GP Practice Online Reviews before and after the COVID-19 Pandemic: a Longitudinal Observational Study

Joaquim Vidiella-Martin, Gevorg Khandamiryan, John Powell, Catia Nicodemo

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Abstract

Background: The COVID-19 pandemic has brought new challenges to in-person encounters with general practitioners (GPs) and has fostered the use of digital health tools. Patient online reviews (PORs) of health care experience offer a method for patients to feedback on the quality of their care.

Objective: This study sought to determine the latest trends in patient feedback for English GP practices in the National Health Service (NHS).

Methods: Publicly available PORs for English GP practices between January 2019 and February 2021 were identified and scraped from the NHS website. PORs were characterized based on numerical star ratings (ranging from one to five) and the polarity of their comments. These measures were also calculated at GP practice level to understand whether patients' perceptions of their practices are constant across time.

Results: Of the 58,970 PORs posted between February 2019 and February 2021, 64·6% were positive (defined as a star rating of four or five out of five). After the lockdown measures imposed in April 2020, the share of encounters with GPs rated positively by customers increased. General practices were less likely to reply to their patients' reviews after April 2020. The relative rank of practices based on their average star rating remained rather constant after the start of the lockdown measures.

Conclusions: This study demonstrates how PORs can be used to detect instances of particularly good or bad practice. Since GP Patient Survey has been disrupted during the COVID-19 period, this could be another measure for policy makers to track practice quality.

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Abstract

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Keywords: patient online reviews; general practices; text analysis; COVID-19; England.

Introduction

The COVID-19 pandemic has impacted provision and use of health care services to a large degree. The lockdown measures imposed almost everywhere in the world as a result of the spread of the virus led to a drastic reduction in the number of in-person encounters with health care providers. In response, there has been rapid acceleration in the adoption of digital health technology. The use of these tools had been steadily rising in the last few years in Western countries, even before COVID-19.[1,2] For example, the proportion of adults seeking health information online more than doubled between 2008 and 2017 in OECD countries.[3]

In the UK, a national lockdown was implemented on 23 March 2020 in response to the rapid advance of COVID-19.[4] This included restrictions of individual mobility and limited access to essential services. As a result of this policy, the volume of encounters with general practitioners (GPs) was reduced and patients were urged to increase their use of remote services provided by NHS such as telephone, video, NHS App, e-prescription, etc.[5] For example, the share of general practice appointments taking place via telephone increased from 14% in the first week of March 2020 to almost 50% one month later.[6]

One digital health service that has seen significant growth in recent years is the opportunity for patients to leave online feedback about their care encounters on reviews and ratings websites, including on the NHS website.[7,8] While this use of online feedback is becoming more common for patients who are motivated to give praise and to help the NHS improve, longitudinal evidence is missing regarding its use over time.[8]

Given the increase in provision of care using remote services, recent evidence has evaluated patient experience of quality of their care during the COVID-19 epidemic. Some of those studies were made in the context of specialist care such as prenatal care, physical therapy, immunology, or psychiatry during this period.[9–12] Some suggest that patient experience improved compared to the pre-COVID-19 period,[9] while some others find the opposite.[10,11] These studies often rely on patient surveys, and are thus costly and provide information relating to one point in time. Instead, patient online reviews (PORs) could provide health policymakers with a valuable tool to monitor patient experience of quality of care given by its providers on a near real-time basis especially during periods such as the pandemic, in which other type of surveys, like the GP Patient Survey, are difficult to carry out.[13,14] While only a minority of patients rate their experience with GPs, previous evidence has shown an increase in the number of comments and in the use of such feedback by the general public.[8] PORs have been shown to correlate with patient experience measures collected in the GP Patient Survey and Friends and Family test.[15]

In this study, we investigate the latest trends in PORs on GP practices in England from 1 January 2019 until 1 February 2021. The aim of the study is to gather information on how patients' experience of quality of care has evolved during a time with restricted access to

healthcare. Further, we also explored the reaction of practices to their feedback during the period of study.

Methods

Data Sources

This was an observational study using PORs posted on the NHS website. The NHS website allows patients to rate and review health and social care services in England, with the goal of helping to improve both patients' decision-making and the quality of care given by health care providers. Comments are pre-moderated to ensure that non-defamatory language is used and users cannot name or identify individuals through their personal features or descriptions.

