

Original Research

## The Tyranny of Time: Analyzing Waiting Time as a Critical Driver of Patient Satisfaction in a Nigerian Tertiary Hospital.

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### Abstract

**Background:** Prolonged waiting time is a ubiquitous challenge in public hospitals in low-and-middle-income countries (LMICs), significantly impacting patient satisfaction and service quality. The study's objective is to analyze the components and impact of waiting time on patient satisfaction at the National Hospital Abuja (NHA).

**Methodology:** In a cross-sectional study of 300 outpatients, time spent at different service points (records, nursing, doctor consultation, laboratory, pharmacy) and total hospital time were recorded. Satisfaction with these times was measured on a 5-point Likert scale. Data were analyzed using descriptive statistics and an independent samples t-test.

**Results:** The mean total time spent in the hospital was 247.5 minutes (~4 hours). The longest waiting time was to see a doctor ( $112.6 \pm 86.6$  minutes), while the shortest was with records staff ( $20.7 \pm 29.5$  minutes). Despite the long wait to see a doctor, patients were "Very Satisfied" (mean=3.60) with the consultation time itself. Overall satisfaction with waiting time (responsiveness) was the lowest among all quality domains (mean=2.99). Insured patients spent a longer total time (267.9 min) than uninsured patients (230.8 min), but satisfaction levels did not differ significantly (P-value = 0.33).

**Conclusion:** Waiting time, particularly for physician consultation, is a major bottleneck and a key dissatisfier at the NHA. The discrepancy between long waits and high consultation satisfaction suggests that patients value the interaction once it occurs. To improve satisfaction, hospital administration must address the systemic failure of non-individualized appointment scheduling. Implementing a time-specific scheduling system is recommended as a crucial quality improvement intervention.

**Keywords:** Waiting Time, Patient's Satisfaction, Outpatient Services, Hospital Administration, Quality Improvement, Nigeria.

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**How to Cite:** Kpuduwei SKP. The Tyranny of Time: Analyzing Waiting Time as a Critical Driver of Patient Satisfaction in a Nigerian Tertiary Hospital. Niger Med J 2025; 67 (1): 2687-2694. <https://doi.org/10.71480/nmj.v67i1.1241>

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## Introduction

In the landscape of healthcare quality, patient satisfaction has emerged as a pivotal outcome measure, reflecting the effectiveness and humanity of service delivery. (1) Among the various determinants of satisfaction, waiting time—a core component of a hospital's responsiveness—is frequently cited as a major source of patient frustration and dissatisfaction. (2,3) In resource-constrained settings like Nigeria, long waiting times are endemic in public health facilities, often attributed to factors such as insufficient staffing, poor infrastructure, and inefficient processes. (4)

One definition of waiting time is the period from the time of arrival of a patient at the hospital to the time of getting medical service (consulting the physician) required. (5) This excludes the time spent in receiving the allied services, like time spent at the laboratory, pharmacy, or radiology unit. This definition is not uniform and differs in different contexts. Another definition is the time spent at the hospital from registration till the last service. (6) This later definition lumps all the time spent in the hospital as waiting time, including time spent at the labs, pharmacy, payment points, and printing of receipts or sundry activities related to the care of the patient. Waiting time measures the responsiveness of hospitals and has been found to influence patient satisfaction ratings, and is seen as an indicator for assessing the quality of services. (7–9) The Institute of Medicine (IOM) recommends that 90% of patients be seen within 30 minutes of their scheduled appointment, a standard rarely met in many low- and middle-income countries. (10)(11) One major challenge in Nigeria is that there is no individual scheduling of doctors' appointments for patients. All patients are scheduled for the same time, which is when the clinic opens for business, thereby bringing everybody at the same time to the doctor's office or hospital. As a patient frustrated in a long queue to see a doctor, get drugs at the pharmacy, or have a test done at the laboratory, is unlikely to be satisfied with the quality of care, even if he/she was at the best of hospitals to see the best doctor, even though a physician's empathy seems to do the magic. (12–14)

Furthermore, the relationship between health insurance and waiting time is complex; while insurance aims to improve access, it can also introduce administrative delays, e.g., approval codes from Health Maintenance Organizations (HMOs) that paradoxically increase waiting times for insured patients. (14,15)

**Objectives:** This study delves into the anatomy of waiting times at the National Hospital Abuja (NHA), a premier quaternary facility, to identify specific bottlenecks and their impact on patient satisfaction, providing actionable evidence for hospital management.

