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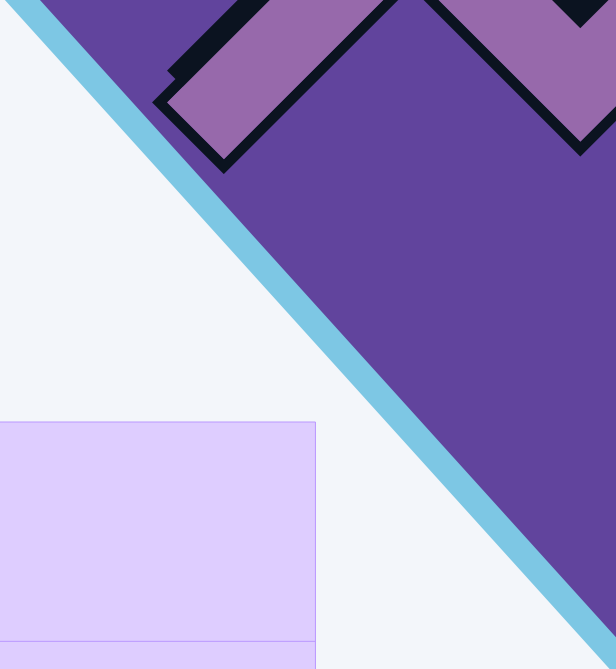
Dissertation

**OPD PATIENT TAT ASSESSMENT AT CARE HOSPITALS,
RAMNAGAR, VISAKHAPATNAM FROM MARCH 2025 TO
APRIL 2025: A CROSS-SECTIONAL STUDY TO IDENTIFY
FACTORS CONTRIBUTING TO PROLONGED TAT**

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ABSTRACT

Background: CARE Hospitals, Ramnagar has been facing prolonged OPD turnaround times (TAT), leading to patient dissatisfaction. Reducing OPD TAT is crucial to enhance patient experience and hospital credibility.

Broad Objective: The study aimed to evaluate average OPD TAT and identify key factors contributing to delays during outpatient visits.

Methodology: A descriptive cross-sectional study was conducted from March 10 to April 10, 2025, involving 261 patients. Data was gathered through direct observation, tracking process times (registration, vitals, consultation) and waiting times at each stage. Additional variables included department and payer type. Univariate and bivariate analyses were used, and Chi-square tests ($p < 0.05$) were applied to assess significant associations with TAT outcomes.

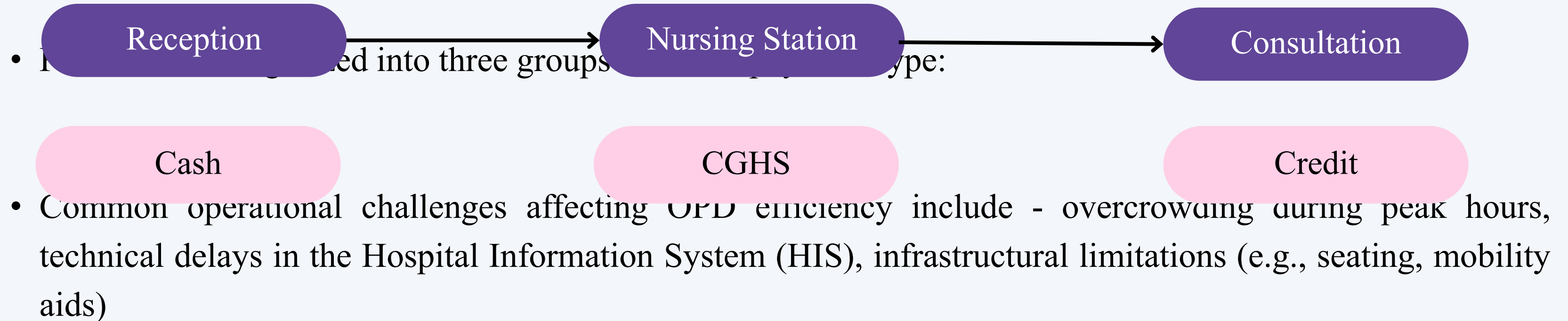
Results: The average OPD TAT was 106 minutes—12 minutes for processes and 90 minutes spent waiting. While 75% of patients met the ideal process time (≤ 15 mins), 82% exceeded the acceptable waiting time (≤ 45 mins), and 86% failed to meet the ideal overall TAT (≤ 60 mins). Statistically significant associations ($p < 0.05$) were found between overall TAT compliance and waiting time before the nursing station, waiting time before consultation, time spent inside the doctor's chamber, total process TAT, and total waiting time. Notably, 40% of prolonged TATs were due to delayed consultant arrival.

Conclusion: The study identified multiple operational and systemic gaps—consultant delays, inefficient registration and billing, inadequate nursing coverage, poor interdepartmental coordination, and insufficient infrastructure for elderly patients—as key contributors to prolonged OPD TAT.

OVERVIEW OF OPD

It operates across two floors and comprises 13 clinical departments integrated with essential diagnostic services.

- Key departments include Cardiology, Orthopaedics, Internal Medicine, and Gynecology.
- The OPD is divided into 3 functional areas-



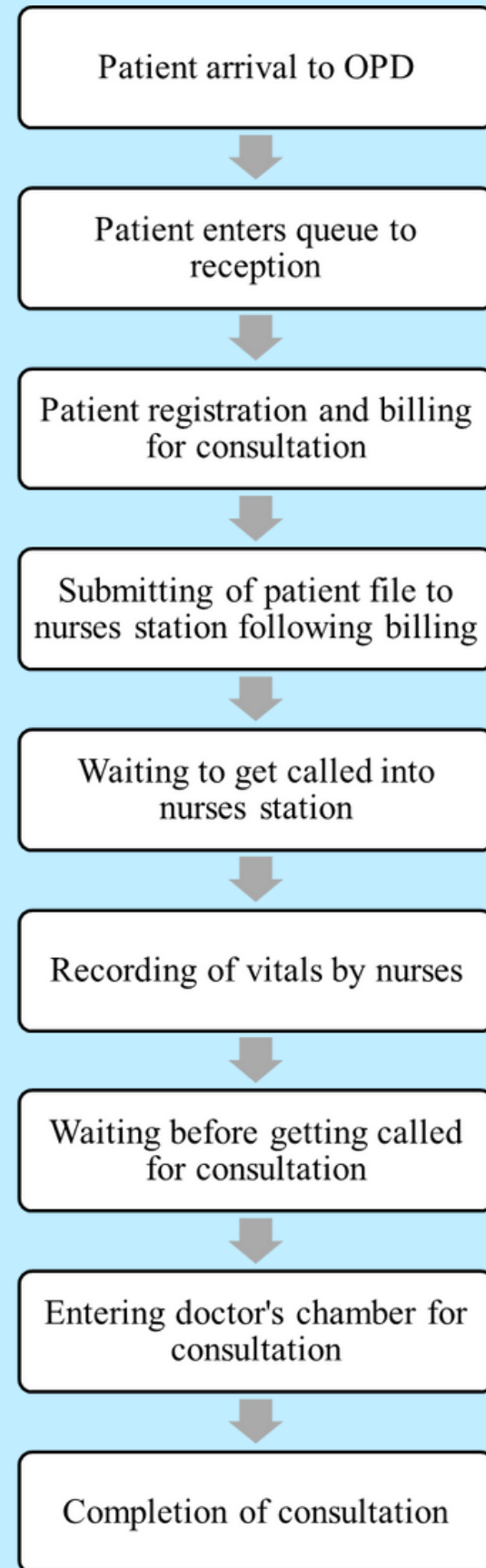
INTRODUCTION

Corporate hospitals in India play a vital role in delivering tertiary and emergency care, with OPDs serving as the first point of clinical contact for most patients, offering preventive, diagnostic, and curative services at scale [1][2]. However, OPDs increasingly face crowding challenges, not just in public hospitals but also in corporate facilities, especially in Tier 2 cities [3]. Prolonged waiting times—defined as the duration from patient arrival to consultation—are linked to dissatisfaction, stress, and compromised care quality [4][5][6][7][8]. Despite IOM standards suggesting 90% of patients should be seen within 30 minutes [9], developing countries often report waits of 2–4 hours [10]. Contributing factors include bypassing of primary care, aggressive hospital marketing, and preference for specialist-led treatment [11][12]. Addressing these issues is essential to improve service efficiency and patient satisfaction in corporate hospital OPDs [13][14][15]

Process and Waiting time	Variables	Ideal TAT
Registration and Billing TAT	TAT2	2 mins
Ideal waiting time in queue for registration	TAT1	5 mins
Ideal Nurse Station- Vital recording TAT	TAT4	3 mins
Ideal waiting time before getting called for recording vital	TAT3	10 mins
Ideal Consultation TAT	TAT6	10 mins
Ideal waiting time before consultation	TAT5	30 mins
Total TAT	OTAT	60 mins

