Use of video consultations in an outpatient rheumatology clinic

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BACKGROUND
Due to the COVID-19 pandemic, the implementation of video consultations as an alternative to hospital face-to-face consultations was advanced for persons with rheumatic diseases at Diakonhjemmet Hospital. Video consultations were introduced in March 2020, and this article presents the experiences gained by healthcare professionals and patients.

MATERIAL AND METHOD
The data was collected in June 2020 through focus-group interviews with healthcare professionals and through an anonymous online survey of patients who had attended video consultations during a period of three weeks in June 2020.

RESULTS
The data from the focus-group interviews with seven rheumatologists and seven nurses were sorted into main thematic categories: patient, healthcare professional, consultation, and technology. The healthcare professionals felt that video consultations, with some exceptions, were appropriate in the follow-up of patients with rheumatic diseases, and especially for stable patients with no confounding issues. Of the 383 patients who were invited to participate, 139 (36 %) responded to the survey. The patients were largely satisfied with the video consultation, with a median score of 10 (quartiles 8–10) on a numerical rating scale from 0 to 10, however, 32 (27 %) patients considered the lack of clinical examination to be detrimental.

INTERPRETATION
Video consultations are often appropriate in the follow-up of patients with a rheumatic disease.

According to the National Health and Hospital Plan 2020–23, the future health care services will require increased coordination and better use of competence and technology in order to meet the challenges of the time (1). To achieve sustainable healthcare services, digital solutions and new modes of health care service delivery need to be explored, for example remote care (2). Until recently, video consultations were implemented by a limited number of general practitioners (GPs), private medical services and hospitals (3).

The COVID-19 pandemic has changed the management of patients with rheumatic diseases (4), highlighting the need for digital alternatives that can ensure effective and safe follow-up of patients (5). Video consultations can facilitate health care provision and represent an acceptable alternative to hospital face-to-face consultations for those living in remote areas (6–8). Within rheumatology, only a few small-scale studies have been conducted. Two review articles indicate that video consultations can be a useful alternative in the follow-up of patients with rheumatic disease, however, there is a need for further research within this area (9, 10).

The Division of Rheumatology and Research at Diakonhjemmet Hospital had planned to explore the use of video consultations as an alternative to hospital face-to-face consultations but the pandemic expedited the project, and video consultations were implemented in March 2020. The objective of this study was to investigate the healthcare professionals’ and patients’ experience of video consultations.
Material and method

STUDY DESIGN
This quality assurance study consisted of two parts – a qualitative part based on focus-group interviews, and quantitative analyses of data from a survey. The study was conducted in June 2020 by two researchers from the National Advisory Unit on Rehabilitation in Rheumatology (NKRR) in collaboration with two patient representatives, a health secretary, a rheumatologist and a nurse at the Centre for Orthopaedics and Rheumatology (SOR), Diakonhjemmet Hospital. The local data protection officer at Diakonhjemmet Hospital approved the study. Written consent was obtained from the focus-group participants, and an anonymous consent was obtained electronically from the patients responding to the survey.

PARTICIPANTS
Task-shifting is practised at the SOR, and alternate consultations with patients who are in low disease activity are presently conducted by an experienced nurse with a specialisation in rheumatology. In the current study, all rheumatologists and nurses who had conducted at least ten video consultations were asked to participate in a focus-group interview (n = 15). All patients who were scheduled for a video consultation over a period of three weeks in June 2020, were asked to complete an anonymous online questionnaire following their consultation. These consultations were primarily biannual assessments of disease activity and adverse effects in patients using immunosuppressants. The patients were mainly adults with established arthritic arthritis diseases and/or osteoarthritis.

THE VIDEO CONSULTATION
An IT manager and a researcher at the hospital collaborated on producing technical manuals for healthcare professionals and patients for the video consultation solution provided by Confrere AS. Experienced healthcare professionals were supplied with a tablet computer, a headset and a laptop with access to the electronic patient records, and conducted the video consultations from the hospital or their home office. In principle, all patient consultations were scheduled as video consultations during the study period.

The patients received an invitation by regular mail, and on the day before the video consultation they received a reminder by text message with the name of their healthcare professional and a login link. The consultation was converted to a telephone consultation if the patient was negative to a video consultation. If the telephone or video consultation indicated that physical attendance at the hospital was required for further examinations or treatment to be undertaken, an appointment at the outpatient clinic could be made for the same day or within a maximum of two days.

