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# Assessment of Outpatient Management of Diabetes and Cardiovascular Diseases in Abuja Public Hospitals

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## Abstract

**Aim.** Diabetes and cardiovascular diseases are among the reasons for most outpatient consultations. The study aimed to evaluate the reported experiences of patients being managed for diabetes and cardiovascular diseases in the outpatient clinics of Abuja public hospitals.

**Method.** A prospective cross-sectional study of 787 systematically sampled patients receiving care in five public hospitals in Abuja was conducted. A structured questionnaire was used to collect data on the number of yearly consultations, problems encountered in accessing trained health personnel, time spent on hospital appointments, major treatment challenges, and ways to improve their experience on hospital visits. Management experience was defined as good or poor. Patients who consulted at least four times in a year, reported no problems in accessing trained health personnel, and had no treatment challenges were regarded as having a good management experience. Frequency, percentage, mean, and standard deviation were used to summarize the data. Logistic regression was used to predict and classify the binary outcomes. A p-value  $\leq 0.05$  was considered significant.

**Results.** More of the patients (66.2%) had up to four consultations in a year. Long waiting time (56.1%) was the common problem encountered when accessing trained medical personnel. The major treatment challenge was hospital waiting time (49.4%). The mean time spent in the hospital on appointment days was  $5.04 \pm 1.80$ . Approximately 40% of the patients suggested proper scheduling of hospital appointments as the major way to improve treatment experiences. Poor management was recorded by 96.6% of the patients. Logistic regression showed that a higher educational level (OR = 0.031, 95% CI [0.008-0.119],  $P=0.001$ ) was associated with reporting poor management.

**Conclusion.** The average number of yearly consultations was below the minimum standard, and patients spent long hours on consultation days before meeting with healthcare personnel. Most patients were dissatisfied with the services received and rated them poor.

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## Introduction

Currently, diabetes and cardiovascular (CV) diseases rank high among the causes of global mortality. They contribute to approximately half (48%) of the deaths attributed to non-communicable diseases (NCDs), and over three-quarters of these deaths occur in low- and middle-income countries<sup>[1]</sup>. Owing to epidemiological transition, Nigeria now has a great burden of diabetes and CV diseases as the duo was responsible for 12% of the 29% of deaths attributed to NCDs in Nigeria in 2016<sup>[1]</sup>. With the increasing burden of diabetes and CV diseases, the healthcare systems are being reoriented and strengthened for a proactive and sustainable response to the chronic care required by the patients<sup>[2][3]</sup>. The World Health Organization (WHO) Global Action Plans against NCDs include at least 50% of people with diabetes and CV diseases receiving medical counseling<sup>[4]</sup>. Following the global target, the HEARTS package for NCD integrated management specifically addressed the management of diabetes and CV diseases<sup>[2]</sup>. The paramount concern of the HEARTS package is for all patients with diabetes and CV diseases to have access, without discrimination, to the needed promotive, preventive, curative, and rehabilitative basic healthcare services provided in their country. The gains from the aforementioned documents can only be amplified by strengthening the healthcare system to provide management and treatment that will improve the quality of life of these patients<sup>[4]</sup>.

Globally, outpatient management is a solid arm of secondary healthcare and essential for the management of chronic conditions like diabetes and CV diseases<sup>[5]</sup>. In the United States, approximately 777 million outpatient visits were documented in 2022,<sup>[6]</sup> and over 72 million office visits per year were accredited to CV disease<sup>[7]</sup>. It is believed that patients with diabetes and CV diseases may have special needs that could be provided during outpatient visits <sup>[2][8]</sup>. In Nigeria, patients with diabetes and CV diseases are managed in the outpatient clinics of the secondary and tertiary hospitals. Patients in these clinics are usually referred from either another health facility or another department within the same hospital. Their referral letters are seen by the nurses, who advise the patient on the specific consultation days for the clinic. After the first consultation process, the attending physician usually schedules the patients for the next appointment day, written in the patient case file. The appointment day is documented by the hospital records unit on the patient's visiting card, which is presented on the said appointment day to the records, and they trace the case files of the patient to make them ready for consultation with the physician. The process of management aims to improve the patient's quality of life, prolong their life, and prevent hospitalization, diagnostic tests, and referrals<sup>[9][10]</sup>. A good biomedical, social,

and psychological relationship between the health care system and the patient is a determinant of the effective management process<sup>[5]</sup>. Based on the interpretation of this relationship by the outpatients, they might decide to present for outpatient consultations and continuous management of their condition. Therefore, there is a need to improve the quality of the interaction between the healthcare system and the patients during the management process, as it may have an impact on the willingness and desire to continue with hospital visits.

