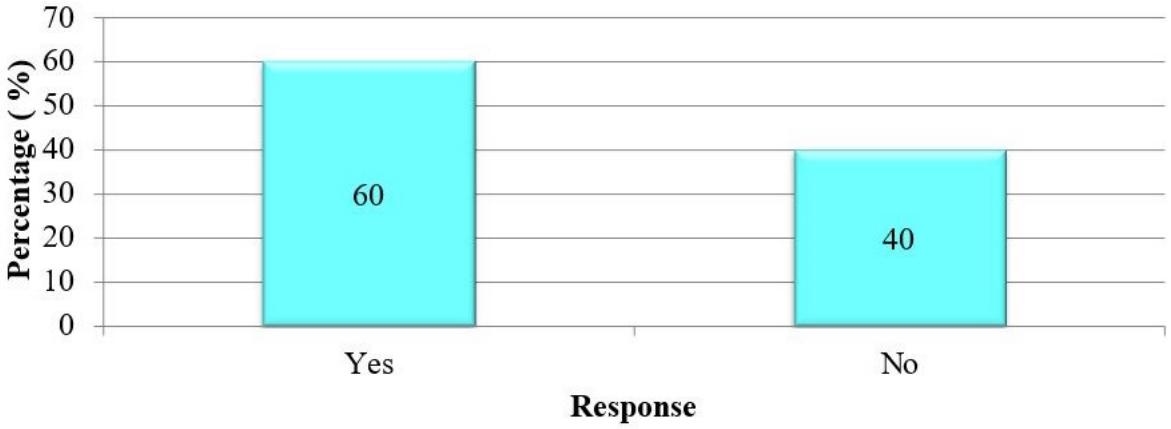


**Figure 5.** Shows the distribution of respondents according to whether they had family history of diabetes mellitus

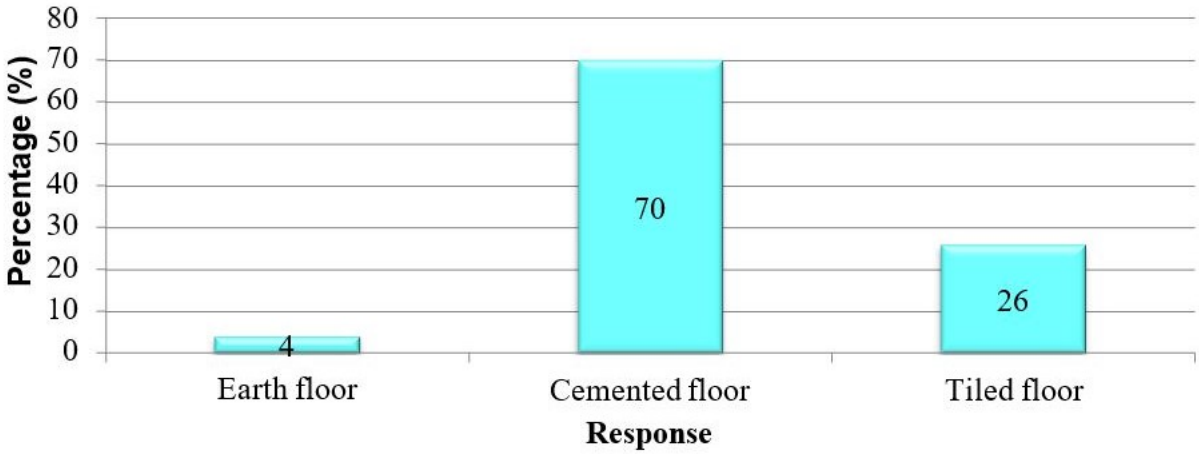


**Figure 6.** Shows the distribution of respondents according to the nature of their household floors

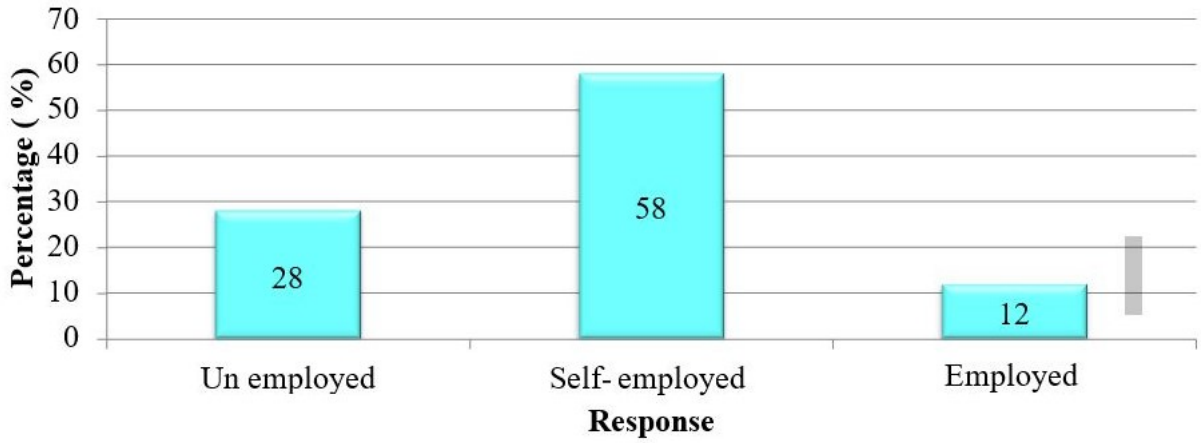


**Figure 7.** Shows the distribution of respondents according to level of employment.

**Table 4.** Shows the distribution of respondents who were working according to whether they get any kind of emotional or psychological distress depending on the nature of the job (N=43)

| Response | Frequency (f) | Percentage (%) |
|---|---|---|
| Yes | 33 | 77 |
| No | 10 | 23 |
| **Total** | **43** | **100** |

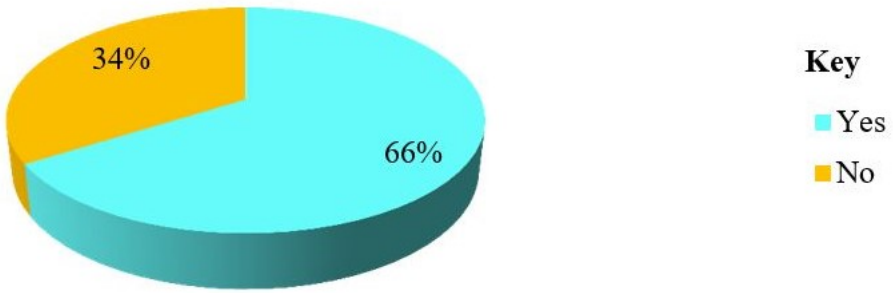


**Figure 8.** Shows the distribution of respondents according to whether they get any kind of social/emotional support from family members or friends on their current health status

**Health Facility Related Factors Contributing to Increased Cases Of Diabetes Mellitus Among Patients Aged 30-80 Years.**

From the table 5, half of the respondents (50%) last visited the health facility more than three months back whereas the least (14%) they were not recalling the period when they last visited the health facility.

