

***Optimizing Patient Flow:
Reducing Waiting Time in the
Outpatient Department
(OPD) at Dr. Mukesh Baghel
Multispeciality Hospital,
Agra***

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Introduction



Background Overview

- ✓ Outpatient Departments (OPDs) play a pivotal role in modern healthcare delivery systems.
- ✓ They serve as the **initial point of contact** for patients seeking medical consultation, follow-ups, or diagnostic services without requiring hospitalization.
- ✓ The efficiency of OPDs is critical to ensuring a positive patient experience, maintaining clinical quality and optimizing hospital resources.
- ✓ Globally, prolonged waiting times in OPDs remain a significant concern, linked to patient dissatisfaction, increased operational costs, staff burnout, and missed opportunities for early diagnosis and treatment.
- ✓ In India, especially in tier-2 cities and semi-urban areas, increasing patient loads strain healthcare infrastructure and human resources, worsening these challenges



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- A recent internal patient satisfaction study revealed that nearly 35% of OPD patients expressed dissatisfaction specifically regarding waiting times and administrative delays (Gupta P et. al 2018)
 - **Systemic Issues: Tier-2 City Healthcare Strain**
 - In semi-urban areas like Agra, healthcare infrastructure and human resources are overstretched.
 - Tier-2 private hospitals often lack optimized digital systems and workflow models.
 - Rising patient loads make these inefficiencies more visible and harmful.
 - **Rationale**

Despite advancements in healthcare, Dr. Mukesh Baghel Multispecialty Hospital faces persistent OPD inefficiencies like long wait times, manual processes, and poor coordination. These issues stem from a lack of structured scheduling, triage, and data-driven management. The resulting delays compromise care quality and patient satisfaction, highlighting the urgent need for workflow optimization

Research Question

How can waiting time be reduced in the Outpatient Department (OPD) of Dr. Mukesh Baghel Multispecialty Hospital, Agra, to improve patient satisfaction and optimize hospital operations?

Research Objectives

1. To assess the current waiting time and identify major delays in OPD services.
2. To analyse patient experiences and satisfaction levels concerning waiting time.
3. To recommend workflow improvements aimed at enhancing OPD efficiency.

Literature Review

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Literature Review	AUTHOR (YEAR)	SAMPLE LOCATION	SAMPLE SIZE	SAMPLING TECHNIQUE	SALIENT FEATURES
	Rani P, Mishra A (2024)	Kanpur (Tier-2 City)	250	Simple Random Sampling	Focused on identifying causes of delays in OPD services; emphasized staff shortages, infrastructure gaps, and poor time management.
	Patel N, Mehta R (2022)	Ahmedabad	300	Stratified Sampling	Assessed patient satisfaction in urban OPDs; highlighted cleanliness, doctor behaviour, and waiting time as key factors.

Literature Review

AUTHOR (YEAR)	SAMPLE LOCATION	SAMPLE SIZE	SAMPLING TECHNIQUE	SALIENT FEATURES
Sharma D, Jain A (2022)	Indore	200	Purposive Sampling	Explored use of AI-based queue management; reported reduced waiting time and improved patient flow.
Kaur R, Gupta S (2023)	Ludhiana	220	Systematic Sampling	Evaluated impact of digital token system; found significant improvement in OPD efficiency and patient satisfaction.

Methodology

- **Research Design**

This study employed a descriptive cross-sectional design with a mixed-methods approach to investigate outpatient department (OPD) workflow efficiency, patient satisfaction, and sources of delay. The research was conducted over a three-month period (March to May 2025) at Dr. Mukesh Baghel Multispecialty Hospital in Agra, India. Qualitative as well as quantitative data was collected via the use of a structured questionnaire which was created specifically for this purpose

- **Study Setting**

The study was conducted in the OPD of Dr. Mukesh Baghel Multispecialty Hospital, a private, NABH-accredited healthcare facility in Agra. The hospital provides a wide range of outpatient services and serves a demographically diverse patient population, making it an ideal setting to examine workflow efficiency and patient satisfaction in a Tier-2 city

- **Study Population**

The study targets OPD patients seeking consultations or diagnostics, and healthcare staff including doctors, nurses, administrative officers, and receptionists involved in outpatient services

- **Research procedure**

The research started with observing OPD patients to track their movement and waiting time across various service points like registration, vitals, consultation, diagnostics, and billing. Patient feedback was collected after consultations to understand their experience regarding waiting time, staff communication, and overall satisfaction. Simultaneously, interviews with OPD staff members, including doctors, nurses, receptionists, and administrative staff, were conducted to explore workflow challenges and gather suggestions for improvement. The data collected was then analysed using statistical tools and thematic analysis to identify common issues such as communication gaps, delays, staffing challenges, and infrastructure concerns. The study used observation checklists, feedback forms, and interview guides for data collection.