Outpatient management requires a long period of supervision, observation, and care. The immediate outcomes of consultation include patient satisfaction with the treatment process, time spent in the hospital, and organization of the operations of the healthcare system. An analysis of the appointment system to reduce waiting time in Indonesian public hospitals recorded the need to utilize an appointment system that considers the time of the physician and patients<sup>[11]</sup>. Planned visits and follow-ups are also important features of outpatient management for diabetic and CV patients<sup>[3]</sup>. At least four follow-up visits per year are ideal for diabetic and CV patients, with free point-of-care tests<sup>[12]</sup>. Patients not presenting for follow-ups may have negative effects on treatment outcomes and the planning of the hospital. A study documented a 5% non-attendance rate for patients undergoing treatment for chronic diseases in a hospital outpatient clinic<sup>[13]</sup>. The availability of trained health personnel is a core component of the service delivery model for the management of NCDs<sup>[2]</sup>. Effective interaction with health personnel brings out their positive roles in improving treatment outcomes, especially in the management of chronic diseases like diabetes and cardiovascular diseases<sup>[3]</sup>. Having interaction with doctors, being listened to, and having a clear understanding of the treatment pattern was documented as important predictors of satisfaction among patients receiving treatment in a gastroenterology outpatient clinic in the UK<sup>[14]</sup>.

Patient surveys investigating the quality of the outpatient experience are undertaken with the aim of raising standards, and the views of patients in relation to healthcare services are essential in developing high-quality patient management<sup>[14]</sup>. However, published data in relation to the outpatient management of diabetes and CV diseases are scarce in Nigeria. This study was carried out to evaluate the outpatient management of diabetes and CV patients in Abuja public hospitals. Specifically, it analyzed the number of consultations in a year, time spent in the hospital on the consultation day, major challenges in accessing trained professionals, and overall management.

## Methods

This prospective cross-sectional study was carried out in secondary and tertiary hospitals across the Federal Capital Territory, Abuja, from February to August 2019. The Federal Capital Territory has nine secondary and three tertiary hospitals. Secondary hospitals provide healthcare services to Abuja residents, while the tertiary hospitals receive referrals from health facilities all over the country, giving them a large patient base. Three secondary hospitals (Maitama District Hospital, Asokoro District Hospital, and Wuse District Hospital) and two tertiary hospitals (National Hospital Abuja and University of Abuja Teaching Hospital) were selected for the study. The three secondary hospitals are the district hospitals that operate diabetic and cardiovascular outpatient clinics among the secondary hospitals. The tertiary hospitals operate diabetic and cardiovascular outpatient clinics, but the two main tertiary hospitals were used for the study as there was a delay in obtaining ethical clearance from the third tertiary hospital.

The sample for the study was drawn from a population of patients attending diabetic and CV out-patient clinics in Abuja. The sample size was calculated using the Cochran formula  $n = (Z^2 p(1 - p)) / m^2$ , whereby n is the required sample size, t is 1.96 (the critical value of the desired confidence interval at 95%), p is the estimated diabetes prevalence in Nigeria (4.04% according to the International Diabetes Federation, 2011), 0.0404, m is the confidence interval (3.75% standard value, 0.0375). The formula yielded 106 patients for each of the hospitals. To account for the higher patient load in the tertiary hospitals, a design effect of the standard value of 2 was applied to the population<sup>[15]</sup>. The sample size yielded 212 for each of the two tertiary hospitals and 106 for each of the three secondary hospitals, a total of 742 patients. To compensate for non-response, 10% of the sample size was added (Israel, 1992). The total sample size was  $742 + 74.2 = 793$ . Patients who had at least one consultation from July 2017, can understand the English language, and signed informed consent were included in the study.

Systematic random sampling was used to select the patients using the clinic attendance register as the sampling frame. Every 5<sup>th</sup> person in the attendance register was selected to participate in the research. An interviewer-administered structured questionnaire was used to collect data on the demographic variables, number of yearly consultations, problems encountered in accessing trained health personnel, time (hours) spent in the hospital on appointment days, major treatment challenges, and ways to improve their experience on hospital visits. Outpatient management experience was defined as good or poor. A combination of three questions (attending consultation at least four times in a year, having no problems in accessing trained health personnel, and no treatment challenge) was used to describe outpatient management as good. Data analysis was done with descriptive and inferential statistics using SPSS Version 23. A logistic regression was carried out to predict good management using demographic variables.

