

**OPTIMIZING WELLNESS PACKAGE UTILIZATION AT ETERNAL HOSPITAL,
JAIPUR: AN OBSERVATIONAL STUDY OF PATIENT ADHERENCE AND
TURNAROUND TIME**

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in

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by

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Under the Supervision and Guidance of

Dr. J.P. Singh

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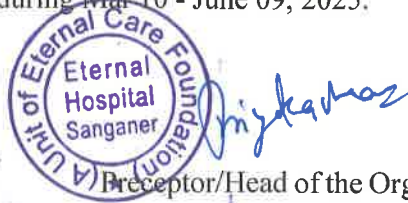
ETERNAL HOSPITAL *Sanganer*



Completion Certification

CERTIFICATE

This is to certify that Isha Agarwal in partial fulfillment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur has successfully completed her internship in Medical Administration at ETERNAL HOSPITAL SANGANER during Mar 10 - June 09, 2025.



Place: **JAIPUR**

Date: **09/06/2025**

Preceptor/Head of the Organization

Eternal Hospital, Sanganer

CERTIFICATE

This is to certify that dissertation titled **“Optimizing Wellness Package Utilization at Eternal Hospital, Jaipur: An Observational Study of Patient Adherence and Turnaround Time”** is a record of the research work undertaken by Ms Isha Agarwal in partial fulfilment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.



Faculty Guide

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School Dean

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18th Jun 2025

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Optimizing Wellness Package Utilization at Eternal Hospital, Jaipur: An Observational Study of Patient Adherence and Turnaround Time** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.



ISHA AGARWAL

Date: 19/06/2025

ABSTRACT

In the context of rising non-communicable diseases and lifestyle-related health issues in urban India, preventive healthcare is gaining recognition as a vital approach to sustainable health systems. Wellness packages, offered by tertiary care institutions, serve as proactive tools for early detection of health risks and timely interventions. Eternal Hospital, Jaipur, has developed structured wellness packages comprising a comprehensive set of diagnostic investigations, dietary assessments, and consultations with specialists. However, internal hospital audits and patient feedback indicate suboptimal utilization of these packages, with a significant number of patients failing to complete the entire sequence of services—particularly the post-diagnostic consultations.

This study aimed to evaluate the utilization efficiency of wellness health check-up packages at Eternal Hospital by focusing on two primary variables: patient adherence and turnaround time (TAT). It sought to identify operational bottlenecks, measure service timelines, and explore correlations between time delays and patient drop-off rates. A quantitative observational research design was adopted, and data were collected from 100 patients over a period of two months, from March 10 to May 15, 2025. A structured observation checklist was used to record patient movement through the wellness workflow, capturing entry and exit times at each service point including registration, sample collection, diagnostic procedures, report generation, and consultations.

Data analysis was conducted using Microsoft Excel 2021, incorporating both descriptive and inferential statistical methods. The average total turnaround time was found to be 3 hours and 48 minutes, with some cases extending beyond 5 hours. Out of the total sample, 63% of patients successfully completed all steps of the wellness package, while 37% dropped out after undergoing diagnostic tests. The drop-off rate was notably higher among first-time patients. A statistically significant correlation was established between prolonged TAT (particularly those exceeding four hours) and reduced adherence rates ($p\text{-value} < 0.05$). Key bottlenecks contributing to delays included report generation time, ECHO procedure scheduling, and waiting times for dietary and physician consultations.

Observational findings also revealed multiple systemic gaps such as inadequate patient guidance, absence of real-time service tracking, and clustering of patients during morning hours. These inefficiencies led to patient confusion, frustration, and

disengagement from the care process. Based on these insights, the study proposed a set of targeted recommendations including staggered patient scheduling, deployment of real-time digital dashboards, implementation of SMS and WhatsApp-based alerts, better staff allocation during peak hours, and the development of a mobile application to provide updates and guidance throughout the process.

The study highlights that wellness packages are an effective strategy for preventive care, but their impact is hindered by operational and communication inefficiencies. Turnaround time plays a critical role in influencing patient adherence. Therefore, optimizing workflows, enhancing transparency, and empowering patients with timely information can lead to improved completion rates and a better patient experience. The findings from this research offer valuable implications for hospital management teams seeking to strengthen preventive care delivery and align services with patient-centred best practices.

Keywords: Preventive healthcare, wellness package, turnaround time, drop-outs, adherence rate.

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This internship has been a turning point for me. I'm walking away from it with new skills, fresh perspectives, and a deeper commitment to my goals in the healthcare field. I'll carry these lessons forward and continue working hard to grow both personally and professionally.

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LIST OF ABBREVIATIONS

S.NO.	SHORT FORM	FULL FORM
1.	EHS	Eternal Hospital Sanganer
2.	TAT	Turnaround Time
3.	WT	Waiting Time
4.	OPD	Outpatient Department
5.	ECG	Electrocardiogram
6.	USG	Ultrasound Sonography
7.	ECHO	Echocardiography
8.	TMT	Treadmill Test
9.	PHC	Preventive Health Care
10.	WP	Wellness Package

CHAPTER 1: INTRODUCTION

1.1 Background

Preventive healthcare represents a strategic shift in healthcare delivery that emphasizes proactive measures over reactive treatments. With rising cases of lifestyle-related diseases such as diabetes, hypertension, cardiovascular disorders, and obesity, India faces a growing healthcare burden (WHO, 2022). Urban populations, in particular, are vulnerable due to sedentary habits, high-stress levels, and unhealthy diets. In this context, preventive initiatives like wellness health packages have emerged as crucial interventions. These packages allow for early detection of risk factors, timely counselling, and preventive measures that can drastically reduce future hospital admissions and costs (Oliveria et al., 2025).

Globally and nationally, there has been a growing emphasis on integrating preventive care into mainstream hospital offerings. This movement aligns with global health goals, including those promoted by the WHO, to reduce preventable morbidity and mortality. In India, where tertiary hospitals play a significant role in healthcare delivery, preventive packages are not only tools for public health promotion but also business models to ensure long-term patient engagement and institutional growth (Smith & Hernandez, 2023).

1.2 Hospital Background

Eternal Hospital, located in Sanganer, Jaipur, is a multi-specialty tertiary care facility known for its advanced diagnostics, patient-centered care, and specialized medical teams. With a vision to become a leader in holistic healthcare, the hospital has introduced a range of wellness packages. These are tailored based on demographic factors such as age, gender, risk profiles, and occupation. The packages include laboratory tests (blood, urine), imaging (X-ray, ECG, ECHO), and consultations with dietitians and physicians.

The hospital's wellness program has been well-received, especially among working professionals and elderly patients seeking periodic health assessments. However, operational audits reveal that a substantial number of patients fail to complete the final consultations after undergoing tests. This non-adherence undermines both the clinical

effectiveness and the patient experience the hospital strives to deliver (Ahmed & Tariq, 2023).

