NHS Capacity

Exploratory analysis of NHS primary care appointments
(Jan 2020 – Jun 2022)

Context and Objectives

Dataset
Primary care appointment information from January 2020 to June 2022.

Key Themes
How can NHS appointment data be used to:

- understand whether current capacity and staffing levels are sufficient; and
- identify opportunities to improve efficiency and reduce missed appointments?

How can external data (e.g. Twitter/X) be used to provide insights into public sentiment or healthcare trends?

Analytic Approach
The analysis examines the data through four lenses:

1. Volume and Utilisation
2. Service Characteristics
3. Behavioural Insights
4. External Data Exploration (Twitter/X)

Context and Objectives

Analytical Objectives

1. **Assess Service Demand and Utilisation**
   Examine total appointment volumes and average daily utilisation over time to identify seasonal peaks and capacity pressures.

2. **Understand Service Characteristics**
   Compare activity by healthcare professional type, appointment mode, and service setting to reveal key drivers of demand.

3. **Analyse Patient Attendance Behaviour**
   Evaluate attendance outcomes, regional DNA (Did Not Attend) variation, and how booking lead time affects missed appointments.
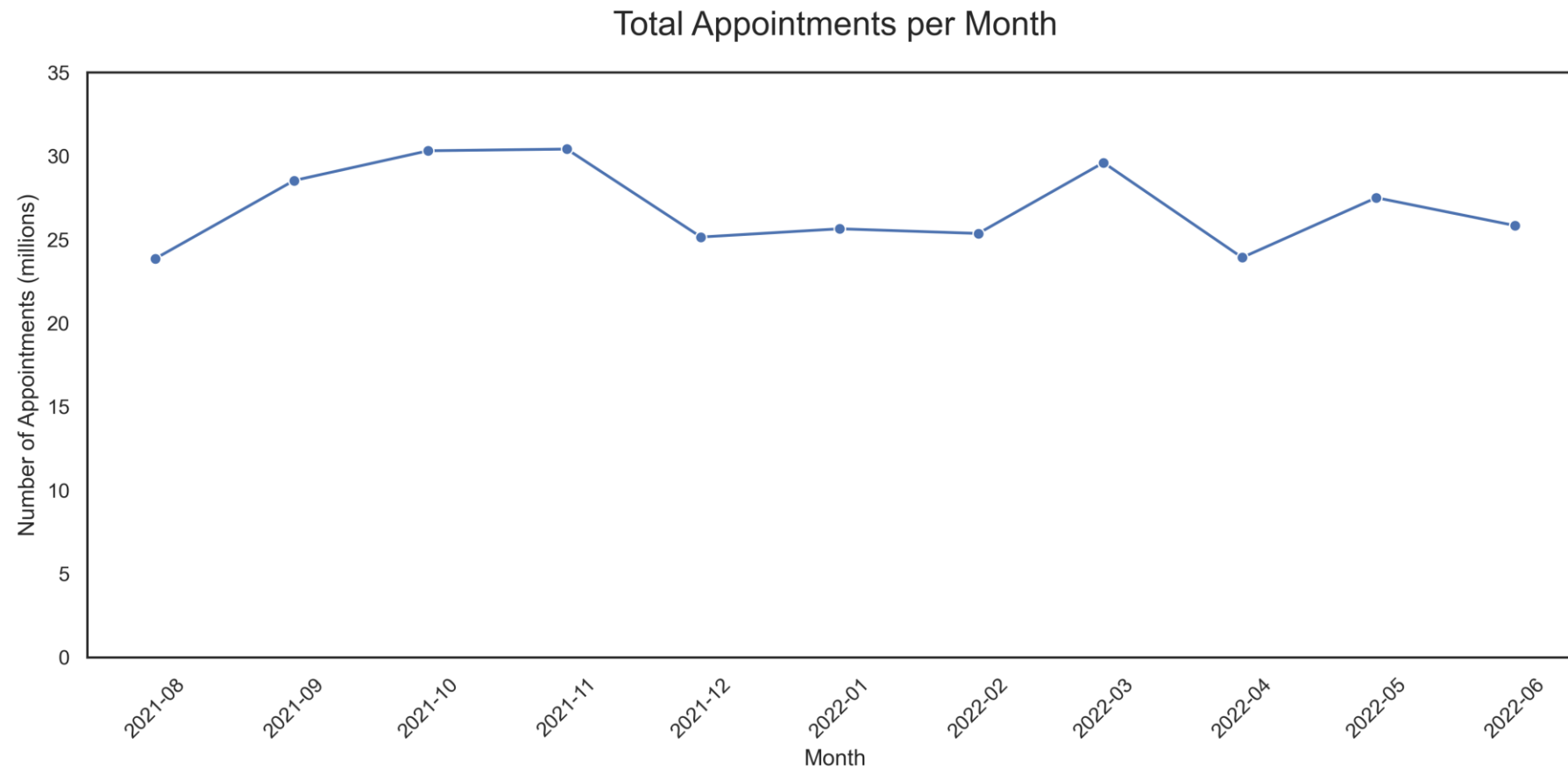
4. **Explore External Signals**
   Investigate the potential of Twitter/X data to complement service insights and gauge public sentiment toward NHS access and capacity.
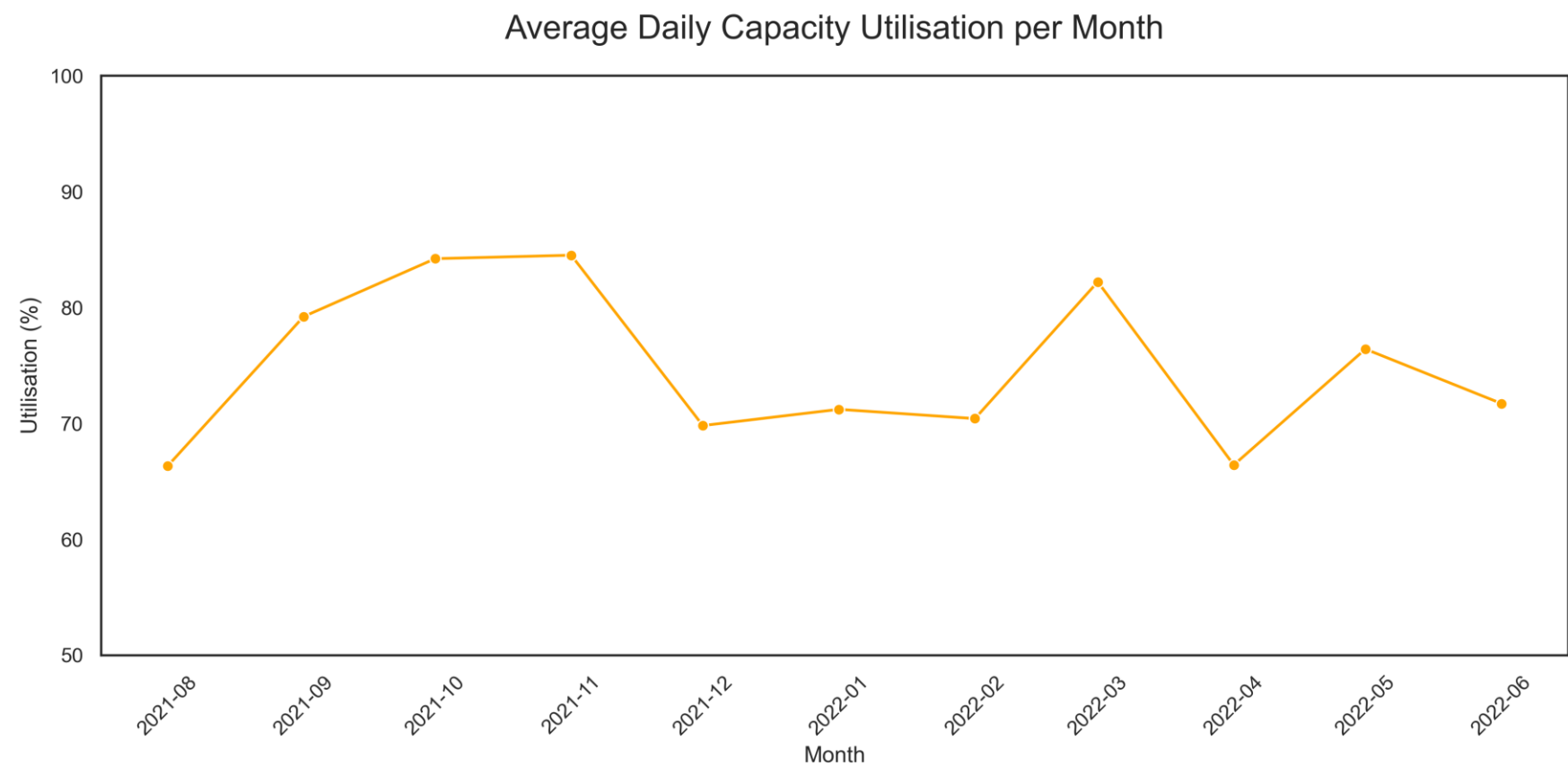
Volume and Utilization

