

## ASSESSMENT OF THE UTILIZATION OF STRESS REDUCTION AND PHYSICAL EXERCISE MEASURES AMONG DIABETES MELLITUS TYPE 2 PATIENTS AT LUBAGA HOSPITAL, KAMPALA DISTRICT. A CROSS-SECTIONAL STUDY.

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Page | 1

### ABSTRACT.

#### Background:

Diabetes Mellitus Type 2 is a chronic condition characterized by high levels of glucose in the blood. There are non-medication treatments, like stress reduction and physical exercise that play a crucial role in managing diabetes. Together, these lifestyle modifications can significantly improve glycemic control, reduce the need for medication, and lower the risk of diabetes-related complications. Therefore, this study seeks to assess the utilization of Stress Reduction and Physical Exercise Measures among Diabetes Mellitus type 2 Patients at Lubaga Hospital, Kampala District.

#### Methodology:

A cross-sectional study that utilized a quantitative method of data collection was conducted at UMHL; 30 DM patients were selected using a simple random sampling method. A structured questionnaire was used to collect data and involved both open and closed-ended questions and the data was arranged in the form of tables, pie-charts, and graphs.

#### Results:

On utilization of stress reduction measures, 11(30.6%) mentioned that the financial burden of disease management was the primary source of stress in nurses' lives, 32(89%) received information from healthcare workers about stress reduction techniques, 16(50%) received information about stress reduction techniques from doctors. Regarding utilization of physical exercise measures, 25(69%) accepted they engaged in regular physical exercises to manage their diabetes, 12(48%) mentioned they lacked time to maintain regular physical exercise, and 7(63.6%) reported they participated in physical exercises for about 10-15minutes.

#### Conclusion:

Participants utilized non-pharmacological measures such as stress-reduction, and physical exercises. However, 11(30.6%) mentioned they still faced the financial burden of disease management and the majority 12(48%) lacked time to maintain regular physical exercise.

#### Recommendation:

Diabetic patients should make exercise an integral part of their lives and make flexible and time-efficient routines for physical activity such as walking and engage in continuous educational programs to be informed about stress management.

**Keywords:** Stress reduction, Physical Exercise Measures, Diabetes Mellitus, Lubaga Hospital Kampala

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### BACKGROUND OF THE STUDY.

Diabetes Mellitus (DM) is a significant health challenge affecting about 8.9% of the world's population, which is around 425 million people! It's a chronic health condition that needs proper management to prevent complications and maintain a good quality of life for patients (Al-Maskari et al., 2013). There are non-medication treatments, like lifestyle changes and exercise that play a crucial role in managing diabetes. Surprisingly, these treatments are not being used enough by many people worldwide, with only about 40.2% of patients benefiting from them (Al-Maskari et al., 2013). This leads to more complications, less effective treatment, and higher healthcare costs. This

study aims to understand why these important treatments are not widely used and how we can improve diabetes care at Lubaga Hospital, where nurses play a vital role in patient health. We want to learn from nurses and patients to make diabetes management better and help people live healthier lives (Al-Maskari et al., 2013).

In the USA, stress reduction strategies like mindfulness-based interventions and support groups resulted in positive outcomes for about 72.5% of participants particularly among middle-aged people with ages between 30-45 years (Franz et al., 2019). Similarly, in Mexico, cognitive-behavioral therapy and physical activity benefited approximately 67.8% of

patients. Ethiopia's stress management workshops improved the well-being of around 63.2% of patients. However, in Ghana, only about 34.6% of patients had access to stress reduction programs, and Kenya faced disparities in the adoption of these measures, with only about 40.1% of patients incorporating them (Hunt et al., 2018). In Uganda, stress management was often overlooked, with only about 28.9% of patients receiving support and information from health workers. (Businge, 2018).