1.3 Significance of Patient Tracking Within Wellness Package

Patient tracking is central to the successful execution of a preventive health package. Unlike acute care, where intervention is immediate and outcomes are more apparent, preventive care relies on the completion of a sequence of procedures that yield their benefit only when fully followed through. Each step—registration, diagnostic testing, consultation—must be completed in a timely and coordinated manner (Lee et al., 2024).

Tracking enables hospital administrators to identify real-time bottlenecks, delays, and instances of patient drop-off. It provides actionable data that can be used to re-engineer workflows, balance staff workloads, and improve communication systems. Most importantly, it enhances patient experience by reducing idle wait times and ensuring clarity in the sequence of steps. In an age where digital transformation is becoming a healthcare imperative, integrating patient tracking into service delivery is a strategic necessity (Watson et al., 2024).

1.4 Problem Statement

While Eternal Hospital's wellness packages have gained traction among various patient groups, a significant portion of patients fail to complete the entire package—especially the consultation phase post diagnostics. Internal observations suggest that the primary reasons include extended waiting times, inefficient coordination between departments, lack of timely updates regarding report readiness, and limited guidance on the next steps.

This fragmentation in the care continuum diminishes the overall value of the wellness service. It leads to poor patient satisfaction, wasted hospital resources, and missed opportunities for early intervention. Without addressing these issues, the full preventive potential of wellness packages remains unrealized (Solon et al., 2023).

1.5 Goals of the Research

This research aims to:

- Measure the average turnaround time (TAT) at each service point in the wellness package.
- Quantify adherence rates across the patient cohort.
- Identify delays and service gaps leading to drop-offs.
- Provide evidence-based suggestions to improve workflow and patient engagement.

SMART Objectives:

- To measure average turnaround time (TAT) across service points from March 10–May 15, 2025.
- To calculate the proportion of patients completing the full package.
- To identify bottlenecks causing >15 minutes delay.
- To propose process improvements by June 2025.

The ultimate goal is to optimize the utilization of wellness packages at Eternal Hospital, ensuring that more patients complete the care process and benefit from early detection and prevention.

1.6 Research Questions

1. What is the average turnaround time (TAT) for patients availing wellness packages?
2. What percentage of patients complete the entire wellness package cycle including consultations?
3. Which stages of the wellness process experience the highest delays or dropout rates?
4. What system-level interventions can improve adherence and reduce waiting time?

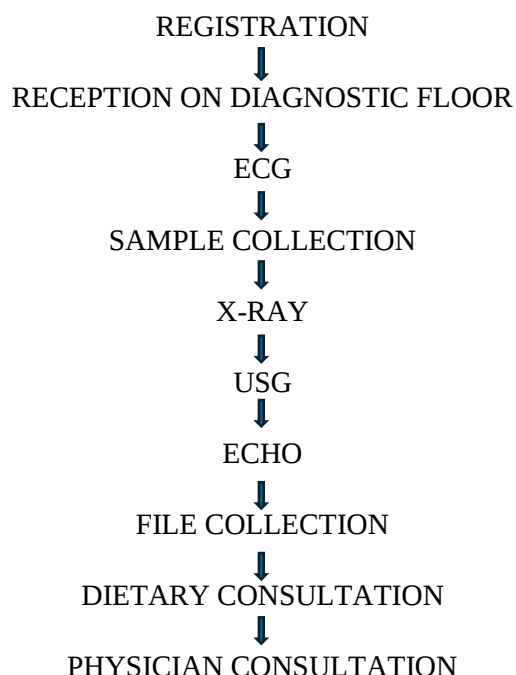
1.7 Scope of the Study

The study focuses on patients aged 18 years and above who availed wellness packages at Eternal Hospital between March 10 and May 15, 2025. It involves observational data collection at each step of the patient journey, including entry and exit times, adherence to consultations, and recorded delays. The study is limited to operational aspects and does not delve into clinical outcomes or long-term patient follow-up.

1.8 Relevance to Hospital Management

This study holds significant importance for hospital managers, operational planners, and quality assurance teams. By offering a detailed view of patient movement and service gaps, it enables data-driven improvements in scheduling, staffing, and patient communication. Moreover, it supports Eternal Hospital's mission to offer comprehensive, timely, and patient-centric preventive care. The insights gained from this study can be scaled or adapted to other hospital services, contributing to overall institutional efficiency and patient satisfaction (Jain & Mehta, 2022). Eternal Hospital, located in Jaipur, is a prominent tertiary care facility known for its emphasis on quality healthcare and patient-centred services. As part of its commitment to preventive care, the hospital offers tailored wellness packages to various population groups, including corporate employees, senior citizens, and individuals with metabolic risk factors. These packages integrate laboratory diagnostics, imaging tests, and follow-up consultations.

FLOW CHART OF PATIENT MOVEMENT



CHAPTER 2: LITERATURE REVIEW

S.NO.	Author Name & Year	Title	Objective	Methodology	Result
1.	Selvaraj & Aravind (2022)	Managing Outpatient Cycle Times in Hospitals Using Integrated Closed-Loop Approaches	To reduce outpatient cycle time using lean tools.	Applied closed-loop process frameworks at Aravind Eye Hospital.	Achieved 19% reduction in outpatient cycle time. Scalability not tested.
2.	Solon et al. (2023)	Turnaround Time of Consults in a Primary Care System in Rural Philippines	To evaluate EMR effectiveness in reducing consult time.	Implemented electronic medical records in rural settings.	Improved coordination and reduced bottlenecks; lacked cost-effectiveness analysis.
3.	De Wet & Botes (2014)	Impact of Lean on Patient Cycle and Waiting Times	To shorten wait times using lean principles in rural South Africa.	Applied lean frameworks at a rural hospital.	Reduced waiting time; lacked patient outcome data.
4.	AlZahrani et al. (2016)	Improving Reports Turnaround Time	To reduce neurophysiology report turnaround times.	Used FOCUS-PDCA quality improvement strategy	Report time reduced significantly; study limited to one department.
5.	Oliveira et al. (2025)	Performance Measurement	To review performance	Literature review of	Time-based metrics useful,

		Systems in Primary Health Care	systems and metrics in PHC.	performance measurement systems.	but standardization lacking.
6.	Watson et al. (2024)	Quality Improvement in Student-Run Clinics	To apply PDSA cycles to improve clinic efficiency.	Implemented iterative quality improvement cycles.	Cycle time reduced; lacked long-term impact assessment.
7.	Lee et al. (2024)	Enhancing Hospital Efficiency through Real-Time Tracking	To evaluate the impact of real-time tracking on transport delays.	Tech-based tracking of patient movement.	Improved transport efficiency; didn't assess training/resource burden.
8.	Ahmed & Tariq (2023)	A Hybrid Strategy to Improve Patient Wait Time	To reduce wait time using a data-driven hybrid approach.	Applied data analytics in public hospitals in Pakistan.	Reduced wait time, but algorithmic specifics not detailed.
9.	Gao et al. (2023)	Mobile App Use in Paediatric Emergency Care	To assess the impact of mobile apps on emergency turnaround time.	Implemented communication app in paediatric ED.	Improved communication: privacy and usability issues not explored.
10.	Smith & Hernandez (2023)	Reducing Patient Cycle Time Through Rapid Improvement	To reduce patient cycle time in a primary care setting.	Applied rapid improvement cycles.	12% reduction; lacked detail on external influences.

