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Trust in telemedicine from IBD outpatients during the COVID-19 pandemic



Dear Editor,

Telehealth refers to the opportunity to provide healthcare remotely by telecommunication technologies, including personal computers, telephones and smartphones. The fundamental aim of telehealth is to increase access to care, despite physical distances, lack of transportation or shortage of medical staff. It allows patient assistance, clinical monitoring and potentially some interventions [1]. Telemedicine is sometimes used as a synonym or it is used in a more limited sense to describe remote clinical services. Telemedicine had been spreading rapidly in the last few years. Despite the technological revolution its applications are however limited primarily to generally asynchronous monitoring (e.g. text messages, e-mails) or telephone support. Synchronous (live) tools may be more appreciated, as participants to a recent study indicated that an email that is not promptly answered may lead to additional frustration [2].

During the recent SARS-CoV-2 (COVID-19) pandemic, telematic instruments allowed physicians not to miss the follow-up of patients with different chronic diseases. Among Gastroenterology Units the patients with Inflammatory Bowel Diseases (IBD) are thought to have a higher risk of possible viral infection mainly because of their immunomodulating therapies [3]. Nevertheless, the international (IOIBD), the European (ECCO) and the Italian (IG-IBD) IBD Societies did not recommend the withdrawal of immunosuppressive treatment during the COVID-19 pandemic, in order to prevent disease flares in patients with IBD [4]. Indeed, according to the current knowledge, a more severe course of COVID-19 in IBD patients is associated with active phases, old age and comorbidities [5].

To guarantee healthcare, worldwide IBD centers were urged to adopt telemedicine during the general lock-down, as encouraged by the 2nd Interview COVID-19 ECCO Taskforce in March 2020 [6].

At our Gastroenterology Unit of the IRCCS Ca' Granda Ospedale Maggiore Policlinico Foundation in Milan (Italy), which is a tertiary referral center for IBD, we also embraced telemedicine, especially as regards the use of video-consultations.

Telemedicine for IBD patients has been performed mainly through asynchronous remote monitoring such as web-based platform symptom reporting, smartphone apps and text messages [7].

Some positive reports on the use of telemedicine among healthcare providers have been published [7–9], but a patient's perspective about patients' trust in telemedicine has been missing to date.

We designed a study to verify IBD patients' trust in telemedicine.

During the COVID-19 pandemic video-consultations were performed in place of follow-up visits scheduled but not provided, or

in addition to them according to the clinical needs of our patients with quiescent mild or moderate disease. Patients with severe disease or emergencies were visited at our Center or hospitalized as usual.

A patient's trust in telemedicine was assessed through an adapted version of the Patient Trust Assessment Tool (PATAT) questionnaire (Table 1), already validated in another outpatient setting. The questionnaire investigated 5 trust areas: care organization, care professionals, treatment, technology and telemedicine services [10]. It was translated into Italian and formulated online on the *EUSurvey* platform by our center. After the video-consultation each patient received an email containing the questionnaire URL and provided his/her informed consent before compiling the questionnaire.

The questionnaire was formulated through the *EUSurvey* platform, widely used for clinical research questionnaires in Europe. This platform, compared to other tools, does not request geographical location or personal, socio-demographic and health data; also, it does not allow to identify the user through IT tracking nor to activate profiling cookies.

The primary endpoint was the evaluation of patients' trust in telemedicine. This was expressed as a percentage of patients greater than 75% giving a score of at least 4 out of 5 in a Likert Scale for three selected key statements: "I can trust video-consultation" (5.1), "I can trust that possible problems with the telemedicine service will be solved properly" (5.2) and "I feel at ease when working with this website" (5.4).

This study was approved by our local Ethics Committee. Video-calling solutions from *Google (Hangouts or Meet)* or *Microsoft Teams* were used according to the patient's preference.

We ended the enrolment upon reaching the hundredth correctly compiled questionnaire. The statistical analysis was performed by SPSS.

We scheduled 123 video-consultations, of which 115 (93.4%) were performed. Overall, 100 (86.9%) questionnaires were compiled.

The patients' baseline characteristics are described in Table 2.

Regarding the trust in the telemedicine service, items 5.1, 5.2 and 5.4 received a score of at least 4 in 95%, 90% and 84%, respectively (Fig. 1, Table 1). Considering the primary endpoint, the questionnaire results showed that during the COVID-19 pandemic the IBD patients who were followed at our Center and accepted to receive a video-consultation in spite of the traditional in-person visit, did trust telemedicine.

Telemedicine has enabled many IBD patients worldwide to get access to remote assistance during the recent COVID-19 pandemic. Many aspects of telemedicine have been analyzed as physicians' technology satisfaction, costs and efficacy [7–9].

George et al. proposed a survey to their patients undergoing telehealth visits: 83% reported that using the system was not com-

Table 1

The PATient Trust Assessment Tool (PATAT) as responded by the study patients (with IBD) of the Gastroenterology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico in Milan (Italy) (a.k.a. Polyclinic of Milan).

