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Orapuh Journal

ORIGINAL ARTICLE

Journal of Oral & Public Health

Operating theatre time utilisation and elective surgery cancellations: A one-month review in a Nigerian teaching hospital

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ARTICLE INFO

Received: *14 November 2024*
Accepted: *11 December 2024*
Published: *18 December 2024*

Keywords:
Elective surgery, healthcare resources, hospital management, operating time utilisation, surgery cancellation, theatre efficiency

Peer-Review: *Externally peer-reviewed*

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To cite:
Akpanudo, E. I., Ituen, M. A., & Iyanam, V. E. (2024). Operating theatre time utilisation and elective surgery cancellations: A one-month review in a Nigerian teaching hospital. *Orapuh Journal, 5*(7), e1165
https://dx.doi.org/10.4314/orapj.v5i7.65

ISSN: *2644-3740*

Published by Orapuh, Inc. (info@orapuh.org)

Editor-in-Chief: Prof. V. E. Adamu
Orapuh, Inc., UMTG PMB 405, Serrekunda, The Gambia, editor@orapuh.org.

ABSTRACT

Introduction

Globally, healthcare systems face rising costs, inefficiencies, and inequitable resource allocation. In Nigeria, underfunding and systemic inefficiencies limit access to surgical care, preventing many patients from receiving necessary procedures. Operating theatres (OTs), which are among the most resource-intensive hospital units, are central to improving surgical care but are often underutilised. Auditing OT processes is essential for identifying inefficiencies and supporting strategies to enhance utilisation and reduce cancellations.

Purpose

This study aimed to evaluate OT time utilisation and surgical case cancellations in a Nigerian teaching hospital over one month, focusing on first-case tardiness, prediction bias, turnover time, and cancellations.

Methods

A prospective cross-sectional study was conducted to analyse observational data from OT processes, including first-case tardiness, prediction bias, turnover time, cancellations, and raw utilisation. Hierarchical multiple regression was used to assess the predictive impact of these factors on OT utilisation.

Results

Out of 133 scheduled surgeries, 59 (44.4%) were cancelled. The leading causes of cancellation were patient non-attendance (33.9%) and time constraints (27.1%). Raw OT utilisation was 55.4%, with general surgery recording the highest utilisation (81.5%). First-case tardiness (mean delay: 133.7 ± 46.4 minutes) and prediction bias (mean: 49.9 ± 44.3 minutes) significantly predicted OT utilisation ($B = -0.219$, $p = 0.007$; $B = 0.305$, $p = 0.005$, respectively). Delayed starts accounted for 5,886 minutes of lost time.

Conclusions

Addressing patient non-attendance through financial counselling and automated reminders, standardising workflows, and enhancing scheduling accuracy with digital tools can reduce delays and cancellations, thereby optimising resource use.

INTRODUCTION

Globally, healthcare systems face increasing challenges related to rising costs, inequitable resource allocation, and unmet population health demands. Operating theatres (OTs) are central, resource-intensive units within hospitals, consuming a substantial portion of healthcare budgets—estimated at 50–60% in high-income settings (Naik et al., 2018). However, inefficiencies in OT processes, such as wasted theatre time caused by delays and cancellations, persist worldwide, limiting the effectiveness of healthcare delivery and straining financial resources (Arcidiacono et al., 2015).

In low- and middle-income countries (LMICs) like Nigeria, these challenges are further exacerbated by underfunding, inefficiency, and inequity in the healthcare system. Federal healthcare spending has consistently fallen short of the 15% target set by the Abuja Declaration, with private expenditure accounting for 75% of total health expenditure, largely financed through out-of-pocket payments (dRPC, 2024). This reliance on private spending places a significant financial strain on households, limiting access to surgical services and contributing to inequities in care. The high cost of surgical care in public hospitals represents a significant barrier, particularly in a country where two-thirds of the population live below the poverty line (Olomu, 2019; Jesuyajolu et al., 2022).

Surgery plays an essential role in public health, as surgically treatable conditions—such as fractures, obstructed hernias, obstructed labour, and malignancies—impose a substantial burden of ill health on the population (Meara et al., 2015; Dawka, 2016). Operating theatres, as the cornerstone of surgical services, are essential to improving population health outcomes. Efficiently functioning OTs are key to improving health outcomes (Moutlana, 2021). However, inefficiencies in OT operations lead to resource wastage, increased hospital costs, prolonged surgical wait times, and reduced overall productivity. Improving OT efficiency is crucial for expanding surgical capacity, reducing disparities in access, and enhancing overall health system performance.

