

# Technical Issues Are a Major Determinant of Patient Satisfaction in Virtual Visits for Inflammatory Bowel Diseases

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## Introduction

Due to the coronavirus disease 2019 (COVID-19) pandemic, traditional in-person inflammatory bowel disease (IBD) patient and provider interactions rapidly shifted to telemedicine platforms to limit in-person contact among health care workers and patients. Prior studies have shown that carefully designed telemedicine interventions can improve patients' understanding of their diagnosis, provide monitoring of patients' symptoms, and increase access to care for those who live a long distance from their IBD provider.<sup>1</sup> However, the consequences of the unplanned and large-scale adoption of telehealth after the COVID-19 pandemic on communication between patient and provider and quality of care are yet unclear. We therefore aimed to quantitatively and qualitatively assess patient satisfaction associated with telehealth visits to understand the IBD patient experience compared with traditional in-person visits. We further aimed to identify reasons and potential solutions to improve the quality of care delivered during virtual visits.

## Methods

Patient satisfaction surveys from patients seen by the gastroenterologists at the Cedars-Sinai IBD Center, an outpatient clinic within a metropolitan tertiary hospital in Los Angeles, California, with 7 adult gastroenterologists and 2 pediatric gastroenterologists specialized in IBD, were analyzed between

January 1, 2020, and June 15, 2020. Surveys were either sent out by email or were administered by telephone using an interactive voice system. The response rate in our clinic was 31% for in-person and 35% for virtual visits. Three questions were common between the in-person and virtual visit satisfaction surveys, and the responses to these questions were compared: "Did this provider listen carefully to you?" "Did this provider seem to know the important information about your medical history?" and "Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you rate this provider?"

On April 1, 2020, all clinic appointments were abruptly changed into telehealth appointments due to COVID-19; before that date, all visits were done in-person. Only patients with urgent needs were able to come in for an in-person visit. Providers were encouraged but not required to use the videoconferencing software provided through the electronic medical record (EMR). Therefore, we excluded data from 8 in-person visits after March 31, 2020, as these visits were likely not representative of typical in-person visits. All analyzed visits before April 1, 2020, were thus in-person visits, and all visits after March 31, 2020, were telehealth visits. Answers were transformed into top-box scores: for 3- and 4-item responses, an answer of "Yes, definitely" was considered top-box. For questions using an 11-point Likert scale, a score of 9 or 10 was considered a top-box score. Patients who reported no technical problems, identified based on top-box ratings

for the questions about connection and video quality, were compared with patients who did report technical problems during the telehealth encounter. We performed a subanalysis of patients who had both an in-person and telehealth visit within the time parameters. Fisher exact tests were performed for analyzing differences in top-box scores between in-person and virtual visits. Responses to open-ended questions were analyzed using a descriptive qualitative analysis to identify key satisfaction themes for in-person and virtual visits.

### Results

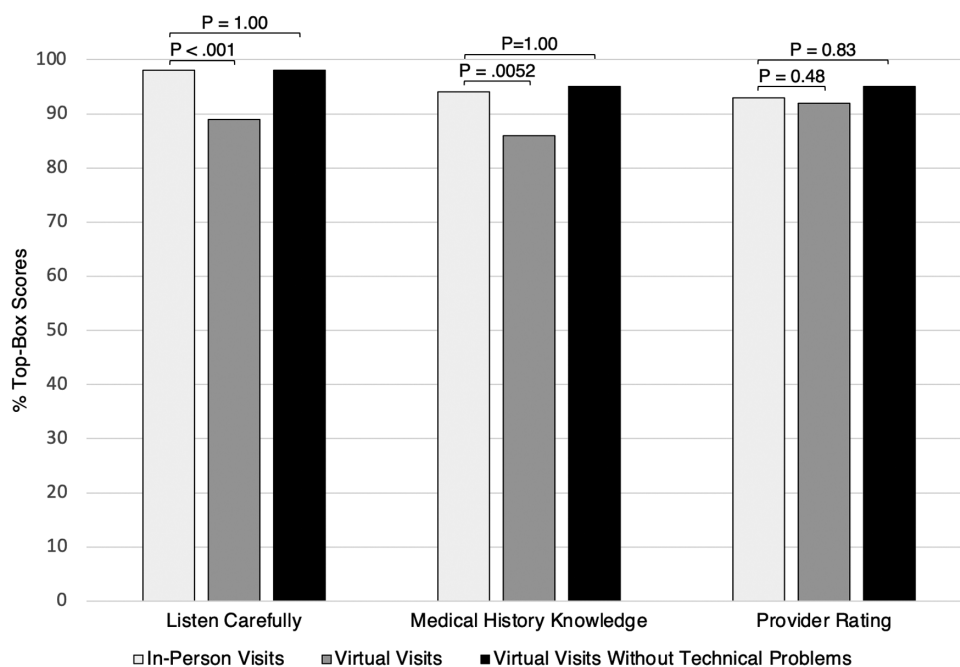
A total of 309 patient surveys were collected from in-person medical visits and 202 surveys from telehealth visits (Supplemental Table 1). After the introduction of telehealth, top-box scores for the question “Did this provider listen carefully to you?” decreased from 98% (n = 302) to 89% (n = 174;  $P < 0.0001$ ), and for the question “Did this provider seem to know the important information about your medical history?” scores decreased from 94% (n = 287) to 86% (n = 164;  $P = 0.0052$ ; Fig. 1). Top-box scores for the question “Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you rate this provider?” did not change significantly compared with the traditional in-person setting (93% for in-person visits compared with 92% for telehealth visits;  $P = 0.48$ ; Fig. 1). A subanalysis of 32 patients who had at least 1 in-person and 1 telehealth visit similarly showed a decrease in provider listening from 97% (n = 31) to 88% (n = 28), but provider knowledge scores did not decrease from in-person visits to telehealth visits (Supplemental Table 2).

