## INDIVIDUAL FACTORS AFFECTING THE UTILIZATION OF DIABETIC SCREENING SERVICES AMONG PATIENTS ATTENDING NSINZE HEALTH CENTER IV, NAMUTUMBA DISTRICT. A CROSS-SECTIONAL STUDY

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# Abstract

## Background

Statistics represent diagnosed cases of diabetes, globally one in two adults aged 20–79 years are undiagnosed and unaware that they have type 2 Diabetes Mellitus. The study aims to assess the individual factors affecting the utilization of diabetic screening services among patients attending Nsinze Health Center IV, Namutumba district.

## Methodology

A descriptive cross-sectional study, using quantitative approaches. Data was collected from 30 patients who had not utilized diabetic screening services at Nsinze Health Center IV through a semi-structured questionnaire. Respondents were selected using simple random sampling.

## Results

21 (70%), fell within the 30–39 age bracket, 24 (80%), were unemployed, 18 (60%), were single, 18 (60%), understand diabetic screening services as testing for diabetes mellitus 20 (67%), recognize that utilizing diabetic screening services helps to confirm diabetes mellitus 20 (67%), of admit to fearing pain from injections 24 (80%), have had bad previous experiences with health services, 25 (83%), believe patients without diabetes don't need to utilize diabetic screening services, 17 (59%), believe diabetic screening services pose no danger to patients, 17 (57%), reported that their culture didn't support the utilization of diabetic screening services.

## Conclusion

Individually, patients expressed apprehension about the injections associated with screening and held prevalent misconceptions, believing screening was unnecessary without symptoms.

## Recommendations

Ministry of Health should develop and implement programs to subsidize or eliminate costs associated with diabetic screening, particularly for low-income populations.

*Keywords: Type 2 Diabetes Mellitus, Diabetic screening services, Nsinze Health Centre IV. Submitted:* 2024-05-15 *Accepted:* 2025-01-09

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## Background

Statistics represent diagnosed cases of diabetes, globally one in two adults aged 20–79 years are undiagnosed and unaware that they have type 2 Diabetes Mellitus (T2DM) (44.7%) (Ogurtsova et al., 2022). Untreated diabetes can reduce one's life expectancy and lead to visual impairments, stroke, diseases of the kidney and heart, etc (Sun et al., 2022). Nearly 6.8 million people (20–79 years of age) died due to diabetes and its complications in 2021 (excluding mortality associated with COVID-19) and about one-third of these deaths happened in people of the working age group (IDF, 2021). Considering the dire consequences of longterm diabetes on mortality, morbidity, and the global economy, preventive efforts to ramp up early detection to ensure timely and adequate care are essential. Diabetic screening services aim at detecting blood glucose levels among patients, and all other types of assessments that aim to diagnose diabetes mellitus (Peer et al., 2020). The diagnosis of diabetes mellitus is made through fasting blood glucose levels ( $\geq$  7.0 mmol/L) or 2 h plasma glucose level ( $\geq$  11.1 mmol/L; oral glucose tolerance test) or glycated hemoglobin levels ( $\geq$  6.5%) (Peer et al., 2020). These tests are often offered as a basic comprehensive screening package comprising anthropometric measures and

monitoring of lipids, glucose, and blood pressure (Wong et al., 2021). Within the wider context of diabetes management, Screening services for diabetes mellitus support the maintenance of blood glucose (sugar) at levels as close as possible to target values (Sun et al., 2022).