From the figure 9, more than half of the respondents (56%) were aware of the existence of diabetes mellitus screening services at this facility whereas the least (44%) were not aware.

Shows the distribution of respondents who were aware of existence of diabetes mellitus screening services at this facility according to whether they acknowledged enough counseling services about diabetes mellitus

From the table 6, the majority (61%) of the respondents noted that they did “t acknowledge enough counseling services about diabetes mel-

**Table 5.** Shows the distribution of respondents according to when they last visited the health facility (N=50)

| Response | Frequency (f) | Percentage (%) |
|---|---|---|
| Less than 3 months | 18 | 36 |
| More than three months back | 25 | 50 |
| I don"t recall | 7 | 14 |
| **Total** | **50** | **100** |

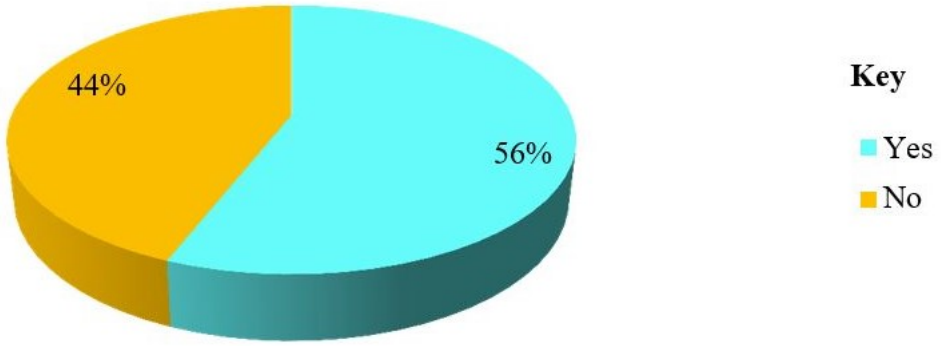


**Figure 9.** Shows the distribution of respondents according to whether they were aware of existence of diabetes mellitus screening services at this facility.

