

Health system-related barriers affecting access to and adherence to antidiabetic medications among adult patients at Gombe General Hospital. A cross-sectional study.

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Abstract

Background:

Health system factors such as drug availability, service delivery, and patient–provider interaction influence consistent use of antidiabetic medications. This study aims to assess the health system-related barriers affecting access to and adherence to antidiabetic medications among adult patients at Gombe General Hospital.

Methodology:

A descriptive cross-sectional study was conducted among 36 adult diabetic patients attending the hospital's diabetes clinic. Data were collected using structured, interviewer-administered questionnaires. Data were analyzed using descriptive statistics with Microsoft Excel.

Results:

The majority of respondents were female (72.2%) and elderly, with half of the participants aged 60 years and above. A significant proportion had a low level of formal education, with 91.6% having only primary-level education or none at all. The majority (94.4%) reported a monthly income of 300,000 UGX or less, indicating a low socioeconomic status. The most prevalent challenge was drug stock-outs, experienced by 80.6% of patients, directly impacting the reliability of medication supply. The high cost of medication was also a major barrier, affecting 75% of respondents. Long distances to the facility and long waiting times were significant challenges for 41.7% and 33.3% of patients, respectively. Provides a nuanced view of the health system's performance. The interpersonal factors were excellent, with all patients finding health workers supportive.

Conclusion:

Health system barriers, particularly drug stock-outs, high medication costs, and access challenges, significantly affect consistent utilization of antidiabetic medications despite positive patient–provider relationships.

Recommendation:

Strengthening medicine supply chains and reducing patient costs, alongside improving service accessibility, is necessary to enhance sustained adherence to treatment.

Keywords: Health system barriers, drug stock-outs, patient–provider relationship, medication adherence, antidiabetic medications, diabetes management, Gombe General Hospital.

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Background of the study

Beyond individual patient characteristics, the performance of the health system plays a critical role in determining whether patients consistently obtain and use antidiabetic medications. Chronic diseases such as diabetes mellitus require continuous care, regular follow-up, reliable drug supply, and sustained patient–provider interaction. When these components are weak, treatment interruption becomes common even among motivated patients (World Health Organization [WHO], 2020). Therefore, health system barriers are widely recognized as major determinants of poor medication adherence in low- and middle-income countries.

Availability and affordability of medicines remain among the most important structural barriers. In many resource-limited settings, public health facilities frequently experience drug stock-outs, forcing patients to purchase medicines from private pharmacies at higher cost or to go without treatment (Atun et al., 2017). Studies in sub-Saharan Africa have shown that inconsistent supply of antidiabetic medicines contributes significantly to missed doses and discontinuation of therapy (Kassahun et al., 2016). Even when medications are subsidized, hidden expenses such as laboratory tests, consultation fees, and transport costs limit sustained access to treatment.

A health service organization also influences medication utilization. Long waiting times, overcrowded clinics, limited

consultation time, and inadequate follow-up systems discourage patients from attending appointments and refilling prescriptions (Jin et al., 2008). In chronic disease management, continuity of care and regular monitoring are essential; however, fragmented care systems reduce patient engagement and weaken adherence behavior (Krass et al., 2015). Additionally, a lack of structured diabetes education within facilities limits patients' understanding of medication schedules and long-term treatment goals.

The patient-provider relationship is another key health system factor. Effective communication improves understanding, trust, and motivation to follow treatment recommendations. Conversely, poor communication, limited counseling, and negative attitudes from health workers may discourage patients from returning for care (WHO, 2020). Evidence from African settings indicates that patients who receive clear instructions and supportive counseling demonstrate better adherence compared to those receiving minimal interaction (Kassahun et al., 2016).

In Uganda, health system challenges such as intermittent drug availability, limited diagnostic capacity, and understaffed clinics have been reported to interfere with consistent diabetes care (Kalyango et al., 2008). Some patients miss clinic visits due to long distances to facilities and transportation costs, while others rely on alternative sources of treatment when medicines are unavailable (Hjelm & Atwine, 2011). These barriers ultimately result in treatment interruption and poor glycemic control despite the presence of healthcare services.

Understanding the specific health system-related barriers at Gombe General Hospital is therefore essential. Identifying gaps in drug supply, service delivery, and patient support mechanisms will guide practical interventions aimed at strengthening access to medicines, improving adherence, and enhancing the overall quality of diabetes care.

