

## 1. Problem Summary

Missed medical appointments lead to inefficient use of hospital resources, increased waiting times for other patients, and potential revenue loss. Understanding the key drivers behind appointment no-shows helps hospitals improve scheduling efficiency, patient engagement, and overall service delivery.

## 2. Key Insights

- The overall no-show rate is approximately **28.5%**, indicating a significant operational challenge.
- **Longer waiting periods** between scheduling and appointment dates are strongly associated with higher no-show rates.
- Patients who **received SMS reminders** were less likely to miss their appointments, suggesting reminders are effective but not consistently used.
- **Younger age groups** exhibit higher no-show rates compared to older patients, indicating differing engagement behaviors across age segments.

## 3. Optimization Recommendations

- **Reduce long waiting gaps** by optimizing appointment scheduling and prioritizing high-risk patients for earlier slots.
- **Expand SMS reminder coverage** to ensure all patients receive timely appointment reminders.
- **Target high-risk age groups** with tailored communication strategies, such as more frequent reminders or flexible rescheduling options.

## 4. Expected Impact

Implementing these recommendations can improve appointment attendance, reduce wasted clinical capacity, and enhance patient flow. Shorter waiting times and improved reminder coverage can lead to better utilization of hospital resources, lower operational costs, and improved patient satisfaction without requiring additional infrastructure investment.