- **SAMPLE SIZE**

150 samples were collected over period of 3 months

PARTICIPANT CATEGORY	NUMBER OF PARTICIPANTS
OPD PATIENTS	100
DOCTORS	20
NURSES	15
ADMINISTRATIVE STAFF	10
RECEPTIONISTS	05
TOTAL STAFF	50
TOTAL PARTICIPANTS	150

- **Sampling Techniques:**

Patients were selected using systematic random sampling from the OPD registration list, adjusted daily to get 3–5 participants. Staff were chosen through purposive sampling based on their roles in OPD work, making sure to include both morning and afternoon shift staff.

- **Inclusion Criteria:**

Patients aged 18 and above attending the OPD for non-emergency consultations and willing to give informed consent were included. For staff, only those actively involved in OPD functions and available during data collection who provided consent were considered.

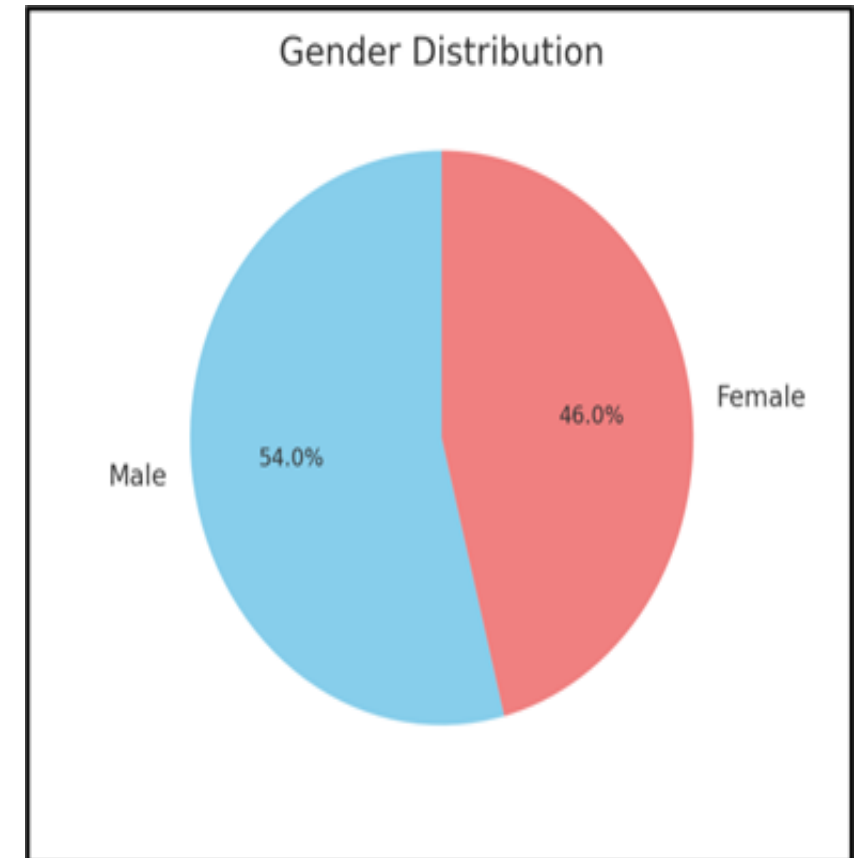
- **Exclusion Criteria:**

Patients needing emergency care, inpatients, visitors, and those not part of OPD workflows were excluded. Additionally, staff not working in the OPD during data collection, such as operating theatre personnel, were not included.

