NIJBAS
Publications 2025

OPEN ACCESS
ONLINE ISSN: 2992-5797
PRINT ISSN: 2992-6122

NEWPORT INTERNATIONAL JOURNAL OF BIOLOGICAL AND APPLIED SCIENCES (NIJBAS)

Volume 6 Issue 3 Page 1-9, 2025

https://doi.org/10.59298/NIJBAS/2025/6.3.190000

Causes of Long Waiting Time in General Outpatient Departments of a Federal and a State Teaching Hospital in Enugu State, Nigeria: A Mixed-Methods Comparative Study

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ABSTRACT

Waiting time refers to the total time a patient spends in a health facility from arrival at registration to completion of the final service point, including time spent on registration, consultation, emergency care, diagnostic tests/procedures, and receiving results. Because prolonged waiting time is a key indicator of healthcare quality and a determinant of patient satisfaction, this study analysed the causes of long waiting time in the General Outpatient Departments (GOPDs) of a federal and a state teaching hospital in Enugu State, Nigeria. A mixed-methods comparative design was used in the GOPDs of the University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, and the Enugu State University of Science and Technology Teaching Hospital Parklane (ESUTTHP). The sample was drawn from 250 consenting adults (≥18 years), with sample size allocation guided by WHO national guidelines for health study sample size determination and based on facility attendance patterns. Quantitative data were obtained using a structured questionnaire and a patient time-tracking schedule developed from the study objectives and similar studies, while qualitative data were collected through semi-structured interviews with audio recording. Of the recruited participants, 188 were included in the analysis (UNTH n=108; ESUTTHP n=80), and six were purposively selected for in-depth interviews. The total mean time from arrival to the final service point was 227.21 minutes at ESUTTHP and 234.00 minutes at UNTH. Mean waiting times at key service points (ESUTTHP vs UNTH) were 31.13 vs 121.05 minutes for payment, 26.46 vs 51.00 for registration, 43.70 vs 29.79 for the waiting area, 41.20 vs 9.25 for the nurses' station, and 58.29 vs 34.51 for the doctors' room. Most participants attended for medical care related to a present illness (75.0%) and reported delays mainly at the records unit and waiting area, with reported drivers including network-related problems, long queues, overcrowding, and queue jumping. Commonly perceived causes of long waiting time included inadequate staffing, long queues at records/payment/registration, overcrowding, queue jumping, delays in triage/nursing assessment, inadequate direction/wayfinding, and inadequate work materials, and waiting time differed significantly between facilities ($p < 0.0001$). Overall, outpatient waiting time exceeded three hours in both hospitals, with facility-specific bottlenecks particularly prolonged payment time at UNTH suggesting that strengthening staffing at high-volume stations, improving queue governance, ensuring resilient records systems, optimizing triage, and improving wayfinding could reduce waiting time and improve patient flow and satisfaction.

Keywords: waiting time; outpatient department; patient flow; teaching hospitals; Enugu State; Nigeria.

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PRINT ISSN: 2992-6122

INTRODUCTION

Monitoring time spent at service points during outpatient visits is essential for improving patient flow and satisfaction. Patients seek care with expectations of prompt attention; delays may influence clinical outcomes and perceptions of service quality. Waiting time is widely used as an indicator of healthcare quality and a determinant of patient satisfaction [1]. Waiting time is defined as the total duration from arrival at registration to completion of the final service point [2]. This can include time spent on registration, routine consultations, emergency care, laboratory/diagnostic tests, procedures, and receiving results [3]. In many tertiary hospitals, long waiting time is driven by high patient volumes, limited staffing, inefficient workflow design, crowding at early administrative stations, and health information system constraints. Teaching hospitals in Nigeria serve as referral centres and provide large volumes of outpatient care. However, the causes and patterns of waiting time may differ by governance and operational structure (state versus federal institutions), even within the same region. Comparative evidence is therefore needed to identify facility-specific bottlenecks and inform targeted improvements. This study assessed waiting time across service stations and analysed patient-reported causes of long waiting time in the GOPDs of UNTH (federal) and ESUTTHP (state) in Enugu State, Nigeria.

MATERIALS AND METHODS

Study area and setting

The study was conducted in the GOPDs of the University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, Enugu State, Nigeria and the Enugu State University of Science and Technology Teaching Hospital Parklane (ESUTTHP), Enugu State, Nigeria.

Study population

The study population comprised patients aged **18 years and above** attending the GOPDs of UNTH and ESUTTHP. Average daily attendance was approximately 150 patients/day at UNTH **and** 100 patients/day at ESUTTHP [4].

Sample size determination

The sample was derived from 250 consenting adults (≥18 years). Sample size allocation followed the WHO national guideline for sample size determination in health studies [5]. Using WHO (2018) guidance [4] and facility attendance patterns, the sample size was 108 (UNTH) and 80 (ESUTTHP), totaling 188 participants**.** For qualitative interviews, six participants were purposively selected from the 188 based on willingness to participate.

