Impact of COVID-19 on primary care consultation mode in England: An interrupted time series analysis

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Abstract

Background: The COVID-19 pandemic significantly disrupted healthcare delivery worldwide, and general practice in England was no exception. The adoption of remote consultations in primary care increased sharply during the pandemic. However, there is no evidence that the adoption of remote consultation will continue in the long term.

Objective: Long-term effects on primary care face-to-face and telephone consultations in England of the change towards remote consultation during COVID-19 pandemic.

Method: We use Interrupted Time Series analysis to understand the long-term effects on primary care face-to-face and telephone consultations in England at both national and regional levels.

Results: There was a shift in consultation patterns during and after the pandemic. Face-to-face consultations experienced a significant and immediate decline following the introduction of restrictions. However, they gradually increased and returned to pre-pandemic levels after restrictions were lifted, indicating that most healthcare needs still require in-person contact. Telephone consultations rose sharply during the pandemic. Although their use declined after restrictions eased in July 2021, they remained above pre-pandemic levels.

Conclusion: The COVID-19 pandemic profoundly changed how general practice consultations are delivered in England, prompting a rapid shift to remote consultation methods. While telephone consultations surged when face-to-face contact was restricted, this increase was not sustained in the long term. Although remote consultations remained above pre-pandemic levels, they did not fully replace in-person visits. This suggests a dual use of resources rather than a substitution. Policy efforts should focus on balancing and supporting both remote and face-to-face consultation models.

Research in Context

What is already known about the topic?

The COVID-19 pandemic significantly disrupted healthcare delivery worldwide, and general practice in England was no exception. The adoption of remote consultations in primary care increased sharply during the pandemic. However, there is no evidence that adopting remote consultation will continue in the long term and alleviate primary care pressures.

What does this study add to the literature?

Telephone consultations, while adopted for primary care interactions with patients during COVID-19 restrictions, might not be the solution in the long term for primary care pressures.

Face-to-face consultations significantly declined following the introduction of restrictions during the COVID-19 pandemic. However, after restrictions were lifted, these visits increased to pre-pandemic levels, showing that most healthcare needs cannot be addressed remotely.

Telephone consultations increased during the COVID-19 pandemic. However, their use declined after the restrictions were lifted in July 2021. We also observe regional disparities. The North and London experienced sharper increases. Meanwhile, the South demonstrated slower declines post-restrictions.

What are the policy implications?

Therefore, policies to incentivise remote consultations, especially for triage through online consultation systems, and to deliver consultations remotely where clinically appropriate might not be sustainable. Furthermore, they might create a double use of resources.

Background

The COVID-19 pandemic significantly disrupted healthcare delivery worldwide, and general practice in England was no exception. To contain the spread of the virus, the UK government imposed a series of restrictions and lockdowns starting in March 2020 and extending until July 2021 [1]. These restrictions, which limited in-person social interactions, were extended to the healthcare sector. NHS England advised GPs to adopt a digital triage system and to conduct consultations remotely wherever possible [2]. Online Consultation System (OCS) enables patients to submit information about their symptoms, medical needs, and personal details remotely [3]. GPs would then review these submissions and determine the most appropriate course of action, including written responses, telephone or video consultations, or in-person visits when necessary [3]. Historically, face-to-face consultations have been the mode for primary care consultations [4]. Remote consultations, though available for decades, were underused, limited primarily to telephone calls and reserved for specific circumstances, such as follow-ups or patients unable to attend in person [4]. Prior to the pandemic, the adoption of video consultations was minimal, with slow but steady increases driven by advances in technology and incremental policy changes.

However, NHS Long Term Plan (2019) had already planned to offer patients the right to access primary care digitally by 2023/24 [5], and the 2019/20 General Medical Services (GMS) contract required the implementation of online consultation systems by April 2020 and the offer of video consultations by April 2021 [6]. Therefore, the increase in primary care remote consultation was already something NHS wanted to incentivise and put into practice.

Beyond the immediate response to the pandemic, remote consulting offers a range of additional benefits. It has the potential to improve access to general practice, facilitate a higher volume of consultations more effectively, and help reduce pressures on GPs [7, 8]. Evidence from general practice in England suggests that remote consultations can enhance access for selected patient groups, maintaining similar clinical outcomes [9]. Telephone consultations, in particular, increased the proportion of patients treated, delivering similar quality-of-life and morbidity outcomes to those achieved through face-to-face visits [9]. However, remote consultations may occasionally need subsequent face-to-face or telephone follow-up appointments, for example, Donaghy et al (2019) [10] and Banks et al (2018) [11] report that this was perceived as adding to the workload and providing some patients with an alternative route into the appointment system. Therefore, remote consultations seem to enhance convenience, especially for working individuals and those with mobility limitations or mental health issues [4].

The adoption of remote consultations increased sharply during the early months of the pandemic. NHS Digital reports that the proportion of general practice consultations conducted remotely rose from 15% in February 2020 to over 45% by April 2020 [12]. Telephone consultations, in particular, saw a dramatic rise, becoming the dominant mode of consultation during this period as face-to-face visits were restricted to essential cases only. Studies have reported that telephone consultations saw a rapid surge, driven by widespread consensus on the need for social restrictions to protect both patients and healthcare staff [4]. However, as restrictions eased, opinions began to shift [4]. Evidence suggests that while remote consultations offered convenience, particularly for less complex health issues, there was a lack of clear guidance on their long-term role, leading to variability in their adoption [4]. Similar trends in the adoption of remote consultation have been observed internationally; for example, studies from Australia reported a sharp increase in remote consultations during the pandemic, followed by a subsequent decline as restrictions eased [13].