Methodology

Study Design

This study employed a descriptive cross-sectional design using quantitative methods. This design was appropriate for assessing the level of utilization of antidiabetic medications among adult patients at Gombe General Hospital.

Study Area

The study was conducted at Gombe General Hospital, a government-owned health facility located in Butambala District, Central Uganda. The hospital provided general medical services, including outpatient, inpatient, and chronic disease clinics, such as the diabetes clinic.

Study Population

The target population comprised adult patients (18 years and above) diagnosed with diabetes mellitus and receiving care at the diabetes clinic of Gombe General Hospital.

Sample Size Determination

Given the scope of this research at the diploma level and the expected size of the diabetes clinic's patient population, a smaller sample size was appropriate. Using Burton's method for a finite population:

$$n = QR/O$$

Where:

n = sample size

Q = total number of days spent on the study (9)

R = number of respondents per day (4)

O = maximum time spent on each participant (1 hour)

Therefore, a sample size of 36 participants will be used.

Sampling Technique

A purposive method was employed because only diabetic patients at the diabetic clinic were involved.

Sampling procedure

A purposive sampling technique was used to recruit participants. The sample size was determined pragmatically, targeting 40 participants based on the expected patient flow at the diabetes clinic over a 10-day data collection period. Ultimately, 36 adult patients who met the inclusion criteria, diagnosed with diabetes, attended the clinic during the study period, were selected. Participants were approached sequentially at the clinic, provided with information about the study, and those who gave written informed consent were enrolled.

Data Collection Methods

Data was collected using structured, interviewer-administered questionnaires. The questionnaire was developed in English and translated into Luganda for ease of understanding.

Data collection tool

Semi-structured questionnaire forms were the tools used in data collection. The questionnaire forms were translated into the language the participants could best understand.

Data Collection Procedure

An introductory letter was given to the researcher by the Research and Ethics Committee of the trained research assistants. The questionnaires were collected from the respondents who had consented, and those who were illiterate were helped accordingly.

Data Quality Control

Pre-testing of the questionnaire was conducted on 10% of the sample size at a nearby health facility.

Regular supervision and daily review of questionnaires were carried out by the principal investigator.

Data was double-entered to ensure accuracy.

Data Analysis

The data collected from the study were analyzed manually and entered into Microsoft Excel so as to generate tables.

Ethical Considerations

Ethical approval was obtained from the Research Committee of Mildmay Institute of Health Sciences. Permission to conduct the study was sought from the Gombe General Hospital administration. Written informed consent

was obtained from all participants. Confidentiality was ensured by using anonymous identifiers and secure data storage. Participants had the right to withdraw from the study at any point without affecting their care.

Results

Socio-Demographic Characteristics of the Respondents

Table 1: Shows distribution of Respondents by Socio-Demographic Characteristics (n=36).

CHARACTERISTICS	CATEGORY	FREQUENCY (N)	PERCENTAGE (%)
GENDER	Male	10	27.8
	Female	26	72.2
AGE GROUP	18 – 39 Years	4	11.1
	40 – 59 Years	14	38.9
	60 Years and above	18	50.0
EDUCATION LEVEL	No formal education	17	47.2
	primary	16	44.4
	Secondary	3	8.3
MONTHLY INCOME	<100,000 UGX	22	61.1
	100,000 – 300,000 UGX	12	33.3
	>300,000 UGX	2	5.6

The table shows that the majority of respondents were female (72.2%) and elderly, with half of the participants aged 60 years and above. A significant proportion had a low level of formal education, with 91.6% having only primary-

level education or none at all. Furthermore, the vast majority (94.4%) reported a monthly income of 300,000 UGX or less, indicating a low socioeconomic status.

Figure 1: Shows the Gender Distribution of Respondents.