Total appointments show clear seasonal variation, with peaks aligning to periods of higher demand.
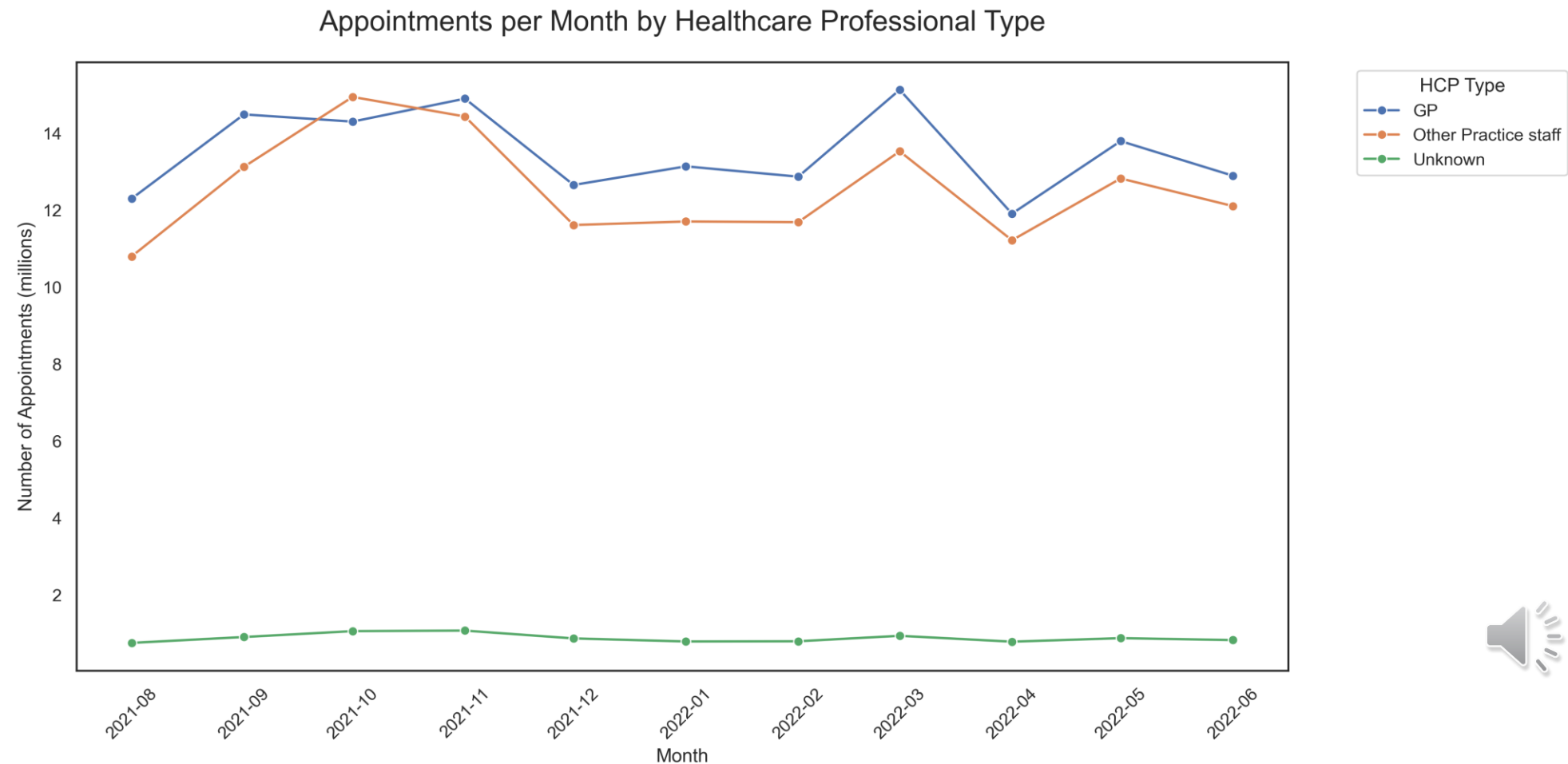

