Healthcare Appointment No-Show Analysis

Project Report

By: Kondeti Shivateja

◇ **Introduction:**

Missed healthcare appointments lead to inefficient resource use and compromised patient care. This project analyzes real-world appointment data to identify factors influencing patient no-shows. Using Power BI, we explore behavioral and demographic patterns behind missed appointments to drive actionable insights.

◇ **Abstract:**

This project focuses on predicting and analyzing patient no-show behavior using historical healthcare data. By leveraging Power BI for data visualization, we uncovered correlations between no-shows and factors like gender, age, SMS reminders, medical conditions, and waiting days. The findings help hospitals and clinics improve attendance rates and optimize scheduling systems.

◇ **Tools Used:**

- Power BI (Data Cleaning, DAX Measures, Interactive Visuals)
- Microsoft Excel (Initial Data Formatting)
- Canva (for optional PDF styling)

◇ **Dataset Description:**

The dataset includes over 110,000 scheduled medical appointments from Brazil. Key columns include Patient ID, Appointment Date, Scheduled Date, Age, Gender, Neighbourhood, Medical Conditions (e.g., Hypertension, Diabetes), SMS_received, and No-show status.

◇ **Steps Involved in Building the Project:**

1. **Data Cleaning:**
   a. Removed irrelevant columns (e.g., PatientID)
   b. Corrected data types for date columns
   c. Created new columns like Waiting Days (Appointment Date - Scheduled Date)
2. **DAX Measures:**
   a. Total Appointments = COUNTROWS('Appointments')
   b. Total No-Shows = CALCULATE(COUNTROWS('Appointments'), 'Appointments'[No-show] = 1)
   c. Show-Up Rate (%) = DIVIDE([Total Show-Ups], [Total Appointments], 0)

   d. No-Show Rate (%) = DIVIDE([Total No-Shows], [Total Appointments], 0)

3. Visuals Created:

  a. Donut chart showing Show-Up vs No-Show Percentage

  b. Bar chart showing No-Show by Gender

  c. Line & Bar chart showing No-Show by Weekday

  d. Scatter plot showing Waiting Days vs No-Show Rate

  e. Bar chart showing SMS Reminder Impact

  f. KPI cards for quick metrics

4. Interactive And Visualize Dashboard as given below:
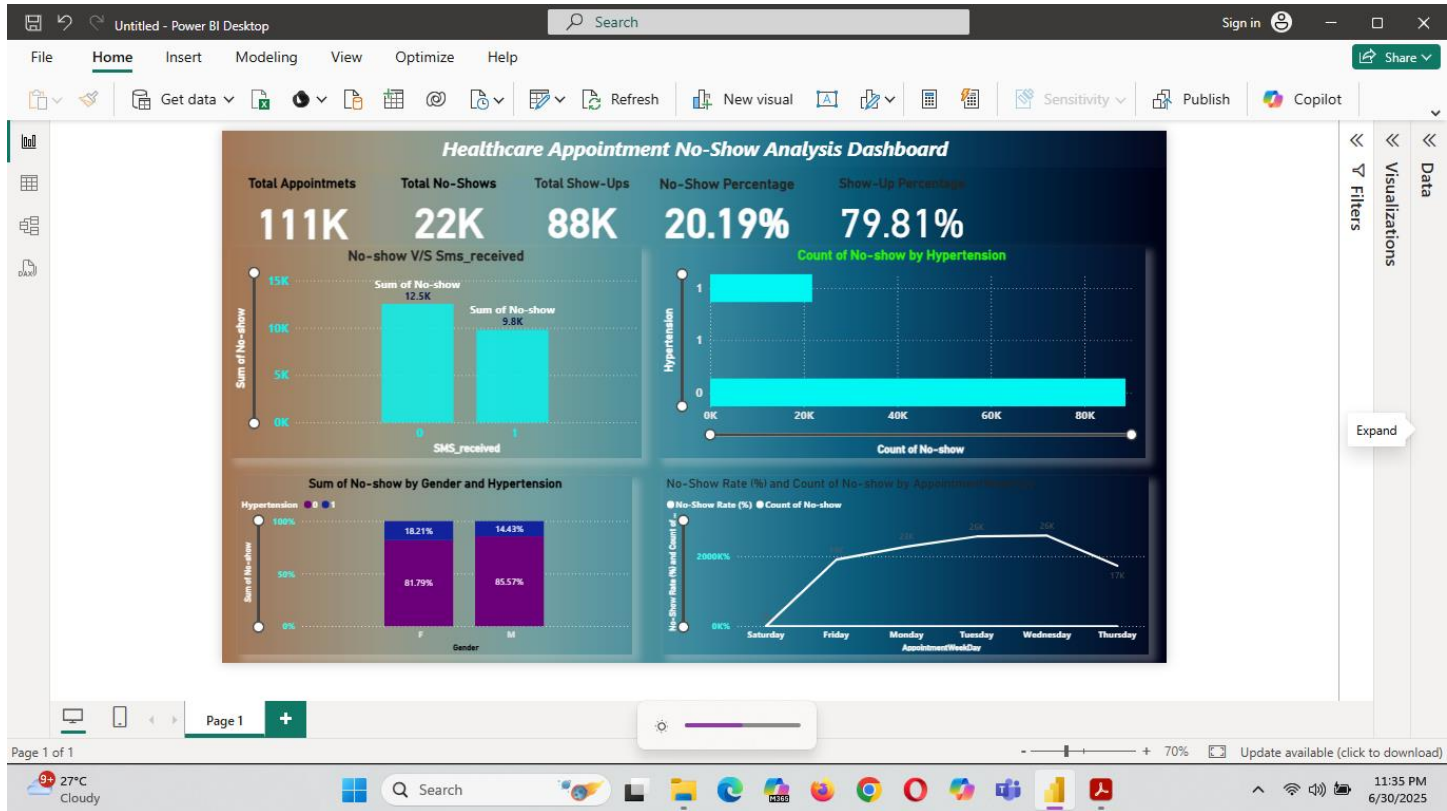
◇ **Conclusion:**

The dashboard revealed that approximately 20.19% of appointments were missed. No-show rates were higher for patients with longer waiting days and those who didn't receive SMS reminders. These insights can help healthcare providers reduce no-shows by shortening appointment lead times, enhancing reminder systems, and targeting high-risk groups.