South Africa revealed the challenges faced by economically disadvantaged diabetic patients in accessing exercise facilities and resources. Studies highlighted the importance of developing low-cost exercise initiatives in urban areas to address these disparities. A series of community-based exercise centers were established in low-income neighborhoods, providing affordable exercise options for diabetic patients. A survey conducted among users of these centers indicated that around 73.4% of patients had increased access to exercise resources and participated in regular physical activity. Additionally, approximately 61.5% of respondents reported improved glycemic control and reduced diabetes-related complications (MoodleyLushen et al., 2017). Therefore, the objective of this study is to assess the utilization of Stress Reduction and Physical Exercise Measures among Diabetes Mellitus type 2 Patients in Lubaga Hospital, Kampala District.

## METHODOLOGY.

### Study Design.

The study employed a cross-sectional study design for assessing the utilization of non-pharmacological therapy among DM patients attending Lubaga Hospital in Kampala City. It was to enable the dependent and independent variables to be assessed at the same time and there was no follow-up of the study participants.

### Study setting.

The study was carried out among DM patients attending Lubaga Hospital. Lubaga Hospital is located in Lubaga Division, Kampala Capital City, about 6.4 kilometers southwest of Mulago National Referral Hospital. It is one of the largest health facilities in the division, with various departments like OPD, nursing, maternity, and family planning services among others. This made it a suitable study site for assessing the utilization of non-pharmacological therapy among DM patients.

### Study Population.

The study population consisted of DM type 2 patients attending Lubaga Hospital.

### Sample Size Determination.

The sample size was determined using Krejcie and Morgan Table (1970), considering the daily probable population of diabetic patients at Lubaga Hospital being 40. Therefore, a sample of 36 DM patients will be used.

### Inclusion & Exclusion Criteria.

The DM type 2 patients attending Lubaga Hospital consented to participate in the study. The study excluded DM type 2 patients who were not willing to participate in the study.

### Sampling Techniques.

The study participants were selected using the systematic sampling method by selecting where a patient was picked from every 4th group and were considered for the study.

### Study Variables.

The Independent variables are; utilization of stress reduction, utilization of diet, and utilization of physical exercises among DM type 2 patients attending Lubaga Hospital in Kampala city. The Dependent Variable was; the utilization of non-pharmacological measures among DM type 2 patients attending Lubaga Hospital in Kampala city.

### Research Instruments.

A researcher-administered questionnaire was used to collect information regarding the utilization of non-pharmacological measures among DM type 2 patients attending Lubaga Hospital in Kampala city.

### Data Collection Procedure.

In the study, the researcher employed a structured questionnaire during data collection. The questions were set according to the three specific objectives and the interviewer administered the questionnaire with both open and closed-ended questions to respondents. Since some of the respondents were illiterate the researcher administered the questionnaire and employed a translator, and the respondents answered freely as they were able to read and write but in the case of the respondents who were unable to read and write, an interpreter was used who assisted them on how the study was carried out.

### Data analysis and Presentation.

The researcher collected questionnaires from the respondents after filling in their views and counted them to ensure that all were returned and checked for completion. Row data was collected daily and all variables were given number codes and edited before

leaving the area of study. This was done to ensure that no mistakes were left and no blank spaces before leaving the study area. Open coding was employed to break down data kept under lock and key accessed by the researcher.

**Data Management.**

The results were stored on a flash disk and compiled into a research report. Data was analyzed with the assistance of statisticians. The results for all objectives were examined, categorized, and presented in the summarized separate graph; frequently tables, percentages, and measurement of the mean using Microsoft Excel 2013.

**Ethical Considerations.**

An introductory letter was obtained from Lubaga Hospital Nursing School which introduced the researcher to the

Hospital administered of Lubaga Hospital who granted the researcher permission to carry out the research. The researcher ensured that the ethical principle of beneficence was ensured by collecting information that yielded support or benefits to the participants. No maleficence was ensured by protecting participants from any possible harm during the research study. Autonomy was assured through the provision of consent forms which were taken and the respondents were reassured of confidentiality of their information. There was equal treatment of all participants and they were allowed to withdraw from the study at any point of their wish. All information was kept confidential by using patient identification codes and not names.