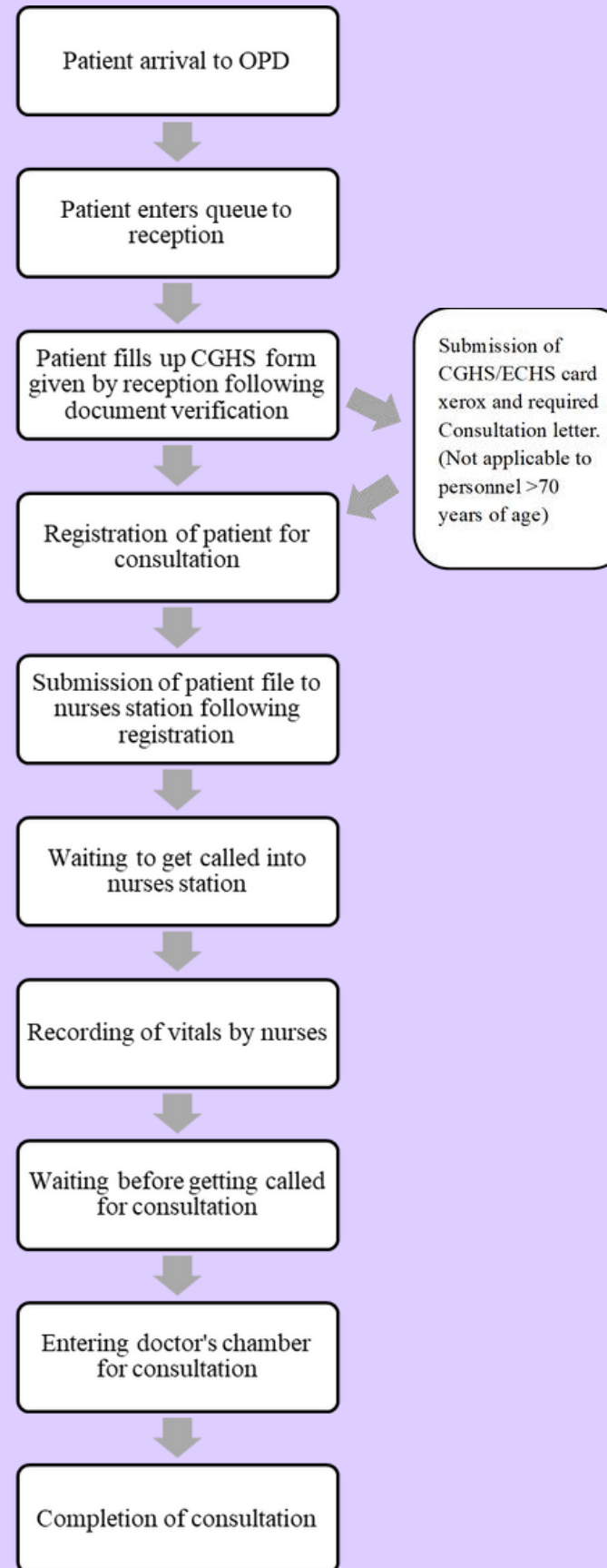
Process flow for OPD Cash

Patients



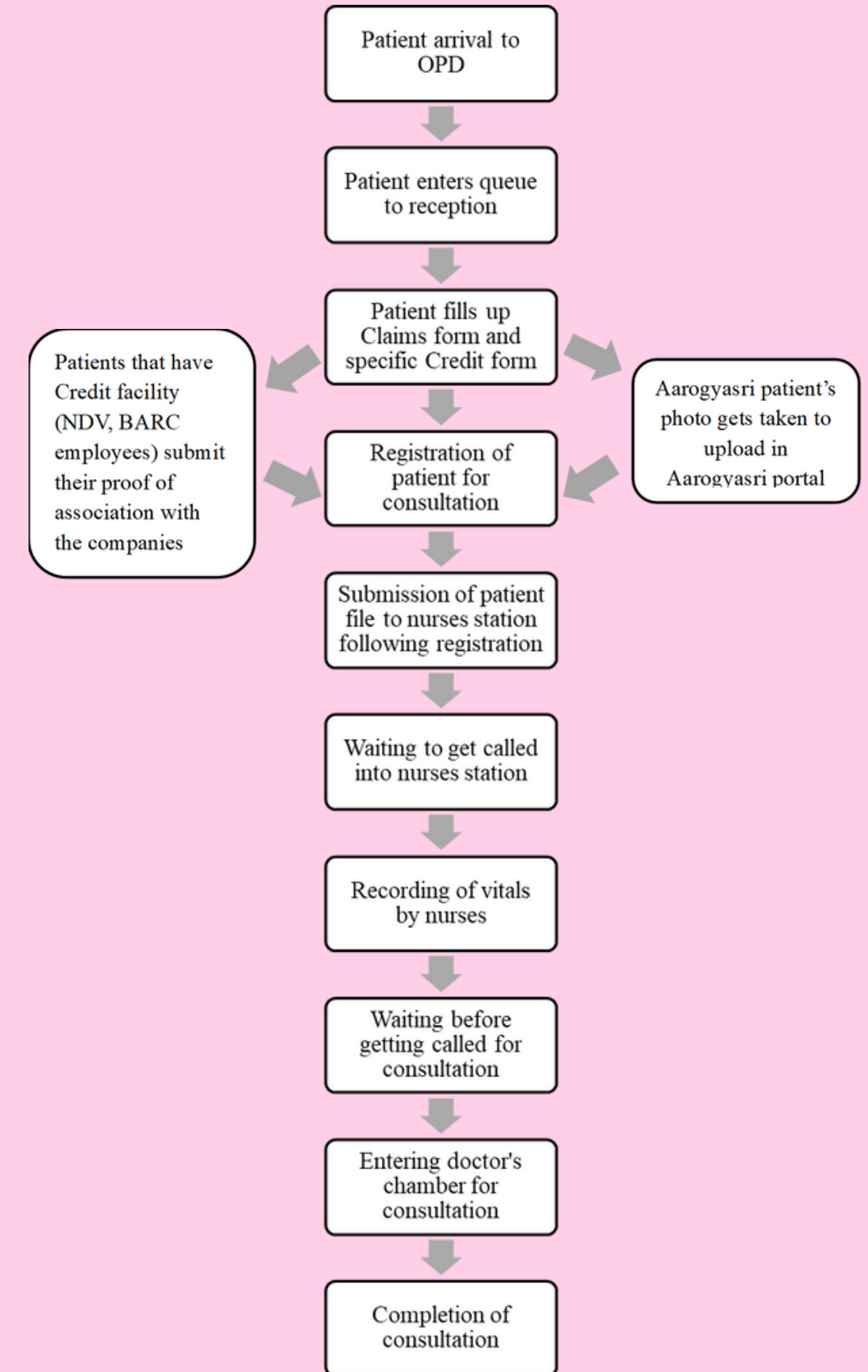
Process flow for OPD

CGHS Patients



Process flow for OPD

Credit Patients



RESEARCH QUESTIONS

Broad-

- ·What is the overall TAT of the OPD, and what are the factors contributing to increased OPD TAT?

Specific-

- ·What is the average waiting time to arrive at the reception desk upon entering the OPD area, and what are the causes for delay?
- ·What is the average time required to finish the registration process, and what are the causes for delay?
- ·What is the average waiting time to approach the nurses' station, and what are the causes for delay?
- ·What is the average time taken to record vitals at the nurses' station, and what are the causes for delay?
- ·What is the average waiting time before entering the doctors' chamber for consultation, and what are the causes for delay?
- ·What is the average time taken by the doctor per consultation, and what are the causes for delay?

OBJECTIVES

Broad:

- ·To assess the average overall TAT (O-TAT) of OPD and identify factors contributing to delay

Specific:

- ·To evaluate the mean wait period for patients in the queue to arrive at reception (TAT1) and identify sources of delays.
- ·To evaluate the average time required to complete the registration process and billing (TAT2) and identify factors leading to delay
- ·To evaluate average waiting time to approach the nurse station for vital check (TAT3) and determine the probable causes for delay.
- ·To evaluate the average time taken to record vitals (TAT4) and determine the probable causes for delay.
- ·To evaluate the average waiting time of patients before entering the doctor's consultation chamber (TAT5) and determine the probable causes for delay.
- ·To evaluate the average time taken by doctors to complete per-patient consultations (TAT6) and determine the probable causes for delay.