Sampling technique and recruitment

Two tertiary hospitals (state and federal) in Enugu State were included. Each day, 20 first-time eligible adult patients were purposively recruited from the records unit. Recruitment began at 7:30 am**,** with a cut-off time of 10:30 am because most patients arrived before staff commenced official duties. First-time attendees were identified at the records unit and followed through their GOPD service pathway. The satisfaction questionnaire was completed on exit from the consulting room. Participant IDs (1-188) were assigned sequentially until the sample size was reached.

Inclusion criteria (quantitative): First-time GOPD attendees aged ≥18 years who consented.

Inclusion criteria (qualitative): Participants aged ≥18 years who additionally consented to interview and audio recording.

Instruments and data collection

Quantitative component

Quantitative data were collected using:

1. Structured questionnaire**,** developed from objectives and similar studies [6,7].
   - Section A: sociodemographics
   - Section B: service sought and perceived causes of waiting time
2. **Time-tracking proforma** used to record time at each service point: arrival, payment, registration/records, waiting area, nurses' station, consultation, and exit. Timing was performed using a seconds-hand watch.

Qualitative component

A semi-structured interview guide was developed from the objectives and similar studies. Interviews were audio-recorded and used to complement quantitative results.

Validity and reliability

Face and content validity were assessed by the supervisor and experts in Nursing Sciences and measurement/evaluation. Inter-rater reliability for time tracking was assessed during training sessions with

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simultaneous observation; an agreement score of **80%** was obtained. Rigour in qualitative data collection was maintained using trustworthiness criteria [8].

Data analysis

Descriptive statistics (frequencies, percentages, means) were used for objectives 1–3. Hypothesis testing was conducted using GraphPad Prism version 7.5. Chi-square and Pearson correlation were applied as appropriate with significance at $p < 0.05$. Qualitative data were analysed thematically: familiarization, coding, theme development/review, naming, and reporting.

RESULTS

Participant characteristics

Table 1: Socio-demographic characteristics of respondents by facility (n=188)
Denominators: ESUTTHP n=80; UNTH n=108; Total n=188.

A. Sex

Sex	ESUTTHP n (%)	UNTH n (%)	Total n (%)
Male	35 (43.8)	42 (38.9)	77 (41.0)
Female	45 (56.2)	66 (61.1)	111 (59.0)

B. Age group (years)

Age group	ESUTTHP n (%)	UNTH n (%)	Total n (%)
18–27	11 (13.8)	30 (27.8)	41 (21.8)
28–37	14 (17.5)	16 (14.8)	30 (16.0)
38–47	15 (18.8)	26 (24.1)	41 (21.8)
48–57	12 (15.0)	14 (13.0)	26 (13.8)
58–67	14 (17.5)	14 (13.0)	28 (14.9)
68–77	10 (12.5)	8 (7.4)	18 (9.6)
78–88	4 (5.0)	0 (0.0)	4 (2.1)

C. Highest educational qualification

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Qualification	ESUTTHP n (%)	UNTH n (%)	Total n (%)
FSLC	20 (25.0)	8 (7.4)	28 (14.9)
SSCE	26 (32.5)	54 (50.0)	80 (42.6)
JSC	1 (1.3)	0 (0.0)	1 (0.5)
OND	12 (15.0)	8 (7.4)	20 (10.6)
HND	1 (1.3)	12 (11.1)	13 (6.9)
NCE	9 (11.3)	0 (0.0)	9 (4.8)
BSc	5 (6.3)	12 (11.1)	17 (9.0)
MSc	2 (2.5)	4 (3.7)	6 (3.2)
None	4 (5.0)	10 (9.3)	14 (7.4)

Source: Field work (2022). Percentages may not sum to 100% due to rounding.

Supplementary note on occupation: Occupation frequencies as provided contain internal inconsistencies (category totals do not equal facility totals). For transparency, they are reported as **Supplementary Table S1** exactly as recorded.

A total of **188 participants** were analysed (ESUTTHP n=80; UNTH n=108). Females comprised 59.0%. The age range was 18–88 years and the reported mean age was 53 years. Sociodemographic characteristics are presented in Table 1

Waiting time at service points

Total mean time from arrival to final service was 227.2 minutes in ESUTTHP and 234.0 minutes in UNTH. Station-level mean waiting times differed substantially between facilities, particularly at payment. These results are summarized in Table 2.

Table 2. Mean waiting time (minutes) at service points by facility

Service point	ESUTTHP mean (min)	UNTH mean (min)
Payment	36.1	121.1
Registration	26.5	51.0
Waiting area	43.8	29.8
Nurses' station	41.2	9.2
Doctors' room	58.3	34.5
Exit interview	14.0	11.6
Total mean time (arrival → exit)	**227.2**	**234.0**

Source: Field work (2022).