## Methods

**Study Design & Setting:** A prospective, cross-sectional study was conducted at the National Hospital Abuja (NHA) in 2023. The hospital is a 500-bedded hospital with quaternary medical services and serves a population of about 3.5 million in the Federal Capital Territory (FCT), Nigeria.

**Participants:** A total of 300 consenting adult outpatients (140 insured under the NHIS, 160 uninsured) were recruited via stratified random sampling from seven outpatient clinics to ensure a representative sample. The 2 strata were medical and surgical arms, then under each of the clinics, a minimum of 20 insured and uninsured consecutive patients were enrolled. The minimum sample size (280 participants) was calculated from the formula of two proportions for a comparative study. The study followed the Helsinki declaration protocols and received final institutional ethical approval on the 12<sup>th</sup> Sept 2023 with approval number NHA/EC/090/2023. All participants gave informed consent willingly.

**Data Collection:** A structured questionnaire was used to collect data on actual time spent (in minutes) at key service points: records desk, nursing station, waiting to see a doctor, consulting with a doctor, laboratory, and pharmacy. Concurrently, satisfaction with the waiting time at each point and overall responsiveness was measured using a 5-point Likert scale (1=Very Dissatisfied to 5=Excellent Satisfied).

**Data Analysis:** Data were analyzed using IBM SPSS version 26. Descriptive statistics (mean, standard deviation, median) were used to summarize waiting times and satisfaction scores. An independent samples t-test was used to compare the total time spent in the hospital between insured and uninsured patients, as the data were continuous. The significance level was set at  $p < 0.05$ . The non-parametric Mann-Whitney U test was used for significance in satisfaction level, as the data were ordinal.

## Results

**Components of Waiting Time:** The analysis revealed a detailed breakdown of patient time expenditure (Table 1.0). The mean waiting time to see a doctor was the longest at 112.6 minutes (approx. 1 hour 53 minutes), followed by the time at the laboratory (66.7 minutes). The shortest waits were for records staff (20.7 minutes) and nurses (22.5 minutes). The mean consultation time with the doctor was 24.5 minutes. Only about 8% of patients spent less than an hour as the total duration to access care in the hospital (Table 2.1).

**Total Time and Insurance Status:** Table 3.0 shows that the mean total time spent in the hospital for all participants was 247.5 minutes (approx. 4 hours 13 minutes). Insured patients had a higher mean total time (267.9 minutes) compared to uninsured patients (230.8 minutes). However, this difference was not statistically significant (t-test,  $p=0.33$ ).

**Satisfaction with Waiting Time:** The quality domain of responsiveness (waiting time) received a low mean satisfaction score of 2.99, which was barely within the "Satisfied" range (Table 1.0). Interestingly, when broken down, satisfaction with the actual consultation time with the doctor was high (mean=3.60, "Very Satisfied"), despite the long wait to see the physician (Table 1.0). This suggests patients distinguish between waiting for a service and the service itself.

**Distribution of Dissatisfaction:** As shown in Table 2.2, 19.0% of all participants were dissatisfied or very dissatisfied with the overall time spent to access care. A higher proportion of insured patients (25.0%) expressed dissatisfaction compared to uninsured patients (13.8%), though this was not statistically significant in hypothesis testing.

**Table 1.0: Mean Satisfaction with time waited/spent to assess staff**

Staff	Mean time waited (min)	Mean satisfaction	Interpretation
Consulted with the doctor	24.5	3.60	Very satisfactory
To see the record officer	20.7	3.43	Satisfactory
To see a nurse	22.5	3.34	Satisfactory
To get drugs (pharm)	28.8	3.19	Satisfactory
To get a test done (lab)	66.7	3.03	Satisfactory
To see the doctor (clinic)	112.6	2.77	Satisfactory
<b>Overall Time Spent to Assess</b>	<b>247.5</b>	<b>2.29</b>	<b>Satisfied</b>

**Care  
(Responsiveness)**

**Table 2.1: Distribution of total time spent to assess care at NHA  
(Hours)**

Insurance Status		<1hr	1-2hr	3-5hr	6-10hr	11-15hr	16-20hr	Total
Insured	Count	5	36	69	18	11	1	140
	% within	3.6%	25.7%	49.3%	12.9%	7.9%	0.7%	100.0%
Uninsured	Count	19	41	85	9	6	0	160
	% within	11.9%	25.6%	53.1%	5.6%	3.8%	0.0%	100.0%
Total	Count	24	77	154	27	17	1	300
	% within	8.0%	25.7%	51.3%	9.0%	5.7%	0.3%	100.0%