		Percentage of patients giving a score ≤ 3	Percentage of patients giving a score ≥ 4
1	Trust in the care organization		
1.1	The Polyclinic of Milan IBD Center has a good reputation	4	96
1.2	At the Polyclinic of Milan IBD Center they handle my personal information carefully	6	94
1.3	At the Polyclinic of Milan IBD Center they take action when something goes wrong	6	94
1.4	At the Polyclinic of Milan IBD Center, I feel at ease	5	95
1.5	At the Polyclinic of Milan IBD Center, they take my specific needs into account	6	94
2	Trust in care professional		
2.1	I trust my doctor's judgment about my medical care	3	97
2.2	My doctor provides me with all the information on all potential medical options	2	98
2.3	My doctor keeps all my medical information private	5	95
2.4	I always follow my doctor's advice	13	87
2.5	My doctor does not do everything he/she should about my medical care	88	12
3	Trust in treatment		
3.1	The treatment I receive is effective	15	85
3.2	It is clear to me what the treatment I receive entails	6	94
3.3	Together, my doctor and I made the choice for this treatment	13	87
3.4	The treatment I receive is not helping me enough	86	14
3.5	It has been explained well to me what my treatment entails	15	85
4	Trust in technology		
4.1	When I use Google/Microsoft video-service, I am in control	46	54
4.2	Everything that I do on Google/Microsoft video-service remains private	25	75
4.3	The personal information that is stored at Google/Microsoft will not get lost	27	73
4.4	Google/Microsoft video-service is easy to use	35	65
4.5	Legal policy and technological safeguards make Google/Microsoft video-service a safe environment	29	71
5	Trust in telemedicine service		
5.1	I can trust this telemedicine service	5	95
5.2	I can trust that possible problems with the telemedicine service will be solved properly	10	90
5.3	I can trust this service less than other online services	77	23
5.4	I feel at ease when working with Google/Microsoft video-service	16	84
5.5	I do not like to enter my personal data on Google/Microsoft	83	17

Note. The primary endpoint was patients' trust in telemedicine. This was expressed as a percentage of patients greater than 75% giving a score of at least 4 out of 5 in a Likert Scale for three selected key statements: "I can trust video-consultation" (5.1), "I can trust that possible problems with the telemedicine service will be solved properly" (5.2) and "I feel at ease when working with this website" (5.4).

Table 2

Baseline characteristics of the IBD patients who completed the questionnaire.

	Overall (n = 100)	CD (n = 75)	UC (n = 25)
Age, years, median (range)	41 (19–78)	41 (19–78)	42 (21–70)
Female, n (%)	31	23 (30.6%)	8 (32%)
Disease duration (years)	14.5	15.8	10.8
Disease location (CD), n (%)			
Ileum only		19 (25.3%)	
Colon only		7 (9.3%)	
Ileum and colon		49 (65.3%)	
Disease location (UC), n (%)			
Ulcerative proctitis			7 (28%)
Left-sided UC			6 (24%)
Extensive UC			12 (48%)
Concomitant therapy for IBD, n (%)			
None	6	6 (8%)	0 (%)
Only Aminosalicylates	10	4 (5%)	6 (24%)
Thiopurines	6	4 (5%)	2 (8%)
Systemic corticosteroids	2	2 (2%)	0 (%)
Anti-TNF	56	47 (63%)	9 (36%)
Vedolizumab	16	8 (10%)	8 (32%)
Ustekinumab	2	2 (3%)	0 (%)
Investigational drugs (within a clinical trial)	3	3 (4%)	0 (%)
Smoking, n (%)	17	13 (17.3%)	4 (16%)
Pregnancy, n (%)	1	1 (%)	0 (%)
Comorbidities, n (%)	20	17 (23%)	3 (12%)

Note. CD: Crohn Disease, UC: Ulcerative Colitis.