REVIEW OF LITERATURE

Article	Year of Publishing
Ranathunga S. Case Study on Waiting Time and Consultation Time in OPD Patients at Three Selected District Hospitals of Gampaha District from January to March 2023.	2023
Biya, M., Gezahagn, M., Birhanu, B. et al. Waiting time and its associated factors in patients presenting to outpatient departments at Public Hospitals of Jimma Zone, Southwest Ethiopia. BMC Health Serv Res 22, 107 (2022). https://doi.org/10.1186/s12913-022-07502-8	2022
Kaur R, Kant S, Goel AD, Sharma N. Patient Satisfaction Among the OPD Attendees at a Secondary CARE Hospitals in Northern India. J Patient Exp. 2022 Aug 11;9:23743735221120497. doi: 10.1177/23743735221120497. PMID: 35983017; PMCID: PMC9380211.	2022
Sharma N, Aggarwal AK, Arora P, Bahuguna P. Association of waiting time and satisfaction level of patients with online registration system in a tertiary level medical institute outpatient department (OPD). Health Policy and Technology. 2022 Dec 1;11(4):100687.	2022
Khan H, Singh AK. A study on waiting time of the OPD Patient in a Multispecialty Hospital. International Journal For Research In Applied Science & Engineering Technology (IJRASET). Available At: Wwww. Ijreset. Com. 2021.	2021
Medical Journal of Islamic World Academy of Sciences doi: 10.5505/ias.2019.89410 2019;27(3): 71-76	2019
Thi Thao Nguyen S, Yamamoto E, Thi Ngoc Nguyen M, Bao Le H, Kariya T, Saw YM, Duc Nguyen C, Hamajima N. Waiting time in the outpatient clinic at a national hospital in Vietnam. Nagoya J Med Sci. 2018 May;80(2):227-239. doi: 10.18999/nagjms.80.2.227. PMID: 29915440; PMCID: PMC5995730.	2018
Patel R, Patel HR. A study on waiting time and out-patient satisfaction at Gujarat medical education research society hospital, Valsad, Gujarat, India. Int J Community Med Public Health. 2017 Mar;4(3):857-63.	2017
Oche M, Adamu H. Determinants of patient waiting time in the general outpatient department of a tertiary health institution in north Western Nigeria. Ann Med Health Sci Res. 2013 Oct;3(4):588-92. doi: 10.4103/2141-9248.122123. PMID: 24380014; PMCID: PMC3868129.	2013

METHODOLOGY

Study Design and Setting: Descriptive cross-sectional study.

Inclusion Criteria: The study included patients who visited the OPD between 10th March and 10th April 2025, between 9:00 AM to 2:30 PM, excluding Sundays.

Exclusion Criteria: Patients who came only for lab investigation billing, Patients referred to another facility for consultation, Patients with cancelled or rescheduled appointments, Patients who left the facility after taking an appointment, Patients who had to undergo lab investigations before consultation, Patients who did not complete the process from registration to consultation, Patients who required more than one consultation, Cases where delays occurred due to the patient's own actions.

Data Collection: Data was collected through direct observation and shadowing of individual patients throughout their OPD journey.

Sample Size: 261 patients

Sampling Technique: Convenience sampling

Data Analysis: Data was analyzed using SPSS version 26. Descriptive statistics (frequency, median) were used for univariate analysis. Variables were recoded to check how many cases met the ideal TAT for processes and waiting times, and a new variable was computed to identify cases meeting the ideal overall TAT of 60 minutes. Chi-square tests were used for bivariate analysis, with a p-value < 0.05 considered statistically significant.

Process TAT = TAT2 + TAT4 + TAT6

Waiting Time = TAT1 + TAT3 + TAT5

Overall TAT = Process TAT + Waiting time = TAT1 + TAT2 + TAT3 + TAT4 + TAT5 + TAT6

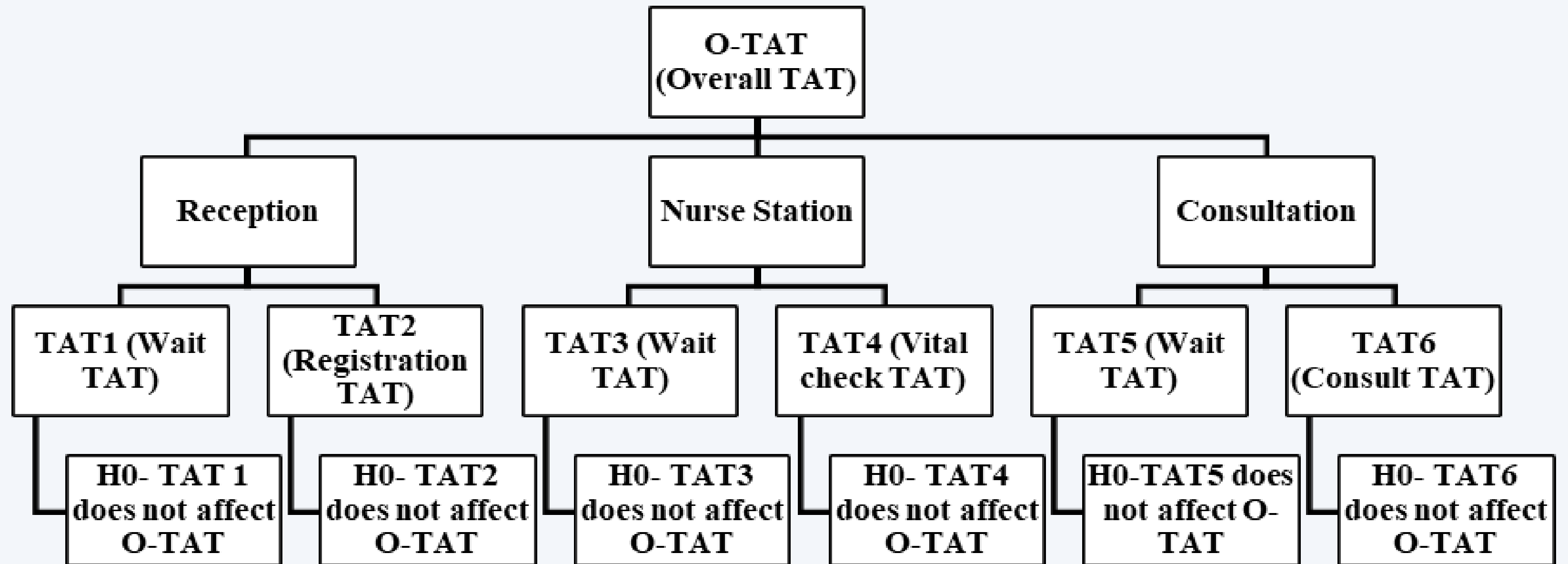
Ethical Considerations

- Patient confidentiality was strictly maintained, and no identifying information was disclosed.
- Verbal informed consent was obtained from each participant after explaining the purpose, risks, and benefits of the study.
- Observation was conducted in a non-intrusive manner to avoid discomfort or disruption.
- No secondary data (from hospital management or records) was used to avoid bias.
- Patients were selected without preference to age, gender, payer type, or department.