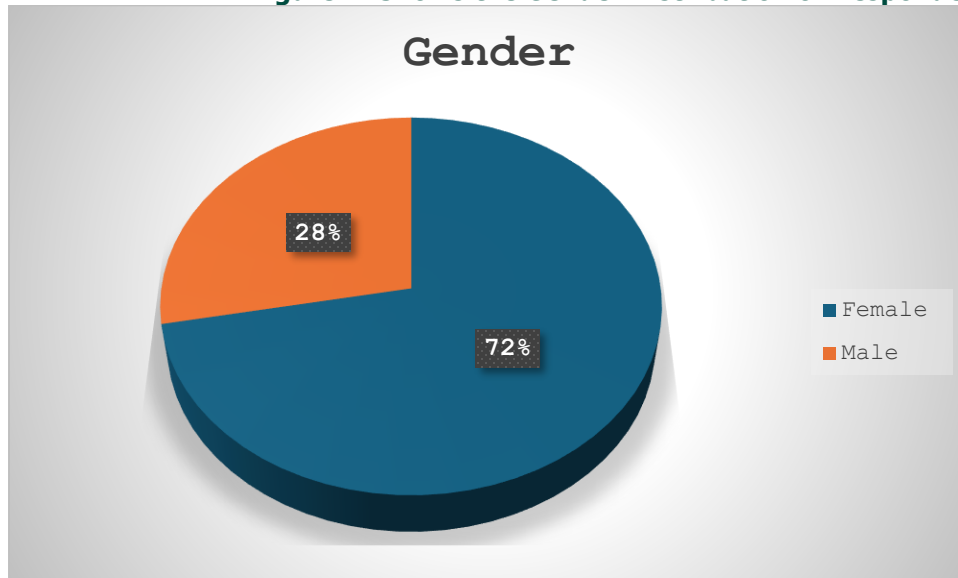


Figure 1: Provides a visual representation of the gender disparity among the study participants. It clearly illustrates that female patients constituted the vast majority (72%) of the diabetic clinic attendees at Gombe General Hospital, suggesting a higher health-seeking behaviour among women in this population.

Health System-Related Barriers Affecting Access and Adherence

Figure 2: Shows Reported Health System and Economic Barriers.

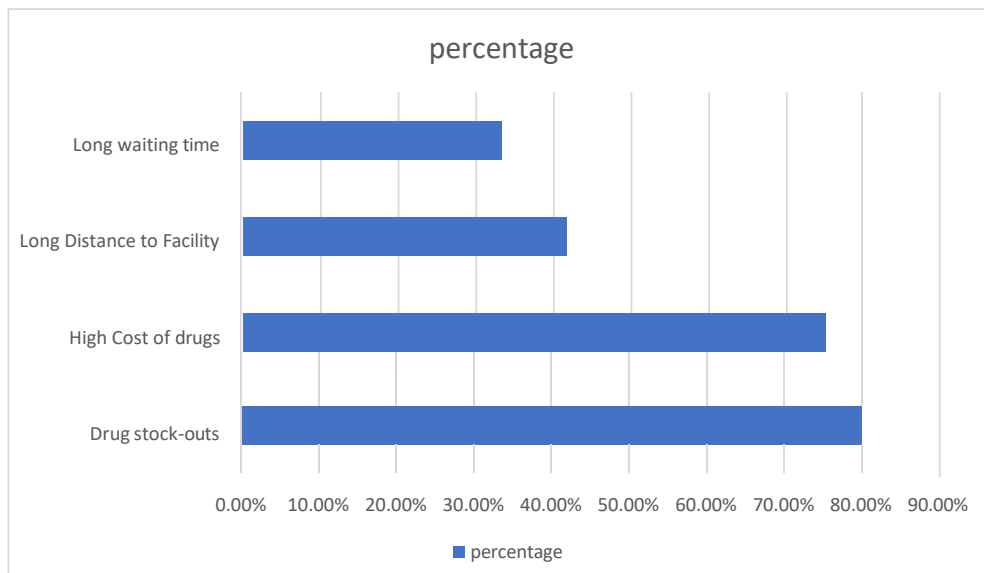


Figure 2: Summarizes the key health system and economic barriers reported by patients. The most prevalent challenge was drug stock-outs, experienced by 80.6% of patients, directly impacting the reliability of medication supply. The

high cost of medication was also a major barrier, affecting 75% of respondents. Long distances to the facility and long waiting times were significant challenges for 41.7% and 33.3% of patients, respectively.