**Table 2.2: Likert Scale of Satisfaction with the overall time spent to assess care**

Insurance Status:		Very Dissatisfied			Very Satisfied		Excellently Satisfied	Independent samples Mann-Whitney U
		Dissatisfied	Satisfied	Satisfied	Satisfied			
Insured	Count	6	35	70	24	5	<b>0.78</b>	
	% within	4.3%	25.0%	50.0%	17.1%	3.6%		
Uninsured	Count	5	22	98	28	7		
	% within	3.1%	13.8%	61.3%	17.5%	4.4%		
Total	Count	11	57	168	52	12		
	% within	3.7%	19.0%	56.0%	17.3%	4.0%		

**Table 3.0: Total Time Spent in Hospital (minutes)**

Variables	N	Mean	Std. Deviation	Std. Error Mean	t-test p-value.
<b>Insurance Status</b>	Insured	140	267.9200	254.47006	<b>0.33</b>
	Uninsured	160	230.7705	136.72910	
<b>Sex</b>	Male	125	257.2683	268.29583	<b>0.69</b>
	Female	175	241.9565	145.87277	
<b>Total</b>	<b>300</b>	<b>247.5045</b>	<b>198.46245</b>	<b>18.83722</b>	

## Discussion

This study confirms that prolonged waiting time, particularly to see a physician, is a critical challenge at the NHA. The average wait of nearly three hours (155.8 minutes) to see a doctor, as shown in Table 1.0, is almost 10 times longer than the IOM's 30-minute recommendation, with only 8% of patients (Table 2.1) spending less than an hour (close to the IOM benchmark). (10,11) This is consistent with findings from other Nigerian hospitals, such as the 4 hours 56 minutes reported in Port Harcourt (16) and 4 hours 30 minutes in Sokoto (11)

### Time with different professionals and factors:

This systemic delay is the primary reason why responsiveness was the lowest-scoring domain in patient satisfaction studies as above. (11,16) In the index study, the time spent on the records was short, probably due to having a record desk at every clinic and the use of an electronic record system at all clinics of the National Hospital, which obviated the time that would have been spent to trace a folder and carry it to the appropriate clinic for consultation with the doctor. The time spent with nurses seemed to have reduced as the traditional pattern of taking vital signs and weight measurement for each visitor was not always done. Patients mentioned that they are most times sorted according to their previous diagnosis, external referrals, or internal referrals, and previous day or same day referral from another clinic where vitals were already taken. In addition, they also observe some patients who are staff or well known to physicians never get to pass through the routine queue to see a physician, thereby reducing the waiting time at the nurses' station for others while prolonging the waiting time at the doctor's office for the same. Furthermore, they mention the waiting time at the pharmacy was short because a sizeable number of them have other options of procuring medications outside the hospital, either due to non-availability of prescribed medications(17) or to avoid the long queues and regain time already spent waiting at the doctor's office. The same applies to the laboratory, where people opt for other diagnostic centres for want of time or unavailability of the test, thereby reducing the waiting time for others. Some patients use the hospital laboratory due to a physician's recommendation for the reliability or validity of results. Such patients are not at liberty to opt out as they do with the hospital pharmacy; hence, there is more crowding at the laboratory. On the other hand, every patient who comes to the hospital comes to see the physician for one reason or another. Some come for diagnosis and treatment, others for follow-up, and others just to confirm information or to say thank you. The later would not require a record visit, nurses' vitals check, laboratory, or pharmacy, but they all would crowd the doctor's office, thereby increasing the waiting time to see a physician at the hospital. Other factors mentioned that lead to prolonged waiting time at the doctor's office are few consulting rooms, sharing of facilities (computers, x-ray viewing box, examining tables), teaching tradition at the clinics, and discussing patients with other colleagues at the clinic with the aim of giving the best to patients. In all, the

most critical is the lack of individualized scheduling of patients' appointments with the physician according to time or hour of day, leading to crowding of patients at once, which is the practice in most public hospitals in Nigeria. The hospital runs morning and afternoon clinics at 8am and 12pm, respectively. The appointments for morning and afternoon clinics are given for 8am and 12pm respectively to all patients alike. Worse still, morning clinics do not always start at 8 am on days when there are academic activities, which usually last 45 minutes by schedule. In addition, afternoon patients tend to wait for the morning clinic to end to get attended to due to the larger number of morning clinic patients or delays in starting early compared to the afternoon clinic. Sometimes, this can lead to a delay in commencing the afternoon clinic as afternoon clinic doctors would not have access to the consulting rooms to attend to afternoon patients.