Theatre efficiency can be assessed using various parameters, including time utilisation rates, turnover time, case cancellation rates, start-time delays, and overrun times (Tsimanyane, 2023). Regular audits of operating theatres are essential for identifying inefficiencies that hinder effective surgical care delivery. While studies have evaluated OT utilisation in high-income and some African settings, data on factors influencing OT efficiency in Nigerian hospitals remain limited. This study aims to address this gap by examining factors affecting OT performance in a Nigerian teaching hospital. By doing so, it seeks to propose strategies for improving OT operations in the local context and, more broadly, to inform efforts to optimise surgical care delivery in other resource-limited settings.

METHODS

Study Design

This was a prospective cross-sectional study of data collected over a one-month period in April 2019 on consecutive elective surgical procedures in the main theatre complex (MTC) at the University of Uyo Teaching Hospital. The MTC was selected for its representation of all surgical specialties (except orthopaedics and obstetrics, which use different theatres) and its high surgical workload. The facility includes four operating rooms (ORs) designated as I–IV, with each specialty allocated specific weekday block periods for surgeries. Surgery lists are submitted by 13:00 the day before, and the expected start time for the first case each day is set at 09:00.

The one-month study period was chosen to provide a snapshot of theatre performance within the constraints of available resources and timelines. Although brief, it allowed for the collection of representative data across multiple specialties and ORs.

Inclusion and Exclusion Criteria

The study measured surgical process times from patient entry into the operating room to the entry of the next patient and recorded elective surgery cancellations on the day of surgery. All elective surgeries scheduled between 09:00 and 16:00 on weekdays were included, while emergency surgeries, as well as surgeries on weekends and public holidays, were excluded due to the theatre's lack of a full complement of staff typically available during official working hours.

Data Collection

A structured questionnaire was used to record OT process

variables for each case, including time metrics and reasons for cancellations. The questionnaire was validated through a pilot test conducted over three days prior to the main study. Two observers (one of the authors and the theatre manager) independently recorded data for 11 surgical cases from a single operating room. A total of 22 questionnaires were completed during the pilot, allowing for intra-class correlation analysis to measure inter-observer reliability. Adjustments were made to the questionnaire based on pilot findings to include additional relevant variables. Data from the pilot study were not included in the final analysis.

Variables Captured

- **Day of the week**
- **Surgical specialty**
- **Patient arrival time** – The time the patient arrived at the theatre.
- **Operating room start time** – The time when the first case was wheeled inside the operating room. Any delay beyond 09:15 was considered tardiness, and the reasons for delays were noted.
- **Positioning and preparation time** – The time taken for positioning the patient for surgery, skin preparation, and draping.
- **Surgical time** – The time from the skin incision to the application of the dressing.
- **Recovery time** – The time from dressing to when the patient was wheeled out.
- **Estimated duration for surgery** – The estimated duration for each procedure, as provided preoperatively by surgeons and recorded in the surgery list for the day.
- **Prediction bias** – Defined as the difference between the actual duration of a case and the estimated duration provided preoperatively. This was calculated for each operating room per day as the cumulative difference (in minutes) between estimated and actual case durations.
- **Turnover time** – The time difference between when one patient was wheeled out and the next patient for that suite was wheeled in.
- **Over-run time** – The time for surgeries that extended beyond 16:00.
- **Number of cases cancelled and reasons for cancellation**
- **OR utilisation time** – The total time that patients were present in the OT.
- **Overall raw utilisation time** – The total hours of cases performed within the OT time (all ORs) divided by the total hours of allocated time (all ORs). Raw utilisation for each OR was calculated as:

$$\text{Raw utilization} = \left(\frac{\text{Total resource time available}}{\text{Total time utilised}} \right) \times 100$$

Statistical Analysis

Data were analysed using IBM SPSS Statistics (Version 21), employing both descriptive and inferential statistics. Descriptive analysis included frequencies, means, standard deviations, and percentages for surgery characteristics. Hierarchical multiple regression analysis was used to estimate the effects of first-case tardiness, prediction bias, turnover time, and cancellations on time utilisation. Variables were entered in blocks to assess their individual and collective impact.