**Table 6.** Shows the distribution of respondents who were aware of existence of diabetes mellitus screening services at this facility according to whether they acknowledged enough counseling services about diabetes mellitus

| Response | Frequency (f) | Percentage (%) |
|---|---|---|
| Yes | 11 | 61 |
| No | 17 | 39 |
| **Total** | **28** | **100** |

litus at this facility whereas the minority (39%) reported that they acknowledged enough counseling services about diabetes mellitus at this facility.

From the table 7, most (46%) of the respondents reported<5km as the distance from their homes to the nearby health facility whereas the least (14%) didn't know the distance from their homes to the nearby health facility.

From the table 8, most (58%)of the respondents reported that they pay for access to medical healthcare services at this facility whereas the least (2%) reported that they don't pay for access to medical healthcare services at this facility.

From the figure 10, the majority (64%) of the respondents had never interacted with any health nutrition personnel whereas the minority (36%) had ever interacted with any health nutrition personnel.

From the table 9, most (44%)of the respondents reported that the clarity and usefulness of the information received during the consultation were very good whereas the least (11%) reported that the clarity and usefulness of the information received during the consultation were very poor.

From the table above, the majority (74%) of the respondents reported that they visit a doctor when their health does not improve whereas the minority (8%) reported that they use traditional herbs.

**Table 7.** Shows the distribution of respondents according to the distance from their homes to the nearby health facility (N=50)

| Response | Frequency (f) | Percentage (%) |
|---|---|---|
| <5 km | 23 | 46 |
| >5 km | 20 | 40 |
| I don"t know | 7 | 14 |
| **Total** | **50** | **100** |

**Table 8.** Shows the distribution of respondents according to whether they pay for access to medical healthcare services at this facility (N=50)

| Response | Frequency (f) | Percentage (%) |
|---|---|---|
| Yes (for consultation and selected laboratory checkups) | 20 | 40 |
| Yes (to all services) | 29 | 58 |
| No | 1 | 2 |
| **Total** | **50** | **100** |

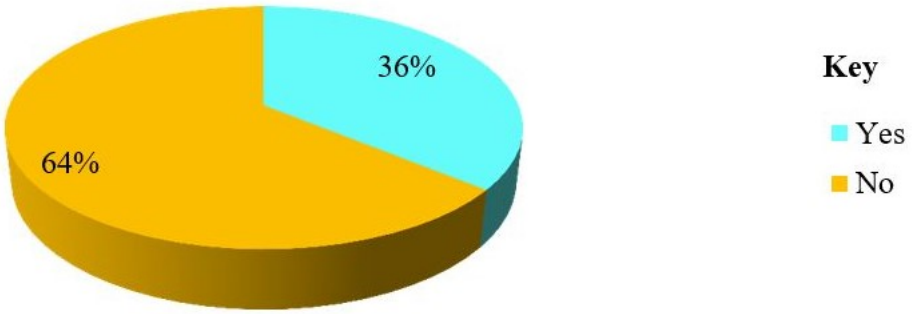


**Figure 10.** Shows the distribution of respondents according to whether they had ever interacted with any health nutrition personal

**Table 9.** Shows the distribution of respondents who had ever interacted with any health nutrition personal according to the clarity and usefulness of the information received during the consultation (N=18)

| Response | Frequency (f) | Percentage (%) |
|---|---|---|
| Excellent | 3 | 17 |
| Very good | 8 | 44 |
| Fair | 5 | 28 |
| Poor | 2 | 11 |
| **Total** | **18** | **100** |

**Table 10.** Shows the distribution of respondents according to what they do when their health doesn't improve

| Response | Frequency (f) | Percentage (%) |
|---|---|---|
| Visit a doctor | 37 | 74 |
| self- medicate with modern medicine | 9 | 18 |
| Use traditional herbs | 4 | 8 |
| **Total** | **50** | **100** |

## 8 Discussion of findings

**Individual factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years**

Of a total of 50 respondents, nearly all respondents (94%) had ever heard about diabetes mellitus before they contracted the disease. This notifies that majority of the study participants were aware of the study context.