In Sudan, lack of knowledge about the benefits of utilization Page | 2 of diabetic screening services contributed to poor utilization of diabetic screening services among patients and findings revealed that 67% of diabetic patients that poorly utilized diabetic screening services lacked knowledge about the benefits of utilization of diabetic screening services (Harte et al., 2021). In Cameroon, 83% of patients who poorly utilized diabetic screening services did not know the benefits of utilization of diabetic screening services. The study concluded that a lack of knowledge about the benefits of utilization of diabetic screening services contributed to poor utilization of diabetic screening services (Eborall et al., 2022). In Libya, poor attitudes toward adolescent diabetic screening services contributed to poor utilization of diabetic screening services among patients with findings revealing that 67% of patients who poorly utilized diabetic screening services had poor attitudes towards adolescent diabetic screening services (Shubrook et al., (2018). The study aims to assess the individual factors affecting the utilization of diabetic screening services among patients attending Nsinze Health Center IV, Namutumba district.

## Methodology Study design and rationale

The study was centered on a descriptive and analytical survey. Interviews were elicited in-depth, which involved quantitative research approaches. Data was collected from various respondents, and its ineffective collection used a triangular approach; hence, the design was the most appropriate. Moreover, the design enabled the collection of all the data necessitated at one point in time, to be completed within the limited amount of time available.

## Study setting and rationale

The study was conducted at Nsinze Health Center IV, which is a government-owned facility under the management of the Ministry of Health. Nsinze Health Center IV, commonly known as Nsinze, is a health center in the district of Namutumba, in the Eastern Region of Uganda. It is one of the largest health centers in eastern Uganda with a bed capacity of 50, although many more patients are admitted, It is the district health center for the constituency of Bukono and Busiki and other surrounding areas. The health center is located approximately 143.7km east of Mulago National Referral Hospital. It offers both curative and preventive services like Outpatient, inpatient, Maternal, and Child health care including immunization, and ANC- Health education including a daily run clinic of ART. The study

setting was selected because it is also within the reach of the researcher and was where the investigator has noted the research problem under study.

## **Study Population and Rationale**

The study included patients who hadn't utilized diabetic screening services at Nsinze Health Center IV in Namutumba District. The target population was considered because the subject content under investigation directly applied to them.

## **Sample Size Determination**

The study involved a total of 30 patients who hadn't utilized diabetic screening services at Nsinze Health Center IV, Namutumba District. A small number was selected for easy data collection. However, this number was also the recommended minimum number of participants as per the UNMEB, 2009.

## Sampling Procedure

A simple random type of sampling procedure was used to select the respondents for the study. Selected DM patients, according to the diabetic clinic register, were selected at random, and each was given a chance to participate in the study. This was achieved by getting pieces of paper on which the words "inclusion" (meaning included in the study) and "exclusion" (meaning excluded from the study) were written for the respondents to pick. Whoever picked the "inclusion" paper was given a questionnaire to fill out, whereas those who picked the "exclusion" paper were thanked but exempted from the study.

## **Inclusion Criteria**

The study included patients who hadn't utilized diabetic screening services at Nsinze Health Center IV in Namutumba District and who had voluntarily consented to participate in the study.

## **Definition of variables** The dependent variable

was the utilization of diabetic screening services.

## **Independent variables**

were individual-related factors

#### **Research Instruments**

Data was collected using a semi-structured questionnaire which consisted of both open and closed-ended questions. The questionnaires had questions with options where the respondents chose what best suited them. The questionnaire was used because it enabled the respondents to respond efficiently to the questions that were asked.

## **Data collection Procedure**

Before administering the questionnaires, the researcher first explained the questions to the respondents. For those unable to read and write, questions were translated to them, and their responses were recorded in data. The procedure took 3 days, where the researcher collected data from 10 respondents per day to obtain the required number of 30 respondents.

## Data management

The filled questionnaires were collected, checked for completeness, and counted after every day of data collection to ensure that they were all returned, coded, and kept in a safe place as a backup. A flash disk was also used to store data.

## Data analysis and presentation

Data was manually analyzed and entered into a computer using Microsoft Excel 2021. Then it was presented using tables and figures.