Ethical Considerations

No direct patient consent was obtained, as no patient-specific data were collected, and no patient interviews were conducted. The reasons for case cancellations were derived from theatre records. Ethical approval for the study was obtained from the Institutional Ethics Review Committee of the University of Uyo Teaching Hospital. Additional approval was granted by the Head of the Surgery Department and the Theatre Nurse Manager. These unit heads provided written informed consent through a cover letter outlining the study's purpose, procedures, potential risks, and measures to ensure anonymity and confidentiality.

To protect the privacy of both staff and patients, no identifiable information was included on the questionnaires. Staff involved in OT processes were assured that their activities would not be individually assessed or linked to the data collected, ensuring their confidentiality throughout the study. All procedures

adhered to the ethical standards set forth by the institution to ensure the protection of participants' rights and privacy.

RESULTS

Surgical Case Scheduling

Observations of the operating suites were conducted over four weeks, involving nine surgical specialties and a total of 133 surgeries across 50 elective lists. Gynaecology scheduled the highest number of cases (33.1%, 44/133), while the cardiothoracic and maxillofacial units scheduled the fewest, with 2 (1.5%) and 1 (0.8%) case, respectively **(Table 1)**. Scheduling varied across the week, with Mondays and Thursdays having the highest surgery counts (33.8% and 24.8%, respectively) and Fridays the lowest (9.8%).

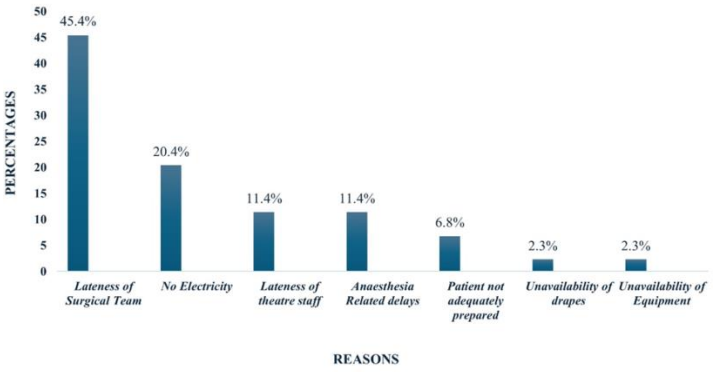
Table 1:
Distribution of Elective Surgeries by Specialty and Weekday Over Four Weeks

Surgical Specialty	Frequency	Percentage (%)
Gynaecology	44	33.1
General Surgery	41	30.8
Urology	14	10.5
Otolaryngology	10	7.5
Plastic surgery	9	6.8
Ophthalmology	8	6.0
Paediatric surgery	4	3.0
Cardiothoracic surgery	2	1.5
Maxillofacial surgery	1	0.8
Total	**133**	**100**
Day of the Week	**Frequency**	**Percentage (%)**
Monday	45	33.8
Tuesday	24	18.0
Wednesday	18	13.5
Thursday	33	24.8
Friday	13	9.8
Total	**133**	**100**

First Case Tardiness

The first case started late across all suites, with the earliest patient arrival at 8:44 a.m. and the earliest incision time at 9:45 a.m. First Case Tardiness (FCT) ranged from 45 to 255 minutes, with a mean delay of 133.7 (± 46.4) minutes. A total of 5,886 minutes were lost due to delayed starts. The most common reasons for FCT included lateness of the surgical team (45.4%), lack of electricity (20%), and anaesthesia-related delays (10%) **(Figure 1)**.

Figure 1:
Reasons for First Case Tardiness



Turnover Time and Prediction Bias

Turnover times ranged from 5 to 56 minutes, with a mean of 17.7 (± 14.5) minutes. Prediction bias, calculated as the cumulative difference between estimated and actual case durations, had a mean of 49.9 (± 44.3) minutes **(Table 2)**. Only 20 cases (15%) achieved a prediction bias of less than 15 minutes.