## Results

### Demographic variables

We present data from 787 patients. Table 1 presents the demographic variables. Most of the patients were females (499, 63.4%) and between 41 and 60 years old (474, 60.4%) with a mean age of  $54.4 \pm 11.1$ . In terms of education, more patients had secondary and Ordinary National Diploma (OND) certificates (268, 34.1%). A higher proportion of the patients indicated coming from other tribes (not Igbo, Hausa, and Yoruba) (344, 43.7%). There were more unemployed/retired people (260, 33.1%) among the respondents.

### Management experiences

The management experiences are presented in Table 2. More patients had up to four times consultation in a year ( $n = 521$ , 66.2%). Long waiting time ( $n=440$ , 56.1%) was the common problem encountered accessing trained medical personnel. The major overall treatment challenge was hospital waiting time ( $n = 389$ , 49.4%). Mean time spent in the hospital on appointment days was  $5.04 \pm 1.80$  hours. Table 3 presents details of patient suggestions on improvement of hospital experience. Patients suggested proper scheduling of hospital appointments ( $n = 311$ , 39.5%) as the major way to

improve treatment experiences. Table 4 presents the odds of having a good management experience. The analysis showed that less than one tenth of the patients ( $n=27$ , 3.4%) had up to four times consultation within one year, reported having no problem with accessing health professionals, and had no treatment challenge. Logistic regression showed that higher educational level ( $OR = 0.031$ , 95% CI [0.008-0.119],  $P=0.001$ ) had lower odds of reporting good management, while civil servants ( $OR = 10.48$ , 95% CI [2.72- 13.392],  $P = 0.001$ ) showed higher odds of reporting good management.

**Table 1.** Demographic variables of diabetic and cardiovascular patients

Variables	number	Percentage (%)
Gender		
Males	288	36.6
Females	499	63.4
Age		
<40	89	11.3
40-60	475	60.4
>60	223	28.3
Educational qualification		
≤ Primary	150	19.1
Secondary/OND/NCE	268	34.1
Degree/Postgraduate	369	46.9
Occupation		
Unemployed/retired	260	33.1
Farming/artisans	55	7
Civil servants	250	31.8
Business/private employ	222	28.2
Tribe		
Igbo	257	32.7
Hausa	94	11.9
Yoruba	92	11.7
Other tribes	344	43.7

**Table 2.** Outpatient Management indicators

Variables	number	Percentage (%)
Problems accessing trained health personnel		
They are not usually available	82	10.4
High consultation fee	23	2.9
They are usually unfriendly	106	13.5
Long waiting time	440	55.9
No problem	258	32.8
Number of outpatient visits in one year		
Less than four visits	266	33.8
Four visits	521	66.2
Hours spent in the hospital		
Less than or equal to 3 hours	137	17.4
4-6 hours	515	65.4
7-10 hours	135	17.2
Important treatment challenges		
Far distance to treatment center	128	16.3
Cost of medication	293	37.2
Other treatment costs	119	15.1
Communication problems	37	4.7
Hospital waiting time	389	49.4
Other hospital problems	56	7.1
No problems	63	8.0

**Table 3.** Patients' suggestions to improve management experience

Suggestion list	No of patients	%
Increase staff strength and training of staff	114	14.5
Free healthcare services and free drugs	296	37.6
Establishment of more specialist hospitals	66	8.4
Proper scheduling of hospital appointments	311	39.5

**Table 4.** Logistic regression predicting good management

Predicting variables	Odd Ratio	P value	95% CI
Farmers/artisans	1.927	0.364	0.468-7.937
Civil servants	10.48	0.001*	2.717-13.392
Business/private employs	0.14	0.969	0.253-3.391
Age	0.96	0.136	0.931-1.010
Males	0.71	0.457	0.286-1.757
OND/NCE	0.13	<0.001*	0.041-0.394
Graduate/postgraduate	0.47	<0.001*	0.008-0.119

## Discussion

The study investigated the outpatient management experiences of diabetes and cardiovascular patients. Data on the experiences of patients may inform health policies that will improve the management process received in the outpatient clinic. The results suggested that the most problematic aspect of accessing trained health professionals was the hospital waiting time encountered on consultation days. Although we did not ascertain the duration of time spent with different health workers during the outpatient visit, there is a possibility that hours were spent not receiving any services from the hospital staff. The patient sitting idle for a long time without receiving attention from any health workers might constitute some level of frustration for the patients<sup>[16]</sup>. In contrast, a study of outpatient management among gastroenterology patients in the UK reported patient waiting time as one of the least contributory factors to patient satisfaction<sup>[14]</sup>. The difference may be linked to the pattern of endocrinology and cardiovascular clinic operation in most of the hospitals studied. The hospitals, with the exception of Gwagwalada Teaching Hospital, run endocrinology and cardiovascular clinics once a week. This may lead to a buildup of patients that overwhelms the weak health workforce in Nigeria. Health workers' unfriendliness was prominent among difficulties in accessing health professionals. This is almost similar to work on the outpatient management of chronic pain in Massachusetts, which documented disrespect and distrust from healthcare providers as a challenge to treatment<sup>[17]</sup>. Although the report here is based on the outpatient management of diabetes and cardiovascular diseases, respondents in both studies reported difficulties having a proper interaction with the health care team.