The shift to remote consulting also required rapid adaptation from both patients and GPs. Several studies have explored GP perspectives on remote consultations. While GPs acknowledged some benefits, such as patients raising fewer issues and getting to the point more quickly, they also reported significant challenges [4, 7]. These included longer face-to-face visits due to infection controls, increased mental strain, and greater clinical risk associated with remote consultations, particularly for complex cases [4, 7]. Some GPs who were previously resistant to remote consulting

began to view it as a potential way to improve efficiency, though satisfaction remained lower compared to in-person visits [4].

From the patient perspective, studies indicate that perceptions of remote consultations are heavily influenced by how GPs utilise the technology [14]. Benefits reported by patients included reduced travel time, avoidance of busy phone lines and long waits, and greater flexibility for simple health issues [14]. However, concerns such as impersonality and a perceived detachment from their GP were also common, particularly for more complex or sensitive health needs [14].

Remote consultation thus played a crucial role during the pandemic by enabling the continued delivery of healthcare services while minimising in-person contact [13]. Existing literature largely focuses on the initial surge in remote consultations. However, the extent to which remote consulting has persisted in general practice post-pandemic remains unclear. While the pandemic accelerated the adoption of remote consultations, ongoing debates persist regarding their suitability as a long-term replacement for face-to-face visits. Conflicting opinions among patients and GPs highlight both the opportunities and challenges associated with remote consultation, and open the doors to new possible health policy considerations to improve the use of remote consulting.
Most studies only analyse consultation activity up to late 2020 and at the national level [4, 15]. The few analyses that extend into 2022 [1] do not disaggregate by region, not addressing the potential heterogeneity of the consultation time-trend.

We contribute to the literature by using an Interrupted Time Series (ITS) analysis to investigate trends in consultation types —namely, face-to-face and telephone —at national and regional levels before, during, and after the pandemic. We analyse whether the COVID-19 shock led to a permanent re-balancing between face-to-face and telephone consultations in English general practice, and if the trend varied across regions, namely, North, Midlands, South and London. The subsequent sections provide an overview of the data sources and methodology, present key findings, and discuss their implications for the future role of remote consultation in general practice.

Methods

Data

Data were obtained from NHS Digital (Health and Social Care Information Centre) [14]. Two datasets were constructed: one for national-level analysis and another for regional-level analysis.

The national dataset contains monthly data from January 2018 to August 2024, comprising 80 observations. Key variables include the national total number of appointments, face-to-face visits, home visits, telephone consultations, and video/online consultations.

The regional dataset includes monthly data from October 2018 to August 2024, resulting in 72 observations. Data prior to October 2018 were unavailable. This dataset covers four aggregated regions: North, South, Midlands, and London. Variables include the total count of appointments and counts of face-to-face and telephone consultations for each region. The regional grouping is as follows:

North: North West, North East, and Yorkshire and the Humber.

Midlands: West Midlands, East Midlands, and East of England.

South: South West and South East.

The regional dataset also contains the patient list size from NHS Digital [14] for each group of regions, ensuring consistency in the analysis of consultation distribution across various areas.

Methods

An Interrupted Time Series (ITS) analysis was employed to quantify the impact of COVID-19 policy changes on consultation modes. ITS is an effective method for assessing the impact of an intervention or event by examining trends before and after its occurrence [13]. The advantages of implementing an ITS analysis are the full use of the longitudinal nature of the data and the ability to account for pre-intervention trends. However, ITS has limitations in isolating causal effects, particularly when there are confounders or when the pre-intervention trends are not representative of what would have occurred in the absence of the intervention. Unlike difference-in-differences (DiD) or synthetic control methods, ITS relies on the assumption that pre-intervention trends would have continued unchanged had the intervention not occurred. DiD could offer more robust causal estimates by comparing the changes in outcomes for treated and control groups, but its application requires a valid control group, which is difficult to define in this context due to the widespread nature of the intervention. Similarly, synthetic control methods could create a counterfactual group from a weighted combination of unaffected units, but this approach requires additional assumptions and data that were not available for this study. ITS would not be appropriate if trends are not linear, the intervention is introduced gradually, there are external time-varying effects of autocorrelation, or the characteristics of the population change over time. In this study, these conditions are not observed, making ITS an appropriate method. The analysis is a useful quasi-experimental design, facilitating a comprehensive evaluation of the lasting effects of interventions through regression modelling. We applied a general linear model with Newey-West standard errors, and the linear trends and minimal autocorrelation assumptions were validated for this analysis. This correction ensures more reliable inference by adjusting the standard errors of the regression coefficients; in this way, it was possible to improve the robustness of the statistical tests.

An initial descriptive analysis was conducted to assess potential underlying trends and seasonal patterns in the overall number of GP consultations. No clear evidence of seasonality was identified in the data (Supplementary Materials Figure A.1. and A.2.). In this study, the intervention points corresponded to two key policy milestones:

March 2020: Introduction of COVID-19 restrictions and heightened public awareness of the pandemic.

July 2021: Lifting of COVID-19 restrictions by the UK government, signaling the end of the emergency phase.

We also considered other potential intervention points, particularly the timing of local national lockdowns (known as tiers). However, the conditions across these local lockdowns did not vary substantially regarding consultation policy and public behaviour, and therefore, we excluded them.