**RESULTS.**

**Demographic Characteristics.**

**Table 1: Showing the socio-demographic characteristics of participants. N=36**

Variables	Response	Frequency	Percentage%
Age	25-30	11	30.6
	31-35	20	55.6
	Above 35	5	13.9
Gender	Male	17	47.2
	Female	19	52.7
Education Level	Primary	6	16.7
	Secondary	16	44
	Tertiary	14	38.9

About Age, the majority of the respondents 20(55.6%) were aged 31-35 years and the minority 5(13.9%) were above 35 years of age. About Gender, the majority of the respondents 19(52.7%) were female and the minority

17(47.2%) were male. Regarding educational level, the majority of the respondents 16(44%) were of secondary level of education and the minority 6(16.7%) were of primary level.

**Table 2: Showing how long participants have been diagnosed with diabetes. n=36**

Response	Frequency	Percentage (%)
0-2 years	16	44.4
3-5 years	6	16.7
6 years -above	14	38.9

From table 2, the majority of the respondents 16(44.4%) had been diagnosed with diabetes for 02years and the minority 6(16.7%) had only been diagnosed with the disease for 3-5years.

**Assessing the utilization of Stress Reduction Measures among Diabetes Mellitus type 2 patients attending Lubaga Hospital.**

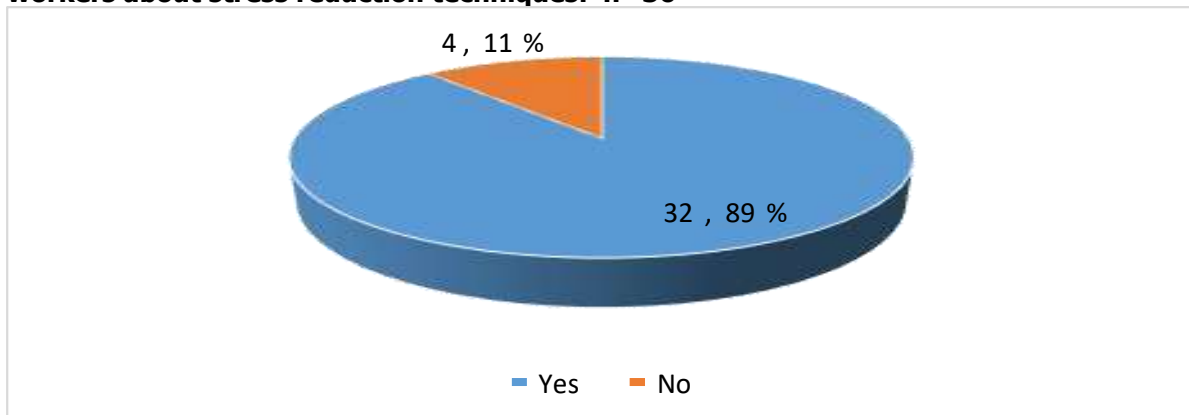
**Table 3: Showing the primary source of stress in the participants' daily life as a diabetic patient. N=36**

Response	Frequency	Percentage%
Managing blood glucose levels	6	16
Dietary restrictions	9	25
Medication adherence	7	19.4
Fear of diabetes-related complications	3	8.3
The financial burden of diabetes management	11	30.6

From Table 3, the majority of the respondents 11(30.6%) mentioned that the financial burden of diseases management was the primary source of stress in the

nurse's lives while the minority 3(8.3%) mentioned the fear of diabetes complications as the primary source of stress in their daily lives.