### **Insurance bottleneck in waiting time**

Table 3.0 demonstrated that the waiting time of insured patients was longer than that of uninsured patients at the NHA, even though it was not statistically significant in this study. The longer waiting time for insured patients aligns with the findings of Opurum et al., who attributed it to delays in obtaining HMO approval codes. (14) This administrative hurdle, inherent to the NHIS structure, can inadvertently penalize those it aims to help. Other reasons cited by patients in comments included the 'lack of signposts for directions or specific staffers who would guide them to different offices. The multiple windows they have to stand before any service is accessed, despite earlier record visit and approval codes for managed care, contributed to their overall waiting time.

### **Satisfaction gauge on waiting time**

A crucial finding is the high satisfaction with the doctor-patient consultation itself, despite the long wait. This indicates that the quality of the clinical interaction, once it begins, is valued highly by patients and can partially mitigate the frustration of the wait. This dichotomy underscores that the problem is not the clinical staff's efficiency but the upstream scheduling and patient flow systems.

However, the overall patient satisfaction with time spent in the hospital was low (Likert average = 2.99) as shown in Table 1.0. The root cause identified is the lack of time-specific appointment scheduling, a common practice in Nigerian public hospitals where all patients for a session are given the same arrival time. This creates an immediate bottleneck and inefficiency that cascades throughout the day. Nonetheless, there was no significant difference in the level of satisfaction with waiting between insured and uninsured (Table 2.2). In fact, despite the delays encountered under insurance, most participants still preferred the insurance coverage to paying out of pocket. Garba et al in Kano, by comparing satisfaction with waiting time at the waiting room to see a doctor (68.7% and 64.0%) and at the laboratory to do a test (68.0% and 60.0%), found no significant difference between insured patients and uninsured patients, respectively, similar to this index study. (18) In the US, government-insured patients (under Medicaid) had longer waiting hours than patients with private insurance. Some of the reasons cited for insured patients under Medicaid in the US having longer hours are the strain the expansion puts on the capacity of the healthcare provider, as it gets more patients from the uninsured group, leading to a sudden increase in demand. (19)

### **Limitations**

The study is a single-centre and cross-sectional one with no follow-up and limited qualitative details of patients' perspectives or opinion despite a few comments that were taken as a summary of their experience, which is not enough to describe all their experiences in the hospital. In addition, observer bias and overestimation of time against actual time spent in the hospital could not be dismissed in entirety. Hence, a follow-up study covering these areas is necessary.

## Conclusion

Prolonged waiting time is the single most significant operational failure undermining patient satisfaction at the NHA. While clinical care is highly valued, the process to access it is inefficient and frustrating for patients. As earlier stated, there is a lack of time-specific, appropriate appointment scheduling for doctors' consultations with patients, as every patient is asked to come to the clinic at the same time. Whether it is the lack of will or the technical know-how to do the proper scheduling is not yet known, as it was not part of the study objectives. However, it is important that hospital administrators consider that as a necessary paradigm shift. Patients' visits to the clinic can be scheduled per hour according to the number of available consulting rooms or spaces in that particular clinic. This in itself would give a significant boost both to the level of satisfaction and number of persons visiting the hospital, as patient turnover would be improved, while physician burnout would decrease.

## Recommendations

The following management interventions are recommended:

1. Implement an Electronic Time-Specific Appointment System: The existing electronic records system should be upgraded to schedule patients at specific times (e.g., every 15-20 minutes) based on clinic capacity, rather than a single bulk appointment time.
2. Streamline NHIS Administrative Processes: Dedicate and potentially digitalize the HMO approval process to reduce delays for insured patients at the point of service.
3. Monitor and Manage Patient Flow: Use the data from this study to identify clinics with the most severe bottlenecks and implement targeted interventions, such as additional temporary staffing or re-allocation of rooms during peak hours.
4. Automate the clinic visit process and reduce human contact from the point of "record visit", "check in", obtaining "approval codes" to NHIS receipt printing.

Addressing the "tyranny of time" is not merely an operational goal but a fundamental requirement for delivering patient-centered, high-quality care.

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