

Project Report: Analysis of Patient Appointment No-Shows

Project Title:

Analysis of Factors Influencing Patient Appointment No-Shows

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Prepared by:

[Kumari Aparna]

1. Introduction

This project aims to analyze the factors contributing to patient no-shows for scheduled medical appointments. By leveraging Power BI for data visualization, the report provides insights into demographic and behavioral patterns, helping healthcare providers identify trends and improve appointment adherence.

2. Data Overview

The dataset, titled noshowappointments, contains the following key variables:

- **0-show:** Indicates if the patient missed the appointment (1 = no-show, 0 = attended)
- **AgeGroup:** Categorized as Child, Adult, Middle-aged, and Senior
- **SMS received:** Indicates whether the patient received an SMS reminder
- **Appointment ID:** Unique identifier for each appointment
- **Weekday:** Day of the week the appointment was scheduled
- **Other factors:** Gender, Alcoholism, Diabetes, Handicap, Hypertension, Neighbourhood, Scholarship

3. Visualizations and Key Insights

A. No-Show Distribution by Age Group

A bar chart displays the count of appointments by age group, segmented by no-show status. Middle-aged and adult patients account for the highest number of appointments, with a notable proportion of no-shows across all age groups.

B. Impact of SMS Reminders

A pie chart illustrates the distribution of appointments based on whether an SMS reminder was received. Approximately 68% of appointments were associated with patients who received an SMS, suggesting a potential area to analyze the effectiveness of reminders.

C. No-Show Trend by Day

A line chart tracks the sum of no-shows across the days of the month, revealing fluctuations and possible peak periods for missed appointments.

D. No-Show by SMS Received

A horizontal bar chart compares the count of appointments by SMS received status and no-show outcome. Patients who did not receive an SMS are more likely to miss appointments, highlighting the importance of reminder systems.

E. No-Show by Weekday

A bar chart breaks down appointment attendance by weekday and no-show status. Tuesdays and Wednesdays see the highest appointment counts, but no-shows are distributed throughout the week, with a slight decline towards the weekend.

4. Conclusions

- **Age and No-Show:** Middle-aged and adult groups have the highest appointment and no-show rates.
- **SMS Reminders:** Patients who receive SMS reminders are less likely to miss appointments, underlining the value of automated reminders.
- **Day and Weekday Patterns:** No-shows are not evenly distributed across days, with certain weekdays experiencing higher rates.
- **Volume:** The total no-show count is significant, indicating room for process improvement.

5. Recommendations

- **Enhance Reminder Systems:** Increase the coverage and timing of SMS reminders, especially for high-risk groups.
- **Targeted Interventions:** Focus on middle-aged and adult patients with tailored communication strategies.
- **Schedule Optimization:** Adjust appointment scheduling on high no-show days to minimize resource wastage.