Therefore, we focus our analysis on the most significant policy disruptions, capturing three distinct policy periods: the pre-pandemic phase before the introduction of the first lockdown, the pandemic phase characterised by ongoing restrictions and changes in service delivery, and the post-lockdown phase and the official relaxation of measures. This approach provides a more reliable framework for evaluating the long-term effects of the changes during COVID-19 restrictions on consultation modes. All analyses were performed in StataSE 18.0 using the ITSA command.

Results

Figure 1 illustrates the overall trends observed in the national dataset from 2018 to 2024. The total number of appointments shows a general upward trend over the study period, with no evident seasonality but a sharp decline during the initial months of the COVID-19 pandemic. Notably, home visits and video/online consultations consistently remained at much lower levels compared to face-to-face and telephone consultations throughout the entire period. Given the relatively small number of home visits and video/online consultations, we excluded them from the analysis.
Face-to-face and telephone consultations exhibit distinct patterns. Face-to-face consultations have the same time trend as total appointments, displaying a steady increase from 2018 and a pronounced drop during the pandemic months. On the other hand, telephone consultations exhibit the opposite trend. Their frequency increased sharply during the pandemic as restrictions started for in-person interactions. However, following the easing of restrictions, telephone consultations declined progressively.

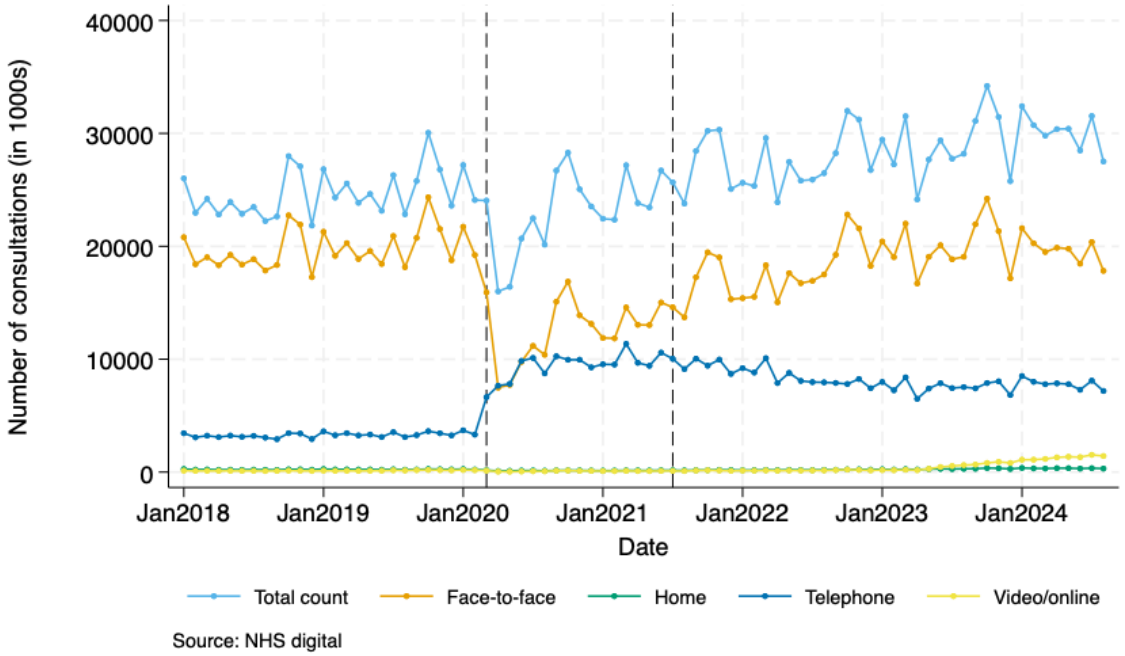


Figure 1: Number of primary care contacts by consultation mode.

Figure 2 presents the results of the ITS analysis of national face-to-face and telephone consultation data, with March 2020 and July 2021 serving as intervention points. The detailed coefficients and p-values are available in Table A.1 (in Supplementary Materials).

For national face-to-face consultations, the results reveal an overall upward trend prior to March 2020, followed by a sharp decline at the start of COVID-19 restrictions. This immediate decline is statistically significant, as indicated by the level change coefficient (p-value = 0.000). However, the trend in face-to-face visits after March 2020 shows no significant change or further disruptions, with p-values increasing for subsequent periods (p = 0.252 for the post-March 2020 trend change, p = 0.113 for the step change in July 2021, and p = 0.425 for the post-July 2021 trend change). These results suggest that while COVID-19 had an immediate impact on face-to-face visits, its longer-term effects on the trend were minimal.

For national telephone consultations, we observe a different pattern. Prior to March 2020, telephone consultations were a relatively small number, with a small increasing trend. Following the introduction of restrictions in March 2020, there was a significant and immediate increase in telephone

consultations (level change p-value = 0.000), with an increasing trend during the pandemic period (p-value = 0.009). After the easing of restrictions in July 2021, there was a decline in telephone consultations (level change p-value = 0.002), followed by a significant decline trend (p-value = 0.000). Nevertheless, telephone consultations remained at higher levels than those observed prior to the pandemic.

In summary, the ITS analysis highlights a statistically significant impact of COVID-19 on both face-to-face and telephone consultations, with distinct long-term trends. Face-to-face consultations exhibited a sharp transitory decline with no sustained disruption, while telephone consultations experienced a sharp rise during the pandemic and a gradual decline post-restrictions, however, at a higher level than pre-pandemic levels.