### **Ethical Considerations**

An introductory letter was obtained from the principal of Kampala University introducing the researcher to the Research Committee of Nsinze Health Center IV to be allowed to conduct the study. Once permission was granted, the Chairman of the Research Committee introduced the researcher to the respondents. Respondents were assured of maximum confidentiality for all the information that was given. The study only commenced after the study objectives had been clearly explained. Participants were asked to voluntarily consent to the study and were told about free entry and free exit when the need arose. Questionnaires were then administered to participants, were filled, and later returned to the researcher who kept them in the file.

## Results Socio-demographic data of the respondents.

Characteristics	Attributes	Frequency (f)	Percentage (%)
Age of respondents	20 - 29 years	05	17
	30 - 39 years	21	70
	40 years or older	04	13
	Total	30	100
Employment status of	Employed	06	20
respondents	Unemployed	24	80
	Total	30	100
Marital status of	Married	07	23
respondents	Single	18	60
	Divorced	05	17
	Total	30	100

Table 1: Shows the respondent's socio-demographic characteristics. (n=30)

Table 1, Most respondents, 21 (70%), fell within the 30-39 age bracket, with only a small minority, 004 (13%), aged 40 years or older. Moreover, a significant portion of respondents, 24 (80%), were unemployed, while a minority, 06 (20%), were employed. Additionally, the majority of respondents, 18 (60%), were single, while only a small fraction, 05 (17%), were divorced.

Individual related factors affecting utilization of diabetic screening services among patients attending at Nsinze Health Center IV, Namutumba District.

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# Table 2: Respondents' Understanding of Diabetic Screening Services. (n=30)

Response	Frequency (f)	Percentage (%)
Provide information about diabetes	03	10
Treatment of DM	02	07
Testing for DM	18	60
Not sure	07	17
TOTAL	30	100

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Table 2, majority of respondents, 18 (60%), understand diabetic screening services as testing for diabetes mellitus, while a small minority, 02 (7%), believe it involves the treatment of diabetes mellitus.





Figure 1, Most respondents, 20 (67%), recognize that utilizing diabetic screening services helps to confirm diabetes mellitus (DM). In contrast, a smaller group, 4 (13%), incorrectly thinks these services help to confirm malaria.

Table 3: Fear of injection pain among respondents. $(n = 30)$		
Response	Frequency (f)	Percentage (%)
Yes	20	67
No	10	33
TOTAL	30	100

Table 3: Fear of injection pain among respondents. (n = 30)

Table 3, Majority, 20 (67%), of respondents admit to fearing pain from injections, whereas 10 (33%) do not share this fear.

# Figure 2: respondents' past experiences with health services. (n = 30)



Figure 2, majority of respondents, 24 (80%), have had bad previous experiences with health services, while a minority, 06 (20%), have had good experiences.

able 4. Necessity of Diabetic Screening for Non-Diabetics. (II-50		
Response	Frequency (f)	Percentage (%)
Yes	05	17
No	25	83
TOTAL	30	100

# Table 4: Necessity of Diabetic Screening for Non-Diabetics. (n=30

Table 4, most respondents, 25 (83%), believe it is not necessary for patients without diabetes to utilize diabetic screening services, whereas a small minority, 05 (17%), thought it was necessary.



Figure 3: perceived risks associated with diabetic screening services. (n = 30)

Figure 3, most respondents, 17 (59%), believe diabetic screening services pose no danger to patients, while a minority, 02 (7%), erroneously believes these services could cause infertility.

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Table 5: Cultural Suppo	rt for Diabetic Screening	Services (	n=30)

Response	Frequency (f)	Percentage (%)
Yes	13	43
No	17	57
TOTAL	30	100

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Table 5, the majority of respondents, 17 (57%), reported that their culture didn't support the utilization of diabetic screening services. However, 13 (43%) state that their culture supported such utilization.

## Discussions

## Individual-related factors affecting utilization of diabetic screening services among patients attending Nsinze Health Center IV, Namutumba district.

The majority of respondents, 20 (67%), admitted to fearing pain from injections. This fear of pain is a significant individual-related factor that can negatively impact the utilization of diabetic screening services, as patients may be reluctant to undergo the necessary blood tests or other procedures involving injections.