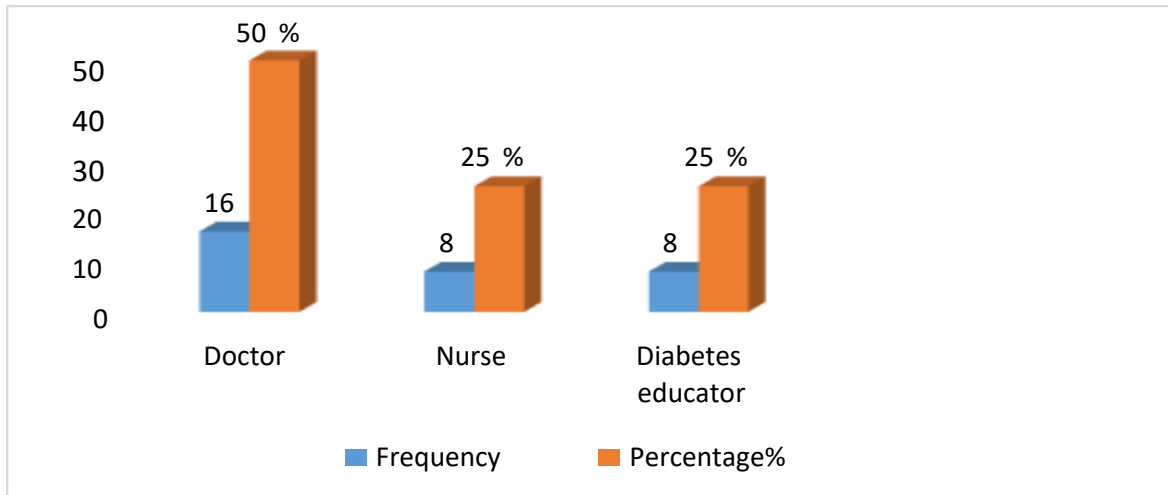
**Figure 1: Showing whether the participants have received information from healthcare workers about stress reduction techniques. n=36**



From Figure 1, the majority of the respondents 32(89%) reported that they received information from healthcare workers about stress reduction techniques while the

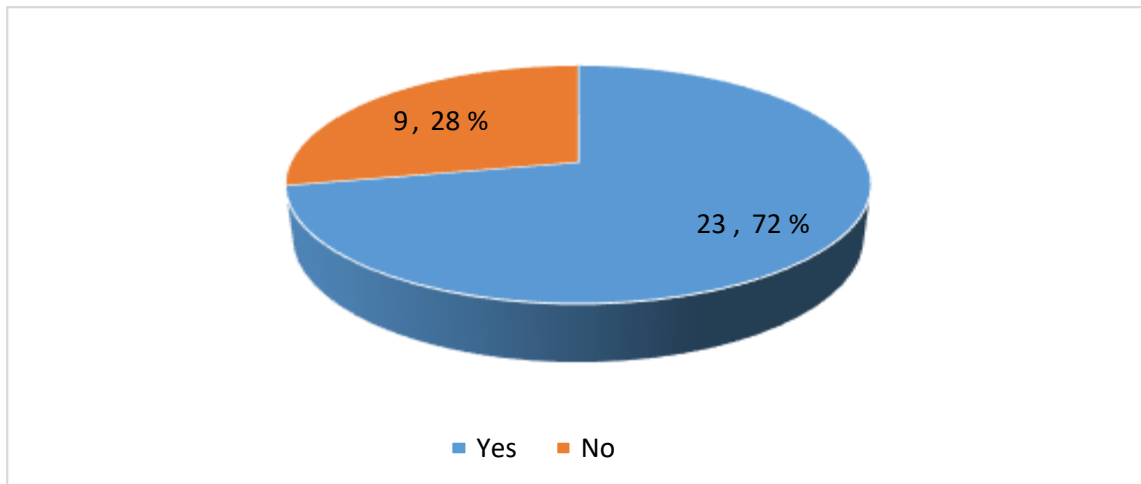
minority 4(11%) mentioned that they never received information about stress reduction techniques from the healthcare workers.