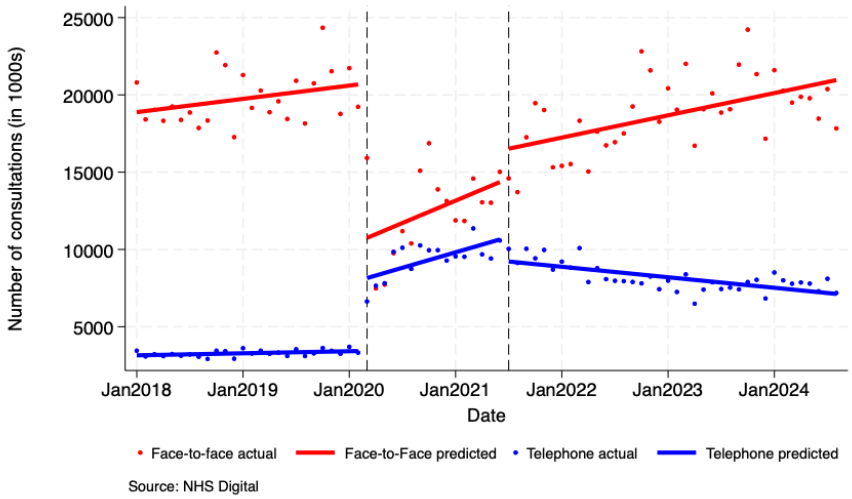
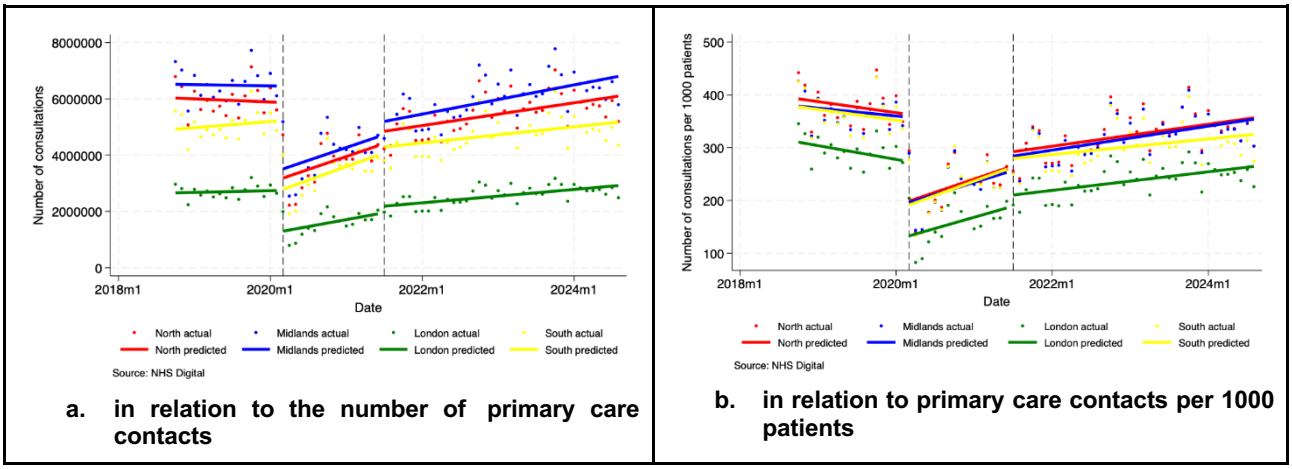


Figure 2: ITS analysis components in relation to primary care contacts by consultation mode.

To understand whether certain regions were impacted differently by COVID-19 and exhibited distinct trends in face-to-face and telephone consultations, we performed the ITS analysis at the regional level focusing on four areas: North, Middlands, South, and London. This approach aimed to identify regional variations in consultation patterns, assess the impact of COVID-19 on healthcare access, and explore whether different trends exist across regions.

Figure 3.a shows the ITS analysis for the number of regional face-to-face consultations, while **Figure 3.b** presents the ITS analysis for regional face-to-face consultations per 1,000 patients. All regions demonstrated similar time trends: a gradual increase in visits prior to the pandemic, a significant decline during the initial months of restrictions (March 2020), and a recovery phase following the easing of restrictions (July 2021). The decline at the onset of restrictions was statistically significant across all regions (p-value = 0.000 for the level change in March 2020). However, no significant changes were observed in the post-pandemic trends (p-values >0.05). Differences between regions primarily reflect variations in the absolute number of appointments. Notably, London consistently reported lower face-to-face visit counts and rates.