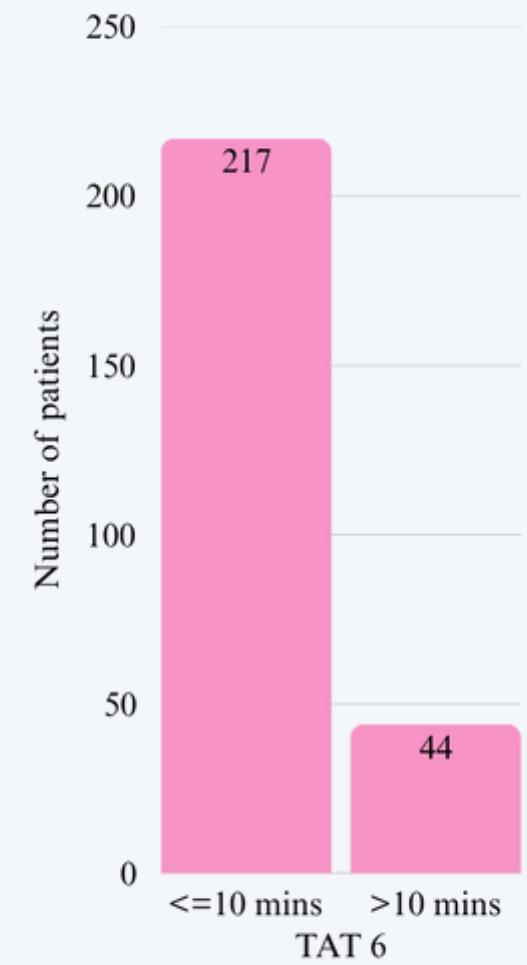
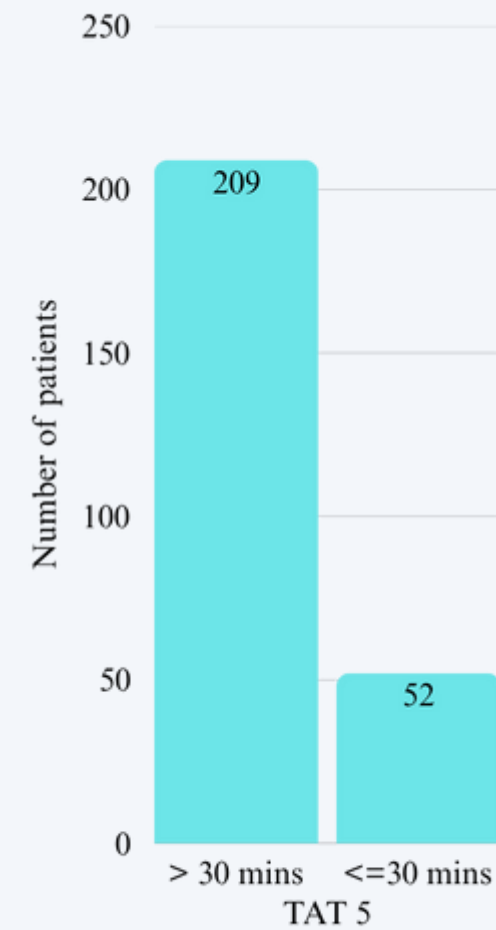
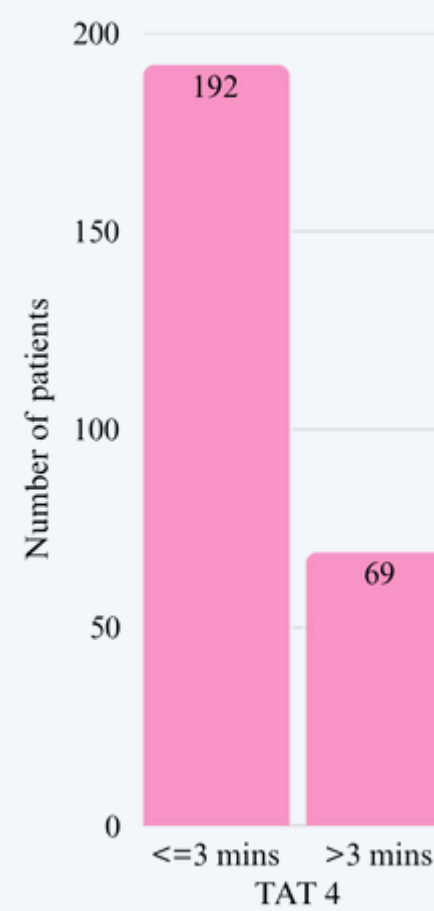
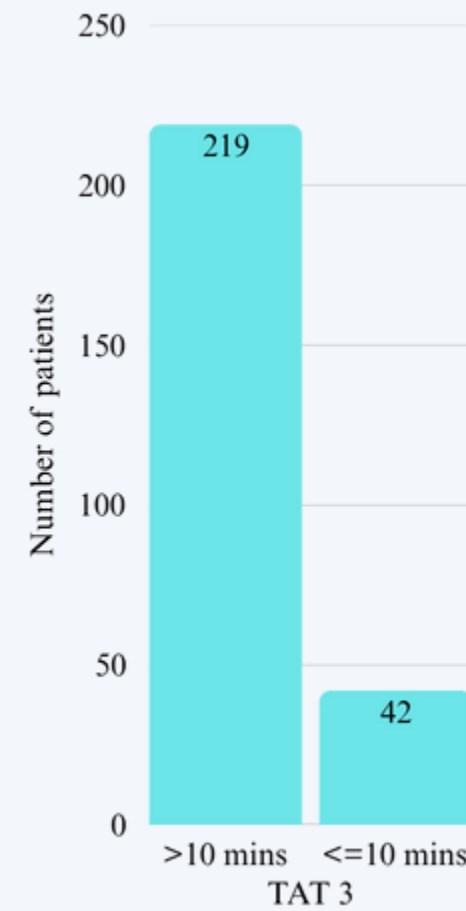