Arrival time, departure time, and total time spent in GOPD

Most participants arrived between 06:00 and 10:00 (95.2%), and most departed between 12:00 and 14:00 (49.5%). Half of participants spent <240 minutes and half spent ≥240 minutes in the GOPD. These distributions are shown in Table 3.

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Table 3. Arrival time, departure time, and total time spent in GOPD (n=188)

A. Arrival time

Arrival time	ESUTTHP n (%)	UNTH n (%)	Total n (%)
06:00–08:00	38 (47.5)	40 (37.0)	78 (41.5)
08:00–10:00	42 (52.5)	59 (54.6)	101 (53.7)
10:00–12:00	0 (0.0)	9 (8.3)	9 (4.8)

B. Departure time

Departure time	ESUTTHP n (%)	UNTH n (%)	Total n (%)
10:00–12:00	10 (12.5)	30 (27.8)	40 (21.3)
12:00–14:00	37 (46.3)	56 (51.9)	93 (49.5)
14:00–16:00	33 (41.3)	22 (20.4)	55 (29.3)

C. Total time from arrival to departure (minutes)

Total time (min)	ESUTTHP n (%)	UNTH n (%)	Total n (%)
60–<120	0 (0.0)	1 (0.9)	1 (0.5)
120–<180	14 (17.5)	11 (10.2)	25 (13.3)
180–<240	41 (51.3)	27 (25.0)	68 (36.2)
240–<300	22 (27.5)	37 (34.3)	59 (31.4)
300–<360	2 (2.5)	28 (25.9)	30 (16.0)
360–<420	1 (1.3)	4 (3.7)	5 (2.7)

Source: Field work (2022). Percentages may not sum to 100% due to rounding.

Services sought, prompt attention, and reported delays

Most participants sought medical care for a present illness (75.0%). Over half reported that they did not receive prompt attention at service points. Among those delayed (n=97), the records unit and waiting area were the most common delay points. Reasons for delay included long queues, network delay (UNTH), and queue jumping. These results are detailed in Table 4.

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Table 4. Services sought and reported delays (n=188; delayed subgroup n=97)

A. Type of service sought (n=188)

Service sought	ESUTTHP n (%)	UNTH n (%)	Total n (%)
Medical report	7 (8.8)	2 (1.9)	9 (4.8)
Referral	20 (25.0)	18 (16.7)	38 (20.2)
Medical care for present illness	53 (66.3)	88 (81.5)	141 (75.0)

B. Prompt attention at service points (n=188)

Prompt attention	ESUTTHP n (%)	UNTH n (%)	Total n (%)
Yes	35 (43.8)	56 (51.9)	91 (48.4)
No	45 (56.3)	52 (48.1)	97 (51.6)

C. Service point with most delay (among those delayed; n=97)

Service point	ESUTTHP (n=45) n (%)	UNTH (n=52) n (%)	Total (n=97) n (%)
Records	20 (44.4)	22 (42.3)	42 (43.3)
Waiting area	13 (28.9)	20 (38.5)	33 (34.0)
Nurses' station	5 (11.1)	4 (7.7)	9 (9.3)
Doctors' room	7 (15.6)	6 (11.5)	13 (13.4)

D. Reasons for delay (among those delayed; n=97)

Reason	ESUTTHP (n=45) n (%)	UNTH (n=52) n (%)	Total (n=97) n (%)
Long queue	20 (44.4)	29 (55.8)	49 (50.5)
Record staff coming late	7 (15.6)	0 (0.0)	7 (7.2)
Inadequate staff	5 (11.1)	0 (0.0)	5 (5.2)
Staff being idle	3 (6.7)	0 (0.0)	3 (3.1)
Patient jumping queue	10 (22.2)	0 (0.0)	10 (10.3)
Network delay	0 (0.0)	23 (44.2)	23 (23.7)

Source: Field work (2022).

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Perceived causes of long waiting time (multiple response)

Participants identified multiple system-level drivers of long waiting time, particularly inadequate staffing at records, long queues at payment/registration, overcrowding, and queue jumping. These responses are shown in Table 5.