a. in relation to the number of primary care contacts

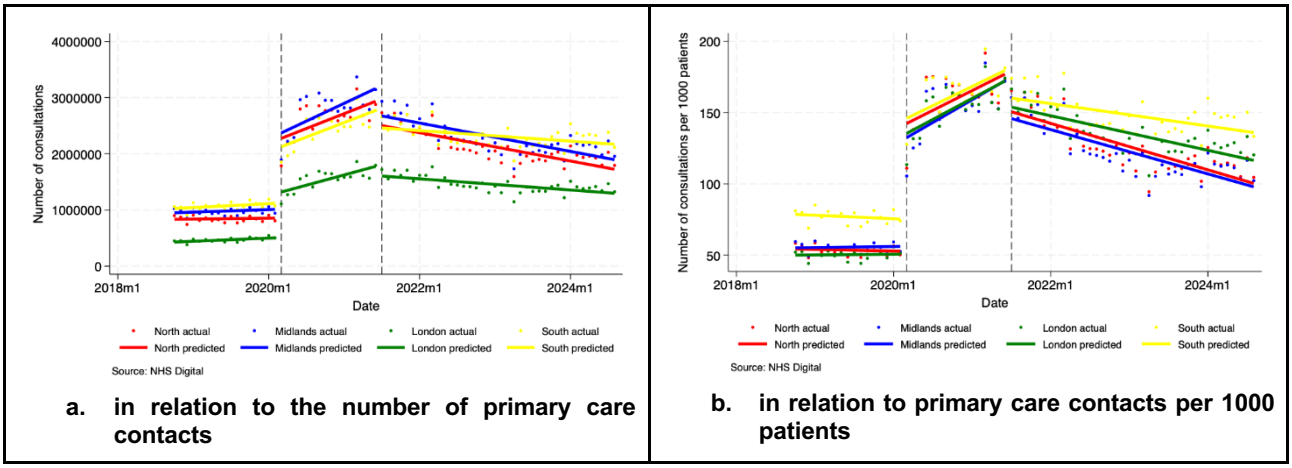
b. in relation to primary care contacts per 1000 patients

Figure 3: ITS regional analysis components for face-to-face consultations.

For telephone consultations (**Figure 4.a.** and **Figure 4.b.**), the regional time trends closely mirrored the national. All regions exhibited a sharp increase in telephone consultations at the onset of the pandemic (March 2020), followed by a decline after restrictions were lifted in July 2021. However, the magnitude of these changes varied.

Regions more impacted by COVID-19, such as the North and London, demonstrated a more pronounced surge in telephone consultations during the pandemic, reflecting an increased reliance on remote consultations due to pressures. This was followed by a sharp decline post-restrictions, although usage levels remained above pre-pandemic levels. In contrast, the South region exhibited a slower reduction in telephone consultations after July 2021, maintaining relatively higher levels of remote consultations compared to other regions. This suggests a more enduring integration of remote consulting practices in the South.

These findings show that regional disparities during the pandemic affected the uptake of telephone consultations. The North and London regions had higher increases due to immediate pressures during the pandemic, while a gradual decline after the restrictions had been lifted was observed in the South region, reflecting an acceptance of remote consultations.



a. in relation to the number of primary care contacts

b. in relation to primary care contacts per 1000 patients

Figure 4: ITS regional analysis components for remote consultations.

Discussion

This study contributes to the growing body of evidence on the impact of COVID-19 on primary care, specifically in general practice consultations. By analysing monthly data over an extended period (January 2018 to August 2024 for national data; October 2018 to August 2024 for regional data), we examined variations in face-to-face and telephone consultations, focusing on the introduction of restrictions (March 2020) and their lifting (July 2021) as key intervention points.

The findings reveal clear shifts in consultation patterns during and after the pandemic. Face-to-face consultations experienced a significant and immediate decline following the introduction of restrictions during the COVID-19 pandemic, NHS guidance [16], and public consensus on limiting face-to-face interactions. However, these visits increased to pre-pandemic levels after restrictions were lifted, suggesting that many healthcare needs may be better met through face-to-face consultations. This trend likely reflects not only clinical requirements, such as the need for physical examinations and clearer communication through non-verbal cues, but also patient and GP preferences [3]. Patients often find it easier to build trust, communicate more clearly, and feel more comfortable in in-person settings, while GPs report that face-to-face interactions can enhance diagnostic safety, reduce technical issues, and allow for more comprehensive information gathering [3]. Banks et al. (2018) have reported that remote consulting usually result on face-to-face or telephone follow-ups [11].

In contrast, telephone consultations increased during the COVID-19 pandemic, providing a crucial means of delivering primary care safely under restrictive conditions. Their use declined after the restrictions were lifted in July 2021, but telephone consultations remained higher than pre-pandemic levels, suggesting that the crisis accelerated the adoption of remote consultation. We also observe regional disparities, namely the North and London experienced sharper increases in telephone consultations, reflecting their greater pressure during the pandemic. Meanwhile, the South demonstrated slower declines post-restrictions, indicating a more persistent use of remote consulting.

Demographic and socioeconomic context may help explain regional disparities in consultation trends. For instance, the London region has one of the youngest populations in England, while the South presents one of the oldest, with the Midlands and North falling in between (ONS, 2024) [17]. Age is a known factor in digital adoption, with older individuals typically facing more barriers to engaging with online services. Zhao et al. (2025) found that after lockdown, the proportion of patients aged 80+ was a key factor influencing appointment rates at the CCG level, which may explain the decrease in remote consultation use [18]. However, recent studies suggest that some older patients found the online consultation system easier than expected and even preferred it in certain contexts, particularly when remote consulting facilitated access from nursing homes or for those with mobility limitations [3, 4]. In terms of deprivation, London presents lower levels of deprivation, while higher results are observed in the North and South [19, 20]. In more deprived areas, people may struggle more to access digital services due to a lack of resources, skills, or trust, which can increase health inequalities [4].

These patterns may influence patients' ability to access and benefit from remote consultations. These results highlight remote consultations as a complement to traditional face-to-face meetings, providing benefits like better accessibility, less patient travel, and greater flexibility for practitioners. Nevertheless, challenges persist, including suitability for complex cases, the necessity for clearer guidelines, and improved training for both practitioners and patients.

