

HEALTH— APPOINTMENT No-Show Analysis

Gokce Donnelly • CMP 262 • 08/16/2025

Objective : Text message reminder and
effect of appointment time no- show

Questions and Stakeholders

- **Question:** Do text message reminders and the appointment lead time affect the no-show rate?
- **Objective:** Use capacity efficiently by reducing no-shows.
- **Stakeholders:** Clinic operations, front desk, healthcare managers.

Method — Data & Collection

- The dataset is a clinic appointment table created for educational purposes. It has about 60 appointments per day over 90 days. Each row includes age, distance, days until the appointment (lead time), SMS reminder, rain, and whether the person showed up. The file name is **clinic_appointments.csv**.



Method — Unit, Features, Tools

- **Unit:** 1 row = 1 appointment
- **Target:** no_show (0 = showed up, 1 = did not show)
- **Features:** lead_time_days (days), sms_reminder (0/1), distance_km (km), prior_no_shows (count)
- **Tools:** Jupyter, pandas, matplotlib



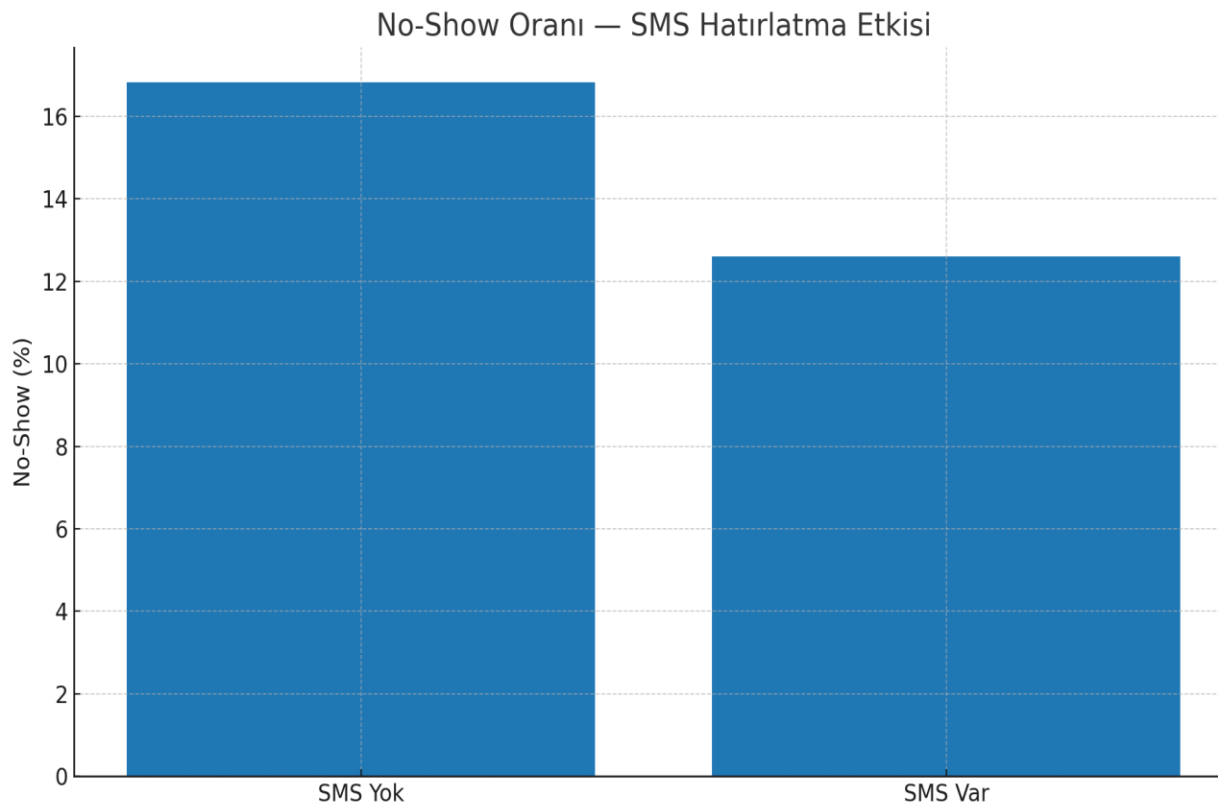
Method — Approach & Assumptions

- **EDA:** rates, simple groupings
- **Metric:** no-show rate, relative reduction
- **Assumptions:** limited seasonality; data are synthetic.



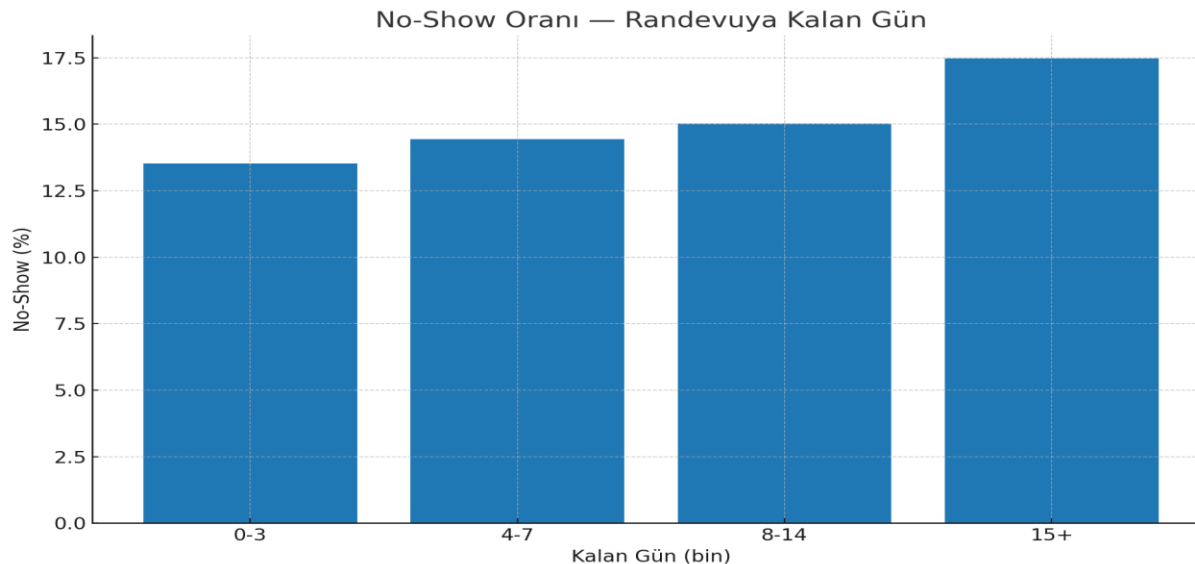
Result 1 — Text message reminder

- **No-show rate:** no SMS $\approx 16.8\%$, with SMS $\approx 12.6\%$.



Result 2 — Days Until Appointment

- As days remaining increase, the no-show rate rises.
- Clear jump in the 8–14 and 15+ day groups.
- **Comment:** With long wait times, send an extra reminder/reconfirmation



Conclusion — Answer & Recommendation

- **Answer:** SMS reminders reduce no-shows; long lead time increases risk.
- **Recommendation:** Scale SMS coverage; send an extra reminder for appointments 8+ days out.
- **Note:** Validate on real data with a pilot and A/B test.

Future Work

- Cohort analysis (age, distance, prior no-shows)
- A/B test on timing of multiple reminders
- Additional variables: time of day, clinic type, provider.

(Q&A)

- CSV: clinic_appointments.csv
- Şekiller: fig_noshow_sms.svg,
fig_noshow_leadtime.svg
- Notebook akışı: yükle → EDA → grafik