Total Appointments per Month

Volume and Utilization

Primary care capacity remained consistently high, with utilisation levels near or above 100% across the period.
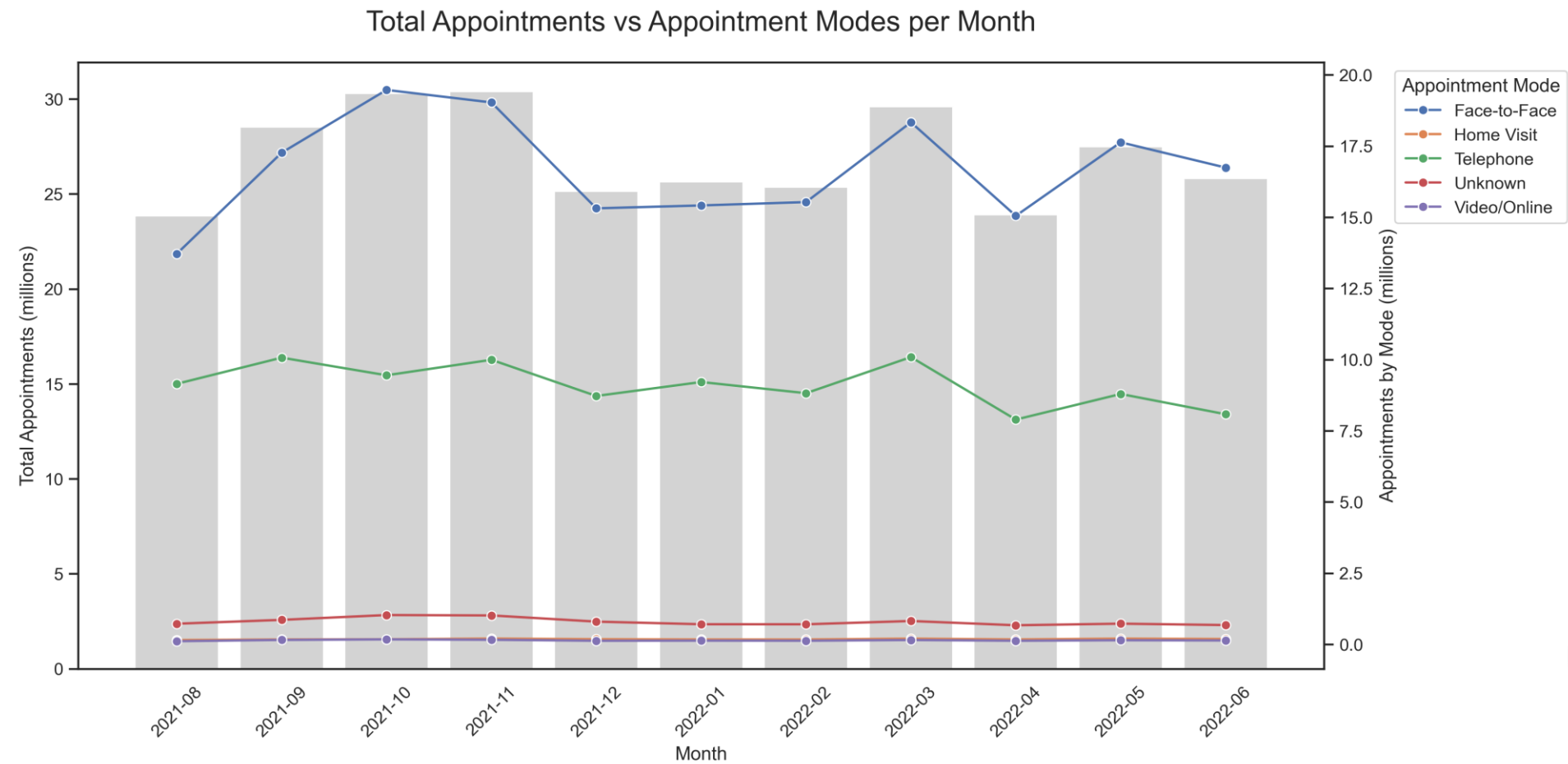