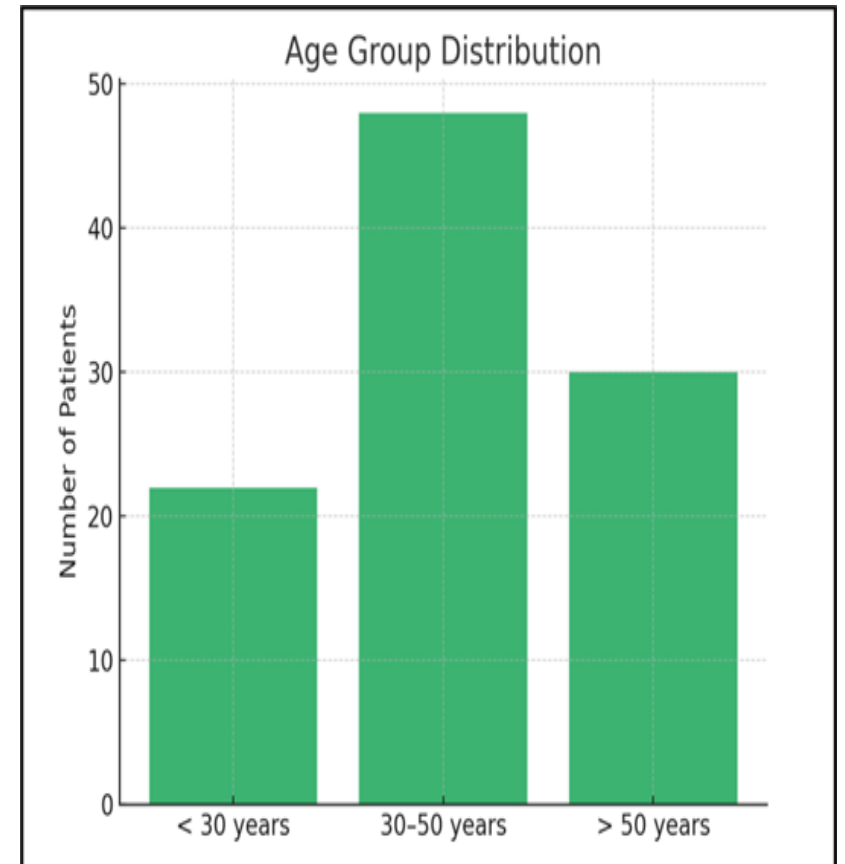


Results

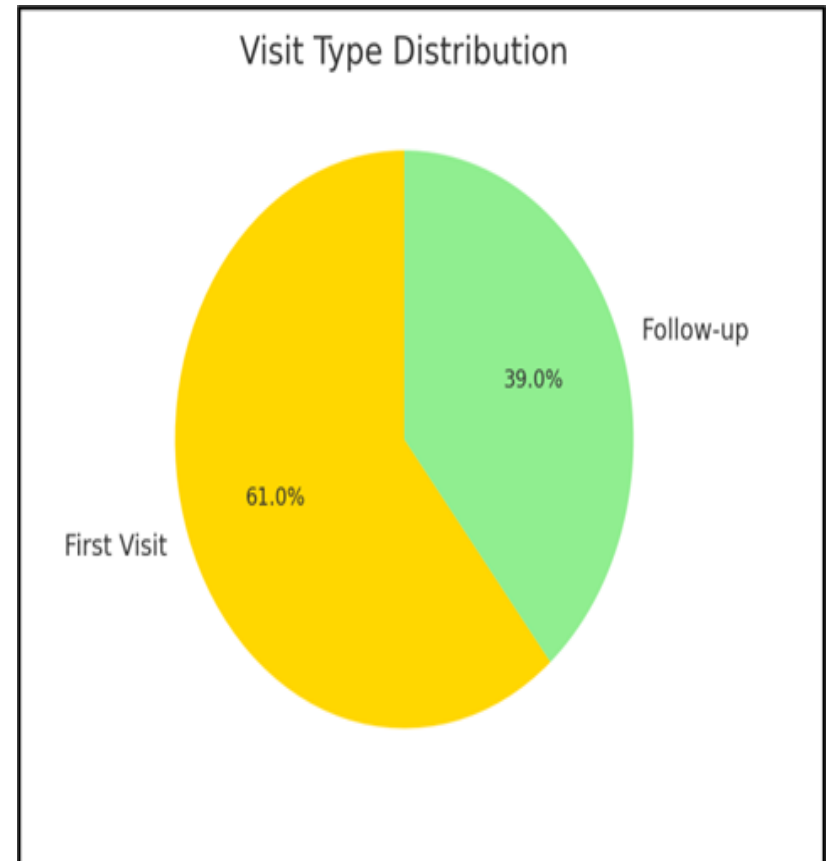
- This pie chart represents the gender distribution among 100 OPD patients. As seen in the figure, 54% of the patients are male, and 46% are female.
- The chart indicates a slightly higher proportion of male patients compared to females.
- This distribution may reflect the healthcare-seeking behaviour or demographic patterns of the area served by the hospital.