The video consultations were scheduled with the same duration and implemented in the same way as a hospital face-to-face consultation, except that there was no possibility to physically examine the patient. In line with current practice, the patients received a link to an electronic survey for self-reporting their health and disease status before the consultation, and these data were available to the healthcare professionals during the consultation.

INTERVIEWS
Two researchers (ATT, NØ) conducted three focus-group interviews: one with seven nurses and two with three and four rheumatologists, respectively. The interviews were based on a semi-structured interview guide, the objective of which was to elicit experiences arising from the video consultations, e.g. what types of consultations worked well and less well on video, and the preconditions needed for the video consultation to run smoothly. The interviews lasted for approximately 45 minutes. Audio recordings were made with the aid of a web-based voice recording app, transmitted in encrypted form to the Services for Sensitive
Data (TSD) and subsequently transcribed.

**QUESTIONNAIRE**

All 383 patients who had been scheduled for a video consultation during the study period received a text message with an invitation to evaluate the session. The message provided a link to an anonymous questionnaire (see the Appendix), which was collected using the Nettskjema app and sent in encrypted form to the TSD. The questionnaire contained demographic and disease-related questions about sex, age group, employment status (paid work: yes/no), type of rheumatic disease (rheumatoid arthritis, spondyloarthritis, psoriatic arthritis, other/multiple rheumatic diseases), disease duration (less than 1 year; 1–4 years; 5–10 years; and more than 10 years), disease activity (numerical rating scale: 0 = good/no symptoms; 10 = very bad), and assessment of whether the rheumatic disease state in the past week could be considered acceptable if it were to continue without change for the subsequent months (Patient Acceptable Symptom Scale (PAS): acceptable vs. unacceptable).

Furthermore, the questionnaire contained questions about the type of consultation (video, telephone), the healthcare professional (doctor, nurse), whether the patient had been in contact with this healthcare professional before, the patients' location during consultation (at home, at work, other location), and whether any technical problems had occurred. A numerical rating scale from 0 to 10 was used to measure satisfaction with the video consultation (0 = very dissatisfied; 10 = very satisfied) and its suitability for the purposes of a consultation (0 = highly unsuitable; 10 = highly suitable).

In addition, the patients' satisfaction with care, was investigated using 11 questions based on the Multi-Source Feedback Questionnaire (11). The patients' satisfaction with the video consultation was measured using seven questions from a questionnaire developed by Mekhijian (12) and refined by Barsom (13). The project group translated and adapted the questions from these two questionnaires, which patients answered on a five-point Likert scale ranging from ‘fully disagree’ to ‘fully agree’.

**ANALYSES**

The focus-group interviews were subjected to a qualitative content analysis conducted by two researchers (ATT, NØ). The analysis started with multiple read-throughs of the transcribed text to capture the content. Words, phrases, and paragraphs were identified in accordance with the study's objective before being supplied with a code and sorted into main categories.

The survey data are presented in descriptive statistics using IBM SPSS, version 26.

**Results**

**FOCUS-GROUP INTERVIEWS**

All invited healthcare professionals were willing to participate, but one gave notice of absence on the day of the interview. The content analysis produced four main categories that elucidate the research questions: issues pertaining to the patient, the healthcare professional, the consultation, and the technology. The main categories are described in the text and illustrated by quotes. The results are also summarised in Figure 1.
The patient. A majority of the healthcare professionals stated that it was preferable that the patient was focused and motivated to undertake the consultation by video.

‘The successful consultations are those where the patient is mentally tuned in and thinks that this it is a good alternative, because they can have the consultation during a break at work. As one person said, I don’t have to spend half a day travelling to get here.’

‘It was about him being so uncomplicated. He was sitting in a quiet room, he wasn’t engaged in anything else … […] … he was so mentally present, which resulted in a very good consultation.’ All healthcare professionals emphasised that not having to travel to the hospital could be a major advantage for patients who were working and/or needed to travel long distances. In addition, it could be a good alternative for older people who could avoid ‘to drag themselves off to the hospital’, ask family members to drive them, or order a taxi.

Regarding patient characteristics, most healthcare professionals were surprised by the fact that the patient’s age did not seem to affect the suitability of the video consultation.

‘… even ninety-year-olds plugged in and chatted like a twenty-year-old. That came as a bit of a surprise.’