Average Daily Capacity Utilisation per Month

Service Characteristics

GPs are the largest single group by appointment volume, but other practice staff collectively account for comparable amount of appointment volume.
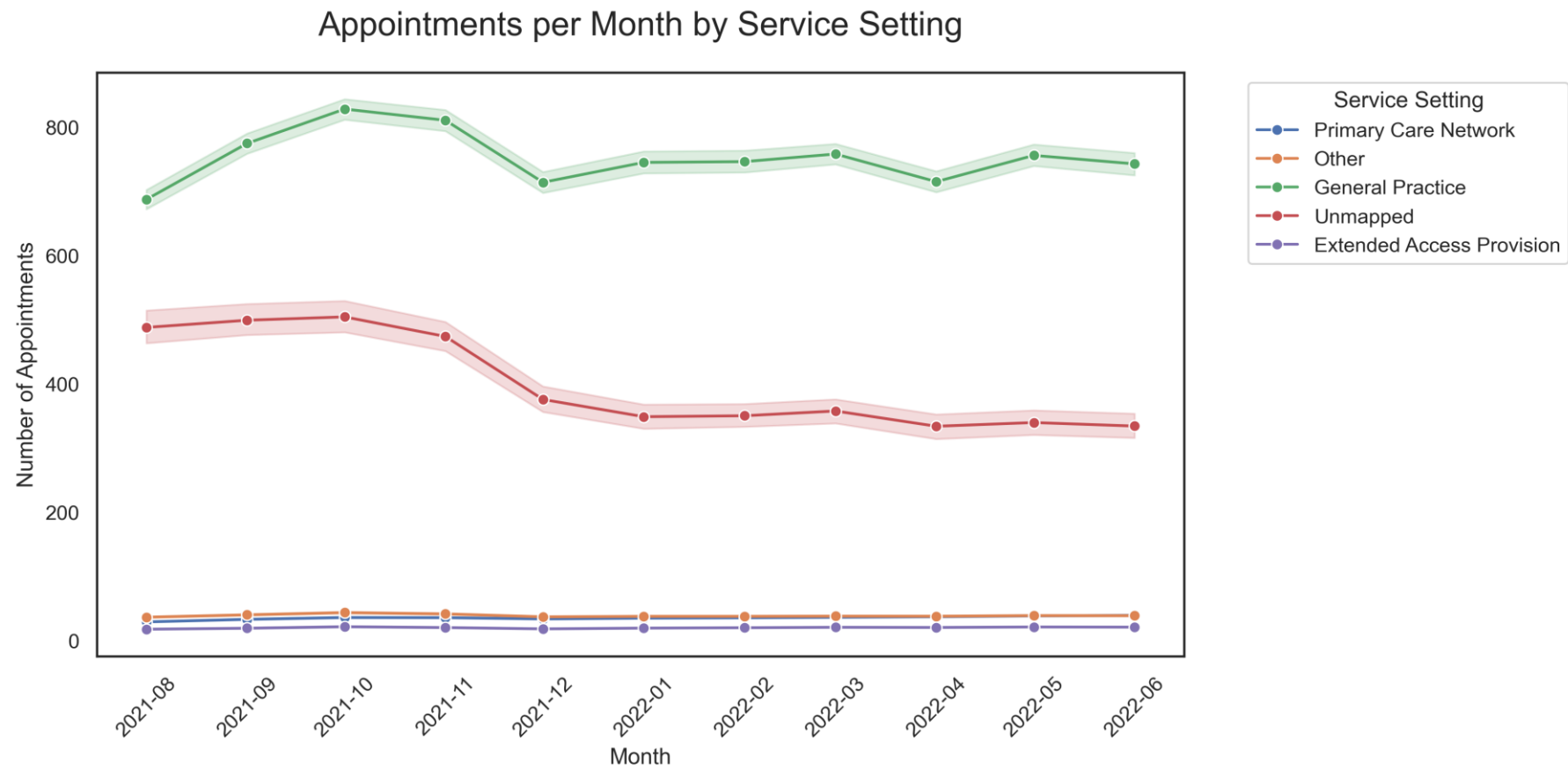

Appointments per Month by Healthcare Professional Type

Service Characteristics

Face-to-face and telephone appointments dominate, showing a gradual stabilisation after pandemic disruption
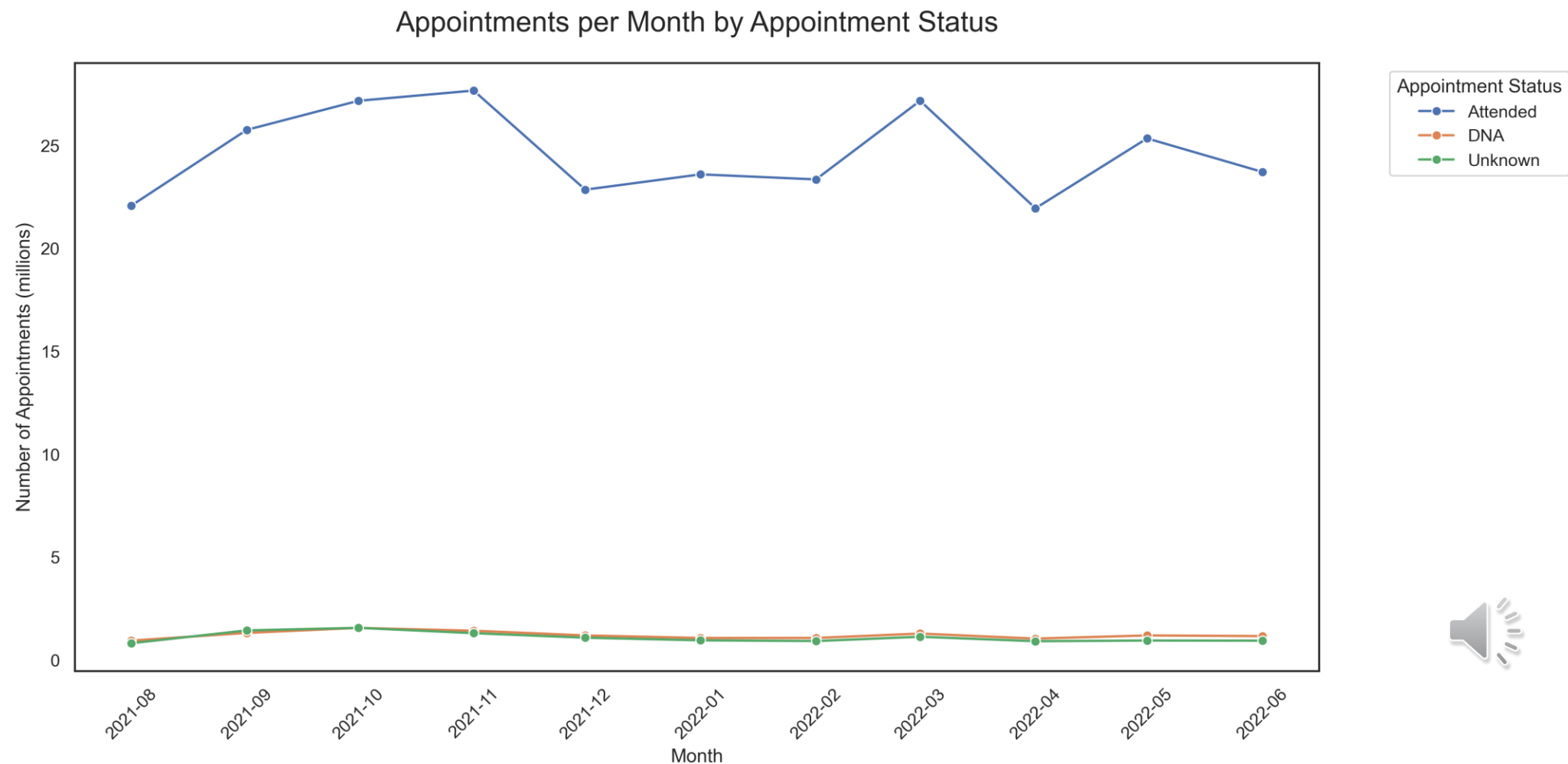