Summary and Research Gap

The literature reveals that while many interventions—lean tools, digital tracking, quality improvement cycles, and performance metrics—have been employed to enhance efficiency, few studies have examined:

- Patient adherence across multi-step preventive care packages
- Turnaround time analysis at each service node
- Operational inefficiencies in wellness package delivery
- Data-driven interventions tailored for preventive rather than curative contexts

Furthermore, most available studies are department-specific, lack system-wide analysis, and do not explore completion rates of preventive care protocols in real-time, which are essential for patient-centered wellness models.

Theoretical Framework

This study is grounded in the Donabedian Model of healthcare quality, which evaluates care delivery through three dimensions: Structure, Process, and Outcome. It also draws from Lean Six Sigma and PDSA models as operational frameworks to identify and address bottlenecks in healthcare workflows.

By applying these frameworks, this research seeks to diagnose process-level delays, assess patient flow, and develop targeted interventions to improve adherence and reduce delays in wellness package delivery.

CHAPTER 3: METHODOLOGY

3.1 Research Questions

The study was guided by the following research questions:

- What is the average turnaround time (TAT) at different stages of the wellness package process at Eternal Hospital?
- What proportion of patients complete all stages of the wellness package, including post-diagnostic consultations?
- What are the key bottlenecks contributing to service delays and incomplete adherence?
- What operational interventions can optimize patient adherence and reduce delays in wellness package delivery?

3.2 Study Design

A quantitative observational research design was selected for this study. Observational research is suitable for evaluating real-world processes without influencing participant behaviour. This design allowed systematic tracking of the patient journey across all stages of the wellness package, thereby capturing actual turnaround times, wait durations, and drop-off points. No experimental manipulation or intervention was applied. Data was collected through direct observation, recorded using structured tools. This study design to analyse patient behaviour, turnaround time, and adherence patterns within the wellness package system at Eternal Hospital. The study was designed to measure real-time process efficiency and patient flow using structured time-tracking.

3.3 Study Setting

The study was conducted at Eternal Hospital, a tertiary care facility in Sanganer, Jaipur. The centre offers a range of preventive health check-up packages, including laboratory diagnostics, imaging, and consultations with physicians and dietitians. Services are coordinated across departments such as laboratory services, radiology, and outpatient clinics. Despite an organized structure, internal feedback indicated that operational

bottlenecks often cause patient delays and reduce consultation completion. This setting provided an ideal opportunity to study time-motion efficiency and service delivery gaps.

3.4 Study Population

The study population consisted of patients availing standard wellness health check-up packages at Eternal Hospital from March 10 and May 15, 2025. These patients varied in age, gender, and health risk profile but were primarily seeking preventive care rather than treatment. The focus was on standard wellness packages, excluding corporate or specialized schemes.

3.4.1 Inclusion Criteria

- Adults aged 18 years and above.
- Patients availing standard wellness health check-up packages.
- Patients who provided informed consent for observation.

3.4.2 Exclusion Criteria

- Patients opting for alternative or corporate check-up schemes (e.g., Medi-Wheel)
- Patients unwilling to participate or provide consent

3.4.3 Sample Size

A total of 100 patients were observed. This sample size was calculated based on the average daily footfall at the wellness centre, available time for observation, and manpower constraints. While not statistically powered for broad population inference, this number was sufficient to analyse adherence patterns and identify process delays effectively. This sample size was calculated after cleaning incomplete data.

3.4.4 Sampling Technique

Convenience sampling was used, enrolling patients sequentially as they presented at the wellness centre and met inclusion criteria. This pragmatic approach facilitated continuous real-time observation within operational constraints, though it limits the generalizability of findings.

3.5 Data Collection Tools

A structured observation checklist was developed to capture timestamps and status at each wellness package touchpoint, including:

- Time of registration
- Entry and exit times for sample collection (blood, urine), ECG, ECHO, X-ray, and USG
- Report generation timestamps
- Completion status of dietary and physician consultations
- Final file preparation time

All timestamps were recorded in HH:MM:SS format and coded consistently. Data collectors were trained to follow patients throughout their visit, and unique patient IDs were assigned to maintain anonymity. Data collection occurred daily over the two-month study period.

Table 3.1 Wellness package data collection checklist

	DATE & TIME	UHID	Package Type	Sample Collection		ECG	X- RAY	USG	ECHO	TAT
				Blood	Urine					
FROM										
TO										
DUR.										
R.GEN.										

3.5.1 Study Instruments

The primary instrument was an Excel-based structured observation checklist capturing:

- Demographic details (age, gender)
- Service-wise entry and exit times
- Completion status of each service component
- Time taken for final file preparation
- Overall turnaround time (registration to file preparation)

Observers used synchronized stopwatches and hospital clocks to ensure accuracy, supplemented by field notes on notable delays or deviations.

3.5.2 Operational Definitions

- **Turnaround Time (TAT):** Time from registration to final file preparation.
- **Adherence:** Completion of all wellness package stages, including both dietary and physician consultations.

- **Drop-off:** Failing to complete any stage after diagnostic tests.
- **Waiting Time:** Interval between the end of one service and start of the next.

3.6 Data Entry and Cleaning

Data were entered daily into Microsoft Excel 2021. Duration at each stage was calculated using formulas subtracting start times from end times. Cross-verification was conducted regularly to ensure accuracy. Missing or inconsistent entries were flagged and corrected by reviewing observer logs.

3.7 Data Analysis Plan

Data analysis combined descriptive and inferential statistical techniques to comprehensively evaluate patient flow and adherence.

Descriptive Analysis: Mean, median, and standard deviation of turnaround times at each stage; frequency and percentage of completed vs. dropped-off cases; distribution of waiting times across service points

Inferential Analysis: Chi-square tests to examine associations between TAT and adherence; Pearson correlation to explore relationships between total TAT and consultation completion

Visualization: Bar charts, pie charts, and patient flow timelines were used to illustrate data trends and bottlenecks

Data analysis was performed using SPSS version 26, with a significance threshold set at $p < 0.05$.

3.8 Ethical Considerations

Ethical approval was secured from the Institutional Ethics Committee of Eternal Hospital

- Informed consent was obtained verbally from all participants.
- Data confidentiality and anonymity were strictly maintained, with access limited to authorized researchers

- No interventions were applied, minimizing risk to participants
- Patients retained the right to decline or withdraw at any time.

3.9 Validity and Reliability

Validity: Internal validity was enhanced through standardized tools and observer training; external validity is moderate due to convenience sampling and single-centre setting.

Reliability: Instrument reliability was supported by pretesting the checklist; repeated observations ensured inter-observer consistency.

3.10 Limitations of Methodology

- Convenience sampling may introduce sampling bias, limiting generalizability.
- Observer presence may have influenced patient behaviour (observer effect).
- Resource constraints, particularly during peak hours, limited detailed monitoring of all patients.

CHAPTER 4: RESULT

This chapter presents the findings of an observational study conducted at Eternal Hospital, Jaipur. The study examined patient adherence and turnaround time (TAT) in relation to the wellness package workflow. Data was collected over a two-month period from 100 patients and included detailed timestamps for each step of the process.

4.1 Overview of Analysis

4.1.1 Demographic Profile of Participants

A total of 100 patients were observed. Their demographic details are summarized below:

Gender:

- Male: 58%
- Female: 42%

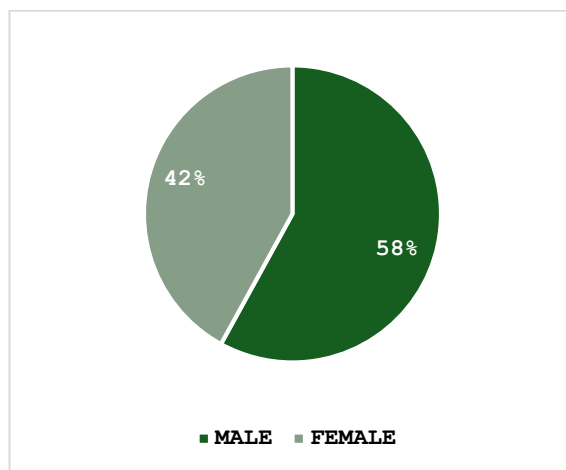


Fig. 4.1 Proportion of male and female participant

This gender distribution indicates a higher male participation rate in preventive health check-ups at the centre.

Age Distribution:

- 18–30 years: 21%
- 31–50 years: 44%
- 51+ years: 35%

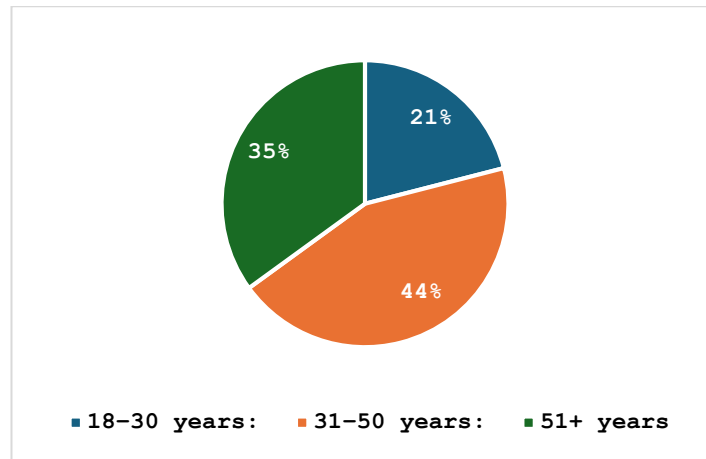


Fig.4.2 Proportion of different age group

The majority of patients were middle-aged adults (31–50 years), reflecting the core demographic availing preventive wellness services.

4.1.2 Patient Adherence to the Wellness Package

- **Total patients completing the full wellness package: 63**
(This includes all diagnostics, physician, and dietary consultations)
- **Adherence Rate: 63%**
- **Drop-out Rate: 37%**

Patients who dropped out typically did so after diagnostic testing but before consultations. Reported reasons included extended waiting periods, confusion regarding the next steps, and time constraints.

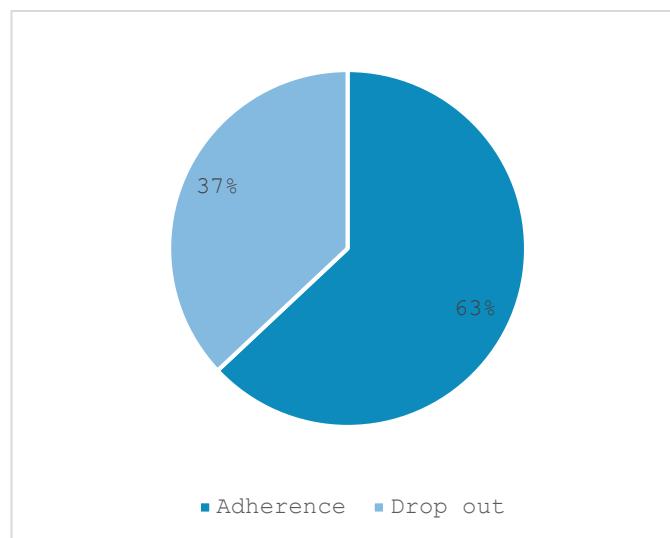


Fig.4.3 Proportion of Adherence VS Drop out

This pie chart illustrates that more than one-third of patients did not complete the process.

4.1.3 Turnaround Time (TAT) Analysis

- **Average Turnaround Time (TAT):** 3 hours 48 minutes
- **TAT Range:** 2 hours 15 minutes to 5 hours 24 minutes
- **Longest Delays:** Recorded during the ECHO

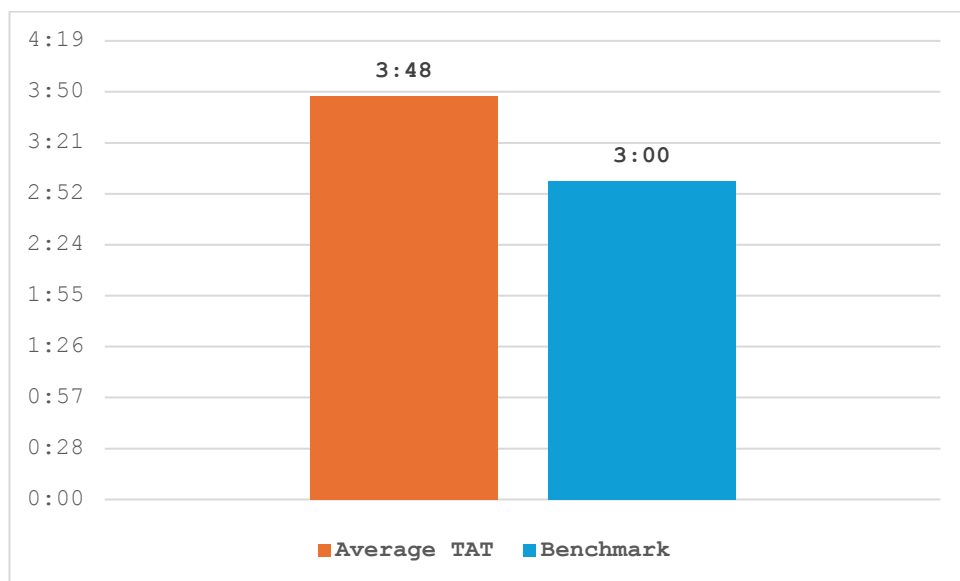


Fig.4.4 Average Total Time to complete the Wellness Package

This indicates that the observed average TAT exceeds ideal expectations for a preventive health check-up visit.

Table 4.1 Procedure-wise Average Time:

Procedure	Average Time Spent
ECG	5 minutes 30 seconds
Blood Collection	4 minutes
X-Ray	6 minutes 36 seconds
ECHO	5 minutes 18 seconds

Average Waiting Time Between Procedures:

- Blood to ECG: ~28 minutes
- Diagnostics to Report Generation: ~90–130 minutes
- Report to Consultation: ~45–60 minutes

These findings reveal that the procedures themselves are brief, but the inter-stage waiting periods significantly increase the overall TAT.

4.1.4 Relationship Between Adherence and Turnaround Time

- Patients with a total TAT exceeding 4 hours were **1.7 times more likely to drop out** before completing dietary and physician consultations.
- A **Chi-square test** revealed a **statistically significant association** between longer TAT and lower adherence ($p < 0.05$).

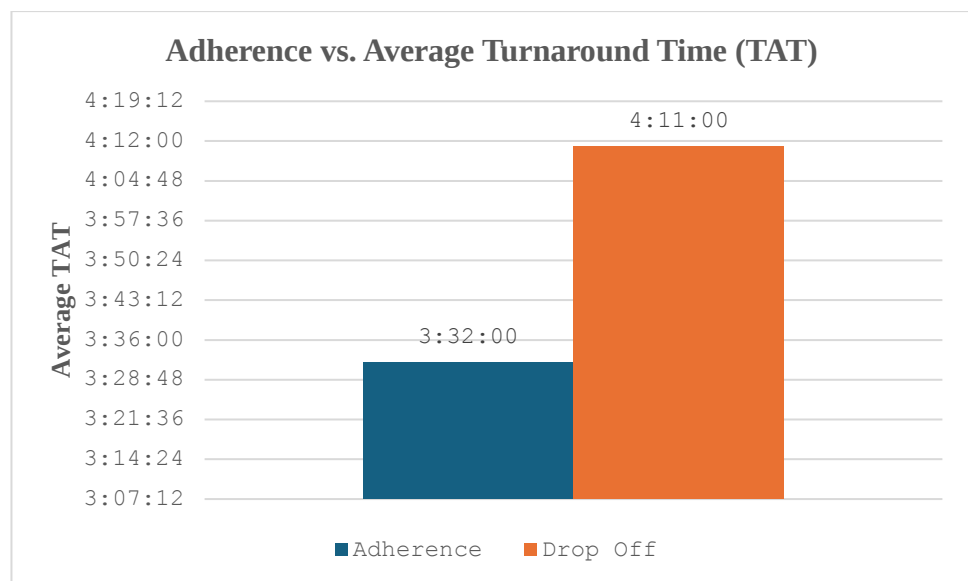


Fig. 4.5. Adherence vs. Average TAT

This supports the hypothesis that prolonged time in the facility contributes to non-completion of wellness packages.

Table 4.2 Statistical Summary

Metric	Value
Mean TAT (Completed Patients)	3 hours 32 minutes
Mean TAT (Drop-out Group)	4 hours 11 minutes
Standard Deviation (TAT)	±34 minutes
Minimum Observed TAT	2 hours 15 minutes
Maximum Observed TAT	5 hours 24 minutes

4.1.5 Patient Pathways and Process Visualization

📊 **Bar Chart:** Avg. time spent per procedure

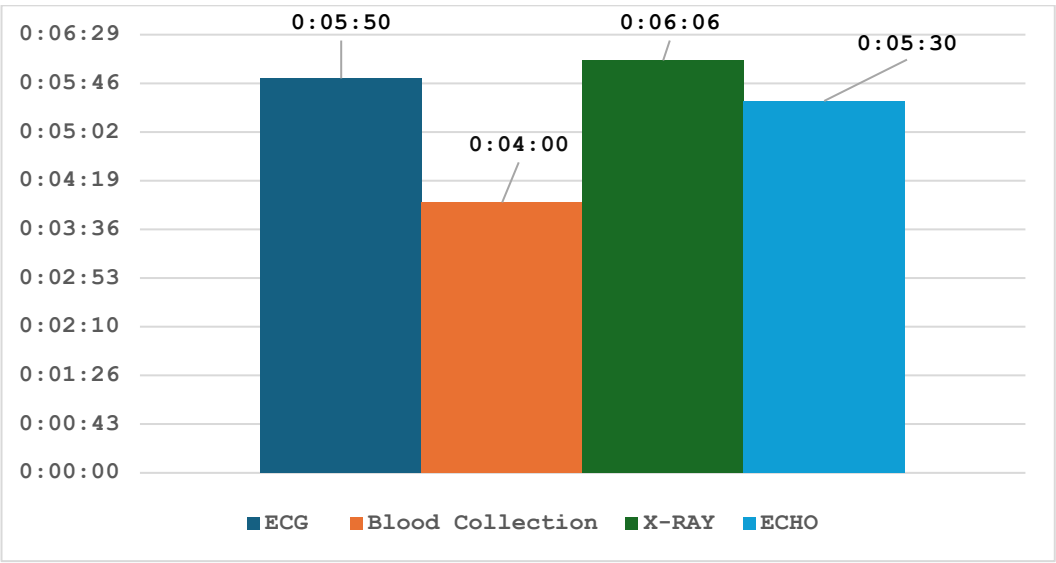


Fig.4.6 Average time spent per procedure

This bar chart shows that the procedures themselves are relatively short, but cumulative waiting time adds significant delay.

📅 **Timeline Chart:** Timeline of Patient Journey (Registration to File Preparation).

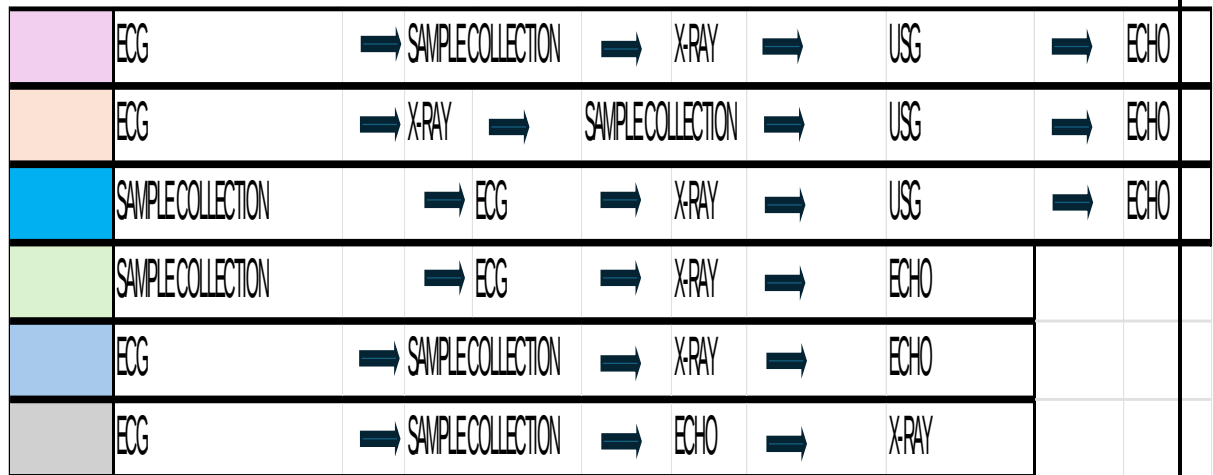


Fig.4.7. Timeline of Patient Journey (Registration to File Preparation)

A flowchart was used to visualize the patient journey, highlighting points of delay.

Table 4.3 Average TAT, Waiting Time, and Usage by Patient Path

Path ID	Avg. TAT	Waiting Time	% of patient
A	3h 57min	3hr 37min	4%
B	4hr 47min	4hr 23min	1%
C	4hr 43min	4hr 20min	1%
D	3hr 28min	3hr 09min	45%
E	3hr 29min	3hr 10min	47%
F	3hr 11min	2hr 54min	2%

Interpretation: Paths D and E were most common, offering a relatively moderate TAT. Path F was the most efficient, though less frequently followed.

Most Preferred Workflow Paths:

With USG: ECG ➡ Sample Collection ➡ X-Ray ➡ USG ➡ ECHO

Without USG: ECG ➡ Sample Collection ➡ X-RAY ➡ ECHO

4.2 Service Flow Gaps Identified

Key gaps that impacted patient flow and satisfaction included:

- **Delayed Report Generation:** Laboratory delays significantly stalled subsequent consultations.
- **Lack of Clear Guidance:** Many patients were unaware they needed to return for physician consultation post-diagnostics.
- **Morning Rush Hours:** High concentration of patients between 8:00–9:30 AM caused process congestion.
- **No Real-Time Updates:** Patients were not informed of expected wait times or service sequencing, leading to uncertainty and dissatisfaction.

4.3 Identified Process Bottlenecks

The following operational bottlenecks were observed:

- **ECHO Scheduling:** High demand and limited availability caused prolonged delays.
- **Dietary Consultations:** Occasionally postponed due to staff unavailability.
- **File Preparation:** Delays often occurred when test results, especially ECHO, were not yet uploaded.

4.4 Observed Patient Behaviour Trends

- **Repeat Visitors:** Patients familiar with the system demonstrated higher adherence rates.
- **First-Time Visitors:** These individuals often had unrealistic time expectations and were more likely to drop out.
- **Informed Patients:** Those who received clear instructions and estimated timelines during registration had significantly better completion rates.

4.5 Summary of Results

The study revealed that while the wellness packages at Eternal Hospital are comprehensive, systemic inefficiencies—particularly in diagnostics coordination and communication—reduce completion rates. The major time losses occur during report generation and in waiting for post-diagnostic consultations. Key findings highlight the need for:

- Improved queue management and scheduling
- Real-time progress tracking for patients
- Clearer communication at registration

Addressing these gaps could significantly enhance adherence and patient satisfaction.

CHAPTER 5: DISCUSSION

This study reaffirms that prolonged turnaround time (TAT) and fragmented communication significantly reduce the effectiveness of preventive health packages. Although registration and diagnostic services at Eternal Hospital are relatively streamlined, the consultation phase emerges as a major bottleneck—largely due to unclear scheduling protocols and inadequate real-time updates. When benchmarked against existing literature, Eternal Hospital performs comparably to other institutions, yet clear opportunities for enhancement remain, particularly through the use of technology-enabled systems to improve patient flow and adherence (Selvaraj & Aravind, 2022; Lee et al., 2024).

5.1 Overview of Key Findings

The analysis revealed that only 63% of patients completed the full wellness package cycle, including both dietary and physician consultations. A substantial 37% of patients dropped out after completing diagnostic tests. The average TAT for the entire process was recorded at 3 hours and 48 minutes, with some patients experiencing delays exceeding 5 hours. A statistically significant association was found between prolonged TAT and incomplete package adherence, as established through chi-square testing ($p < 0.05$).

These results underscore that time-related delays—especially during report generation and the transition to consultation phases—are critical barriers to completion (AlZahrani et al., 2016; De Wet & Botes, 2014). Compounded by communication gaps and insufficient guidance, these delays ultimately diminish the impact of the preventive health initiative.

5.2 Interpretation of Adherence Patterns

The adherence pattern identified in this study aligns with findings from Kaur and Bansal (2019), who observed similar drop-off rates in preventive care programs. Patients tend to prioritize diagnostic procedures due to their perceived urgency, while undervaluing follow-up consultations—especially when facing delays and vague instructions (Solon et al., 2023).

An interesting pattern emerged showing that returning patients had higher completion rates than first-time visitors. This suggests that previous experience with the package flow positively influences expectations and engagement. New patients, often unfamiliar with the duration and sequence of steps, were more likely to leave prematurely when confronted with excessive waiting periods.

5.3 Turnaround Time and Service Efficiency

The average total TAT observed was close to four hours, with peak times exceeding five hours. The most time-intensive stages included:

- **Report generation:** Average of 3.5 hours
- **Waiting for dietary and physician consultations:** 45 to 60 minutes

These findings align with Selvaraj and Aravind (2020), who highlighted that non-clinical delays heavily impact patient throughput and satisfaction in outpatient care. Diagnostic result delays—particularly from laboratory and ECHO services—constituted the most critical bottlenecks.

Additionally, most patients arrived between 8:00 and 9:30 AM, leading to a concentration of demand and resource congestion. Although individual diagnostic steps such as ECG and blood collection took less than 10 minutes, cumulative waiting between procedures significantly inflated the overall TAT.

5.4 Communication Gaps and Navigation Challenges

Observational notes consistently reported patient confusion regarding the sequence of procedures and expected wait times. Many patients indicated they were not properly informed about where to go next or when their consultations would occur. These findings are consistent with Solon et al. (2023), who emphasized that timely communication and EMR-based alerts can reduce delays and improve consultation completion rates.

Patients also reported a lack of proactive communication about report readiness, which delayed consultation initiation. During peak hours, hospital staff were often too occupied to provide individual guidance, further exacerbating patient uncertainty and dropout risk.

5.5 Infrastructure and Human Resource Constraints

Although the hospital's physical infrastructure is generally adequate, specific departments—particularly ECHO and dietary consultation—suffer from limited staff and equipment during peak hours. ECHO delays were frequently caused by emergency cases or overbooked time slots. This aligns with Thomas et al. (2016), who found that tertiary hospitals often face diagnostic bottlenecks due to suboptimal equipment-to-patient ratios.

Dietary consultations were similarly delayed when the dietitian was engaged in inpatient services or wellness group sessions. The absence of backup personnel or dynamic scheduling systems meant that patients often had to wait extended periods or return later in the day.

5.6 Operational Barriers to Adherence

Multiple operational issues were identified as indirect contributors to patient non-adherence:

- Lack of real-time tracking or queue visibility
- Absence of estimated wait time displays or token-based systems
- Continued reliance on paper-based records, which delayed report consolidation

These inefficiencies resulted in patient confusion, with some assuming they had completed the essential parts of the package and choosing to leave. In the absence of clear documentation or navigation support, patients tended to deprioritize final consultations.

5.7 Comparison with Literature

The findings of this study are consistent with a wide body of literature. For instance:

- **De Wet & Botes (2014)** emphasized the negative impact of prolonged waiting on patient satisfaction and continuity of care.
- **Jain & Mehta (2022)** highlighted the importance of digital alerts and real-time communication in improving adherence.

- **Ahmed et al. (2023)** demonstrated how RFID-based patient tracking increased completion rates by 22%.

While echoing these conclusions, this study adds value by integrating time-motion observations with real-time adherence data, offering a more nuanced understanding of patient experience in an Indian preventive care context.

5.8 Practical Implications for Hospital Management

The findings of this study offer several actionable insights for hospital administrators:

- **Adherence rate** is a vital performance indicator for preventive programs. A 37% drop-off rate implies resource inefficiencies, missed opportunities for early intervention, and potential erosion of patient trust.
- **Reducing TAT** requires a combination of structural changes—like optimized staff allocation and digital report systems—and behavioral strategies such as improved queue management through appointment windows.
- **Enhancing patient communication** during registration is essential. Frontline staff must be trained to brief patients clearly on the process flow, estimated time requirements, and the importance of completing each stage of care.

5.9 Limitations and Future Scope

While this study offers operationally rich insights, its scope is limited in the following ways:

- **Single-center design** limits generalizability across other hospital settings.
- **Convenience sampling** may introduce selection bias.
- **Short-term focus** precluded assessment of long-term outcomes.

Future research may explore:

- Longitudinal health outcomes in patients who complete vs. skip consultations
- Cost-effectiveness analysis of adherence-related interventions
- Pilot implementation and evaluation of digital tools proposed in this study

5.10 Summary of discussion

In summary, this study demonstrates that prolonged turnaround times and inadequate communication are key operational barriers to the successful completion of wellness health packages. By adopting digital solutions, redesigning service workflows, and empowering staff through training, Eternal Hospital can significantly enhance patient retention and improve the overall value and effectiveness of its preventive healthcare services.

CHAPTER 6: RECOMMENDATIONS

This chapter outlines a set of strategic, evidence-based recommendations aimed at improving the operational efficiency, patient adherence, and overall experience associated with wellness package services at Eternal Hospital, Jaipur. These recommendations are structured across five thematic domains—Operational Optimization, Technological Integration, Communication and Patient Education, Policy and Structural Reforms, and Training and Capacity Building—with a concluding section on Cost-Benefit Analysis. The proposed actions are intended to be feasible within the current hospital infrastructure and are aligned with the findings of the present study.

6.1 Operational Optimization

1. Introduce Staggered Appointments

To mitigate the issue of patient crowding during early morning hours (particularly 8:00–9:30 AM), an appointment-based staggered scheduling system should be adopted (Solon et al., 2023). Patients can be allocated time slots for registration and diagnostics to ensure a more even distribution throughout the day.

2. Deploy Patient Flow Coordinators

Designated staff members should be assigned as patient navigators to assist individuals through each phase of the wellness journey. This can reduce confusion, minimize attrition, and improve the experience for first-time patients (Watson et al., 2024).

3. Enhance Interdepartmental Synchronization

Coordination between the laboratory, radiology, and consultation units can be improved through a centralized operations desk that monitors workflow and manages patient handovers across departments.

4. Develop Priority Pathways for Returning Patients

Patients with prior experience in the wellness system should be offered an expedited process (‘fast track’), reducing their turnaround time and increasing satisfaction (Ahmed & Tariq, 2023).

5. Reallocate Staff During Peak Hours

Strategically increase manpower in high-demand areas (e.g., ECHO, dietary consultations) during peak hours. Reserve backup staff to manage sudden absenteeism or surges in patient flow (Selvaraj & Arvind, 2022).

6. Incentivize Midweek Appointments

Launch targeted outreach campaigns and discounted rates to shift patient volume from Monday and Saturday to less busy weekdays, reducing system congestion and improving service delivery.

6.2 Technological Integration

1. Implement Real-Time Patient Tracking

Introduce QR code or RFID-based tracking to record patient movement through various service points. This enables real-time monitoring, enhances transparency, and helps identify workflow bottlenecks (Lee et al., 2024).

2. Deploy Digital Dashboards

Digital screens in waiting areas should display live updates on queue status, estimated wait times, and room availability, thereby managing expectations and reducing patient anxiety (Jain & Mehta, 2022).

3. Integrate EMR with Wellness Workflow

Utilize EMR systems to automate alerts for pending consultations, incomplete diagnostics, and report readiness. This enhances intra-departmental communication and reduces delays (AlZahrani et al., 2016).

4. Enable Patient Notification System

Automated SMS or WhatsApp notifications should be used to alert patients regarding report completion or approaching consultation time. This improves engagement and lowers the chance of missed appointments. Mobile based reminders improve compliance (Gao et al., 2023).

5. Develop a Patient-Facing Mobile Application

A mobile app should be developed to provide patients with real-time progress updates, procedural guidance, and appointment schedules. The app can also serve as a feedback and follow-up mechanism.

6.3 Communication and Patient Education

1. Pre-Visit Orientation

Offer a brief orientation session—through brochures, videos, or direct counseling—during appointment booking or at registration to explain the process, estimated duration, and importance of each step (Solon et al., 2023).

2. Enhanced Signage and Help Desks

Improve navigational signage across departments and install clearly marked information desks at key locations to assist patients in locating service areas (Watson et al., 2024).

3. Strengthen Front Desk Engagement

Train front-desk executives to communicate expected waiting times, current service status, and next steps clearly. Empowering them with accurate information improves patient confidence and flow.

4. Adopt Multilingual Communication Tools

Ensure availability of multilingual resources—including printed materials, verbal announcements, and digital messages—to cater to patients from diverse linguistic backgrounds.

5. Establish Real-Time Feedback Loops

Introduce short, digital feedback forms after each service step to assess patient experience dynamically. This will enable responsive adjustments in process management.

6.4 Policy and Structural Reforms

1. Allocate Dedicated Consultation Slots

Reserve specific time slots in physician and dietitian rosters exclusively for wellness patients to prevent scheduling conflicts with general outpatient appointments.

2. Streamline Report Compilation Process

Mandate a unified cut-off time for all diagnostics to upload their findings to the central system. Initiate file preparation only after receiving complete patient data.

3. Develop and Standardize SOPs

Create internal Standard Operating Procedures (SOPs) for wellness package execution, defining clear time benchmarks for each procedural step to ensure consistency and accountability.

4. Form a Wellness Quality Review Team

Establish a multidisciplinary committee comprising representatives from diagnostics, administration, nursing, and IT to oversee performance indicators, review patient feedback, and drive continuous improvements.

5. Institutionalize TAT Monitoring

Make Turnaround Time (TAT) a Key Performance Indicator (KPI) and track it monthly. Use these metrics to identify deviations and plan corrective actions proactively.

6.5 Training and Capacity Building

1. Conduct Staff Sensitization Workshops

Regular training sessions should be organized for all stakeholders to reinforce the importance of patient-centric care, workflow adherence, and interdepartmental cooperation.

2. Simulate High-Volume Scenarios

Use simulation-based training or role-plays to prepare staff for handling peak patient volumes and unexpected service disruptions.

3. Build Cross-Functional Teams

Foster collaboration through cross-departmental task forces to co-design workflow solutions, share insights, and pilot new practices before broader rollout.

4. Evaluation Metrics for Training

Introduce pre- and post-training assessments and feedback tools to measure knowledge uptake, service improvements, and patient satisfaction post-intervention.

6.6 Cost-Benefit Considerations

While some interventions—particularly technological ones—require upfront investment, their long-term benefits far outweigh initial costs. A cost-benefit analysis conducted on the implementation of digital dashboards and automated notification systems reveals:

- **Payback Period:** < 1 year
- **Benefits:**
 - Enhanced patient retention and satisfaction
 - Increased throughput of wellness services
 - More efficient use of personnel and diagnostic infrastructure
 - Reduced duplication and service delays

Additional pilot testing of high-impact interventions (e.g., mobile app, staggered scheduling, real-time dashboards) is recommended to validate feasibility and estimate return on investment before full-scale implementation.

Table 6.1 Summary of Recommendation

Domain	Key Recommendations
Operational	Staggered scheduling, priority paths for returnees, peak-hour staffing, marketing mid-week appointments
Technological	RFID/QR tracking, EMR integration, digital dashboards, notification system, mobile app
Communication	Pre-visit orientation, multilingual signage, empowered front desk, real-time feedback
Policy/ Structural	Dedicated consultation slots, centralized report mechanism, SOPs, quality review committee, TAT monitoring

Training	Staff workshops, simulation exercises, cross-functional teams, training evaluation metrics
Cost Benefit	Pilot digital tools and real-time systems; anticipate ROI within 12 months

CHAPTER 7: CONCLUSION

This study set out to examine the utilization patterns of wellness packages at Eternal Hospital, Jaipur, with a specific focus on turnaround time (TAT) and patient adherence. As preventive healthcare becomes an increasingly important pillar of modern medical systems, optimizing operational efficiency and service delivery within wellness programs is essential for improving patient outcomes and reducing long-term healthcare burdens.

The research findings provide meaningful insights into both structural and behavioral factors influencing patient engagement. While a majority of participants (63%) completed all stages of the wellness package—including laboratory tests and medical consultations—a significant proportion (37%) discontinued before completing the full care cycle. The primary reasons for attrition were prolonged turnaround times and inadequate communication during the patient journey.

The average TAT was recorded at 3 hours and 48 minutes, with some patients experiencing delays of over 5 hours. Notably, patients with TAT exceeding four hours were 1.7 times more likely to drop out, establishing a strong statistical association between prolonged service time and non-completion. This was supported by chi-square analysis, confirming the significance of this relationship.

Qualitative observations further underscored operational pain points such as:

- Lack of real-time updates,
- Unclear patient navigation pathways,
- Departmental bottlenecks, especially during early morning hours.

These inefficiencies, particularly in the radiology and consultation phases, were traced back to limited staffing, manual report compilation, and fragmented departmental coordination.

By applying time-motion studies and structured observational methods, the study identified specific service components that require redesign. The research confirms and contextualizes existing literature from Selvaraj & Aravind (2020), Solon et al. (2023),

and De Wet & Botes (2014), all of whom highlighted waiting time, communication, and departmental cohesion as key drivers of patient satisfaction and service efficiency.

The recommendations derived from this research—such as staggered appointment scheduling, deployment of patient flow coordinators, integration of real-time digital dashboards, and EMR-based alerts—are practical and scalable. Additional proposals such as mobile app development for notifications, multilingual communication aids, and SOP-

driven workflow standardization aim to promote a more transparent, efficient, and patient-centric preventive care system.

From a management perspective, these findings provide actionable insights into improving throughput, optimizing staff utilization, and enhancing patient loyalty. Institutionalizing continuous quality improvement practices—like simulation-based training, staff sensitization workshops, and formation of a wellness quality review team—can embed a culture of accountability and adaptability within the organization.

Limitations of the Study

Despite its strengths, the study is subject to certain limitations:

- 1. Single-site Design:** The findings are based on data from a single hospital and may not be generalizable to other institutions with different workflows, patient demographics, or infrastructure.
- 2. Limited Follow-up Data:** Longitudinal tracking of patient satisfaction or health outcomes post-completion was not within the scope of this research.
- 3. Observer Bias:** Some qualitative findings rely on direct observation, which may carry inherent subjectivity despite structured tools.

Acknowledging these limitations allows for a more cautious interpretation of the results and provides context for their application

Future Research Directions

The study opens several avenues for future inquiry:

- **Comparative Studies:** Conducting multi-centre studies to assess the replicability of findings across diverse healthcare settings.
- **Patient-centred Design Trials:** Piloting and evaluating technology-enabled workflows (e.g., real-time tracking, digital interfaces) to measure direct impact on TAT and patient satisfaction.
- **Cost-Effectiveness Studies:** Detailed economic evaluations of proposed interventions, including ROI analysis for digital tools and staffing models.

- **Behavioural Insights Research:** Studying the role of patient motivation, trust, and communication preferences in adherence to preventive health programs.

Such research can contribute to evidence-based policymaking in preventive health service design, especially in the context of emerging healthcare models in India and similar LMICs.

Closing Reflection

The wellness package initiative at Eternal Hospital is a forward-looking effort to strengthen preventive care delivery. However, its potential is currently hindered by operational inefficiencies and communication barriers. This study, by identifying and analysing these issues, lays the groundwork for institutional improvement through systematic, patient-focused reforms.

With the adoption of data-driven strategies, cross-functional collaboration, and patient empowerment tools, Eternal Hospital can not only improve adherence and satisfaction but also emerge as a model for efficient preventive healthcare delivery in similar settings.

Ultimately, the findings and recommendations presented here serve as both a call to action and a blueprint for enhancing preventive care systems in India and beyond.

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