PORs consist of both free text and a star rating ranging from one to five, with one being the lowest rating and five the highest. General practices have the option to reply to their feedback. All PORs of visits at general practices taking place from 1 February 2019 to 1 February 2021 were collected using webscraper.io, an online data extraction tool.[16] These data contained 58,970 reviews from 6,529 general practices.

Each review contained the following fields: reviewer ID; star rating; body text of the comment; date of visit; replier ID; reply date; and reply text. Body text is a free text field where the patient provides information about her experience. Replier identifies the GP practice replying to a given review and Reply text is a free text field where the provider can address the comments of the patient. An example of the reviews is shown in Supplementary Figure 1.

Variables

The content of reviews was assessed based on stars rating and words content. Star ratings ranged from one (lowest rating) to five (highest rating). We defined 'good reviews' as those with a star rating of four or more out of five.

A polarity score was constructed applying the Vader sentiment analysis dictionary to the text of the comments left in the review.[17] The Vader dictionary assigns a positive numerical score to words that demonstrate or imply a positive attitude by the agent, and a negative integer to those that imply dissatisfaction, negative attitude, etc. This provides an alternative measure to star ratings for patient experience of quality of care.[18] The polarity score was adjusted for the total number of words to prevent longer reviews from systematically having larger scores. These polarity scores ranged from -3·4 to 3·2.

Finally, the responsiveness of practices to reviewers was captured constructing an indicator variable taking value 1 if a reply was posted in the NHS website and 0 otherwise.

Statistical Analysis

First, the distribution of star ratings and polarity scores was visually inspected. Next, PORs were characterised with summary statistics of the share of good reviews, polarity score and probability of receiving a reply, separately before and after the start of the lockdown measures for the COVID-19 pandemic in England. Time trends were plotted to evaluate the monthly evolution in the total number of reviews and their characteristics. The most common contents of a review were identified and plotted using the library Word Cloud in Python.[19] In this plot, words that appear more frequently were displayed in larger fonts.

To identify whether GP practices consistently have the same ratings, stratified analyses were conducted. Time trends were plotted separately for practices with a share of good reviews above and below the median. Further, we examined whether GP practices were consistently rated by their users before and after the start of the COVID-19 epidemic. To do so, reviews were split into two time periods (those taking place from 1 February 2019 until 30 March 2020; and those taking place from 1 April 2020 until 1 February 2021). Next, the share of good reviews (rated with four or five stars out of five) of each practice was calculated, separately by time period, and practices were ranked according to these shares. Based on their rankings, general practices were categorised as being in the upper third, middle third, or bottom third of the distribution of good reviews. To reduce statistical noise, GP practices with fewer than 10 reviews in at least one time period were dropped from this analysis and 180 practices were considered.

All analyses were conducted using free statistical software Python (version 6.0.3).[20] No data were imputed for this analysis.

Results

58,970 PORs were posted between 1 February 2019 and 1 February 2021 (Table 1). The distribution of star ratings was bimodal, with most reviews being either one or five stars. The distribution of the polarity score was plotted in Supplementary Figure 2 and resembled a normal distribution.

In Table 1 we can observe that 64·6% of the reviews had a positive star rating, with the average being 3·66 out of 5 (SD 1·72). Reviews had on average a polarity score of 3·32 (SD 6·41) and 84·7 characters (SD 74·5). Over half of the reviews (57%) received a reply from their GP practice.

The share of good reviews increased over time: from 60·3% before 1 April 2020 to 71·4% in the period after (p<0·001). The average polarity of a review was 3·32 (SD 6·41) and did not significantly differ over time. Reviews became shorter after the lockdown measures: from 94·2 words on average before April 2020 (SD 80·6) to 67·9 in the period after (SD 59·8). Likewise, the probability of receiving a reply decreased from 64% before April 2020 to 36% after April 2020.

Summary statistics at practice level are reported in the Supplementary Table 1. The findings were in line with the ones described above.