Total Appointments vs Appointment Modes per Month

Service Characteristics

General Practice accounts for the vast majority of appointments, with a smaller but consistent share in other settings.
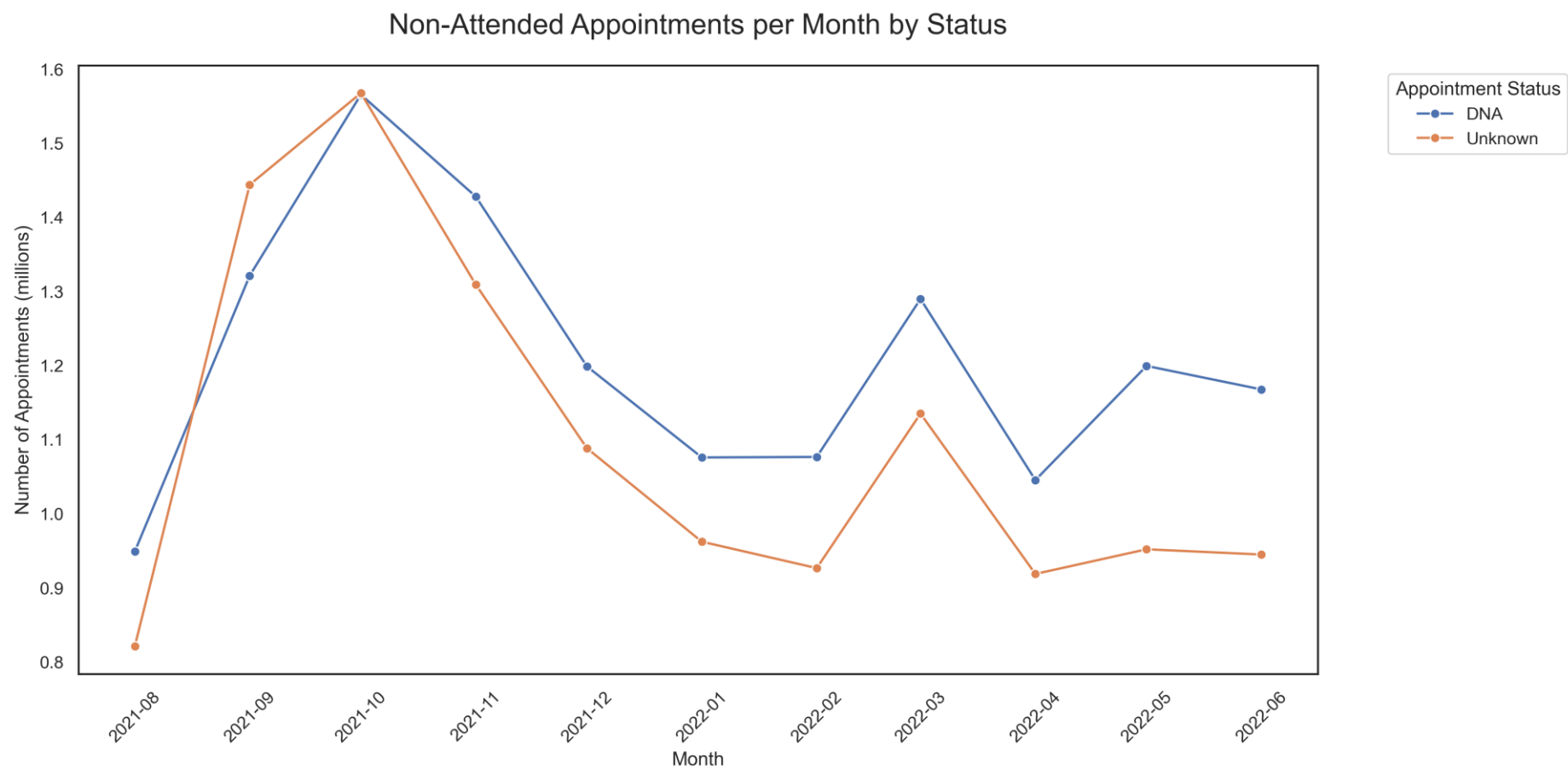
Behavioural Insights