Table 2:
Operating Theatre Scheduling and Timing Variables by Specialty (mean ± standard deviation)

	Average Arrival of first Case (a.m.)	Average First Case Start time (a.m.)	Average Turnover time (mins)	Average Overruns (mins)	Average Prediction Bias (mins)
General Surgery	9.50±0.59	11.33±0.43	25.7	208.5	65.5
Gynaecology	9.33±0.42	11.01±0.38	19.8	94.4	43.6
Urology	9.53±0.37	10.04±3.38	18.0	31.0	25.0
Paediatric Surgery	9.01±0.22	10.24±0.23	18.3	-	25.7
Plastic Surgery	9:54±0.23	11.28±0.41	27.0	21.5	31.6
Cardiothoracic Surgery	10.07±0.03	11.33±0.00	-	50.0	18.5
Otolaryngology	10.19±0.27	11.53±0.48	8.8	-	51.7
Ophthalmology	10.47±0.13	11.53±0.29	8.6	-	54.4
Maxillofacial Surgery	-				
Overall	10.26±2.42	11.08±1.41	17.7	81.8	49.9

Operating Theatre Time Utilisation

The overall raw theatre utilisation was 55.4%, based on a total available resource time of 23,040 minutes and total utilised time of 12,526 minutes **(Table 3)**. Underutilised time amounted to 6,848 minutes (mean: 165.1 ± 102.9 minutes), while over-utilised time totalled 1,063 minutes

(mean: 81.8 ± 82.1 minutes). Utilisation rates varied by specialty, with General Surgery demonstrating the highest rate at 81.5% (95% CI: 78.1%–84.9%), and Otolaryngology the lowest at 34.4% (95% CI: 30.2%–38.6%). Operating time overruns occurred in 13 of the 50 lists, predominantly in General Surgery.

Table 3:
Raw Operating Theatre Time Utilisation Rates by Specialty, including Confidence Intervals (CI)

	Total Available time (mins)	Total Utilised time (mins)	Raw Utilisation (%)	95% CI (%)
General Surgery	3360	2740	81.5	80.2–82.8
Gynaecology	6720	4096	60.9	59.5–62.3
Urology	3360	1826	49.9	48.2–51.6
Paediatric Surgery	1260	557	44.2	41.6–46.8
Plastic Surgery	2100	991	47.2	45.1–49.3
Cardiothoracic Surgery	840	608	72.4	69.2–75.6
Otolaryngology	2880	992	34.4	32.6–36.2
Ophthalmology	1800	716	39.8	37.6–42.0
Maxillofacial Surgery	420	0	0	Not Applicable
Overall	23040	12526	54.4	53.8-55.0

*(**Note**: 'Not applicable' indicates specialties with no recorded surgeries during the study period)*

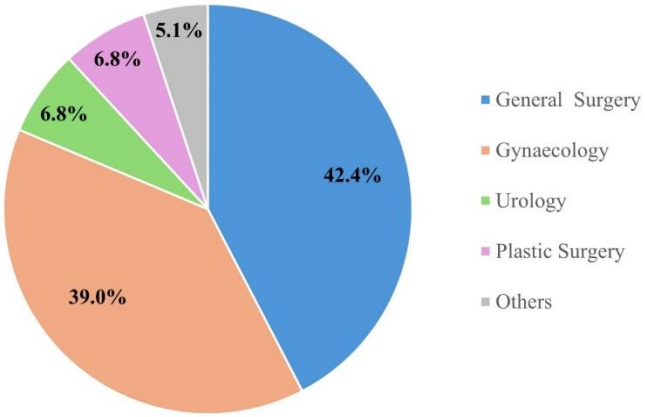
Case Cancellations

Day-of-surgery cancellations impacted 24 of the 50 lists, with 59 out of 133 scheduled surgeries (44.4%) cancelled. The most frequent reason for cancellation was patient non-attendance (33.9%), followed by time constraints due to overruns (27.1%) **(Table 4)**. General Surgery accounted for the highest proportion of cancellations (42.4%) **(Figure 2)**, reflecting its heavy workload and the large number of day-case procedures.