The study revealed that most (51%) of the respondents reported obesity as the risk factor for diabetes mellitus. This could be a result of the fact that an average number of study participants possessed obesity as a risk factor which increased their chances of being diabetic. The current study findings were consistent with Kassahun & Mekonen (2017), where results showed that (60.3%) of participants stated that being overweight /Obesity was the risk factor.

Furthermore, almost half the respondents (40%) got to know about having diabetes mellitus when they were within the age bracket of 51-60 years. This confirms that their age brackets had an impact on their risk of being diabetic due to impaired pancreatic islet function with aging. This differs from the results obtained from a study that was done by Karar *et al* (2020), where findings showed that there is an indication that as the age rises, the number and percentage of people with Type 2 Diabetes increases; the highest susceptibility age at 80 years old for people.

Results from the study indicated that almost half of the respondents (48%) reported that they commonly fed on high sugar/fat diet foods and therefore, this signifies direct chances of imposing impact to fructose on the liver, including promoting fatty liver, inflammation, and localized insulin resistance. The study results were almost similar to a study that was done by Twinamatsiko (2016), where findings showed that most of the respondents (80%) commonly fed on high sugar/fat diet foods.

The researcher noticed that most (52%) of the respondents reported that they were inactive in physical activities and probably as a result of inactive physical exercise they were most likely to be obese. The study results were inconsistent with Reshma *et al* (2019), where findings showed that (61.91%) of respondents diagnosed with cases of type 2 diabetes mellitus were involved in sedentary to mild physical activity.

**Community-related factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years**

To study findings, more than half of the respondents (58%) were self-employed. The nature of the job could also increase the risk of diabetes in one way or the other, especially among individuals who work under pressure at work as the study is yet to ascertain. The study also showed that the majority (77%) of the respondents agreed that they get any kind of emotional or psychological distress at work. Therefore, high levels of stress hormones stop insulin from producing cells in the pancreas from working properly and reduce the amount of insulin in the body; hence increasing the risks of diabetes mellitus type 2. The study results were in disagreement with Al-Obaidi et al (2019), where results showed that being employed without work stress appeared to have a protective effect against diabetes as compared to patients with no job, as all patients without a job had a higher diabetes risk was higher among the non-employed (89.4%) in comparison to patients with stable employment.

The study revealed that more than half of the respondents (60%) reported that they had a family history of diabetes mellitus and therefore, study participants were mostly to be at risk of being diabetic as a result of the fact that several gene mutations have been linked to the development of diabetes type 2. The study results were in line with Reshma & Jayashree (2019), where findings

related to family history showed that more than half, (61.90%) diagnosed cases of type 2 diabetes mellitus had a history of both parents suffering from diabetes.

**Health facility-related factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years**

However, half of the respondents (50%) last visited the health facility more than three months back. This implies that an average number of study participants possessed unpleasant health-seeking behaviors which increased the incidence of the disease. Findings were in line with Al- Obaidi *et al.*, (2019), where results related to frequency checking showed that (78.4%) irregularly utilized medical checkups.

The study revealed that more than half of the respondents (56%) were aware of the existence of diabetes mellitus screening services at this facility. Interestingly this denotes that study participants were reluctant to seek medical services for early diagnosis and treatment. This is inconsistent with Nebiyu *et al* (2020), where results related to frequency checking showed that (68.7%) did "t know the existence of DM screening services at the nearby facility health facility/departments.

Results also showed that the majority (61%) of the respondents noted that they did't get enough counseling services about diabetes mellitus at this facility. This could be a result of the fact that a significant number of study participants possessed poor health-seeking behaviors. The study results were not in line with Kassahun & Mekonen (2017), where findings showed that (84.7%) had never been exposed to DM health education.

In addition, most (58%) of the respondents reported that they pay for access to medical healthcare services at this facility. This implies medical costs could not favor some respondents to seek medical services and hence paving the way to the inability to seek medical services. The study results were in line with Faronbi *et al* (2018), where results showed that participants (62%) reported that medical services were accessed at a fee.

Findings from the study also revealed that the majority (64%) of the respondents had never interacted with any health nutrition personnel and therefore, they missed out on chances of being aware of the preventive strategies that would have kept them safe from risks of DM. The study results were in agreement with Brown et al (2019), where results showed that (65.3%) of respondents indicated they had no interaction with the nutrition personnel.