Limitations

One limitation of the analysis is that we use primary care consultation data at the regional level, since GP practice consultation data has only been available since March 2022 [21]. The fact that we only observe data at a regional level implies that we cannot explore inequalities in access to primary care consultations by mode before, during, and after the COVID-19 pandemic. Therefore, while we

observe differences across regions, we do not do so by deprivation or health need level. The data used presents the number of booked consultations and not the demand for healthcare, i.e., the volume of people attempting to book appointments or the capacity of appointments available. Moreover, NHS Digital [14] highlights that the COVID-19 pandemic affected General Practices and GP appointment data, namely the appointment management variations among practices increased during this time, impacting data quality. These quality issues limit the reliability of inferences from the data, which is also reported by Murphy et al. (2020) [7] that reports that qualitative GPs do not consistently record the consultation mode.

Conclusion

The COVID-19 pandemic has profoundly changed how general practice consultations are delivered in England, forcing both patients and practitioners to adapt to remote consultation methods. Face-to-face consultations remain the preferred consultation mode in primary care. This study highlights that telephone consultations have declined since COVID-19 pandemic restrictions were lifted but have not returned to pre-pandemic levels, indicating an increase in this mode of consultation.

Studies across Australia, Ireland, and UK reported substantial decreases in face-to-face consultations and increases in remote consultations [4, 15, 22]. COVID-19 has decreased face-to-face consultations and increased remote consultation in general practice in Ireland, with reduced practice profits significantly [23].

The uptake of remote consulting was rapid and successful in maintaining focus on vulnerable patients [4]. However, concerns were raised about the impact on chronic care, mental health, and socioeconomic well-being [23]. GPs also reported worries about increased clinical risk and difficulties in determining when face-to-face consultations were necessary [4]. The long-term consequences of these changes on patient health and healthcare delivery remain to be assessed [22, 23].

The policy implications of this study mainly relate to the adoption of remote consultation in primary care. The uptake of telephone consultations during the COVID-19 pandemic, when face-to-face contact was restricted, was not sustained in the long term. Therefore, policies to incentivise remote consultations, especially for triage through online consultation systems, and to deliver consultations remotely where clinically appropriate, might not be sustainable [16]. Furthermore, they might create a double use of resources. GPs have acknowledged that remote consulting demands additional skills [7, 8], which require dedicated training, practice, and ongoing support. These needs should be addressed through appropriate health policies.

Additionally, policymakers should ensure the safety, reliability, and accuracy of digital tools used in remote consultations - such as pulse oximeters, blood pressure monitors, and telemedicine mobile applications [8]. Health policies should consider the growing role of Virtual Wards (or Hospital at Home), which provide hospital-level care to patients in their own homes using remote monitoring technologies and multidisciplinary clinical teams [25]. Virtual wards have expanded significantly since the pandemic and are increasingly recognised as a strategy to reduce hospital admissions, improve patient outcomes, and optimise healthcare resources [25]. Tools like this one can enhance remote consulting in general practice, providing improvements both for patients and GPs.

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Supplementary materials

Figure A.1. Trend and cycle components

We used the Hodrick-Prescott (HP) filter to isolate the trend and cyclical components. While the trend components reflect the increase in total and telephone consultations, the cycle component,