Overall, not all the patients had up to four annual outpatient visits as recommended by WHO. This is an indication that patients with chronic diseases may not be receiving the adequate treatment necessary for the management of their conditions. Patients with chronic diseases require continuous engagement and education to ensure they adhere to the treatment procedures<sup>[18]</sup>. The mean waiting time of 5.04 hours  $\pm$  1.80 hours, which was obtained from the patients as the total time spent in the hospital on the clinic day, is longer than the mean waiting time of 93 minutes  $\pm$  33.4 minutes documented in outpatients of public hospitals in Southwest Ethiopia<sup>[19]</sup>. The difference may be attributed to the type of outpatient clinic visited by the patients. While the patients in the present study are chronic disease patients visiting specialized clinics on specific days of the week in secondary and tertiary hospitals, the former study had acute and chronic patients in attendance in primary healthcare facilities. Notwithstanding, the patient waiting time in our study far exceeds the recommended waiting time (30 minutes) of the American Institute of Medicine<sup>[19]</sup> and the twenty minutes

given by the Business Process Reengineering Manual<sup>[20]</sup>. This may suggest that patients spend hours longer than necessary in the diabetic and cardiovascular clinics.

We expected that medication costs would be the most important treatment challenge reported in our study, considering the cost of managing non-communicable diseases and the low health insurance reported in our study. Instead, we found waiting time to be the most important challenge confronting the patients. Our study is consistent with a Nigerian study that found patient waiting time to be the most important aspect of outpatient consultation<sup>[21]</sup>. Initially, we collected data on occupation, and more than half of the respondents were either civil servants or business owners. Their absence from their place of work may be a contributory factor to their preference for saving time. Patient waiting time has been referred to as spanning from the time a patient enters the outpatient clinic to the time the patient collects a prescription<sup>[19]</sup>. Long patient waiting times constitute a problem in the outpatient clinics of urban health centers in developing countries<sup>[16]</sup>. Reports have shown that longer waiting times are associated with a decreased patient satisfaction with healthcare providers' service and perceived quality of care. There is a possibility that most patients in the clinics were dissatisfied with the care they received.

More than a quarter of the patients indicated proper scheduling of appointments as a measure to improve their management experience. In comparison, fewer patients indicated the establishment of more specialist hospitals as a means to improve management outcomes. This finding is similar to a study on the standardized management of outpatient schedules in China<sup>[22]</sup>. This is an indication that managing appointment schedules for outpatients in healthcare facilities is of paramount importance to the quality of healthcare services. Many models have been employed to calculate appointment schedules<sup>[16]</sup> to reduce waiting times for the satisfaction of patients. The Nigerian healthcare system still operates the traditional appointment system where patients are scheduled based on the available number of doctors, their clinic days, and patients' load. The current appointment scheduling pattern is geared towards an effort to promote respect for the patient and the healthcare providers using a managing patient appointment system<sup>[23]</sup>.

The civil servants were 10.48 times more likely to report good management experience compared to other occupations. This is similar to the study in Finland<sup>[24]</sup> in which occupation affected the use of outpatient and inpatient services. Occupation may accelerate other factors that affect the quality of utilization of healthcare services. In the present work, civil servants may have positive views of the experiences that predicted good management. Considering academics, those who have a higher institutional educational qualification were less likely to experience good management. The finding is consistent with a study on outpatient care in people with diabetes in Teheran where the higher education level decreased the likelihood of reporting a good response to outpatient care<sup>[25]</sup>. It might suggest that patients with a higher educational level are more informed about what constitutes better hospital services.

## Conclusion

Patients with diabetes and cardiovascular diseases experience challenges in accessing healthcare professionals and outpatient services. The major problems are long waiting times and the high cost of medication. Civil servants have a



better outpatient experience compared to other occupations, while people with higher educational qualifications need more prompt service than is provided in the Outpatient Departments. Most of the patients were dissatisfied with the quality of outpatient services received and rated it poor.

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