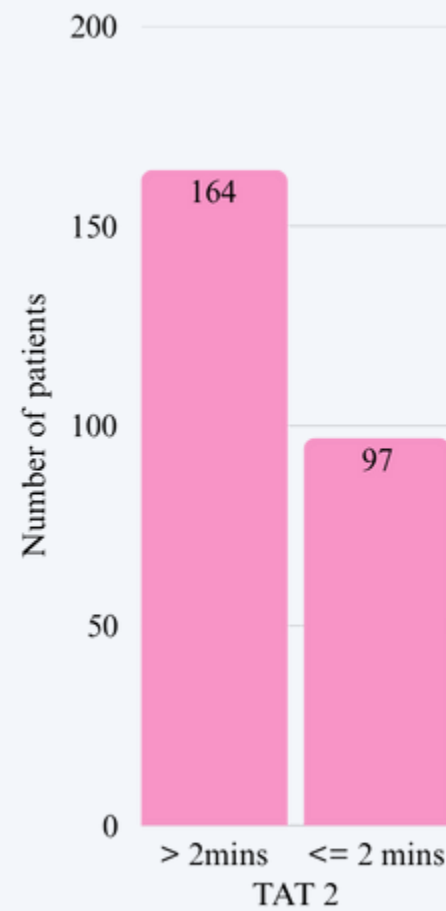
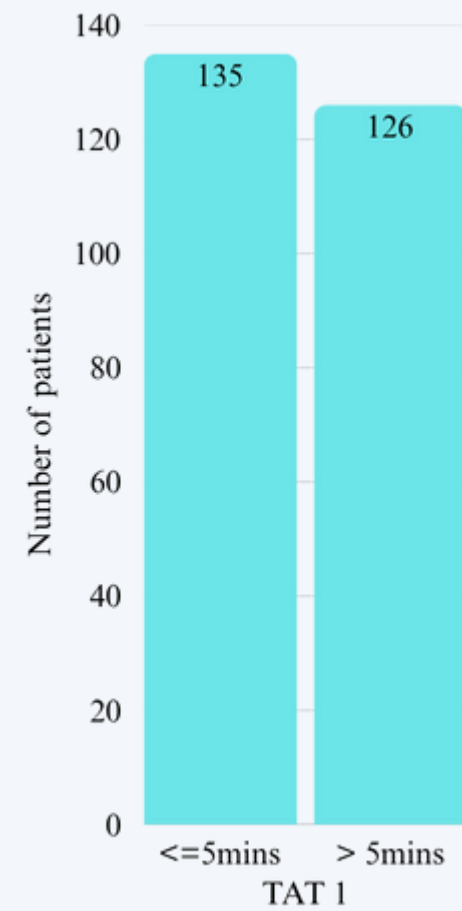
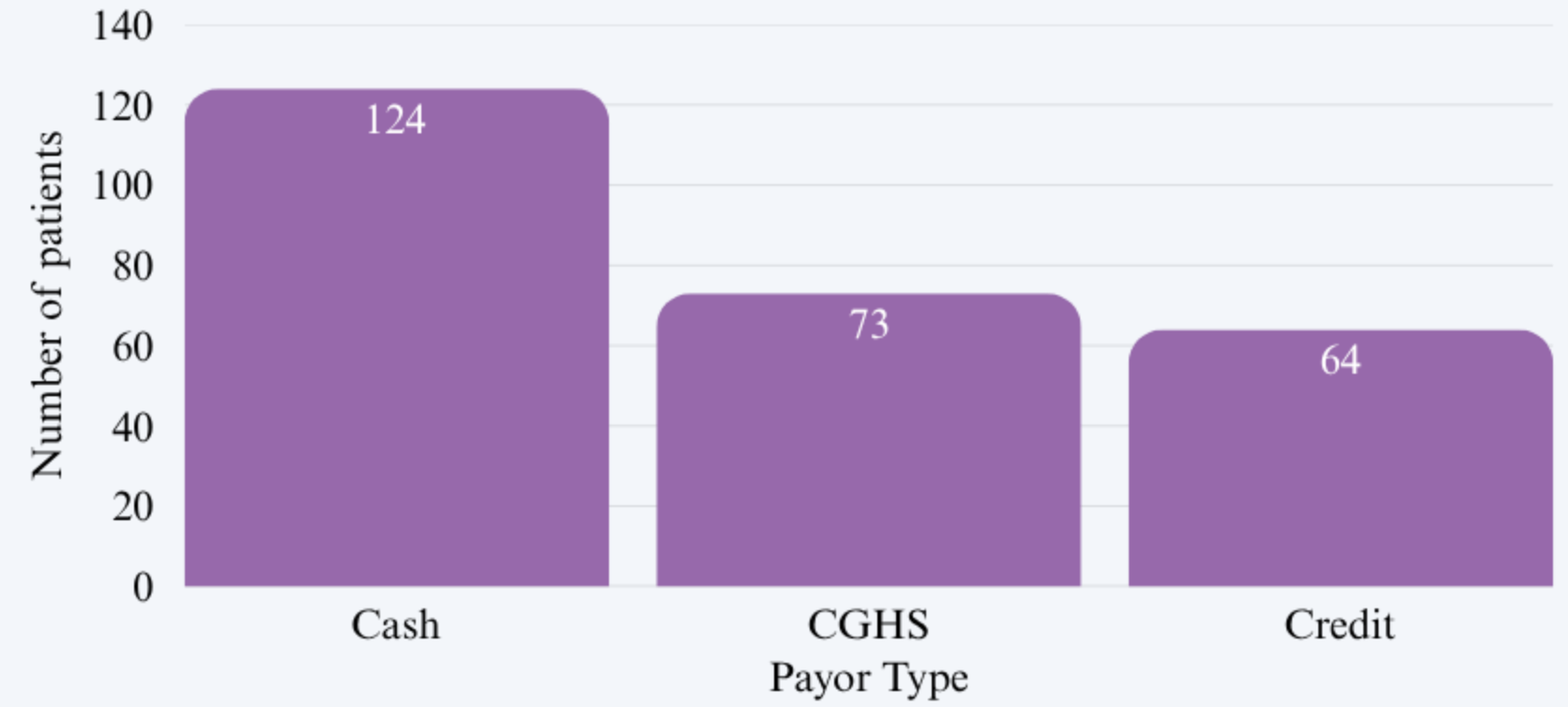
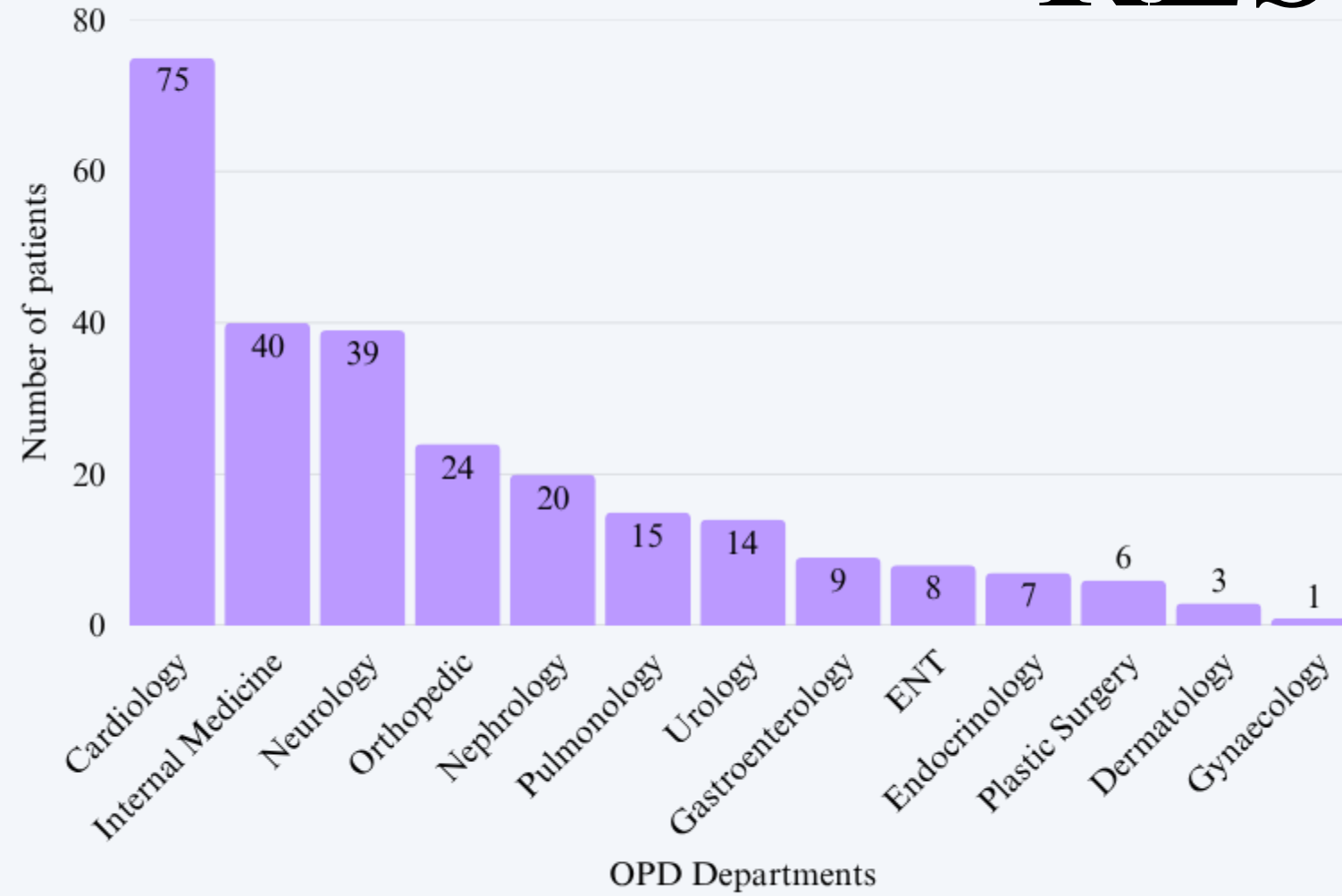
Limitations