Table 5. Perceived causes of long waiting time (multiple response; n=188)

Perceived cause	ESUTTHP n (%)	UNTH n (%)	Total n (%)
Lack of adequate staff at the records unit	55 (68.8)	100 (92.6)	155 (82.4)
Long queue at the payment point	57 (71.3)	102 (94.4)	159 (84.6)
Long queue at the registration point	57 (71.3)	98 (90.7)	155 (82.4)
Inadequate number of doctors	42 (52.5)	102 (94.4)	144 (76.6)
Inadequate number of nurses	40 (50.0)	100 (92.6)	140 (74.5)
Delay in triage/nursing assessment	40 (50.0)	38 (35.2)	78 (41.5)
Prolonged health talk session	29 (36.3)	38 (35.2)	67 (35.6)
Overcrowding of patients	56 (70.0)	100 (92.6)	156 (83.0)
Patient jumping queue	53 (66.3)	94 (87.0)	147 (78.2)
Inadequate work materials	21 (26.3)	62 (57.4)	83 (44.1)
Reasonable distance between service points	14 (17.5)	30 (27.8)	44 (23.4)
Poor physical hospital layout	21 (26.3)	90 (83.3)	111 (59.0)
Lack of direction on where to receive care	16 (20.0)	78 (72.2)	94 (50.0)

Source: Field work (2022). Note: Multiple-response item; percentages exceed 100%.

DISCUSSION

This study assessed waiting time and perceived causes of long waiting time among first-time adult GOPD attendees in a federal and a state teaching hospital in Enugu State. Total time spent in GOPD exceeded three hours in both facilities, reinforcing waiting time as a persistent operational challenge and a quality-of-care concern [1]. Although overall mean time was similar, bottlenecks differed by facility, indicating that solutions should be context-specific rather than uniform. The majority of participants sought medical care for present illness, consistent with GOPDs functioning as first-contact points for diverse health needs. Participants most frequently reported delays at the records unit and waiting area, suggesting that early administrative congestion propagates downstream, intensifying overall waiting. Reported reasons for delay long queues, overcrowding, queue jumping, and staffing issues align with earlier findings that high patient loads interacting with insufficient personnel and weak process control contribute to long waiting time [1,7,9]. Network delay emerged as a key issue at UNTH and may reflect vulnerabilities associated with electronic records systems. While digitization can improve coordination, unreliable connectivity may create bottlenecks that increase queue length and prolong waiting. Similar studies report staffing shortages, inefficient record systems, and poor flow control as determinants of long

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waiting time and reduced satisfaction [1, 7, 9, 10]. Participants also indicated delays related to triage/nursing assessment and consultation, supporting the view that waiting time is influenced by both administrative and clinical throughput. Prior evidence suggests that availability of healthcare workers and streamlined service delivery at service points reduces waiting time [11]. Qualitative reports further highlighted mismatch between early patient arrivals and staff start times, and the potential for manual assessment equipment to increase time spent at triage/nursing stations—issues that are operationally modifiable. Overall, the findings support implementing targeted changes such as front-end staffing optimization, improved queue governance, reliable records/IT backup processes, structured triage, and improved wayfinding. Streamlining pathways for referrals and medical reports may also reduce unnecessary queuing and total time spent in facility, consistent with reports that visit type and required investigations influence waiting duration [12].

CONCLUSION

Waiting time in the GOPDs of ESUTTHP and UNTH exceeded three hours on average, with statistically significant differences between facilities ($p < 0.0001$). The most frequently reported bottlenecks were the records unit and waiting area, driven by long queues, overcrowding, queue jumping, staffing constraints, triage delays, inadequate materials, poor direction/wayfinding, and (at UNTH) network-related interruptions. Facility-specific operational reforms targeting these bottlenecks are likely to improve patient flow and satisfaction.

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SUPPLEMENTARY TABLE S1. Occupation of respondents

Occupation	ESUTTHP n (%)	UNTH n (%)	Total n (%)
Driver	3 (3.8)	4 (3.7)	7 (3.7)
Farmer	15 (18.8)	14 (13.0)	29 (15.4)
Artisan	8 (10.0)	6 (5.6)	14 (7.5)
Clergy	1 (1.3)	0 (0.0)	1 (0.5)
Trader/business	21 (26.3)	44 (40.7)	65 (35.6)
Retiree	6 (7.5)	2 (1.9)	8 (4.3)
Civil servant	11 (13.8)	10 (9.3)	21 (5.9*)
Student	11 (13.8)	8 (7.4)	19 (10.1)
Tailor	1 (1.3)	0 (0.0)	1 (0.5)
Caterer	3 (3.8)	0 (0.0)	3 (1.6)
None	1 (1.3)	4 (3.7)	5 (2.7)

CITE AS: Peace Nkechi Ani; Chika Grace Ugochukwu; Peace Njideka Iheanacho; Adaora Ukamaka Okoli and Ebuoh Maryann Chiamaka (2025). Causes of Long Waiting Time in General Outpatient Departments of a Federal and a State Teaching Hospital in Enugu State, Nigeria: A Mixed-Methods Comparative Study. NEWPORT INTERNATIONAL JOURNAL OF BIOLOGICAL AND APPLIED SCIENCES, 6(3):1-9. https://doi.org/10.59298/NIJBAS/2025/6.3.190000

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