Table 1: Descriptive statistics of reviews, before and after the April 2020

	Feb 2019 – Mar 2020	Apr 2020 – Feb 2021	p-value[a]
Stars[b]	3·49 (1·77)	3·92 (1·59)	<0·0001
*	n = 10,363 (28·7%)	n = 4,172 (18·2%)	
**	n = 2,108 (5·8%)	n = 1,306 (5·7%)	
***	n = 1,851 (5·1%)	n = 1,066 (4·7%)	
****	n = 2,860 (8%)	n = 1,982 (8·6%)	
*****	n = 18,870 (52·3%)	n = 14,392 (62·8%)	
Good reply[c]	0·60 (0·48)	0·71 (0·45)	<0·0001
Polarity	3·31 (6·78)	3·34 (5·49)	0·5798
Length	92·8 (79·6)	71·9 (63·5)	<0·0001
Probability of reply	0·63 (0·48)	0·48 (0·50)	<0·0001
Total	36,052	22,918	

[a] P-values obtained from a t-test on the differences of means before and after the onset of the COVID-related measures.

[b] Distribution of stars shown with the absolute and relative frequencies of each star rating.

[c] Good reply defined as four or five stars out of five.

The total number of reviews (Figure 1a) decreased from January 2020 until its lowest point in April 2020 (500 reviews). The number of reviews then raised sharply until October 2020, reaching pre-pandemic levels. The share of good reviews spiked during the start of the lockdown to a maximum of 72% in October 2020, compared to 63% in March 2020 (Figure 1b). A similar pattern is observed for the polarity score (Figure 1c). The probability of receiving a reply decreased from January 2020 onward, with a more dramatic decrease following after the start of the lockdown (Figure 1d).

Figure 1: Evolution of ratings over time

(a) Total number of reviews

(b) Share of good reviews

(c) Average polarity

(d) Share of reviews that receive a reply

Note: Vertical red lines depict the start of the lockdown measures of March 23, 2020. Solid lines depict the evolution of monthly averages. Shaded area indicates 95% confidence intervals.

Patients most often used the terms "appointment", "service", "doctor", "surgery", "practice", and "time" in their reviews (Figure 2). Reference to other staff in the practice was also made in reviews (e.g. "nurse", "staff", or "receptionist").

Figure 2: Words reported in the PORs

Note: larger fonts are used for words that appear with higher frequency.

The geographical distribution of average star rating, polarity, and probability of receiving a reply is explored in Supplementary Figure 3. Some differences exist across Clinical Commission Groups (CCG). On average, the share of good reviews and polarity score was larger in CCGs located in the South and East of England. By comparison, the average probability of receiving a reply was more evenly distributed across areas.

Stratified Analysis

The share of good reviews star rating and polarity score followed a similar trend for practices above and below the average star rating (Supplementary Figure 3a and 3b in the online supplement, respectively) during the period sample. Conversely, the probability of receiving a reply from either of these types was fairly similar, both before and after the start of the lockdown measures (Supplementary Figure 3c). In the last two months of analysis (December and January 2021), the probability of receiving a reply was 20 percentage points higher when leaving feedback for a practice above average than for a below average practice.

General practices with a star rating above the mean are more likely to receive reviews including the words "nurse" and "thank", compared to those below average (Supplementary Figure 4a). For those general practices with an average star rating below the mean, words like "phone", "receptionist", and "time" were the commonest words used.

Changes in the average star rating of General Practices before and after the COVID-19 pandemic are depicted in Figure 3. 180 practices contained at least 10 reviews before and after April 2020 and were thus included in this analysis. Approximately half the practices remained in the same rank after the start of the COVID-19 pandemic. General practices ranked in the upper and lower terciles were more likely to remain in the same rank than those in the middle one.

Figure 3: Evolution of general practice, based on their star ratings
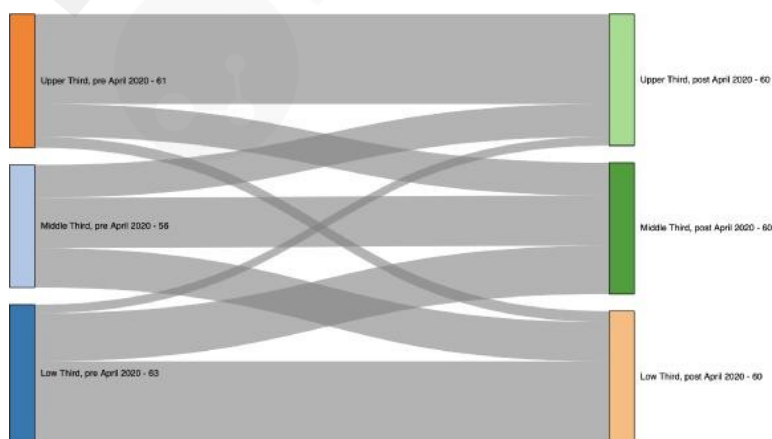
Note: Left column represents the period ranging from February 2019 until March 2020. The right column represents the period after the start of the lockdown measures, ranging from April 2020 until February 2021. Only practices with more than 10 reviews in both periods were included.