- The study was restricted to patients visiting between 9:00 AM and 2:30 PM and did not include Sunday visits, which may have different patterns.
- Patients undergoing multiple consultations were excluded, potentially underestimating the actual time spent in the OPD for such cases.

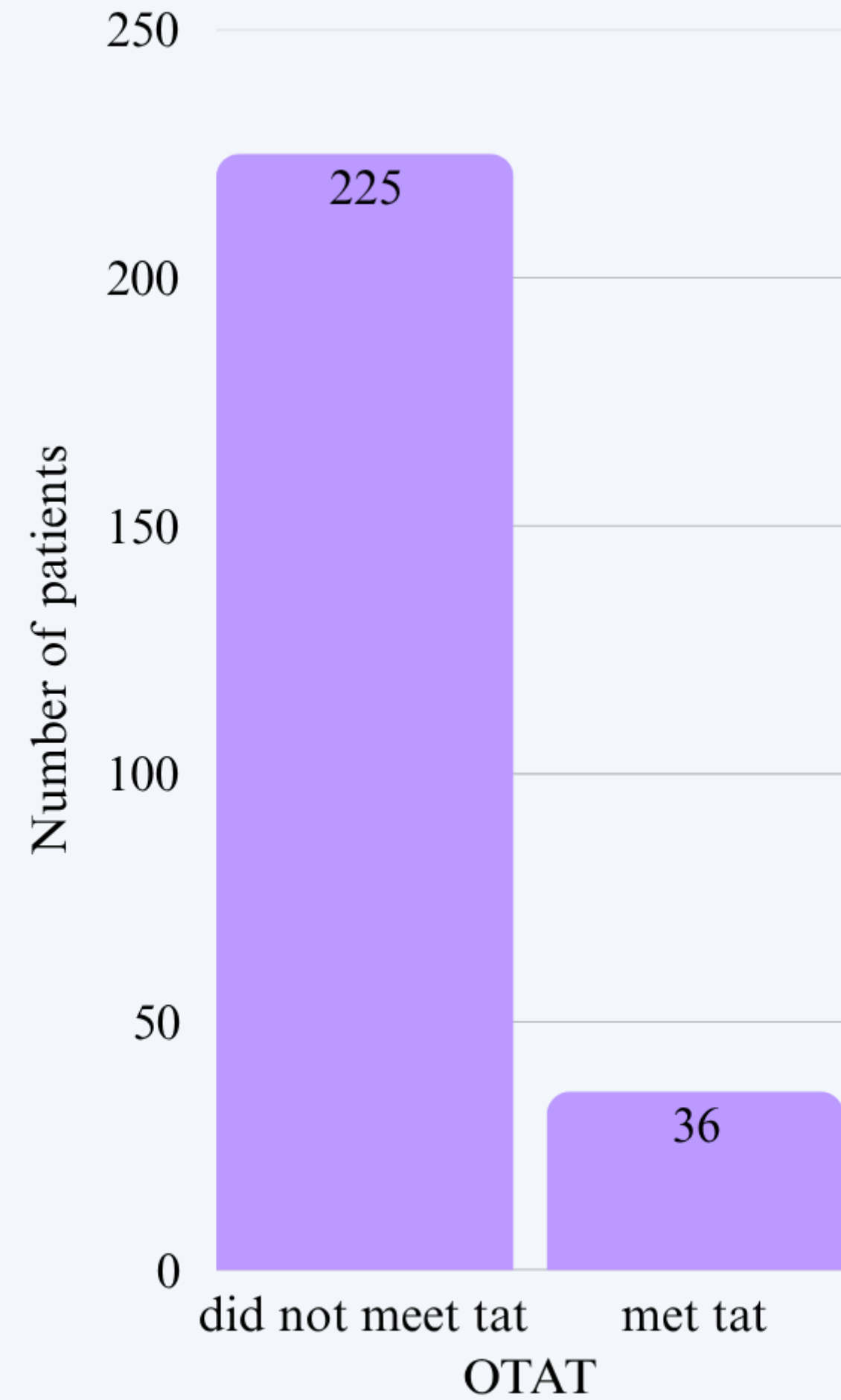
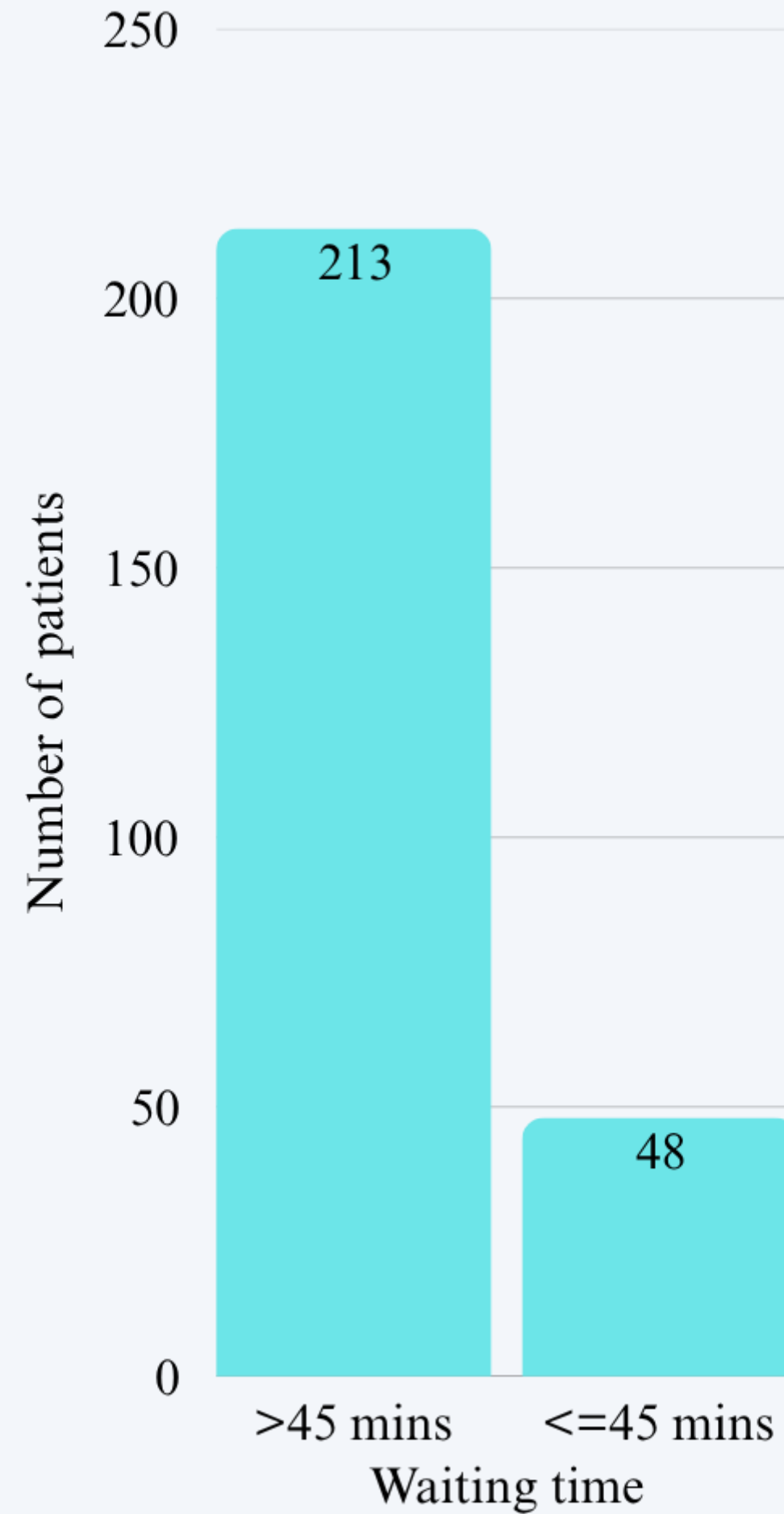
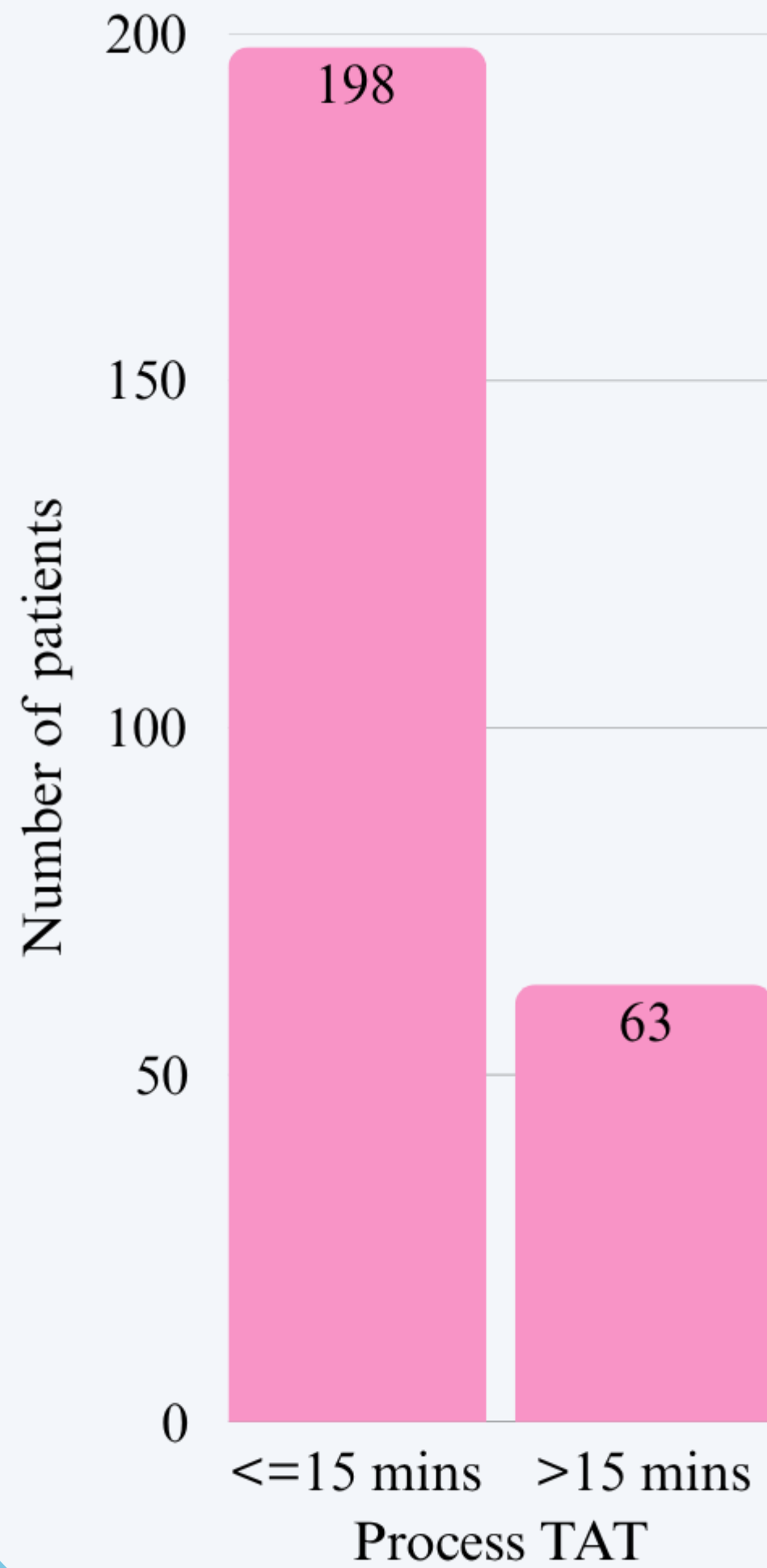
HYPOTHESIS



RESULTS



RESULTS



RESULTS

Median, IQR, Minimum, and Maximum time of individual time variables related to OPD TAT (n=261)

Variable	Median (in mins)	IQR (in mins)	Minimum (in mins)	Maximum (in mins)
TAT1	5.00	8	0	40
TAT2	3.00	2	0	23
TAT3	18.00	11	0	150
TAT4	2.00	2	1	12
TAT5	66.50	77	0	225
TAT6	6.00	4	1	25
Process TAT	12.00	5	4	39
Waiting Time	90.00	79	0	261
OTAT	106.00	80	5	275