On the other hand, certain diagnoses, comorbidity, high disease activity, language challenges and having confounding issues were highlighted as negative factors in terms of suitability. In particular, this was related to the healthcare professionals lack of possibility to physically examine the patient and the fear of not detecting patients who underreport their symptoms. ‘Spondyloarthritis is much better suited. And particularly the younger ones, there’s much less comorbidity, there’s less issues around their disease in this respect. While it’s more complicated for rheumatoid arthritis and psoriatic arthritis. […] and for those who have rheumatoid arthritis combined with osteoarthritis of the hands, it’s almost impossible to say whether it’s stable or not’. ‘…in the follow-up of gout… many come in each month, and they sometimes find it tiresome, so for those patients, it [video consultation] is ideal.’

Long disease duration was highlighted as a positive factor, as it was easier to undertake a video consultation with patients who are ‘experienced in their disease’ and thereby familiar with concepts, symptoms, and signs of disease.

The healthcare professional. Many of the healthcare professionals underscored that video consultations should be undertaken by experienced healthcare professionals, since this requires in-depth knowledge of the various diseases and the relevant questions to ask when
lacking the possibility to examine the patient.

'Because you really have to be able to see past something. Because when your patient is on video, there is a lot you cannot see. [...] … the purely technical aspects of the examination are lost.'

If the healthcare professionals had previously met and examined the patient, and thus were familiar with the issues in question, this was highlighted as a further advantage.

Regarding quality of care, it was noted that those undertaking video consultations from their home office should be able to have professional discussions with colleagues and possess the direct number to the on-call doctor at the hospital. The importance of alternating between video and face-to-face consultations over the working week, although not within the same working day, was stressed by many of the healthcare professionals.

'So you're intensely focused on your screens and on speaking with your patients while trying to use all your [therapeutic] empathy while staring at the screen. [...] My head is close to bursting at the end of the day.'

THE CONSULTATION.

Some of the healthcare professionals experienced that the video consultation was less formal and that the patients seemed more relaxed compared to when at the hospital, while others found that the consultations were shorter, more structured and with less small-talk when on video. In a similar manner to the healthcare professionals, it was noted that the patients might also benefit from alternating between face-to-face and video consultations.

The healthcare professionals deemed various types of consultations as more or less appropriate. At one end were the follow-up consultations, where the patients had been successfully treated, had low disease activity and straightforward issues (well suited); on the other, the consultations with patients who recently had been referred or newly fallen ill (not suited). Consultations with patients who had cognitive impairments, hearing impairment, poor Norwegian language skills or needed an interpreter were deemed unsuited for video consultation. Moreover, the initiation of medication was also deemed as less appropriate for video consultation.

'Follow-up stands out as a clear winner, that is to say, follow-up of treatment. Definitely not first-time referrals.'

In order to undertake a general assessment of the patient's condition, the majority of the healthcare professionals pointed to the importance of having blood test results and the patients' electronic self-reporting of their health and disease status available before the video consultation. They found, however, that ‘… incredibly often, the results of the blood tests are missing’.

The opportunity to schedule an immediate face-to-face consultation at the hospital was noted as reassuring, and important in cases where the healthcare professionals were unsure about the patient’s condition.

Distractions in the patient’s background, for example a child sitting on the patient’s lap or playing in the same room, spouses who were doing housework or that the patient were in a store, were experienced by many of the healthcare professionals. When initiating the consultation the patient should therefore be asked to sit in a sheltered space with no disturbances. Some of the healthcare professionals also noted the importance of having the patient avoid moving around during the consultation.

'I had one video consultation where the patient kept walking around with the video camera … it makes you sort of seasick…'

Technology. Many of the healthcare professionals had encountered technical problems and stated that this could be a source of stress and lead to unsuccessful video consultations. Unstable network connections in addition to video and audio problems were the main
issues. Establishing a satisfactory home office set-up (more/larger screens, stable internet) and rooms optimised for video consultations at the hospital were noted as requirements.

**SURVEY**

A total of 139 (36 %) patients consented to participating in the survey, but 21 were excluded from the analyses because they had failed to attend the consultation (n = 2), or that the consultation had been converted to a telephone consultation (n = 19). Eleven of these 19 were converted due to technical problems during the session, while eight were switched before the session at the patient's request.

Another 32 patients reported experiencing technical problems, these were nevertheless able to complete the video consultation. Of 118 video consultations, 93 (79 %) were undertaken by a rheumatologist and 25 (21 %) by a nurse, and 51 (43 %) of the patients reported to have had previous contact with the healthcare professionals in question.