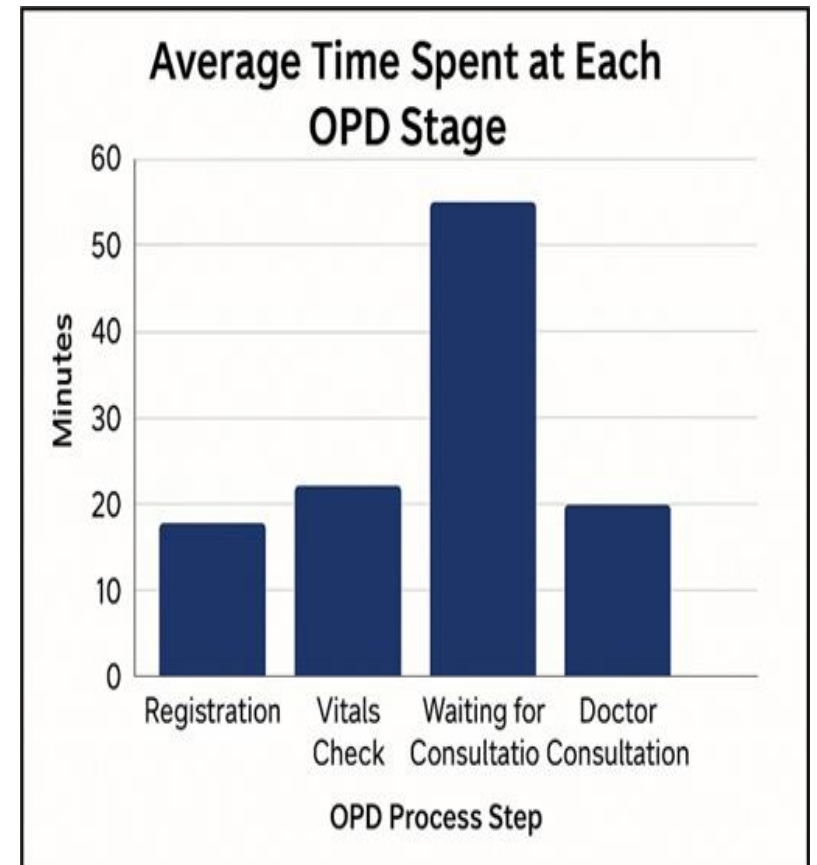
- This bar chart illustrates the distribution of OPD patients across different age groups.
- Most patients (48%) fall within the (30–50 years) Patients above 50 years constitute 30% while (under 30) make up 22%.
- This trend might be associated with a higher prevalence of chronic conditions or regular health check-ups among older adults.