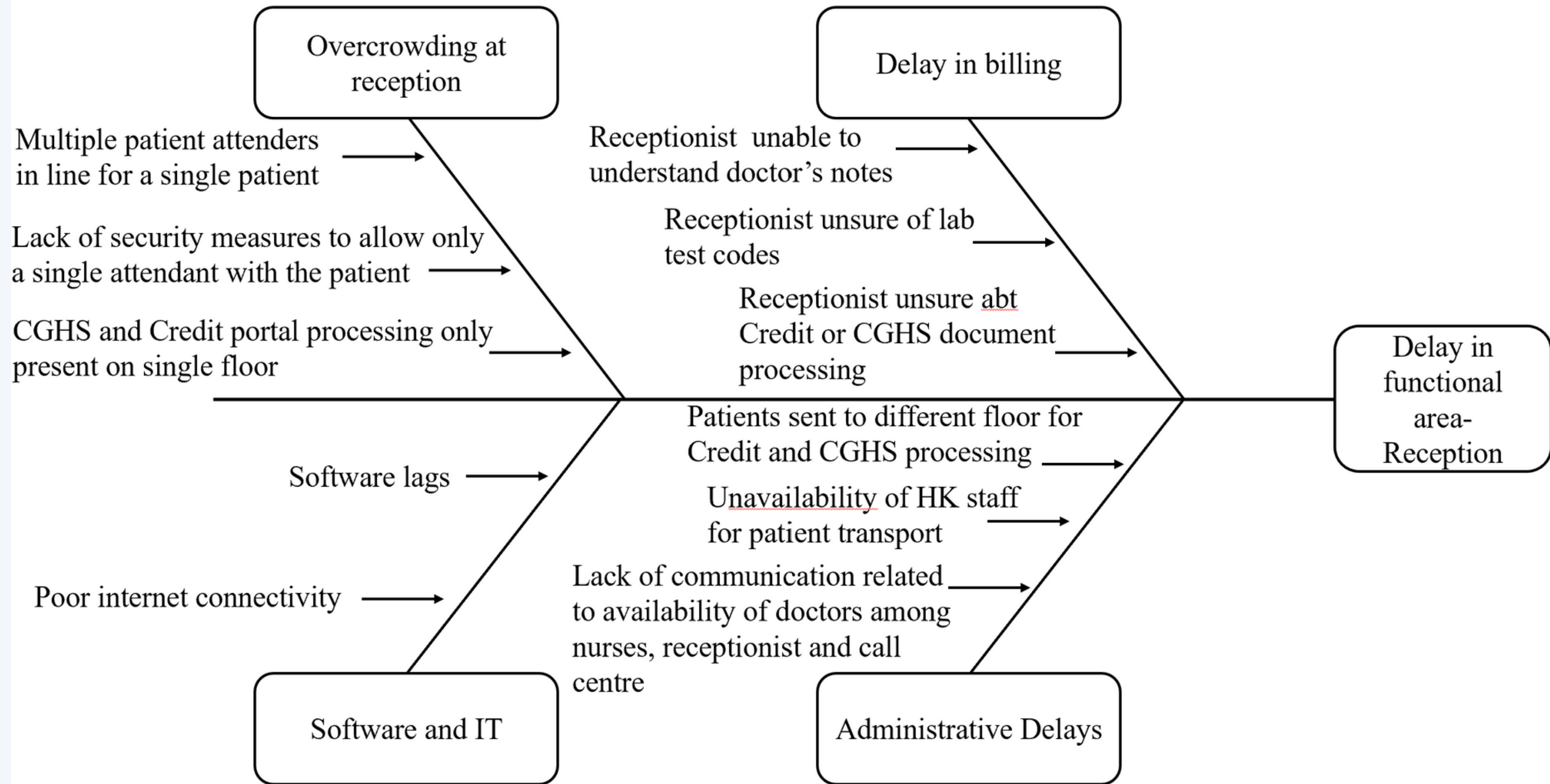
Association between each department, payer type, and individual TAT variables with the achievement of Ideal TAT (n=261)

Variable	Number of cases that met Ideal TAT	Total	P value
Department			0.006**
Cardiology	5	75	
Dermatology	0	3	
Endocrinology	0	7	
ENT	3	8	
Gastroenterology	0	9	
Gynaecology	0	1	
Internal Medicine	12	40	
Nephrology	0	20	
Neurology	8	39	
Orthopedic	3	24	
Plastic Surgery	0	6	
Pulmonology	1	15	
Urology	4	14	
Payer Type			0.464
Cash	18	124	
CGHS	12	73	
Credit	6	64	
TAT1			0.393
<=5 mins	21	135	
>5 mins	15	126	
TAT2			0.330
<=2 mins	16	97	
>2 mins	20	164	
TAT3			0.002*
<=10 mins	12	42	
>10 mins	24	219	
TAT4			0.833
<=3 mins	27	192	
>3 mins	9	69	
TAT5			<0.001*
<=30 mins	29	52	
>30 mins	7	209	

Association between each department, payer type, and individual TAT variables with the achievement of Ideal TAT (n=261)

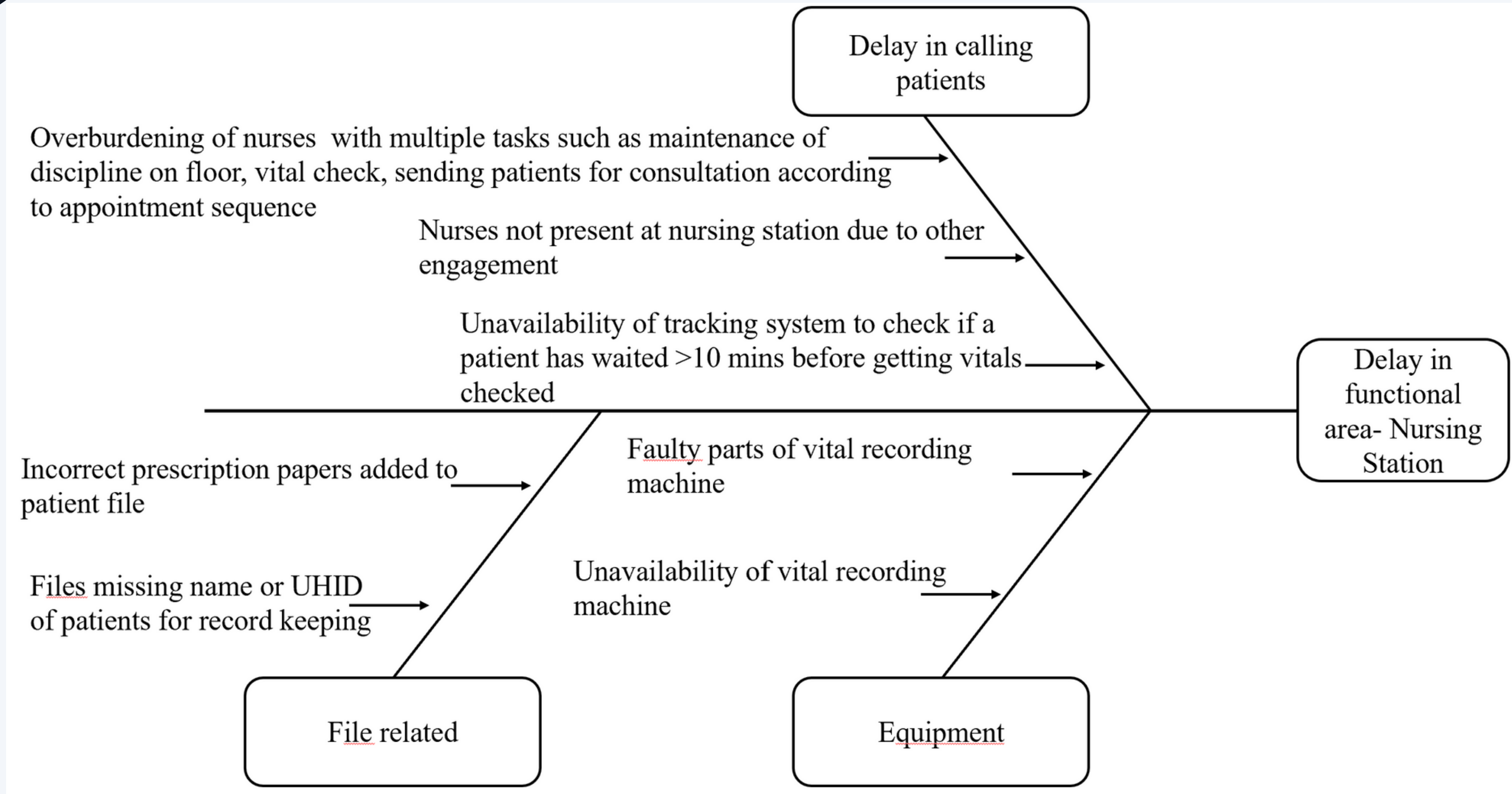
Variable	Number of cases that met Ideal TAT	Total	P value
TAT6			0.015*
<=10 mins	35	217	
>10 mins	1	44	
Process TAT			<0.001*
<=15 mins	36	162	
>15 mins	0	63	
Waiting time			<0.001*
<=45 mins	36	48	
>45 mins	0	213	
*p<0.05			
**although a p value of <0.05 is seen, it cannot be considered as 12 cells had frequency of less than 5.			