In demographic analyses, we observed that although no significant drop in scores was seen among females, the proportion of male patients reporting a top-box score for provider

listening decreased from 98% (n = 123) to 82% (n = 83;  $P < 0.0001$ ) and for provider knowledge of the medical history from 94% (n = 119) to 83% (n = 81;  $P = 0.0078$ ; Table 1). We also observed relatively larger decreases in patient satisfaction for both questions in non-white respondents (not significant) and in pediatric patients ( $P = 0.013$  for both questions; Table 1). Interestingly enough, decreases were less pronounced among patients older than 50 years (Table 1).

Of the 202 telehealth visits, 76% received a top-box rating for the question “Was this method of connecting with a care provider easy to use?”; 76% of visits received a top-box rating for the question “Was the quality of the video or call good enough?”; and 65% of the visits received a top-box rating for both questions. Patients who reported technical problems during their visit were significantly less likely to give top-box ratings on most of the other satisfaction survey questions (Supplemental Table 3). After excluding patients who reported poor video quality, no differences in top-box scores were found between in-person and telehealth visits for provider listening and provider medical history knowledge (Fig. 1).

We also analyzed open-ended comments from 125 patients after in-person visits and comments from 68 patients after telehealth visits (Supplemental Table 2). In general, patients frequently mentioned provider attributes such as their provider’s knowledge and communication style (n = 75; 39%); the coordination of their care (n = 22, 11%); and other visit characteristics such as convenience, technical aspects, and the check-in process (n = 45, 23%; Supplemental Table 4). Technical challenges were primarily mentioned after virtual visits (n = 12; 18% of telehealth visits), but challenges related to the check-in process were primarily mentioned after in-person visits (n = 8; 6% of in-person visits). Safety related to COVID-19 was mentioned in several comments as a potential



**Figure 1.** Top-box scores for patient satisfaction questions for in-person visits, virtual visits, and virtual visits without technical problems with the video quality or ease of video connection.

**Table 1.** Top-Box Ratings Within Different Demographic Subpopulations

Top-Box Scores—n (%)	Listen Carefully			Medical History Knowledge			Provider Rating		
	In-Person	Virtual	P	In-Person	Virtual	P	In-Person	Virtual	P
<b>Age</b>									
≤18 years	91 (96)	54 (84)	0.020	88 (94)	49 (80)	0.019	79 (90)	58 (92)	0.78
19–50 years	111 (99)	65 (90)	0.0063	105 (95)	60 (85)	0.035	94 (94)	64 (90)	0.39
>50 years	100 (99)	55 (93)	0.062	94 (94)	55 (95)	1.00	95 (96)	54 (93)	0.47
<b>Gender</b>									
Male	123 (98)	83 (82)	<0.0001	119 (94)	81 (83)	0.0078	113 (94)	91 (92)	0.60
Female	179 (98)	91 (97)	0.41	168 (94)	83 (90)	0.33	155 (93)	85 (91)	0.81
<b>Race</b>									
White	250 (98)	127 (91)	0.0092	239 (94)	122 (90)	0.15	226 (94)	128 (93)	0.82
Non-White	34 (100)	20 (87)	0.061	32 (97)	19 (86)	0.29	27 (90)	19 (86)	0.69
<b>Provider type</b>									
Adult GI	201 (99)	110 (92)	0.0012	189 (94)	105 (89)	0.13	182 (95)	109 (92)	0.47
Pediatric GI	101 (96)	64 (85)	0.013	98 (94)	59 (82)	0.013	86 (91)	67 (91)	1.00

benefit of remote visits. Overall, 77% of the comments were positive, with a higher frequency of positive comments in the virtual visit group (85%) compared with the in-person visit group (72%;  $P = 0.015$ ) (Supplemental Table 5).