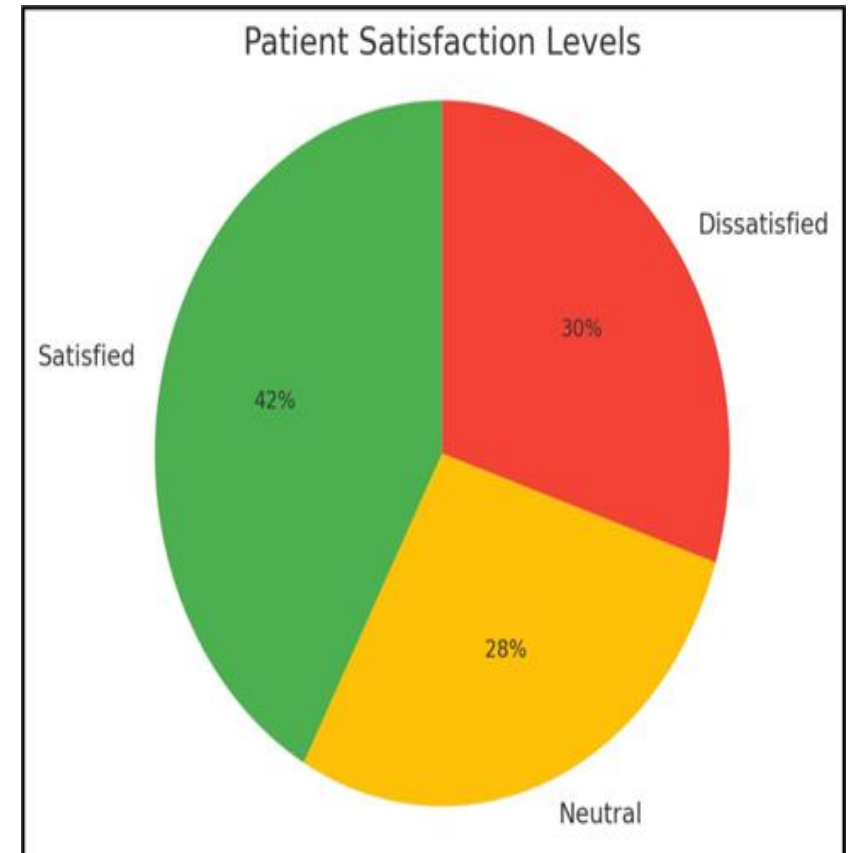
- This pie chart shows the proportion of first-time visits versus follow-up visits among OPD patients.
- Out of 100 patients, 61% were visiting the hospital for the first time, while 39% were follow-up cases.
- The higher number of first visits could suggest a growing trust in the facility or an increasing inflow of new patients, possibly driven by recent outreach, awareness campaigns, or referrals



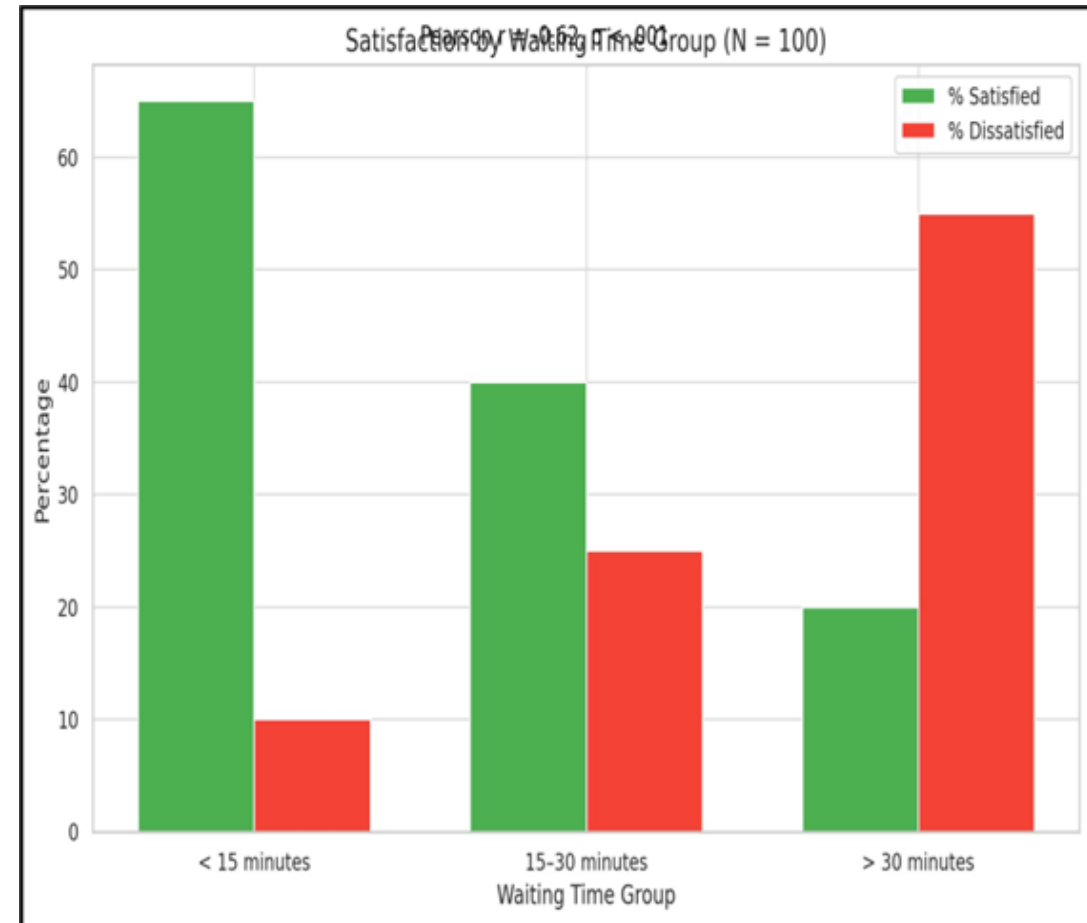
- This bar graph illustrates the average time patients spent at each key stage during their OPD visit.
- Out of the total average OPD duration of 55 minutes, the highest time was consumed while waiting for consultation (25 minutes), making it the most time-intensive phase. Doctor consultation took an average of 12 minutes, followed by registration (10 minutes) and vitals check (8 minutes).
- The data indicates that while administrative and clinical assessments are relatively quick, the waiting time before seeing the doctor constitutes nearly half of the total visit time, highlighting a potential area improvement.