Table 1 presents demographic data for the included participants. The majority were women, and 85 (72 %) of the patients were working. One-half of the patients reported a disease duration of more than ten years. Altogether 94 (80 %) patients reported their disease status as acceptable, and the self-reported disease activity was low (median 2 on a scale of 0–10 (quartiles 1–5)).

**Table 1**

Demographic data for patients with a rheumatic disease who answered the questionnaire after attending a video consultation at the Centre for Orthopaedics and Rheumatology, Diakonhjemmet Hospital, during three weeks in June 2020 (n = 118). Number (%) unless otherwise specified.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex, woman</strong></td>
<td>74 (63)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>20–29 years</td>
<td>5 (4)</td>
</tr>
<tr>
<td>30–39 years</td>
<td>16 (14)</td>
</tr>
<tr>
<td>40–49 years</td>
<td>31 (26)</td>
</tr>
<tr>
<td>50–59 years</td>
<td>35 (30)</td>
</tr>
<tr>
<td>60–69 years</td>
<td>24 (20)</td>
</tr>
<tr>
<td>70 years and older</td>
<td>7 (6)</td>
</tr>
<tr>
<td><strong>In paid work</strong></td>
<td>85 (72)</td>
</tr>
<tr>
<td><strong>Rheumatic disease</strong></td>
<td></td>
</tr>
<tr>
<td>Rheumatoid arthritis</td>
<td>46 (39)</td>
</tr>
<tr>
<td>Spondyloarthritis</td>
<td>27 (23)</td>
</tr>
<tr>
<td>Psoriatic arthritis</td>
<td>19 (16)</td>
</tr>
<tr>
<td>Other/multiple rheumatic diseases</td>
<td>26 (22)</td>
</tr>
<tr>
<td><strong>Disease duration</strong></td>
<td></td>
</tr>
<tr>
<td>Less than one year</td>
<td>4 (3)</td>
</tr>
<tr>
<td>1–4 years</td>
<td>29 (25)</td>
</tr>
<tr>
<td>5–10 years</td>
<td>26 (22)</td>
</tr>
<tr>
<td>More than 10 years</td>
<td>59 (50)</td>
</tr>
<tr>
<td><strong>Purpose of the consultation</strong></td>
<td></td>
</tr>
<tr>
<td>Follow-up of ongoing treatment</td>
<td>100 (85)</td>
</tr>
<tr>
<td>Consultation due to onset of new symptoms</td>
<td>5 (4)</td>
</tr>
<tr>
<td>Information about test results</td>
<td>5 (4)</td>
</tr>
<tr>
<td>Other</td>
<td>8 (7)</td>
</tr>
<tr>
<td><strong>Patient-reported disease activity, median (quartiles)</strong></td>
<td>2 (1–5)</td>
</tr>
</tbody>
</table>

*Numerical rating scale 0–10, where 0 = no symptoms*
The patients were highly satisfied with the video consultation (median 10 (quartiles 8–10)) and found a video consultation to be very suitable for the consultation in question (median 10 (quartiles 8–10)), independently of whether the consultation had been with a rheumatologist or a nurse.

Regarding the disease management, the patients fully or partially agreed that it was easy to describe their condition (n = 117 (99 %)), ask questions (n = 114 (97 %)), obtain answers (n = 114 (97 %)) and that the healthcare professional showed an interest in their health condition (n = 117 (99 %)). The patients reported to fully or partially agree that they were involved in decision-making (n = 105 (89 %)) and determining a treatment plan (n = 113 (96 %)), and that they felt equally well attended to as in a face-to-face consultation at the hospital (n = 107 (91 %)). A total of 32 (27 %) patients reported that it was problematic not to be examined by the healthcare professional. This latter group scored a median of 4 (quartiles 1–7) on disease activity, while the 86 patients who did not consider it to be problematic reported a median disease activity score of 2 (quartiles 1–4).

Regarding satisfaction with the video consultation, 95 (81 %) patients fully or partly agreed that an advantage of a video consultation was the reduction in time and travel distance, while 30 (26 %) patients would have preferred face-to-face consultation at the hospital. Altogether 93 (79 %) patients fully or partly agreed that given the same pandemic situation as in June 2020, they would like future consultations conducted on video. Moreover, if the COVID-19 infection burden in the society was insignificant, 80 (68 %) patients would still prefer future consultations by video.