**Figure 2: Showing participants' specific healthcare workers where they receive information about stress reduction techniques to manage diabetes. n=32**



From figure 2, the majority of the respondents 16(50%) of the respondents received information about stress reduction techniques from doctors, and the minority 8(25%) received it from nurses and diabetetic educators.

**Figure 3: Showing whether participants actively engage in stress reduction measures to manage diabetes-related stress. N=32.**



From Figure 3, the majority of the respondents 23(73%) mentioned that they actively engaged in stress reduction measures while the minority 9(28%) denied actively engaging in stress reduction measures.

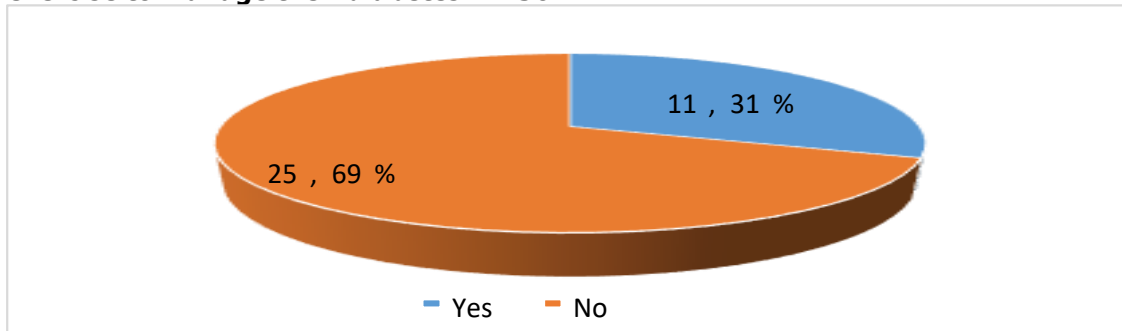
**Table 4: Showing how participants engage in stress reduction measures and their regular practice. n=23**

Response	Frequency	Percentage%
Physical exercise	11	47.8
Mindfulness or meditation techniques	4	17.4
Deep breathing exercises	3	13.1
Listening to calming music or engaging in hobbies	5	21.7

From the table 4, majority of the respondents 11(47.8%) mentioned physical exercise while the minority 3(13.1%) mentioned deep breathing exercises as the stress reduction measures

**Assessing the utilization of physical exercise measures among diabetes Mellitus type 2 patients.**

**Figure 4: Showing whether the participants are currently engaging in regular physical exercise to manage their diabetes. n=36**



From Figure 4, the majority of the respondents 25(69%) accepted that engaged in regular physical exercises to

manage their diabetes while the minority denied engaging in regular physical exercises to manage their diabetes.

**Table 5: Showing the type of physical exercises that the participants regularly engaged in physical exercise. n=11**

Response	Frequency	Percentage%
Walking	6	54.5
Jogging /Running	5	45.5

From Table 5, the majority of the respondents 6(54.5%) reported that they walked as the physical exercise for managing diabetes while the minority 5(45.5%)

mentioned jogging and running as the physical exercise they regularly practiced.

**Table 6: Showing how long participants engaged in physical exercise. n=11**

Response	Frequency	Percentage%
10-15minutes	7	63.6
20-30	2	18.2
1 hour	2	18.2

From Table 6, the majority of the respondents 7(63.6%) reported that they participated in physical exercises for about 10-15 minutes while the minority mentioned that

they took 20-30 minutes and more when engaging in physical exercises.