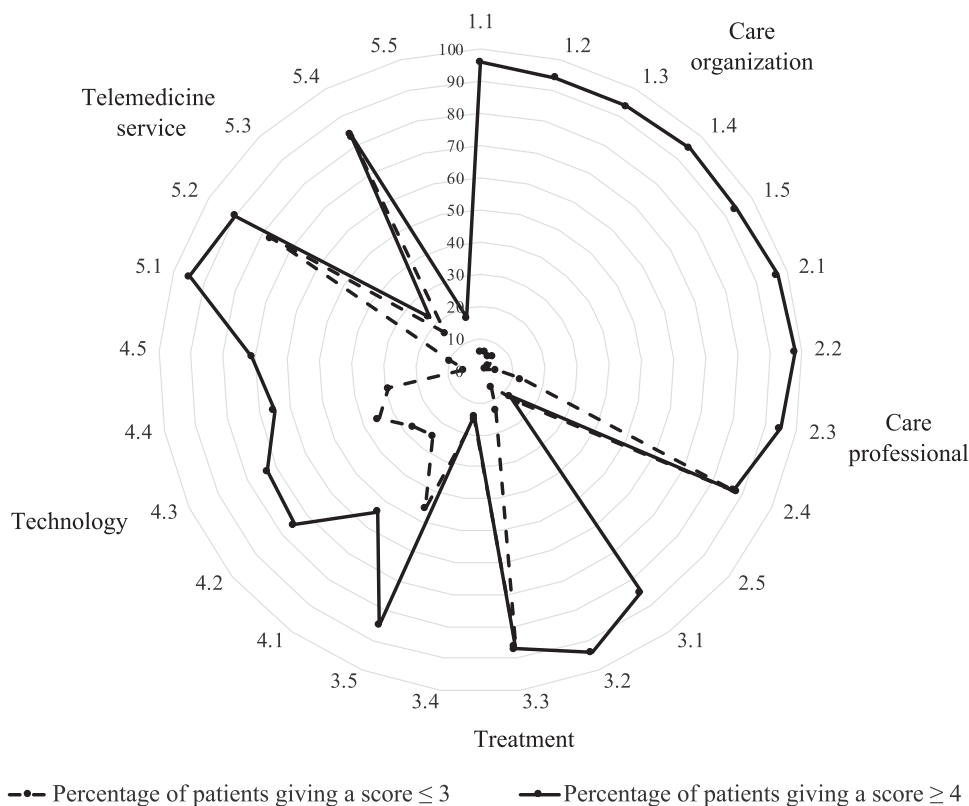


Fig. 1. A radar chart of the trust scores from IBD patients, assessed through an adapted version of the PATAT questionnaire. Five trust areas are investigated: care organization (1.1–1.5), care professionals (2.1–2.5), treatment (3.1–3.5), technology (4.1–4.5) and telemedicine services (5.1–5.5). The continuous line refers to the patients giving a score ≥ 4 (out of 5) in a Likert Scale. The dotted line refers to the patients giving a score ≤ 3 . Statements 2.5, 3.4, 5.3 and 5.5 were negative. Regarding the trust in telemedicine services, items 5.1, 5.2 and 5.4 received a score of least 4 in 95%, 90% and 84% of the cases, respectively.

plicated, nearly 90% reported that all of their health concerns were addressed during the visit. Importantly, half of the patients reported that telehealth visits allowed to save them 1–3 h. Over 90% reported they wanted to use telehealth in the future [7].

A survey from IOIBD showed how the COVID-19 pandemic has changed the use of telemedicine among IBD specialists: video-consultations increased significantly but telephone consultations still accounted for over half of all telemedicine activities [8].

The aim of this study was to evaluate for the first time the IBD patients' trust in telemedicine, as its possible future deployment depends particularly on such patients' acknowledgement.

The results of our report showed that the IBD patients in our series trust telemedicine. It is worth noting that low trust in technology (a score <4 in more than 30%) did not affect telemedicine trust, in contrast to the PATAT test validation study [10]. Two explanations are possible: during the COVID-19 pandemic, video-communications became an easy-to-use quick-to-learn tool for many people; high trust in the care organization and their professionals (≥ 4 in more than 90%) could have counterbalanced some patients' low level of trust in technology.

While clinical outcomes were beyond our intentions, we reported no drugs withdrawal in this cohort due to delayed visits. Unexpectedly, video-consultation enabled us to diagnose a significant event (iatrogenic acute pancreatitis).

Moreover, telemedicine potentially helped to contain SARS-CoV-2 spreading among both IBD patients and healthcare providers.

Our study may have some limitations. Firstly, a selection bias since it is more likely to have a good report from those patients who accepted telemedicine. However, no significant difference was found in baseline characteristics between those patients who accepted and those who rejected it (data not shown).

Secondly, young median age of 41 years should be taken into account. IBD patients are usually younger than those suffering from other chronic diseases (e.g. neurodegenerative or neoplastic). Younger people may be readier to embrace new technologies. Moreover, our Hospital is located in the center of Milan, the biggest city of northern Italy and the local economy heavily relies on IT and other digital technology. Patients may have well been used to operating telematic tools in their jobs. Can our results be reproducible in other contexts (e.g. elderly patients, more rural areas)?

Thirdly, there was no control group. Further randomized studies could analyze how different telemedicine tools (e.g. e-mail, telephone calling, video-conferencing) affect patients' trust levels.

Nevertheless, our data shows a positive attitude of IBD patients towards video-consultations.

Our good trust rate in video-consultations among IBD patients is the fundamental pre-requisite for being confident to propose patients this approach. This result increases our propensity to expand telemedicine beyond the traditional ideal setting (i.e. young patient, digital workers) and beyond the pandemic emergency context.

Whether this trust will survive the end of the COVID-19 pandemic and how telemedicine should be better deployed will be topics surely to be analyzed further on.

Declaration of Competing Interest

AC received lecturer fees from Takeda, a sponsorship from Bracco, FC served as a consultant to: Mundipharma, Abbvie, MSD, Takeda, Janssen, Roche, Celgene. FC received lecturer fees from Abbvie, Ferring, Takeda, Allergy Therapeutics, Janssen and unre-

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Data sharing

The data underlying this article will be shared on reasonable request to the corresponding author.

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