Altogether 23 (20 %) patients reported to have been scheduled for an immediate face-to-face consultation at the hospital. These patients had a median disease activity score of 5 (quartiles 3–7), while the remaining 95 patients not scheduled for a face-to-face consultation reported a median disease activity score of 2 (quartiles 1–4).

Discussion

Both healthcare professionals and patients were highly satisfied with video consultations as an alternative to meeting face-to-face, and considered video consultations to be appropriate on many occasions. The healthcare professionals considered patients who had been successfully treated, had straightforward issues and had little comorbidity to be more suitable for video consultations than patients who had recently been referred to the hospital, had a complex burden of disease or were in need of an interpreter. The majority of the patients felt equally well attended to as in a face-to-face consultation, and a large proportion preferred to continue with video consultations.

The findings in this evaluation concur with previous studies showing a high level of satisfaction and a wish for continued use of video consultations (15, 16). Although the healthcare professionals in some cases were concerned that the possibility of a physical examination of the patient disappeared during a video consultation, the vast majority of the patients felt equally well attended to by video compared to hospital face-to-face.

There were, however, 27 % who felt doubtful about not being physically examined, and in future studies it will be important to assess who these patients are. One in every five patients was subsequently scheduled for an immediate face-to-face consultation at the hospital, and these patients reported a somewhat higher degree of disease activity than those who were not scheduled. This indicates that the healthcare professionals are able to capture increased disease activity, possibly through the patients’ self-reporting before or during the consultation, despite the inability to conduct a physical examination.

In line with the results from the focus-group interviews, a previous study of patients with rheumatic diseases showed that video consultations are not always appropriate, mostly in cases of unclear diagnosis or a complex disease burden (15). Nevertheless, most of the patients in our study considered video consultation to be an appropriate form of
consultation, but this must be interpreted in light of the fact that the majority of those who responded to the survey were scheduled for video consultation due to follow-up of ongoing treatment, and they tended to have long disease duration and low disease activity. This is consistent with the group that the healthcare professionals considered as best suited for video consultations. However, the healthcare professionals were somewhat surprised by the fact that video consultation also was considered appropriate for older patients.

A Canadian study showed that patients who were accompanied by a local physiotherapist while having a video consultation with a rheumatologist had the same level of disease activity, self-reported function, quality of life and degree of satisfaction at the ten-month follow-up compared to the group that had face-to-face consultations with a rheumatologist (17). One weakness of our study is the lack of comparative data from clinical and ultrasound examinations of joints that could verify the patient’s subjective experience of disease activity and the lack of data from long-term follow-up of the patients.

The fact that we collected feedback from both healthcare professionals and patients represent a strength of this study. However, the low response rate to the survey may have led to a selection bias, in that the most satisfied patients may have been those responding to the survey. In addition, the validity of the results is largely restricted to rheumatic diseases, including osteoarthritis. In the interpretation of the results, it is important to consider that the results of this evaluation were collected during a pandemic, although the burden of COVID-19 infection was relatively low in June 2020. We might possibly also have been able to add more depth to the qualitative material by conducting individual interviews.

Modern information and communication technology provides great opportunities for exploring alternative forms of health service provision. Digital alternatives to face-to-face consultations are consistent with the current political documents concerning patient-centred ‘digital health services’ with solutions that can simplify the patients’ everyday life. E-health can help people cope with their disease and functional impairments without having to go to the hospital and be reminded of their condition. Herein lies the expectation that the patient should be able to spend more time at home and less in hospital. This can also save time and costs for patients, who will not need to take time off from work and travel to the hospital to receive health care.

CONCLUSION
This evaluation showed that both healthcare professionals and patients were highly satisfied with using video consultations in the follow-up of persons with rheumatic disease, but approximately one-quarter of the patients felt that it was problematic not to be physically examined. The healthcare professionals considered video consultations to be most appropriate in the follow-up of patients who had been successfully treated and who had little comorbidity and simple issues, and when no clinical examination or intervention was required.

MAIN FINDINGS
In many cases, the healthcare professionals considered video consultations to be a good alternative to hospital face-to-face consultations for patients with a rheumatic disease. 91% of the patients who responded to the survey, felt equally cared for by the healthcare professional when comparing video consultation to a hospital face-to-face consultation. Two-thirds of the patients wished to continue with video consultations also if the COVID-19 infection burden in society was insignificant.

REFERENCES:


