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Assessing Hospital Visit` Patterns in Tertiary Cancer Hospital: Analyzing the Current Appointments Adherence and Walk-in Consultations

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Abstract

Efficient hospital management necessitates the optimization of patient appointment systems to minimize no-show rates and balance scheduled visits with walk-in patients. This study investigates appointment adherence patterns and patient attendance trends to identify operational inefficiencies affecting hospital workflow. Data from December were analyzed using statistical methods, including bar graphs, a pie chart, and confidence interval estimation, to provide a comprehensive assessment of patient scheduling and attendance behaviors. The findings reveal a considerable proportion of walk-in patients and a notable rate of non-attendance among those with prior appointments, both of which impact resource allocation and service delivery.To enhance hospital efficiency, this study recommends implementing automated reminder systems, enforcing structured scheduling protocols, and integrating digital queuing mechanisms to improve patient adherence and reduce administrative burden. Additionally, optimizing the balance between scheduled appointments and walk-ins is critical for reducing patient wait times and ensuring the effective utilization of medical resources. These strategies are expected to enhance both patient experience and hospital workflow, ultimately contributing to improved healthcare outcomes.Addressing these challenges will facilitate the development of a more structured and predictable patient management system. Future research should focus on identifying underlying factors contributing to appointment non-adherence and evaluating targeted interventions to enhance patient compliance.

Keywords: Patient Flow, Walk-In Patients, Hospital Efficiency, Appointment Management

1. Introduction

Effective hospital visit management is critical in oncology care, where timely diagnosis, treatment, and follow-ups significantly impact patient outcomes. Hospitals typically accommodate patients through two primary modes: scheduled appointments and walk-in visits. While scheduled appointments offer structured patient flow, walk-in visits introduce unpredictability that may challenge resource allocation and service efficiency. It is shown that pharmacist-led comprehensive chemotherapy consultation services can significantly improve outpatient appointment adherence within 30 days of discharge[1]. Despite socioeconomic challenges, high clinic attendance rates (89%) have been observed in inner-city hospitals serving predominantly minority populations[2]. Understanding the balance between these two visit types can inform hospital policies to enhance patient care and optimize resource utilization.

Appointments adherence in Oncology Hospitals

Scheduled appointments provide a structured approach to patient management, allowing for planned consultations, diagnostic tests, and treatment sessions. Having appointment-based systems lead to better resource planning, reduced waiting times, and improved patient satisfaction. Patient Navigation Services have demonstrated a positive impact on appointment compliance, reducing missed visits from 18% to 3% and increasing treatment completion rates[3]. Efficient scheduling can also minimize delays in oncology care, ensuring timely interventions for chemotherapy, radiation therapy, and follow-ups. However, adherence to scheduled visits may be influenced by factors such as patient awareness, transportation challenges, and treatment side effects.However, barriers to appointment adherence persist, with transportation being the primary reason for missed follow-ups, particularly between 6 and 12 months post-treatment[4]. Other factors affecting adherence include ill-health, financial constraints, and confusion about appointment schedules. Identifying at-risk patients and implementing targeted interventions, such as navigation services and improved transportation support, can enhance appointment adherence in oncology settings.

Walk-in Patient Visits: Necessity and Challenges

Oncology hospitals face challenges with walk-in patients, but also see benefits. Unscheduled visits often involve patients with higher levels of physical and psychosocial distress, requiring more urgent care[5].Walk-in visits occur when patients seek care without prior scheduling, often due to worsening symptoms, treatment-related complications, or the inability to secure an appointment in advance. While many emergency admissions are unavoidable, improved access to specialist advice and triage could help manage some cases more effectively[6].While walk-in systems provide accessibility and flexibility, they may contribute to increased patient load, overcrowding, and strain on hospital resources. Research highlights that a high volume of unscheduled visits can disrupt workflow, leading to longer wait times for all patients and potential delays in critical care services.Despite these challenges, providing opportunities for walk-in referrals can ensure timely management of critical issues in cancer patients[7].

The distribution of scheduled and walk-in visits affects hospital infrastructure, including bed occupancy, consultation time, and staff workload. In oncology hospitals, where treatment schedules are time-sensitive, an imbalance between the two types of visits may hinder efficient service delivery. Proper management strategies, such as optimized scheduling frameworks and dedicated slots for walk-in patients, can mitigate disruptions while maintaining accessibility.

2. Methodology

This study seeks to evaluate hospital visit patterns among patients at a tertiary cancer hospital, specifically focusing on adherence to scheduled appointments and the volume of walk-in consultations. The analysis

spans from October 2024 to December 2024, aiming to understand patient behaviors regarding appointment adherence, the frequency of walk-in visits, and the operational challenges faced by the hospital in managing these two patient groups.

Study Design

This is a retrospective observational study that categorizes patient visits into two primary groups: those who attended the hospital following a scheduled appointment (appointment-based visits) and those who presented without prior scheduling (walk-in visits). Patients who had scheduled appointments are further subdivided into two categories: those who adhered to their appointments and attended the consultation, and those who did not attend their scheduled appointments (no-shows). Data for this study were extracted from hospital records covering the period from October 2024 to December 2024.

Participants

The participants in this study include all oncology patients who visited the hospital during the specified period (October 2024 – December 2024). These patients either adhered to scheduled appointments or attended the hospital as walk-ins for consultations. All data were anonymized to ensure compliance with ethical research standards and patient privacy regulations.

Data Collection Instruments

Data for this study were retrieved from the hospital's Electronic Health Records (EHR) system, which provided detailed records on:

1. **Appointment Status:** Patients were categorized into three groups based on their appointment status:
   - **Appointment Adherence** (patients who attended their scheduled consultation)
   - **No-Show** (patients who failed to attend their scheduled appointment)
   - **Walk-In** (patients who visited the hospital without a prior appointment)

2. **Visit Type:** The visit type was classified as either a walk-in consultation or an appointment-based visit
.
3. **Demographic Information:** Key demographic variables such as age, gender, and primary diagnosis were also collected to enable subgroup analyses.

Data extraction was carried out using pre-defined queries, followed by a rigorous data-cleaning process to address missing or inconsistent values.

Procedure

1. **Data Extraction:**

Data were extracted from the hospital's EHR system for all patients who visited during the study period (October 2024 to December 2024). The focus of the extraction was to identify patients who adhered to scheduled appointments and those who opted for walk-in consultations. Relevant patient demographic and clinical data were also included.

2. **Data Cleaning:**

The dataset was meticulously cleaned to remove duplicate entries, correct inconsistencies, and address missing or incomplete data. Any incomplete records that could compromise the quality of the analysis were excluded from further examination.

3. **Categorization:**

Patients were classified into three distinct groups based on their visit type:

- **Appointment-Based Visits:** This group was subdivided into two categories—patients who adhered to their scheduled appointments and those who failed to attend.
- **Walk-In Visits:** Patients who attended the hospital without a prior appointment.

Study Limitations

This study has several limitations. As a retrospective analysis, the study period is limited to three months, and thus may not fully capture long-term trends or account for seasonal variations in patient visit patterns. The data do not consider external factors such as patient preferences for walk-in consultations or potential changes in healthcare policies during the study period, which could also influence patient behavior.

3. Result

Figure 1

The weekly and cumulative patient data analysis highlights a consistent trend in patient influx, with the highest patient count observed in Week 3, followed by a slight decline in Week 4 and a sharp drop in Week 5. The stacked bar chart demonstrates that walk-ins consistently outnumber prior appointments, indicating a high dependency on unscheduled visits. Show-up rates among scheduled appointments remain relatively stable across weeks, though the overall proportion of show-ups remains low. The cumulative summary further underscores that walk-ins constitute the largest patient segment, while prior appointments contribute significantly to total patient volume but experience a notable show-up gap, suggesting patient attrition and inefficiencies in adherence to scheduled consultations.

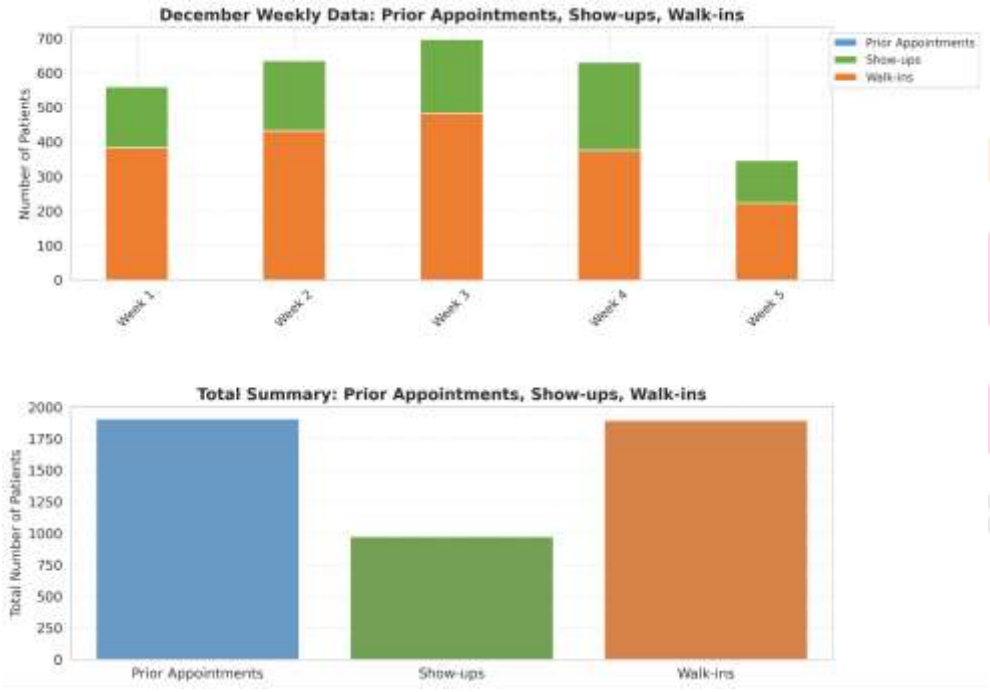


Figure 2

The patient attendance and "no-show" distribution analysis, as represented by the pie chart, quantifies the patient behavior regarding scheduled appointments and spontaneous visits. Walk-ins account for 50.8% of the total patient influx, reinforcing their dominance in patient management. However, among scheduled appointments, only 24.3% of patients showed up, while 24.9% failed to attend, leading to a near-equal probability of attendance versus no-show behavior. The slight excess of no-shows over show-ups suggests potential challenges in patient engagement, appointment reminder effectiveness, or external factors

influencing attendance. This distribution signals an urgent need to assess patient communication strategies to improve scheduling adherence.

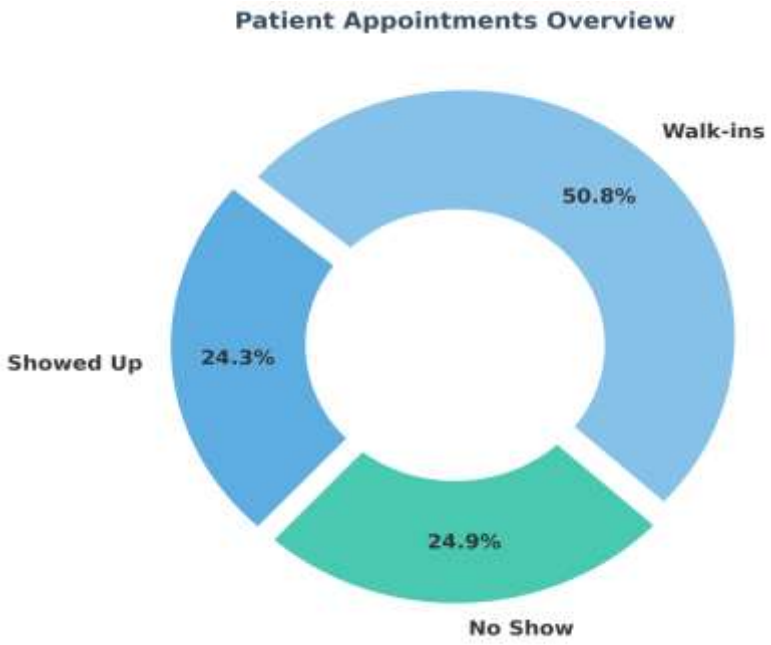
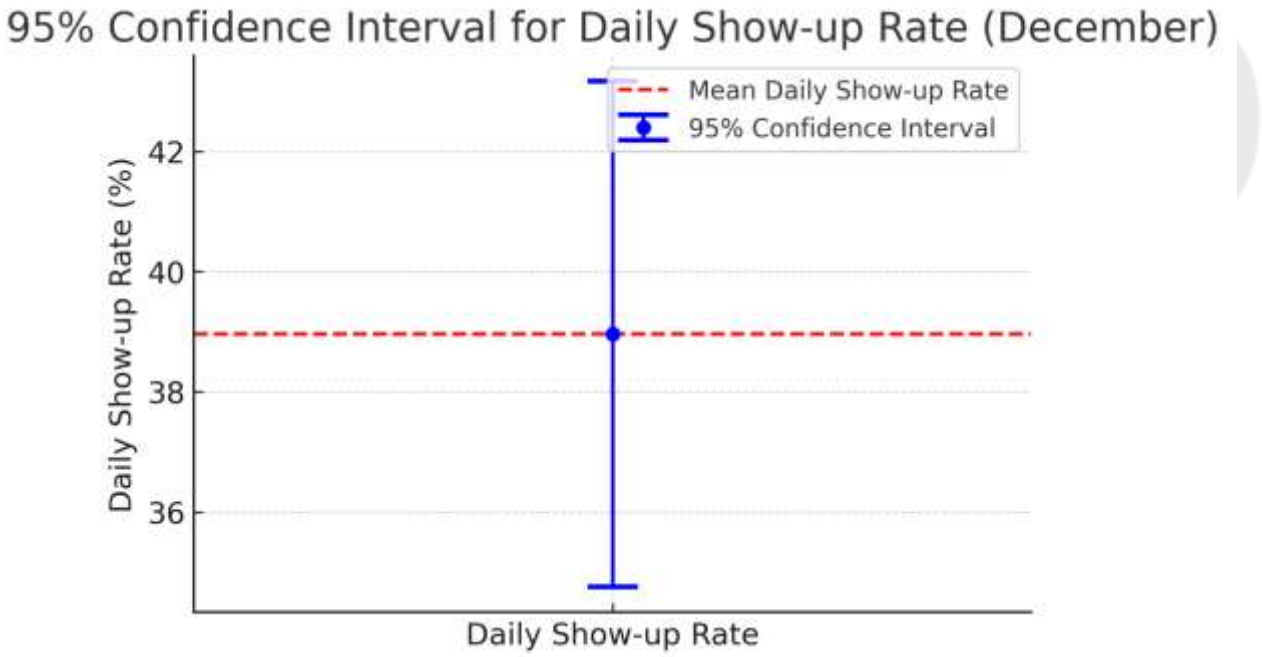


Figure 3

The confidence interval analysis for the daily show-up rate provides statistical insights into the reliability of patient attendance data. The mean daily show-up rate is approximately 39%, with a 95% confidence interval ranging from 36% to 42%. This indicates that if multiple samples were drawn, the true show-up rate would fall within this range 95% of the time. The relatively narrow confidence interval suggests moderate precision in estimation; however, the show-up rate itself remains suboptimal, failing to reach even 50%. These findings emphasize the necessity of targeted interventions, such as appointment confirmation mechanisms and patient follow-ups, to enhance attendance rates and optimize scheduling efficiency.



4. Discussion:

The analysis highlights key areas that need improvement for efficient hospital functioning. A major concern is the high number of walk-ins, which disrupts scheduling and resource allocation. While

accommodating walk-ins is necessary, enhancing the appointment system can ensure better patient flow. Implementing automated reminders and mandatory appointment confirmations can help reduce last-minute cancellations and improve adherence.The no-show rate of approximately 25% leads to wasted time slots and inefficiencies. Introducing a penalty for repeated no-shows and offering virtual consultations for those unable to attend in person can help mitigate this issue. Additionally, analyzing patient demographics to understand attendance barriers and providing support, such as transportation assistance or flexible scheduling, can improve show-up rates.To balance prior appointments and walk-ins, the hospital should allocate a fixed percentage of daily slots for each. Digital queuing systems can streamline patient flow and reduce overcrowding. Clear policies, such as mandatory appointment confirmations and prioritization of scheduled patients over walk-ins, will ensure smoother operations.

To enforce these changes, clear rules must be established. First, patients should be required to confirm their appointments 24 hours prior, failing which their slot may be reassigned. Second, a structured check-in system should be implemented, where priority is given to scheduled patients while ensuring that a limited number of walk-ins are accommodated systematically. Third, a feedback mechanism should be introduced where patients who frequently miss appointments are flagged and provided additional guidance to encourage attendance. Lastly, the introduction of telemedicine for non-critical cases could ease hospital congestion and provide patients with alternative consultation options.

By implementing these measures, the hospital can optimize resource utilization, reduce congestion, and enhance patient experience, ultimately leading to improved efficiency and better healthcare delivery,and enhance the overall patient experience

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