**Table 7: Showing the time of the day participants preferred to exercise. n=11**

Response	Frequency	Percentage%
Morning	8	72.7
Evening	3	27.3

From Table 7, the majority of the respondents 8(72.7%) mentioned that they preferred morning as the time of the

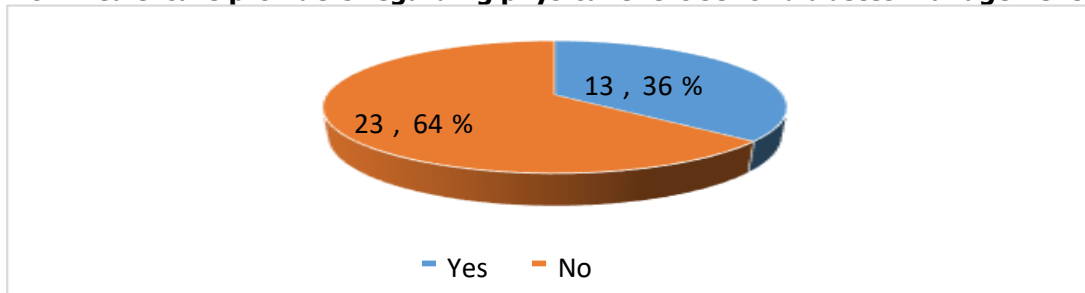
day for doing physical exercises while the minority 3(23%) preferred to do physical exercise in the evening.

**Table 8: Showing the challenges participants face in maintaining regular physical exercise. n=25**

Response	Frequency	Percentage%
Lack of time	12	48
Physical limitations or health concerns	6	24
Lack of motivation	7	28

From Table 8, the majority of the respondents 12(48%) mentioned that they lacked time to maintain regular physical exercise while the minority 6(24%) reported physical limitations or health concerns.

**Figure 5: Showing whether the participants have received guidance or recommendations from healthcare providers regarding physical exercise for diabetes management. N=36**



From Figure 5, the majority of the respondents 23(64%) mentioned that they received guidance or recommendation from healthcare providers regarding physical exercise while the minority 13(36%) didn't receive guidance or recommendations from healthcare providers regarding physical exercise

**DISCUSSION.**

The majority of the respondents 11(30.6%) mentioned that the financial burden of disease management was the primary source of stress in the nurses' lives. This was because the cost associated with managing diabetes, including expenses for medications, regular check-ups, and lifestyle adjustments, posed a substantial economic challenge. This was in agreement with a study in Tanzania that faces significant challenges in combating the diabetes epidemic, with stress affecting approximately 68.3% of diabetes patients. Limited resources, inadequate healthcare infrastructure, and a lack of emphasis on mental health contribute to heightened stress levels (Mehta et al., 2014).

The majority of the respondents 32(89%) reported that they received information from healthcare workers about stress reduction. This was because healthcare providers recognized the intricate relationship between stress and diabetes management. The integration of stress reduction discussions into routine healthcare consultations showcased a holistic approach to patient care. This was in line with a study in Uganda where stress management was often overlooked, with only about 28.9% of patients receiving support and information from health workers. (Businge, 2018).

The majority of the respondents 23(73%) mentioned that they actively engaged in stress reduction. This was

because patients were increasingly aware of the impact of stress on diabetes outcomes, these patients actively sought and adopted non-pharmacological stress reduction strategies as part of their self-care routines. This was in agreement with a study by (Funnell, 2017) who revealed that about 34.6% and 40.1% have access to stress reduction programs, respectively. Armed with cognitive-behavioral therapy, mindfulness, relaxation techniques, and support groups.

Majority of the respondents 11(47.8%) mentioned physical exercise. This was because patients acknowledged the direct correlation between physical activity and stress reduction, and actively incorporated exercise into their daily routines. This was similar to a study done in Mexico where cognitive-behavioral therapy and physical activity benefited approximately 67.8% of patients. Ethiopia's stress management workshops improved the well-being of around 63.2% of patients (McManus et al., 2019).

The majority of the respondents 25(69%) accepted that they engaged in regular physical exercises to manage their diabetes. This was because individuals with diabetes recognized the positive impact of regular physical activity on their overall health and blood sugar control. This was not in agreement with Studies conducted in both urban and rural areas exposed a concerning lack of knowledge about exercise benefits among a significant proportion of diabetic patients (Bhowmik et al., 2019).