## Discussion

The shift to telehealth in response to the COVID-19 pandemic has allowed patients to continue receiving needed health care while overcoming the challenge of minimizing unnecessary physical contact. We investigated whether and how patient satisfaction changed as a result of the shift from in-person clinic visits to telehealth virtual visits in our IBD subspecialty clinic. We found that although overall provider ratings did not change, there was a significant decrease in patient satisfaction with respect to how well patients felt their provider listened to them and how knowledgeable the provider seemed regarding their medical history. However, this decreased satisfaction seemed limited to those experiencing technical issues. This suggests that when there are technical issues, the patient perceives decreased satisfaction with their provider's listening and their knowledge of their medical history. Interestingly, we found that people who came in for both an in-person and virtual visit within the timeframe of our study did not report reduced satisfaction with provider knowledge, possibly due to the recent in-person patient-provider interaction and the established patient-provider relationship in this subgroup. However, the decrease in satisfaction with provider listening persisted in telehealth visits.

The correlation of high satisfaction rates and adequate video quality highlights the need for an effective, user-friendly telemedicine-based technology platform to deliver high-quality IBD care. Virtual visits generally require novel platforms that are often nascent in their technical development and unfamiliar to many patients and providers. Additionally, beyond the specific video platforms used, there are technical challenges introduced by limitations with the patients' home technology infrastructure (ie, outdated personal devices, limited home internet capacity) and technical knowledge.<sup>2</sup> Telemedicine platforms that utilize self-explanatory icons and provide the ability for patients and providers to type directly

into a chat box for clarifications can increase satisfaction for a virtual visit.<sup>3</sup> In addition, some medical practices recommend initiating an outreach strategy that better enhances patient knowledge and awareness of the telehealth platform to help limit technical complications.<sup>2,4</sup> Lastly, virtual waiting rooms, in which patients have access to technical frequently asked questions (FAQs) and in which expectations for the upcoming visit can be established while they wait for their providers to join, may also prove beneficial.<sup>4</sup>

In addition, limited provider experience with conducting telehealth visits might be a contributing factor leading to a decrease in the patient experience. Capturing clinical information before the visit might improve providers' knowledge of the patient's medical history during the video interaction, thereby improving the communication and subsequently satisfaction. A standardized provider curriculum on institution-specific virtual care workflows, including appropriate scripting, can also help mediate these issues.<sup>5</sup> Without the proper support, the patient may experience frustration towards the platform,<sup>6</sup> leading to a negative visit experience overall that can affect their perception of the quality of care delivered and erode the patient-provider relationship.

Limitations of this study include low survey response rates of 31% (in-person) and 35% (virtual), a common challenge with patient satisfaction research. In addition, patients were not required to give additional comments in the open-ended questions, further limiting the generalizability of the qualitative data. Another limitation was the lack of information about the telehealth platform used in each encounter, the patients' socioeconomic status, and whether the patient was a new or return patient. Finally, these results reflect patient satisfaction from a single tertiary care center, and therefore, the generalizability to other centers may be limited.

## Conclusion

COVID-19 has rapidly and dramatically pushed the health care industry to expand telehealth availability and services. There is much to be learned about the impact of this mo-

dality on the delivery of health care. It is important to further understand how virtual visits will affect patient care in chronic conditions, such as IBD, and to further investigate specific factors that may influence satisfaction. Telehealth offers many advantages not available in traditional in-person clinic visits, yet many challenges still remain. Our study highlights the impact of technical challenges on overall patient satisfaction, suggesting a need to optimize the usability of the telehealth systems used and to train providers on how to problem-solve technical issues when encountered in a clinical setting. These considerations should be taken into account when further expanding telehealth options for patients with IBD to improve patient satisfaction and to maintain quality of care.

### Supplementary data

Supplementary data is available at *Inflammatory Bowel Diseases* online.

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