Table 4:
Reasons for Day-of-Surgery Cancellations for Elective Surgical Procedures

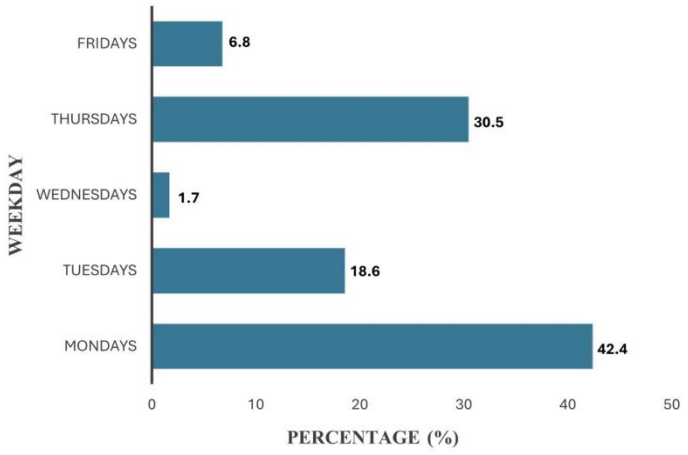
Reason	Frequency	Percentage
Patient did not show up	20	33.9
Late running list/no more time	16	27.1
No electricity	7	11.8
Surgeons changed their minds	5	8.5
Patient failed to pay for surgery	4	6.8
Medically unfit patient	3	5.1
Patient not adequately prepared	2	3.4
Unavailability of drapes/consumables/surgical equipment	2	3.4
Total	**59**	**100**

Figure 2:
Cancellations by Surgical Specialty



Note: 'Others' includes Otolaryngology, Maxillofacial Surgery, Paediatric Surgery, Ophthalmology, and Cardiothoracic Surgery, each with one or no cancellations.

Figure 3:
Cancellations by Day of the Week



https://dx.doi.org/10.4314/orapj.v5i7.65

Statistical Analysis

A hierarchical multiple regression analysis was conducted in two stages. In the first model, control variables *(Day of the Week and Specialty)* accounted for 2.8% of the variance in raw theatre utilisation (R^2 = 0.028, Fchange = 0.331, p = 0.803). In the second model, the addition of independent variables *(First Case Tardiness, Prediction Bias, Turnover Time, and Case Cancellations)* significantly improved the model, explaining 33.2% of the variance (R^2 change = 0.332, Fchange = 4.014, p = 0.010).

Table 5:
Coefficients for Predictors of Operating Theatre Utilisation

Model	Predictor	B	Std. Error	Beta	t	p-value
1	(Constant)	65.301	10.978		5.948	.000
	Specialty	-1.217	2.076	-.112	-.586	.561
	Day of the Week	-2.124	2.696	-.132	-.788	.436
2	(Constant)				5.790	.000
	Specialty	77.884	13.451	-.171	-.953	.348
	Day of the Week	-1.855	1.946	-.164	-1.118	.272
	Prediction Bias	-2.635	2.357	.447	3.010	.005
	First Case Tardiness	.305	.101	-.464	-2.917	.007
	Case Cancellation	-.219	.075	.027	.174	.863
	Turnover Time	.021	.121	-.034	-.225	.824

*(**Note**: B = Unstandardized Coefficients, Beta = Standardized Coefficients, Std. Error = Standard Error, t = t-value, p-value = Probability value)*

DISCUSSION

Efficiency in the operating theatre (OT) involves the optimal use of resources, with time utilisation serving as a key indicator. Efficient theatre usage minimises wasted or unused time while maximising surgical output (Moutlana, 2021). Around the world, theatre utilisation is a principal measure of OT performance, offering a quantitative assessment of resource use (Faiz et al., 2008). Several performance indicators are recognised in evaluating theatre efficiency, including scheduling accuracy, first-case start delays, turnover time, and day-of-surgery cancellation rates. This study examined patient flow across each stage of the OT process, from entry into the main theatre to recovery, identifying areas of inefficiency and their impact on overall theatre utilisation.

Our findings showed a theatre utilisation rate of 55.4%, which falls below the international benchmark for best practice (70–85%) (Faiz et al., 2008; Queensland Audit Office, 2016; Asmal et al., 2019). This rate aligns with reports from other studies conducted in African public hospitals, where utilisation rates typically range between 55% and 62% (Asmal et al., 2019; Ford et al., 2021; Tsimanyane et al., 2023). However, Asmal et al. (2019) and Ford et al. (2021) excluded overrun times from their analyses, noting that including overruns could potentially overestimate utilisation rates. In contrast, Hartmann and Sunjka (2013) reported a lower utilisation rate of 48% in a South African private hospital.