Most appointments are attended, with only a small proportion marked as 'Did Not Attend' or 'Unknown'.
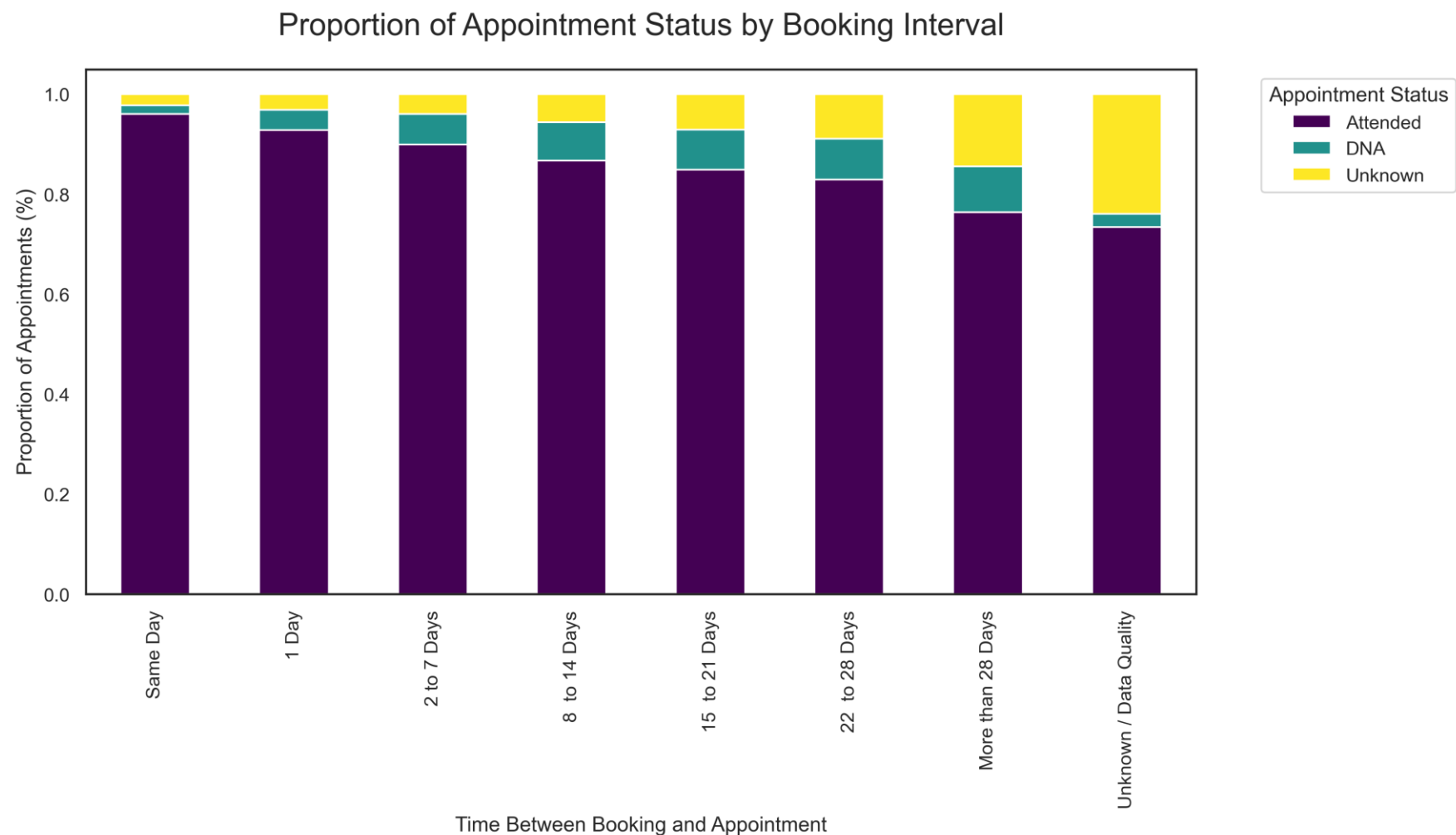