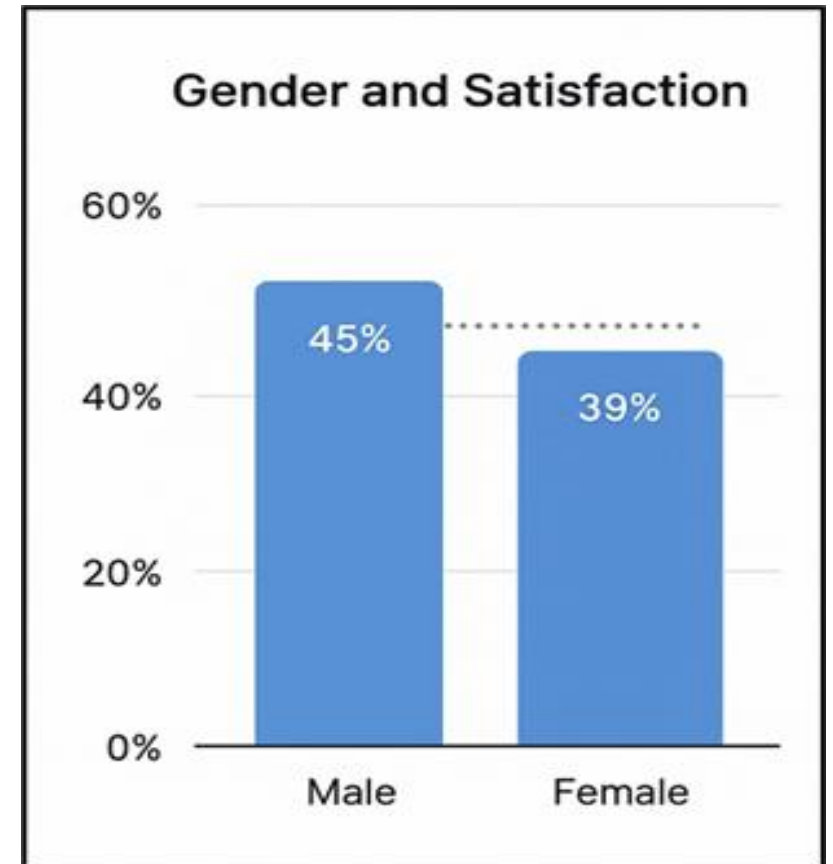
- The pie chart illustrates patient satisfaction levels among 100 surveyed individuals, with only 42% reporting satisfaction, 28% remaining neutral, and 30% expressing dissatisfaction. This means that a significant 58% of patients were not fully satisfied with their OPD experience.
- The results indicate gaps in service delivery, communication, and overall patient experience. These findings, alongside issues like prolonged OPD waiting times, emphasize the need for better scheduling and operational improvements to enhance patient satisfaction.



- This bar graph shows that patient satisfaction decreases as waiting time increases.
- Among those who waited less than 15 minutes, 65% were satisfied. Satisfaction dropped to 40% and 20% for over 30 minutes and 15-30 minutes with dissatisfaction rising to 25% and 55%.
- A strong negative correlation ($r = -0.62$, $p < .001$) confirms that longer wait times significantly reduce satisfaction.