Our study observed substantial under-utilisation of theatre time, resulting in significant lost minutes per case on average. These inefficiencies hinder productivity, as lost theatre time could have been used to address surgical backlogs. Conversely, over-utilisation, or overruns, contributed additional time beyond scheduled limits, further reflecting resource inefficiencies. Overruns are particularly problematic, as they can disrupt other services, such as emergency surgeries, increase costs, impact staff morale, and raise patient safety concerns (Charlesworth & Pandit, 2020). Previous guidelines by the Royal College of Anaesthetists suggested that no more than 10% of theatre lists should overrun by more than 15 minutes to maintain efficiency (Colvin & Peden, 2012). However, more recent guidance has shifted towards broader principles, emphasising minimising overruns through effective scheduling and regular audits tailored to specific institutional needs (Royal College of Anaesthetists [RCoA], 2024). While our study did not specifically investigate reasons for overruns, potential contributors may include overbooking of theatre lists and prolonged operation times, particularly for procedures performed by trainee surgeons. Starting the first case on time is essential for reducing time wastage, minimising overruns, and lowering cancellation rates. In our study, no first case commenced as scheduled, with the most frequent cause of delay being the late arrival of the surgical team. This was often attributed to morning ward rounds or other clinical activities extending beyond the first case's scheduled start time. This finding is consistent with other studies. For example, Okeke et al. (2020a), in a prospective Nigerian study, reported first-case delays in 99.3% of cases. Delays are not unique to Nigeria; similar trends have been observed in Ethiopia, where Negash et al. (2022) and Firde et al. (2024) reported late starts in 93.4% and 74.5% of theatre lists, respectively. In southern Africa, Asmal et al. (2019) and Tsimanyane et al. (2023) documented late starts in 74% and 44% of lists, respectively. Our study observed a total of 5,886 minutes lost due to delayed starts, with First Case Tardiness (FCT) emerging as a significant predictor of OT utilisation (p =

0.007). This aligns with the general belief that lists starting late are likely to finish late or remain incomplete, ultimately reducing theatre productivity (Firde et al., 2024). Some researchers argue that FCT may minimally affect time utilisation. Pandit et al. (2012) posited that utilisation largely depends on the number of cases scheduled. They explained that under-booked lists will finish on time regardless of start delays, while over-booked lists will invariably overrun, regardless of punctuality. While this logic holds in many contexts, including our setting, it does not diminish the importance of having a fixed start time for surgical cases. As the authors noted, all professionals are expected to report for work in a timely manner, and setting an agreed start time is necessary for interpreting data on theatre performance. Nor does it diminish the significant impact of first-case tardiness observed in this study. In our environment, where theatre workflows are constrained by limited human resources for health and manual scheduling practices, delays can have a compounding effect, exacerbating inefficiencies. Additionally, overbooked lists in this setting may be particularly susceptible to cascading delays due to the absence of time buffers or contingency measures, which are common in high-resource settings to absorb such disruptions.

The prediction bias, with a mean of 49.9 minutes, was also a significant variable (p = 0.005), indicating that surgeons in this study tended to underestimate case durations. This discrepancy in procedural durations may be influenced by patient-related factors, such as surgical complexity, or anaesthesia-related delays, which inherently make estimates less precise. Similar findings have been reported by Crew and Venter (2024), who observed mean underestimations ranging from 38.1 to 87.1 minutes across five common surgical procedures.

The tendency to underestimate may also reflect systemic pressures, where surgeons feel compelled to schedule shorter durations to accommodate more cases within their allotted theatre time (Arcidiacono et al., 2015). While intended to address surgical backlogs and increase turnover, this approach has notable disadvantages. Scheduling more cases than can realistically be completed within the allocated time often leads to overruns or cancellations, both of which are markers of inefficient theatre practice (Charlesworth & Pandit, 2020). Crew and Venter (2024) highlighted the importance of this issue, noting that underestimating the time required for a procedure by as little as 10 minutes was associated with an 11% cancellation rate. Conversely, overestimating case durations can leave theatre staff idle, reduce utilisation, and negatively impact cost efficiency (Arcidiacono et al., 2015). In our environment, where scheduling systems are largely manual, most lists are likely scheduled randomly, rather than with a deliberate design to meet specific timing targets. This highlights the importance of regularly auditing the prediction bias in our context to improve the accuracy of case duration estimates.