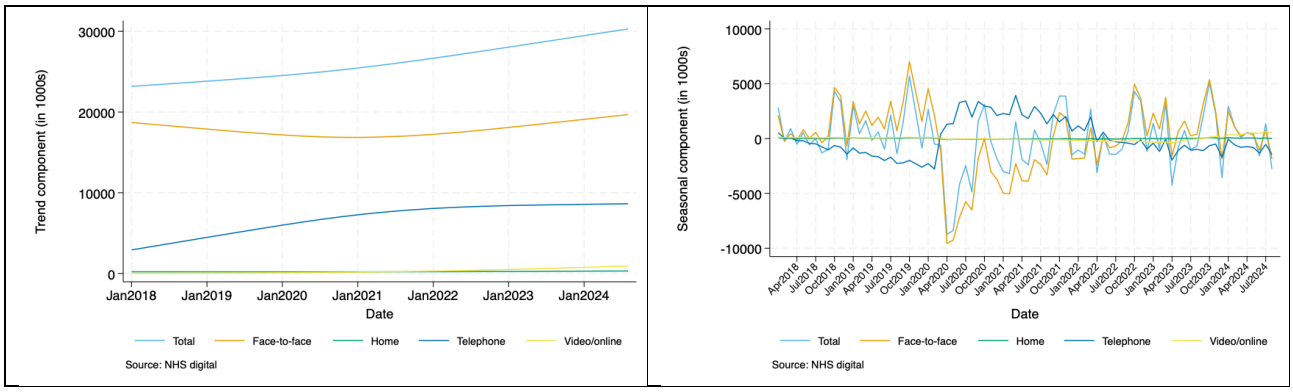
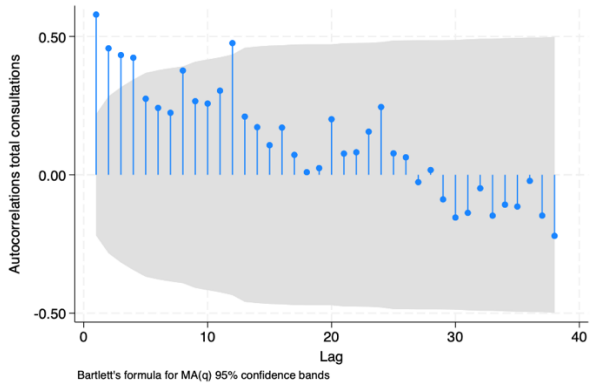
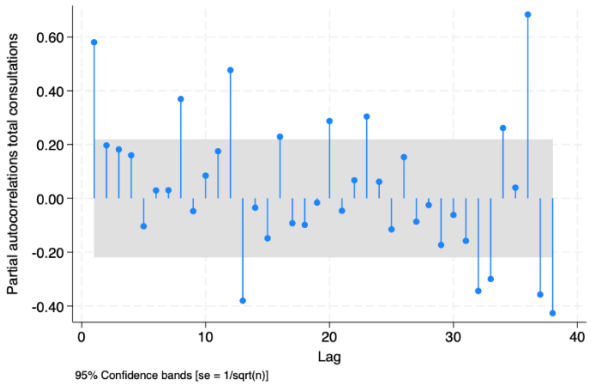
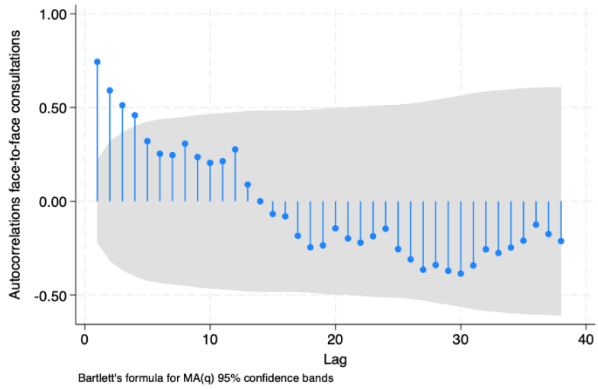
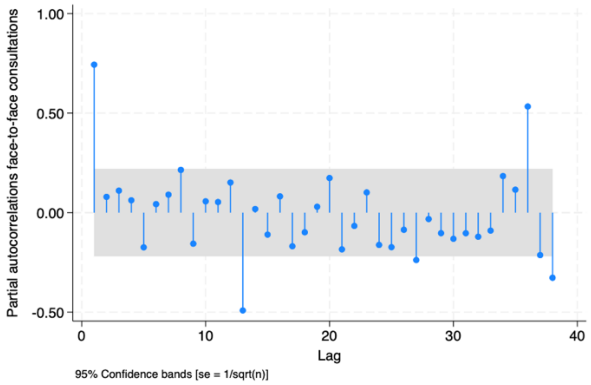
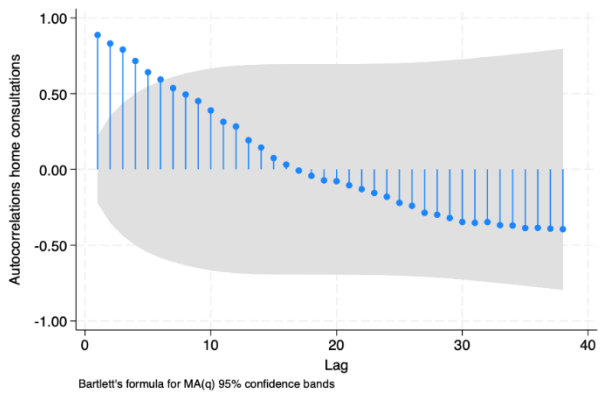
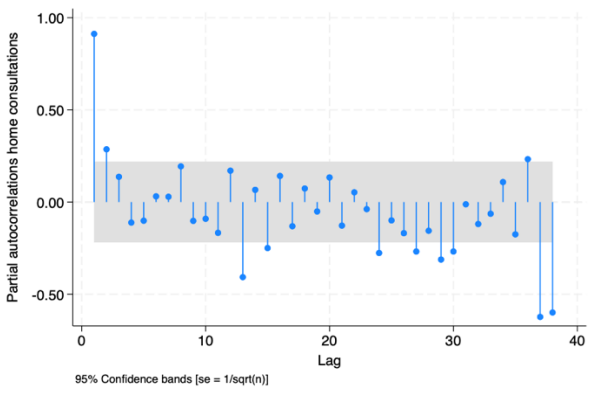
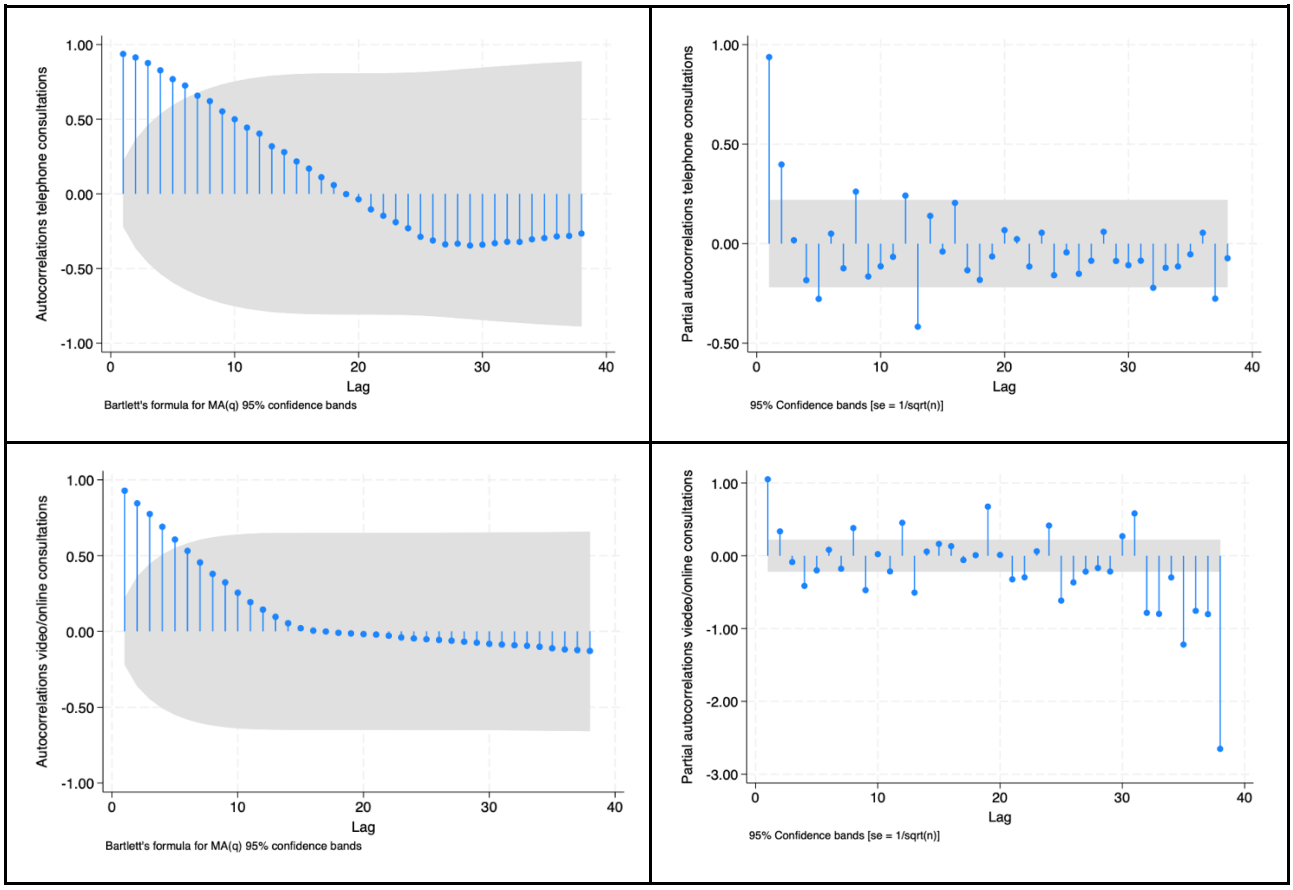