## 9 Conclusion

Based on overall findings obtained from the study, the following conclusions were made:

The study established that individual factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years were; obesity as (51%) were obese, age (40%) got know about having diabetes mellitus when they were within the age bracket of 51-60 years, increased sugar/fat diet intake as noted by (48%), and inactive physical activities as reported by (52%).

The researcher discovered that respondents "s nature the job (58%) were self-employed, psychological distress at work (77%) agreed that they get any kind of emotional distress, and family history of diabetes mellitus as noted (60%)were the main community-related factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years.

Overall health facility-related factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years were; poor health-seeking behaviors among the study participants as (50%) last visited the health facility more than three months back, inadequate access to counseling services about diabetes as reported by (61%) and inability to afford medical services as (58%) reported that they pay for access to medical healthcare services at this facility.

Therefore, the researcher concluded that obesity, age, increased sugar/fat diet intake inactive physical activities, respondent"s nature of the job, psychological distress at work, family history of diabetes mellitus, poor health-seeking behaviors, inadequate access to counseling services about diabetes and inability to afford medical services were the main factors contributing to increased cases of diabetes mellitus among patients aged 30-80 years.

**Recommendations**

Healthcare services should be conveniently placed distance-wise with adequate access to medications by the government of Uganda through the Ministry of health since most of the respondents had to travel long distances to seek treatment and were unable to meet the medical costs.

Health workers at Kabubbu health centre IV should carry out a comprehensive health assessment to identify the educational needs of individuals with or without diabetes to provide appropriate educational, psychological and clinical support.

The researcher recommends further scientific studies on the herbs used for the treatment and prevention of diabetes so that their safety and efficacy can be established and those found safe and effective in prevention and treatment should be incorporated into the current healthcare

The researcher also recommends future studies on factors contributing to poor health-seeking behaviors of diabetic patients for better compulsions that will close the research gap.

## 10 Acknowledgement

I thank the almighty God for the favor and grace he has rendered to me during my time in school.

Thanks go to my supervisor Ms. Nakasolo Saniawho directed me during my study from the beginning up to the end and corrected all the mistakes to ensure perfection.

I also owe sincere gratitude to the Kabubbu health centre IV administration for permitting me to carry out the study and I genuinely thank all the pregnant teenagers who participated in the study. May God bless you all.

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I also thank my friends (Masagazi Edward, Nakawoma Hanisha, and Monica) for the support and encouragement they have given me.

## 11 List of Abbreviations and Acronyms

BMI: Body mass index

DK: Diabetic Ketoacidosis

DM: Diabetes Mellitus

GDP: Gross Domestic Product

IDF: International Diabetes Federation

IFG: Impaired fasting glycaemia

KSHS: Kampala School of Health Sciences

LSM: Living Standards Measure

MoH: Ministry of Health

PKR: Pakistan Rupee

SBP: Spontaneous Bacterial Peritonitis

UAHEB: Uganda Allied Health Examinations Board

WC: White Cells

WHO: World Health Organization

## 12 Definition of key terms

Blood pressure: Is the pressure of blood within the arteries.

Body mass index: Refers to a person“s weight in kilograms divided by the

square of height in meters

Diabetes mellitus type 1: Is a chronic condition in which the pancreas produces little or no insulin.

Diabetes mellitus type 2: Is a condition that occurs when blood glucose is too high.

Diabetes mellitus: Is a chronic disease of elevated blood glucose level due to

either suboptimal production of insulin by the pancreas or peripheral resistance of the body to insulin.

Death rate: The ratio of deaths to the population of a particular area or during a particular period of time, usually calculated as the number of deaths per one thousand people per year.

Factors: Refers to elements contributing to a particular result or situation.

Family history: Refers to subjects with either or both parents having diabetes were considered to have positive family history.

Glucose: Is the main type of sugar in the blood and is the major source of energy for the body’s cells.

Physical activity: Any bodily movement produced by skeletal muscles that require energy expenditure.

Premature death: Death that occurs before the average age of death in a certain population.

Prevalence: Defined as the number of instances of a given disease or other condition in a given population at a designated time.

Questionnaire: A set of printed or written questions with choice of answers, devised for the purposes of a survey or statistical study.

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