DISCUSSION



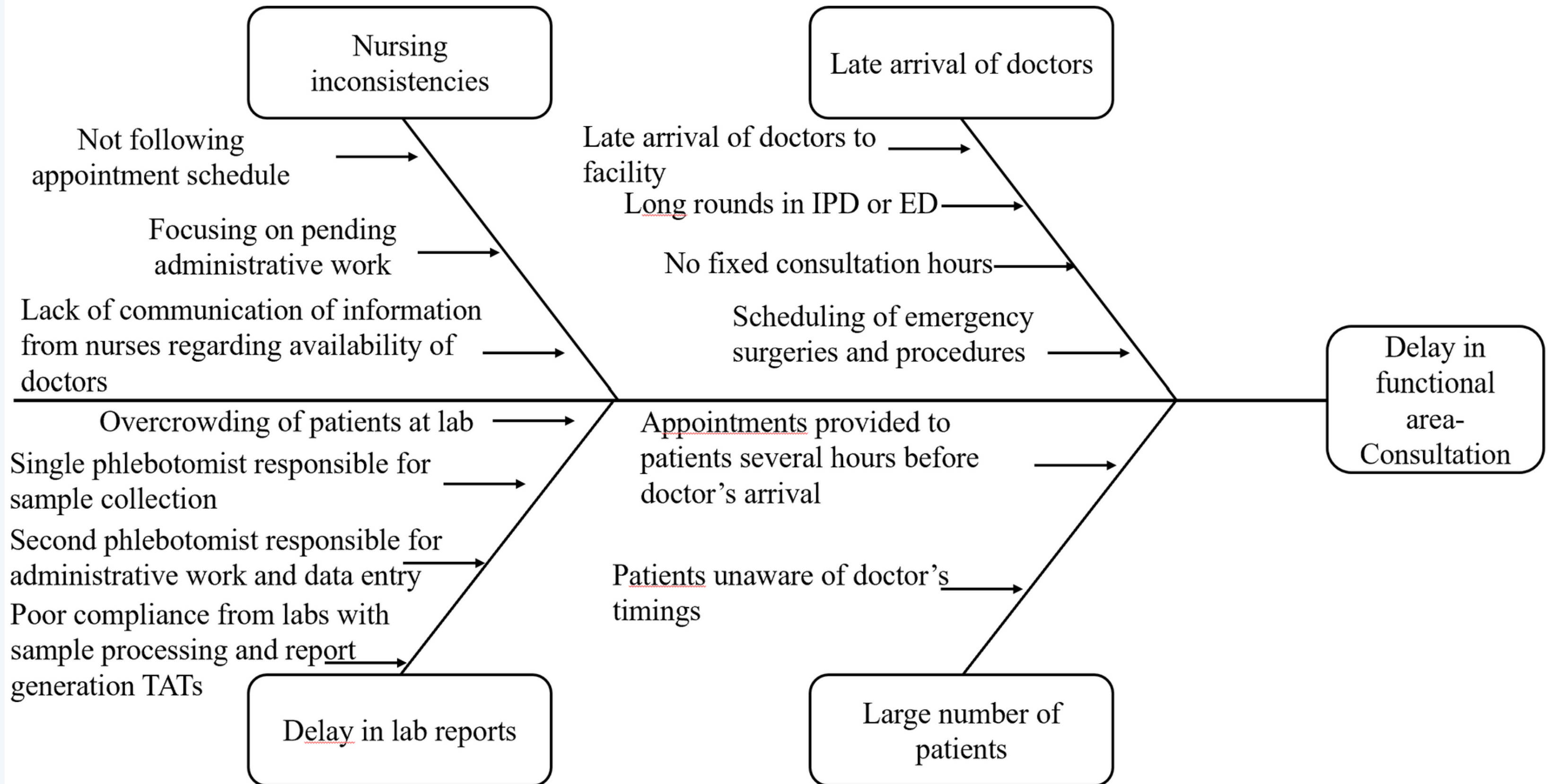
Reasons contributing to delay at the OPD reception

DISCUSSION



Reasons contributing to delay at the OPD nursing station

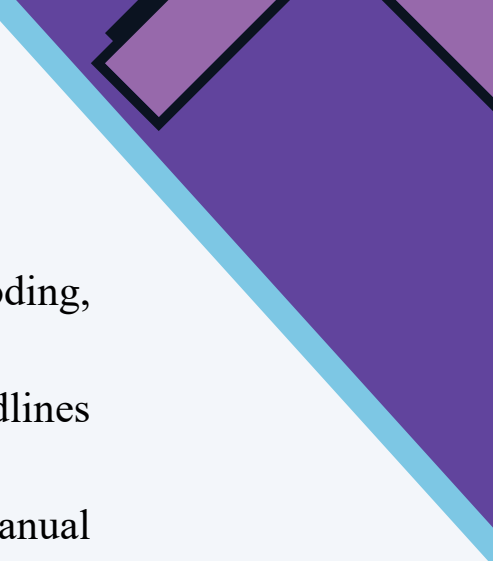
DISCUSSION



Reasons contributing to delay for Consultation



RECOMMENDATIONS



Reception

- Train Reception & Billing Staff through competency-based programs covering billing, appointment scheduling, software use, clinical terminology, diagnostic coding, accurate data entry, and basic grievance redressal, with performance evaluations via mock drills.
- Maintain Reception Infrastructure by enforcing a preventive maintenance schedule for all hardware/software and establishing backup protocols for hospital landlines through mobile call forwarding during failures.
- Introduce Barcode Scanning at registration and consultation counters to reduce manual errors, speed up workflow, and support future EMR integration, limiting manual entry to exceptional cases only.
- Install Multilingual Signage at key points (in English, Telugu, Hindi, Odia) to clearly indicate required documents for different patient categories and reduce confusion and delays at registration.
- Deploy Trained Volunteers on the OPD floor to guide patients through the registration process, check documentation, direct them to counters, and answer basic non-clinical queries.
- Optimize Appointment Scheduling by aligning patient slots with consultant availability, ensuring patients are called within 30 minutes of OPD start time, and training telebooking staff to verify schedules and enter accurate details.

Nursing Station

- Ensure Continuous Nurse Presence at the OPD nursing desk during operational hours and mandate that vital signs are recorded within 10 minutes of receiving the patient file, supported by well-maintained equipment.
- Train Nurses for Patient Engagement by encouraging proactive communication, assisting with queries, and deferring non-urgent tasks during peak hours to improve responsiveness and reduce redirection to reception.
- Implement Triage Training to help nurses identify true emergencies for justified appointment order changes, with mandatory empathetic explanations to maintain fairness and patient trust.

Consultation

- Plan Consultant Availability Strategically by scheduling elective surgeries on low-OPD days, coordinating doctor availability with OPD teams, and offering timely communication, rebooking, or alternate referrals in case of delays.
- Enhance Quality of Consultations by encouraging doctors to allocate sufficient time, practice empathetic communication, and address patient concerns thoroughly—especially after long waiting times—to rebuild trust.

Administration

- Strengthen Interdepartmental Coordination by defining turnaround time (TAT) benchmarks, tracking them through dashboards or logbooks, and holding monthly cross-departmental meetings to monitor performance, address bottlenecks, and share service recovery best practices.
 - Improve OPD Infrastructure by increasing seating, adding wheelchair bays, using stackable chairs, and enforcing a one-attender-per-patient policy sensitively, especially for elderly or dependent patients.
 - Implement Multilingual Communication Aids by standardizing key information in English, Telugu, Hindi, and Odia, installing multilingual kiosks, and deploying language-proficient navigators to support patient navigation.
- 

CONCLUSION

- **Study Focus:**
 - Analyzed workflows, patient movement, registration, and coordination in the OPD to identify root causes of delays and service inefficiencies.
- **Key Findings:**
 - Mismatch in Appointment & Consultant Availability: Led to early patient arrivals, overcrowding, and long waits.
 - Registration & Billing Bottlenecks: Caused by tech failures, lack of multilingual support, and unclear documentation requirements.
 - Nursing Gaps: Irregular presence at OPD desks delayed vitals recording and file movement.
 - Fragmented Interdepartmental Coordination: No clear TAT benchmarks; delays in lab/radiology slowed consultations.
 - Infrastructure Limitations: Insufficient seating, poor signage, and no dedicated support for elderly or mobility-impaired patients.
 - Language Barriers: Lack of multilingual communication led to confusion and dependence on attenders.
- **Recommendations:**
 - Tech-Based Solutions: Introduce barcode scanning, improve landline/IT infrastructure.
 - Human Resource Reforms: Train reception, nursing staff in both technical & soft skills; deploy trained volunteers.
 - Better Scheduling: Align OPD appointments with consultant availability; improve OT-OPD coordination.
 - Monitoring Mechanisms: Monthly review meetings, dashboards, and interdepartmental performance tracking.
- **Core Message:**
 - Improving OPD efficiency requires a holistic, patient-centered approach addressing not just isolated gaps but the entire operational ecosystem.
- **Outcome Potential:**
 - By implementing these changes, CARE Hospitals can strengthen patient trust, reduce wait times, and enhance its reputation as a responsive, high-quality healthcare provider.

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THANK YOU

Presented by: Dr. Srabani Chattopadhyay