Each practice was ranked based on the share of good reviews on each period and then categorised into upper, middle, or lower tercile of the distribution. Shaded grey areas depict the transition from pre-pandemic rank to post-pandemic rank.

Discussion

Principal Results

Provision of health care services in the UK (and elsewhere) experienced significant changes during the COVID-19 pandemic. With a larger share of GP consultations taking place online and the GP Patient Survey suspended, PORs can provide a valuable source of information about patient experience during this period. Recent work has shown that online patient feedback does have some correlation with measures such as the GP patient survey and the NHS Friends and Family Test.[15,21] In this study, we analysed the latest trends in PORs and found that average rating of encounters with GPs has increased after April 2020. We found that patients gave generally positive feedback after their encounters with GPs,[21-23] which is aligned with previous evidence on PORs being mostly positive and contrast with the prevailing view among some clinicians that PORs are mainly critical.[8] Further, we found that the level of positivity increased slightly after April 2020. Two potential explanations could drive this more surprising finding. One the one hand, patients could have had better experiences of care during the pandemic. On the other hand, they might have felt less willing to complain and have tried to encourage healthcare providers experiencing high pressure and volumes of work during the pandemic instead.

We also studied whether patients were more likely to receive a reply to their review after the start of the lockdown measures. In other sectors such as travel and retail, responsiveness to feedback is sometimes viewed as a proxy indicator of quality by consumers.[24] While the volume of monthly reviews did not reach pre-pandemic levels, the probability of receiving a reply decreased substantially after April 2020. This finding could indicate increased pressure on the health care staff employed at those practices during the post-lockdown period, which may in turn have consequences for patients' health.[25]

Further, we compared the relative rank of general practices based on their star rating, before and after April 2020. We found that the relative rank before and after the start of the COVID-19 pandemic in the England was fairly similar. This might suggest that the impact of COVID-19 on the patient experience of general practices was relatively even across practices.

Strengths and Limitations

This study used data from all reviews left on the NHS website before and during the COVID-19 pandemic. By collecting and analysing data published up to February 2021, we have presented (to the best of our knowledge) the most up to date evidence about the recent trends in patient's experiences with their GPs, based on their online reviews. Compared to other studies about patient satisfaction which are limited to a particular point in time, our design offers a longitudinal approach to track patient satisfaction. The results presented in this study provide early evidence about patients' satisfaction with general practices continuously. Hence, this analysis can be complementary to the GP Patient Survey that

provides a snap-shot of the current state of patient satisfaction in specific times of the year. Analysing time trends can be particularly useful during periods of large pressure in the health care system such as winter or COVID-19. The evidence presented in this article can be particularly useful in a period where the GP Patients Survey has been interrupted due to the COVID-19 restrictions.

This study also has some limitations. First, some debate exists about whether patient feedback can be used to accurately capture quality of GPs. However, some studies have found that online feedback is somewhat correlated to quality of care in primary care and patients are capable of identifying quality of care from their GPs.[26-30] Second, while the use of patient feedback has increased and many patients read the feedback, it is a minority activity and some concerns exist about the representativeness of patient online reviews.[8,31] While these comments are not representative of the overall population (either demographically or in terms of the average patient at a general practice), PORs are read by a much broader audience and their comments can be valuable for quality improvement and identify actionable issues that providers can act up on. Finally, we do not have information on whether the encounters that were rated in the NHS website took place online or face to face, and thus cannot determine whether the increase in patient rating of quality of care is due to increased ratings or a preference for online encounters.

Conclusions

Online feedback from patients can be useful as a measure of experience of quality of care, albeit with some limitations. Based on our analyses, patient satisfaction with their GPs as expressed in online reviews and ratings increased after the lockdown measures were imposed in March 2020, which included moving away from face to face encounters and towards telephone and digital consultations. In the same period, the responsiveness of GP practices towards feedback posted about them reduced, suggesting increased pressure on staff employed in general practices.