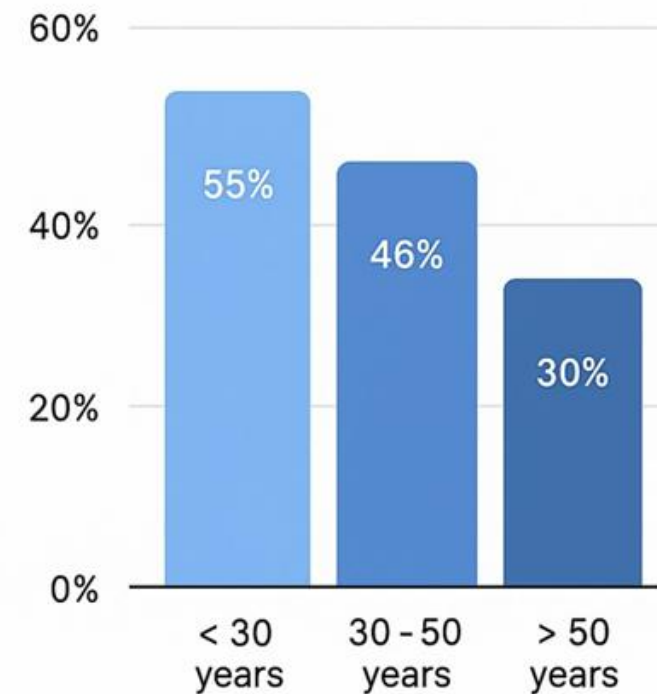


- The graph shows that 45% of male patients reported satisfaction compared to 39% of female patients.
- Although Females demonstrated slightly lower satisfaction levels, the difference was not statistically significant ($\chi^2 = 0.78$, $p > .05$).
- This indicates that gender does not have a significant impact on patient satisfaction within this sample.



- Satisfaction varied noticeably across age groups.
- Patients under 30 years reported the highest satisfaction rate at 55%, followed by 46% among those aged 30–50 years.
- Patients over 50 years showed the lowest satisfaction level at 30%.
- This suggests that older patients may have different expectations or perceptions of care, which could influence their overall satisfaction.

Age and Satisfaction



THEME	MENTION	VISUAL BAR (PROPORTIONAL TO MENTIONS)	EXAMPLE QUOTE
Long waiting times	27	(27 units)	"I had to wait for more than 45 minutes."
Confusing registration	18	(18 units)	"The registration desk was disorganized."
Poor communication	15	(15 units)	"No clear guidance was given."
Short consultation	12	(12 units)	"Doctor rushed through my appointment."
Inadequate seating	9	(9 units)	"There wasn't enough space to sit."

Discussions



- **Interpretation of OPD Time-Motion Analysis**

- The OPD time-motion analysis revealed significant workflow inefficiencies, with the average visit lasting 55 minutes—consultation waiting time alone accounting for 25 minutes. These delays are consistent with findings from Acharya et al. (2023) and Mahapatra et al. (2020), both of whom identified prolonged wait times during peak hours as a major bottleneck in outpatient care.
- Strategies like staggered appointments and digital queuing, as proposed by Patel et al. (2021), could help streamline this process.

- **Patient Satisfaction and Its Relationship with Waiting Time**

- Our study found that only 42% of patients were satisfied with their OPD experience. A key insight from the study is the strong negative correlation between waiting time and patient satisfaction ($r = -0.62$, $p < .001$).
 - Similar patterns were reported by Kaur et al. (2022), where satisfaction sharply declined with increased wait durations in public health settings.
 - Patients who waited less than 15 minutes had a satisfaction rate of 65%, whereas those who waited over 30 minutes had only 20% satisfaction. This mirrors results from Gupta et al. (2021), who highlight that waiting time is not just a logistic issue but a direct determinant of perceived care quality
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• **Demographic Differences in Satisfaction**

- Although gender differences in satisfaction were minimal, with slightly lower satisfaction among female patients, this echoes Sharma et al. (2020), who noted that women may place greater emphasis on interpersonal aspects of care.
 - Age, however, emerged as a more influential factor—satisfaction was considerably lower among patients over 50, aligning with observations by Biswas et al. (2022), who suggested that older patients may be more sensitive to environmental discomfort and may have elevated care expectations.
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- **Thematic Insights from Patient Feedback**

These findings support results from Patel and Mehta (2021), who found that nonclinical aspects such as navigation support, signage clarity, and physical environment play a crucial role in overall patient perception.