This finding suggests the need for healthcare providers to address patients' concerns about injection-related pain and implement strategies to alleviate their fears, such as using numbing creams, providing clear explanations about the procedures, and employing techniques to minimize discomfort. Similar findings were reported by Chan et al., (2021), and Creanor et al., (2021), which also identified fear of pain as a significant barrier to diabetic screening service utilization.

The majority of respondents, 24 (80%), reported having had bad previous experiences with health services. This is a significant factor that can hinder the utilization of diabetic screening services, as patients may be hesitant to seek or engage with healthcare providers due to their past negative encounters. This finding underscores the importance of healthcare providers prioritizing patient satisfaction and ensuring positive experiences during all interactions, which can help build trust and encourage patients to continue utilizing essential services like diabetic screening. This corresponds with the findings of Forss et al., (2021), and Wee et al., (2019), where previous bad experiences deterred patients from returning for diabetic screening services.

The majority of respondents, 25 (83%), believed that patients without diabetes don't need to utilize diabetic screening services. This perception is a significant barrier to the utilization of these services, as it reflects a lack of understanding about the importance of early detection and prevention of diabetes. Healthcare providers should focus on educating patients about the benefits of regular diabetic screening, even in the absence of any symptoms or known risk factors, to help change this misconception and promote the utilization of these essential services. This finding contrasts with the general trend in the literature, where a lack of knowledge rather than outright disbelief affects utilization, as noted in studies by Harte et al., (2021), and Eborall et al., (2022).

The majority of respondents, 17 (57%), reported that their culture did not support the utilization of diabetic screening services. This cultural influence is a significant factor that can hinder the utilization of these services, as cultural beliefs and norms can shape individuals' healthcare-seeking behaviors and perceptions. To address this challenge, healthcare providers should collaborate with community leaders and cultural influences to raise awareness about the importance of diabetic screening and work towards changing any cultural narratives that may discourage the utilization of these services. This finding aligns with global findings where cultural beliefs significantly impact health behaviors, as indicated by Creanor et al., (2021), who noted the influence of myths and misconceptions on screening utilization.

## Conclusion

Individually, patients expressed apprehension about the injections associated with screening and held prevalent misconceptions, believing screening was unnecessary without symptoms.

## Recommendations

Ministry of Health should develop and implement programs to subsidize or eliminate costs associated with diabetic screening, particularly for low-income populations.

Nsinze Health Center IV Should implement strategies to streamline patient flow and minimize

waiting time for diabetic screening services.

## Acknowledgment

This research focused on the factors affecting the utilization of diabetic screening services among patients at Nsinze Health Center IV, Namutumba District, and was made possible through the contributions of many supportive individuals and organizations. I extend my deepest appreciation to my supervisor Mr. Kibuuka Jacob Usuo whose expert guidance was indispensable. Special recognition is due to the staff at Nsinze Health Center IV, whose cooperation and commitment to enhancing diabetic screening were crucial to this study. I am grateful for the constructive feedback from my peers and faculty and for the insightful perspectives provided by health professionals and community leaders in the area. Lastly, I would like to thank my family and friends for their constant encouragement and support throughout this project.

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## List of abbreviations

COVID-19:Corona Virus Disease of 2019.IDF:International Disease Federation.UNMEB:Uganda Nurses and MidwivesExamination BoardInternational Disease Federation.

### Source of funding

The study was not funded

### **Conflict of interest**

The author did not declare any conflict of interest

## **Author Biography**

Joad Nseko is a student of diploma in nursing - extension Kampala University School of Nursing & Health Sciences. Jacob Usuo Kibuuka is a lecturer at Kampala University School of Nursing & Health Sciences.

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# Journal of World Health Research Vol. 2 No. 1 (2025): January 2025 https://doi.org/10.71020/jwhr.v2i1.13 Original Article

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