This study demonstrates how online feedback can be used to monitor patient experience of quality of care. Our results suggest that changes in the provision of primary care in 2020 was not negatively associated with the satisfaction of patients who provide feedback. By identifying needs and complaints from patients on an almost real-time basis, these data have the potential to complement traditional patient satisfaction surveys. Further research is required to investigate the full potential of PORs.

Acknowledgements

Conflicts of Interest

None declared

Abbreviations

GP: general practitioner
POR: patient online review
NHS: National Health Service

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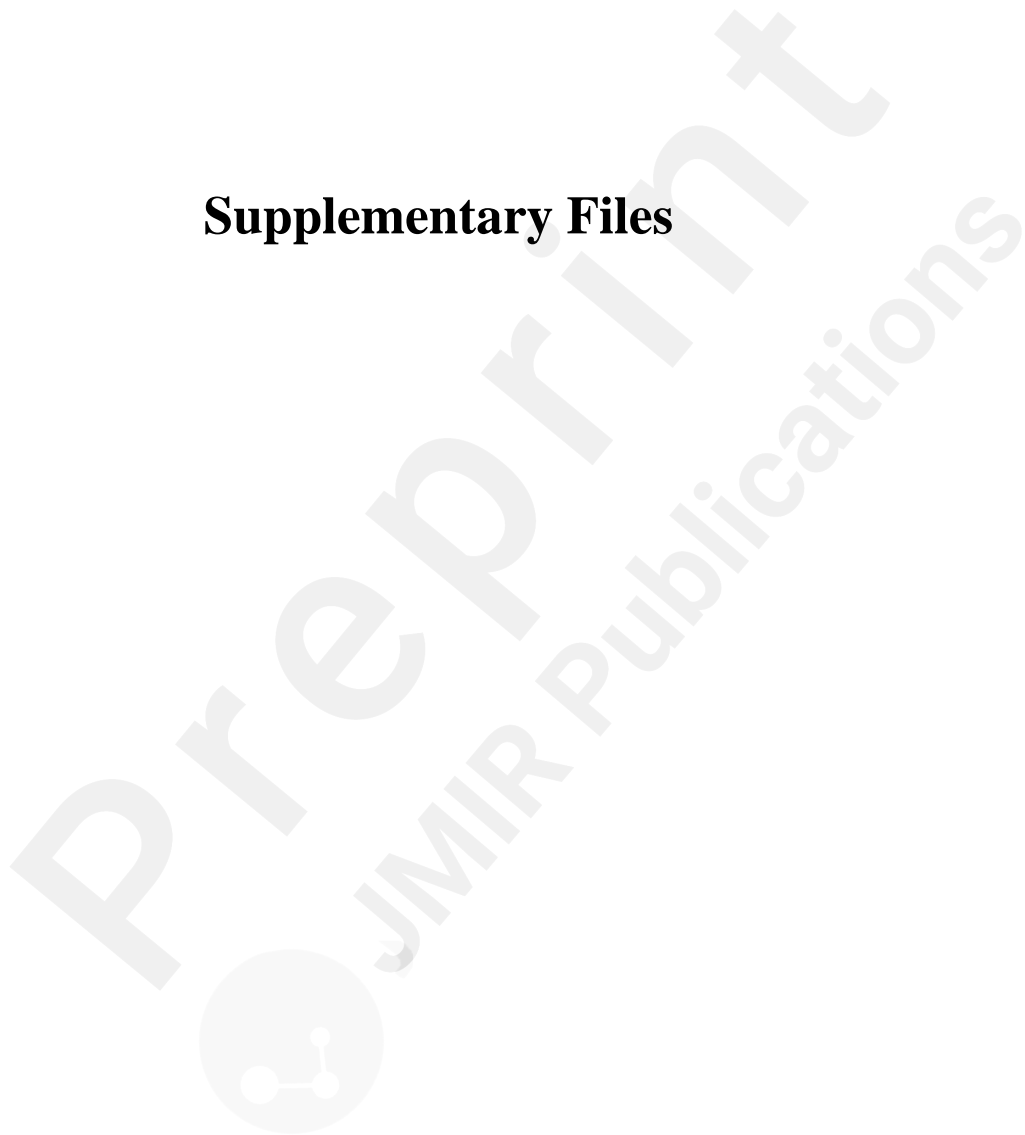
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Supplementary Files

Multimedia Appendixes

Online supplement.
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