We found that 44.4% (59/133) of scheduled cases were cancelled. This rate is higher than previous estimates from Nigeria and other developing countries, which ranged between 9.1% and 25.5% (Fatungase et al., 2016; Olajide et al., 2018; Okeke et al., 2020b). However, it aligns with a report by Takai et al. (2016), which documented a cancellation rate of 48.5%. The most common reason for cancellations in our hospital was the failure of the patient to show up, accounting for 33.9% of cases. This finding is consistent with Takai et al. (2016) and Okeke et al. (2020b), who reported non-attendance rates of 60.8% and 47.5%, respectively. In contrast, other studies have identified time constraints, overrun lists, and inadequate theatre facilities as the leading causes of cancellations (Elrahman et al., 2014; Olajide et al., 2018; Koushan et al., 2021). In our study, lack of theatre time due to overruns contributed to 27.1% of cancellations.

The high rate of patient non-attendance likely reflects a combination of systemic barriers and patient-specific factors. Financial challenges, such as the inability to pay upfront costs due to limited health insurance coverage, remain a significant obstacle in Nigeria's healthcare system, where out-of-pocket payments dominate. Anxiety surrounding the procedure may also play a role, as patients may feel apprehensive about undergoing surgery or fear potential complications (Okeke et al., 2020b). These findings indicate a need for improved financial counselling, early confirmation of patients' readiness, and preoperative engagement to address these concerns.

General Surgery accounted for the highest number of cancellations, likely reflecting the heavy workload managed by this specialty. A sizeable proportion of these cases involved day-case procedures, which may highlight challenges specific to day-case surgeries in this setting, particularly for patients who need to arrive on time. Admitting some of these patients the night before surgery could mitigate logistical challenges and ensure readiness. Additionally, establishing a dedicated day-case surgery unit could streamline operations and prevent these procedures from impacting the utilisation of the main theatre.

While some cancellations are inevitable, the high proportion of cases cancelled due to poor time management highlights the need for regular audits of theatre time efficiency. An interesting finding was that most cancellations (42.4%) occurred on Mondays, likely due to limited preparation over the weekend when staffing levels are reduced, as many ancillary staff members are off duty. Additionally, surgical materials and instruments required for elective procedures may have been depleted during weekend emergencies, further compounding the problem. These patterns suggest the need to improve weekend workflows to ensure readiness for Monday surgeries. This could include maintaining adequate staffing throughout the week, restocking essential supplies, and improving preoperative planning.

Limitations

This study has several limitations. First, the data collection period was limited to one month and included a relatively small number of operation lists, which may limit the robustness of the findings compared to studies that used data spanning several months or years. A longer observation period would provide a more representative overview. Second, as the data were obtained from a teaching hospital, the heterogeneity and complexity of the surgeries conducted, as well as the skill levels of the surgeons and anaesthetists (such as Consultants versus Residents), could have influenced the estimates of operation duration. Finally, the regression model explained 36% of the variance in theatre utilisation, leaving a substantial portion unexplained. This likely reflects additional systemic or contextual factors not captured in the analysis. Future studies with longer observation periods and broader variable inclusion are recommended to provide a more comprehensive understanding of theatre utilisation.

CONCLUSION

This study identified key factors influencing operating theatre time utilisation in the main theatre of a Nigerian tertiary hospital, along with the most common reasons for case cancellations. Based on our findings, we propose several targeted interventions to address these inefficiencies. For example, punctuality audits, completing ward rounds early, or assigning separate teams for preoperative and ward care may help minimise first case delays. To address prediction inaccuracies, surgeons should receive feedback on their scheduling accuracy through regular audits and be encouraged to use historical case duration data to refine their estimates. Introducing digital scheduling tools that leverage such data could further support accurate predictions to improve theatre utilisation and reduce overruns.

Patient-focused strategies, such as implementing automated reminder systems, conducting preoperative counselling to address anxiety, and ensuring that patients are financially prepared before confirming surgery dates, could improve attendance rates. The establishment of a dedicated day-case surgery unit could further streamline operations and prevent disruptions to main theatre schedules. Additionally, regular documentation and quarterly audits of key performance indicators, with publicly shared results, would promote transparency and support ongoing improvements in theatre efficiency.

Future research should prioritise evaluating the effectiveness of these interventions in improving operating theatre performance, while also exploring systemic barriers such as workforce shortages and infrastructure limitations.

Ethics Approval: This study was reviewed and approved by the Institutional Ethics Review Board of the University of Uyo Teaching Hospital (UUTH/AD/S/96/VOL.XIV/309).

Conflicts of Interest: None declared.

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