Figure A.1. Trend and cycle component of total number of consultations.

Figure A.2 - Autocorrelation and partial autocorrelation for total consultations and per consultation type

The autocorrelation in the ACF graphs slowly declines and becomes insignificant after lag 15–20, suggesting a non-seasonal autoregressive process. Therefore, we conclude that there is a gradual decline and no seasonal pattern. The autocorrelation in the PAFC graphs shows some short-term autocorrelation (mainly at lag 1–2), but no strong seasonal cycle (e.g., no consistent spikes at lag 12, 24, 36).

Autocorrelations (ACF)	Partial autocorrelations (PACF)
	
	
	



Regression Results

This table presents coefficients and p-values for regression models analyzing consultation trends before and after key time points during the pandemic (March 202 and July 2021). The results are stratified by mode of consultation (face-to-face and telephone) and by region.
_t : represents the time variable in the regression model.
_x2020m3 : Correspond to the event of March 2020.
_x_t2020m3 : Represents an interaction term between the period pre- and post- event.
_x2021m7 : Corresponds to the event of July 2021.
_x_t2021m7 : Represents an interaction term between the period pre- and post- event.
_ cons : Represents a constant (intercept term) in the regression model.

Table A.1. ITS results

		_t	_x2020m3	_x_t2020m3	_x2021m7	_x_t2021m7	_cons
National analysis:							
National face-	Coeff	71635	-9997801	169125	1918029	-120775	18900000

to-face	P-value	0.062	0.000	0.252	0.113	0.425	0.000
National telephone	Coeff	11047	4712475	155509	-1593629	-223204	3149872
	P-value	0.003	0.000	0.009	2.000	0.000	0.000
Regional analysis:							
North face-to-face	Coeff	-9271	-2684968	85980	436647	-43000	6026568
	P-value	0.784	0.000	0.093	0.296	0.265	0.000
North telephone	Coeff	1305	1419377	42715	-477206	-65039	832969
	P-value	0.904	0.000	0.011	0.001	0.000	0.000
Middle face-to-face	Coeff	-3802	-2942776	79836	471247	-32768	6516437
	P-value	0.895	0.000	0.136	0.224	0.505	0.000
Middle telephone	Coeff	3753	1357791	48975	-540640	-73787	949363
	P-value	0.760	0.000	0.011	0.001	0.000	0.000
London face-to-face	Coeff	5113	-1448378	35895	231848	-21189	2660234
	P-value	0.738	0.000	0.120	0.221	0.225	0.000
London telephone	Coeff	4724	811171	25702	-202529	-38706	427392
	P-value	0.000	0.000	0.002	0.007	0.000	0.000
South face-to-face	Coeff	18219	-2443568	62625	212351	-57023	491972
	P-value	0.469	0.000	0.161	0.532	0.161	0.000
South telephone	Coeff	5760	1001847	37320	-355100	-50899	1025443
	P-value	0.009	0.000	0.007	0.003	0.000	0.000