➤ **Qualitative analysis highlighted five key themes reported by patients:**

LONG WAITING TIME	27
CONFUSING REGISTRATION	18
POOR COMMUNICATION	15
SHORT CONSULTATION DURATION	12
INADEQUATE WAITING AREA SEATING	9

Limitations

- **Single-Center Scope:** The research was confined to one hospital in Agra, limiting generalizability to other healthcare institutions.
- **Limited Sample Size:** Although adequate for identifying trends, the relatively small sample size limits the depth of statistical analysis.
- **Absence of Intervention Testing:** The study did not include the implementation or evaluation of a formal intervention model. Findings are observational and diagnostic in nature.

Recommendations for Future Research

- **Longitudinal Tracking:**
Evaluate intervention sustainability over 6–12 months.
- **Infrastructure Readiness Index:**
Design an index to assess Tier-2 hospitals' capacity to adopt digital solutions.
- **Behavior-Centered Design:**
Incorporate patient demographics and behavioral trends into tech implementation strategies—especially critical for semi-urban settings.

Conclusions

KEY TAKE AWAYS

- This descriptive mixed-methods study explored the causes of delay in outpatient department (OPD) services and assessed patient satisfaction at a private tertiary hospital. Quantitative data, including time-motion analysis and satisfaction ratings, were complemented by qualitative insights from open-ended patient feedback.
- The study revealed that the average total OPD time was 55 minutes, with the waiting time for doctor consultation (mean = 25 minutes) being the most prolonged phase.
- Only 42% of patients were satisfied, while 30% were dissatisfied.
- A statistically significant negative correlation ($r = -0.62$, $p < 0.001$) was observed between waiting time and patient satisfaction, confirming that longer waits are strongly associated with decreased satisfaction.
- Patients above 50 years of age reported the lowest satisfaction rates, and no significant gender differences were found.
- Thematic analysis identified five dominant concerns: long waiting time, disorganized registration, poor communication, rushed consultations, and inadequate waiting area facilities

Short Term Operational Changes

Recommendation	Feasibility	Justification	Actionable Steps	Responsible Stakeholders	Timeline
Streamline appointment scheduling	High (Admin-based)	Reduces congestion and smoothens patient flow	Implement staggered time slots for each doctor's appointments	Admin Dept, OPD Coordinator	Within 3 weeks
Introduce digital queue displays/SMS updates	Moderate (Low IT cost)	Improves patient awareness and satisfaction	Install display screens; integrate SMS alerts through HIS	IT Team, Front Desk	Within 1 month
Designate OPD navigators	Moderate (Staffing)	Assists elderly/new patients; reduces confusion	Assign volunteers or train front-line staff as navigators during peak OPD hours	HR Dept, Floor Manager	Within 1 month
Add seating in waiting areas	Moderate (Low capital)	Enhances patient comfort during long waits	Procure additional chairs/benches; reconfigure available space	Facility Management	Within 1 month
Set minimum consultation time guidelines	High (Policy reform)	Ensures more meaningful doctor-patient interaction	Frame SOP for minimum time (e.g., 5-7 min per consult); ensure doctor buy-in	Medical Director, OPD In-Charge	Within 6 weeks

Long Term Strategic Solutions

Recommendation	Feasibility	Justification	Actionable Steps	Responsible Stakeholders	Timeline
Integrate electronic health records (EHRs)	Medium (IT investment)	Reduces administrative delays and duplication	Develop/upgrade EHR module integrated with HIS and OPD systems	IT Dept, Hospital Admin	6–9 months
Redesign OPD layout based on patient workflow	Low (Infrastructure)	Streamlines physical movement and service time	Conduct workflow analysis; engage architects for redesign plans	Facility Management, Architects	9–12 months
Use predictive analytics for traffic forecasting	Low (Data systems)	Aids proactive staffing and resource allocation	Collect OPD footfall data; create dashboard for predictive trends	Data Analytics Team, Admin	6–12 months
Train staff in communication and soft skills	High (Workshops)	Reduces complaints about poor interaction	Organize monthly training sessions with patient interaction role-plays	HR Dept, Quality Team	Quarterly Ongoing
Implement regular feedback mechanisms	High (Simple tools)	Enables ongoing service monitoring and response	Deploy digital/QR feedback forms with real-time dashboard monitoring	Quality Dept, IT	Within 2 months

THANKYOU