Appointments per Month by Appointment Status

Behavioural Insights

Missed appointments rise and fall in line with total appointment volume.
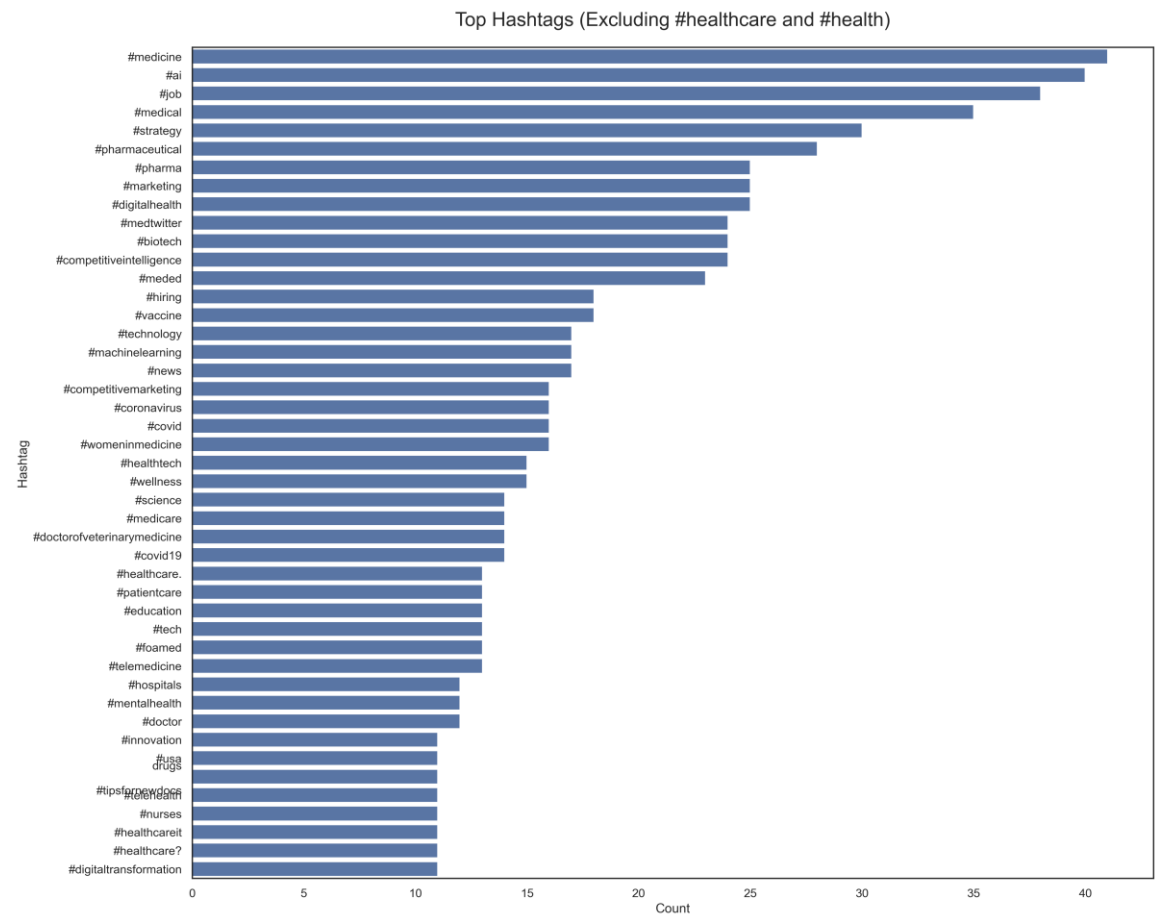

Non-Attended Appointments per Month by Status

Behavioural Insights

Longer waiting times between booking and appointment are linked to higher non-attendance rates.

Proportion of Appointment Status by Booking Interval

External Data Exploration (Twitter/X)

External data offers limited direct insight into NHS appointments but may highlight broader trends and public sentiment around healthcare.

Top Hashtags (Excluding #healthcare and #health)

Recommendations

Service demand is growing steadily, and while utilisation is high, missed appointments represent a preventable loss of capacity.

Recommendations

- Continue monitoring utilisation and attendance

- Investigate regional variation in DNA rates

- Strengthen patient engagement and reminder system

- Improve data completeness and consistency