The majority of the respondents 6(54.5%) reported that they walked as a physical exercise in managing diabetes. This was because walking is a low-impact and accessible form of exercise that individuals can easily integrate into their daily lives. Participants likely chose walking as their preferred exercise due to its simplicity,

convenience, and suitability for various fitness levels, making it a practical choice for diabetes management. This was in agreement with a study by Bano et al., (2019) which indicated a significant improvement in exercise utilization among ethnic communities, with an estimated 76.8% of patients actively engaging in regular physical activity and they mostly walked in the morning and evenings as a form of exercise since it was cheap and easily accessible

The majority of the respondents 7(63.6%) reported that they participated in physical exercises for about 10-15 minutes. This could be because participants recognized the benefits of short, regular bursts of physical activity in managing diabetes. After all, with their health condition, long periods of exercise may affect their blood sugar levels. This was in line with a study by Moore et al., (2014) who showed that engaging in regular aerobic exercises, such as brisk walking or cycling for at least 30 minutes per day, led to a remarkable 65.3% improvement in glycemic control and a significant reduction of up to 25% in the risk of diabetes-related complications.

The majority of the respondents 8(72.7%) mentioned that they preferred the morning as the time of the day for doing physical exercises. This was because mornings are often perceived as a convenient and energizing time for physical activity making it easy for the participants to establish a routine. This was in agreement with a study by Bano et al., (2019) which indicated a significant improvement in exercise utilization among ethnic communities, with an estimated 76.8% of patients actively engaging in regular physical activity and they mostly walked in the morning and evenings as a form of exercise since it was cheap and easily accessible

The majority of the respondents 12(48%) mentioned that they lacked time to maintain regular physical exercise. This was because individuals with diabetes faced practical challenges, such as busy schedules such as work, and family that hindered consistent engagement in physical activity. This was in contrast with a study in Mexico which showed that approximately 60.6% of patients surveyed cited a lack of information about the appropriate types and duration of exercises suitable for their condition as a primary barrier to engaging in physical activity (Bhowmik et al., 2019).

The majority of the respondents 23(64%) mentioned that they received guidance or recommendations from healthcare providers regarding physical exercise. This was because healthcare professionals played an active role in guiding suitable physical exercise routines for diabetes management. This was not in agreement with Studies conducted in both urban and rural areas exposed a concerning lack of knowledge about exercise benefits among a significant proportion of diabetic patients (Bhowmik et al., 2019).

## **CONCLUSION.**

The participants had good knowledge about non-pharmacological and utilized stress reduction, planned diet, and physical exercises. However, 11(30.6%) mentioned that they still faced the financial burden of disease management, and the majority 12(48%) lacked time to maintain regular physical exercise funds were addressed through seeking support from my sponsor and friends to enable research completion in time thus a study limitation.

## **RECOMMENDATION.**

- To the Ministry of Health: The Ministry of Health should initiate measures to support diabetic patients financially in the management of diabetes like providing some drugs for free to alleviate the economic burden associated with diabetes management.
- To diabetic patients: Diabetic patients should make exercise an integral part of their lives and make flexible and time-efficient routines for physical activity such as walking.
- Ministry of Health: Advocate for policies that promote the integration and support of nonpharmacological therapies in the overall diabetes management framework.

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## **LIST OF ABBREVIATIONS.**

<b>WHO:</b>	World Health Organization
<b>MOH:</b>	Ministry of Health
<b>UNMEB:</b>	Uganda Nurses and Midwives Examinations Board
<b>DM:</b>	Diabetes mellitus
<b>OPD:</b>	Out Patient Department
<b>BMI:</b>	Body Mass Index
<b>UMHL:</b>	Uganda Martyrs' Hospital Lubaga



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This study was not funded

**CONFLICT OF INTEREST.**

No conflict of interest declared

**AUTHOR BIOGRAPHY.**

Caroline Namuyanja is a student of Nursing, at Lubaga Hospital Training School of Nursing and Midwifery.

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