Table 2: Patient Perceptions of Health System Factors (n=36)

Health System Factor	Positive Perception (Yes)	Negative Perception (No)	Percentage (Yes)
Medications usually in stock	7	29	19.4%
Receive medications regularly from the hospital	31	5	86.1%
Health workers are supportive	36	1	97.1%
Receive regular patient education	35	1	97.2%

Table 2: Provides a nuanced view of the health system's performance. While interpersonal factors are excellent, with all patients finding health workers supportive and nearly all receiving education, the structural factor of drug availability is a critical failure. Only 19.4% of patients found medications "usually in stock," starkly contrasting with the 86.1% who reported "receiving" medications regularly, which may imply they receive them inconsistently or after delays due to stock-outs.

Discussion

Health System-Related Barriers Affecting Access and Adherence of Antidiabetic Medications among adult patients at Gombe General Hospital.

The study identified the most profound barriers not at the patient level, but within the health system itself. The most significant barrier was the frequent stock-out of antidiabetic medications, reported by 80.6% of patients. This finding is consistent with the Uganda Ministry of Health (2021) report on inconsistent drug supplies in public health facilities. This structural failure directly undermines all the positive efforts in patient education and supportive care. A patient cannot adhere to a physically unavailable prescription, no matter how high their intention. This finding starkly contrasts with the high adherence rates, suggesting that when drugs are available, patients do take them, but the irregular supply chain creates unavoidable breaks in therapy. Cost and Affordability: The second most reported barrier (75%) was the cost of medication. Even when drugs are in stock, out-of-pocket payments are a heavy burden for this low-income population. This aligns with global evidence from LMICs where financial constraints are a primary driver of poor adherence (Atun et al., 2017). Accessibility and Service

Delivery: While long distances and waiting times were reported, their impact was secondary to stock-outs and cost. Importantly, the universally positive rating of health workers (100% found them supportive) is a key strength of Gombe General Hospital. This positive patient-provider relationship, as highlighted by Shiyanbola et al. (2018), is a powerful facilitator of adherence and should be leveraged in intervention strategies. The findings from the study above showed that health system-related barriers affected access and adherence to antidiabetic medications among adult patients at Gombe General Hospital.

Limitations

Self-reported data introduced recall and social desirability biases.

The cross-sectional design limited the ability to infer causality.

Findings were not generalizable beyond the study site.

Conclusion

The study highlights that while adult patients at Gombe General Hospital generally demonstrate high utilization of antidiabetic medications, adherence is influenced by socio-demographic factors, patient-related behaviors, and health system barriers such as drug stock-outs, high costs, and access challenges. Addressing these multidimensional factors is essential for improving consistent medication use and overall diabetes management.

Recommendation

A comprehensive approach combining patient education, counseling on safe medication practices, and strengthening health system support, including reliable drug supply, affordable treatment, and accessible services, should be

implemented to enhance adherence and optimize diabetes care outcomes.

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List of Abbreviations

ADA	:	American Diabetes Association
DM	:	Diabetes Mellitus
IDF	:	International Diabetes Federation
LMICs	:	Low- and Middle-Income Countries
MoH	:	Ministry of Health (Uganda)
SPSS	:	Statistical Package for the Social Sciences
UHPAB	:	Uganda Health Professionals' Assessment Board
WHO	:	World Health Organization
IRB	:	Institutional Review Board
UGX	:	Ugandan Shilling

Data availability

The data is available upon request.

Informed consent

All the respondents consented to this study.

Source of funding

The study did not receive any external funding.

Conflict of interest

The author did not declare any conflict of interest.

Author contributions

Diana Nakigudde, George Kalfred Masete, Hasifa Nansereko, haffyhussein65@gmail.com, Francisco Ssemuwemba, francisco.ssemuwemba@mihs.ac.ug, Immaculate Prosperia Naggulu, Jane Frank Nalubega
Diana Nakigudde was the principal investigator.
George Kalfred Masete, Hasifa Nansereko, Francisco Ssemuwemba, Immaculate Prosperia Naggulu, and Jane Frank Nalubega supervised the research project.

Author Biography

Diana Nakigudde holds A Diploma in Clinical Medicine and Community Health from Mildmay Institute of Health Sciences.

Francisco Ssemuwemba is the dean of the School of Allied Health

Hasifah Nansereko is the chairperson of the Institutional Review Council (IRC)

George Kalfred Masete, Immaculate Prosperia Naggulu, and Jane Frank Nalubega are tutors at Mildmay Institute of Health Sciences.

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