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# Acceptability, benefits, and challenges of video consulting: a qualitative study in primary care

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## Abstract

### Background
People increasingly communicate online, using visual communication mediums such as Skype and FaceTime. Growing demands on primary care services mean that new ways of providing patient care are being considered. Video consultation (VC) over the internet is one such mode.

### Aim
To explore patients' and clinicians' experiences of VC.

### Design and setting
Semi-structured interviews in UK primary care.

### Method
Primary care clinicians were provided with VC equipment. They invited patients requiring a follow-up consultation to an online VC using the Attend Anywhere web-based platform. Participating patients required a smartphone, tablet, or video-enabled computer. Following VCs, semi-structured interviews were conducted with patients ($n = 21$) and primary care clinicians ($n = 13$), followed by a thematic analysis.

### Results
Participants reported positive experiences of VC, and stated that VC was particularly helpful for them as working people and people with mobility or mental health problems. VCs were considered superior to telephone consultations in providing visual cues and reassurance, building rapport, and improving communication. Technical problems, however, were common. Clinicians felt, for routine use, VCs must be more reliable and seamlessly integrated with appointment systems, which would require upgrading of current NHS IT systems.

### Conclusion
The visual component of VCs offers distinct advantages over telephone consultations. When integrated with current systems VCs can provide a time-saving alternative to face-to-face consultations when formal physical examination is not required, especially for people who work. Demand for VC services in primary care is likely to rise, but improved technical infrastructure is required to allow VC to become routine. However, for complex or sensitive problems face-to-face consultations remain preferable.

### Keywords
communication; general practice; patient satisfaction; qualitative research.

## INTRODUCTION

Communication technologies are a common feature of modern life; however, with the exception of the telephone, they are not routinely used in the delivery of health care.[1] The increasing use of video-over-the-internet applications, such as Skype and FaceTime, both socially and in the workplace, has led to calls for secure versions of these technologies to be adopted in general practice.[2] The use of video as a method of consultation between doctor and patient is gaining ground; however, the routine use of video consultation (VC) in NHS general practice in the UK is presently low.[3,4] This is despite patient demand[5,6] and policy drives in the UK and internationally to use digital technologies to increase accessibility and to improve delivery of care.[7–11] The most recent NHS England Long Term Plan mandates the availability of online services such as VC within next 5 years.[8]

Controversial new models of primary care delivery in the NHS, which incorporate VC,[12] have attracted much media attention in the UK and stoked debate about the implications of operating a video-only service.[13] While recognising the potential benefits of video online consulting services, some have noted that their benefits need to be considered against potential risks that include missed diagnoses and health inequalities due to a digital divide.[14,15] Perceived to be time efficient and convenient for patients and GPs, telephone consultation (TC) is the main form of remote consulting used in general practice.[16] However, the lack of non-verbal cues is considered an important drawback.[16] VC has the potential to overcome these problems, particularly for conditions that may not require contact examination, for example, mental health review and assessment of inhaler technique.

To date, most research in VC has focused on secondary care settings.[17–19] Primary care research has been confined to considering the hypothetical use of VC rather than on actual use.[20,21] Questions remain about what conditions and which types of patients are suitable for VC in primary care; how VCs compare with the most commonly used remote consultation in primary care, the telephone; if they are safe; and if they will result in time efficiencies for clinicians and patients.[22,23]

In tandem with a Scottish Government pilot of VC (using a system called Attend Anywhere) in various clinical environments, the aim of this research was to explore its use in general practice to determine its acceptability to clinicians and patients, and to examine how VCs varied from face-to-face consultations and telephone consultations in terms of length and contact. The main focus

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## How this fits in

There are policy drives in many countries to introduce video consultation (VC) to improve access to care; however, it remains unknown for which conditions and which patients the technology is most useful. The present study explores the views of doctors, nurses, and patients who have experienced a VC. VC is seen as particularly useful for people who work, have mobility or mental health problems, and has distinct advantages over telephone consulting in terms of improved communication and rapport. However, seamless integration with current practice IT systems will be important for it to be accepted as part of routine care.

was on follow-up consultations because physical examination (and therefore a face-to-face consultation) was less likely to be required than for an acute first consultation, and to provide time for consent and familiarisation with the system.

Focusing on how the medium could be used for follow-up consultations, the aim was to explore how VC worked within general practice, as part of routine delivery of care. This study presents the results of the qualitative investigation with patients and clinicians exploring their views on the benefits, challenges, and acceptability of VC in general practice, and on potential future uses of this medium.

## METHOD

The present study reports this research using the Standards for Reporting Qualitative Research framework.[24] Data were collected from both patients and clinicians using semi-structured interviews.

### Background to UK NHS primary care organisation

The NHS in Scotland provides free care, based on need, and funded by general taxation. GPs are remunerated on a capitation basis regardless of consultation rate or mode.

### Set-up of video consultation

Clinicians, having established that a patient had the necessary technology, asked them if they would agree to a follow-up consultation conducted by either video (VC), telephone, or face-to-face. Patients agreeing to participate selected their preferred follow-up mode of consultation. VCs were conducted using Attend Anywhere, a web-based platform. Attend Anywhere is an end-to-end fully encrypted VC service.

Unlike Skype and FaceTime, patients are unable to directly call the clinician. To use Attend Anywhere participants were required to have internet access, the Google Chrome web browser on a computer (with a web camera) or Android mobile device, or an app on Apple iPads or iPhones.

Patients recruited to have a VC were emailed a secure web link with the date and time of their consultation. The link opened to a virtual waiting room showing the name of their GP practice and instructions on how to prepare for their consultation. Patients were offered the opportunity of a video online rehearsal with one of the researchers prior to their VC.

Figure 1 shows the process of setting up a VC for the clinician and patient, and Figure 2 shows how the patient initiated a consultation using Attend Anywhere. A full description of the service is available at https://www.attendanywhere.com/our-work.html.

It became apparent that local NHS bandwidth was inadequate to run Attend Anywhere. Therefore, additional high-speed broadband with Wi-Fi was installed in practices. Clinicians used Samsung Galaxy tablets with a desk stand and additional speakers. Although the system ran on 3G/4G, patients were encouraged to use Wi-Fi for quality and cost reasons.

### Sampling and recruitment

The study was set in general practice in Lothian, Scotland's second largest health board. General practices were approached through a local professional newsletter. Clinicians (GPs or practice nurses) were recruited from six practices, which were chosen to represent a range of list sizes, degrees of rurality, and patient demography. Within the practices, a range of GPs and practice nurses of differing ages, sexes, and experience with computer technology were recruited. All clinicians, who were previously unknown to the interviewers, agreed to participate in a face-to-face semi-structured interview at the end of the patient recruitment.

Participating patients were required to be >16 years old and need a follow-up consultation, but not a physical examination. They needed to have an email address and access to an internet-connected computer with a camera and sound capability, tablet, or 4G- and/or Wi-Fi-enabled smartphone (running Google Chrome or an iOS-appropriate app).

Patients meeting the above eligibility criteria were recruited for follow-up consultation by VC. A selection of the
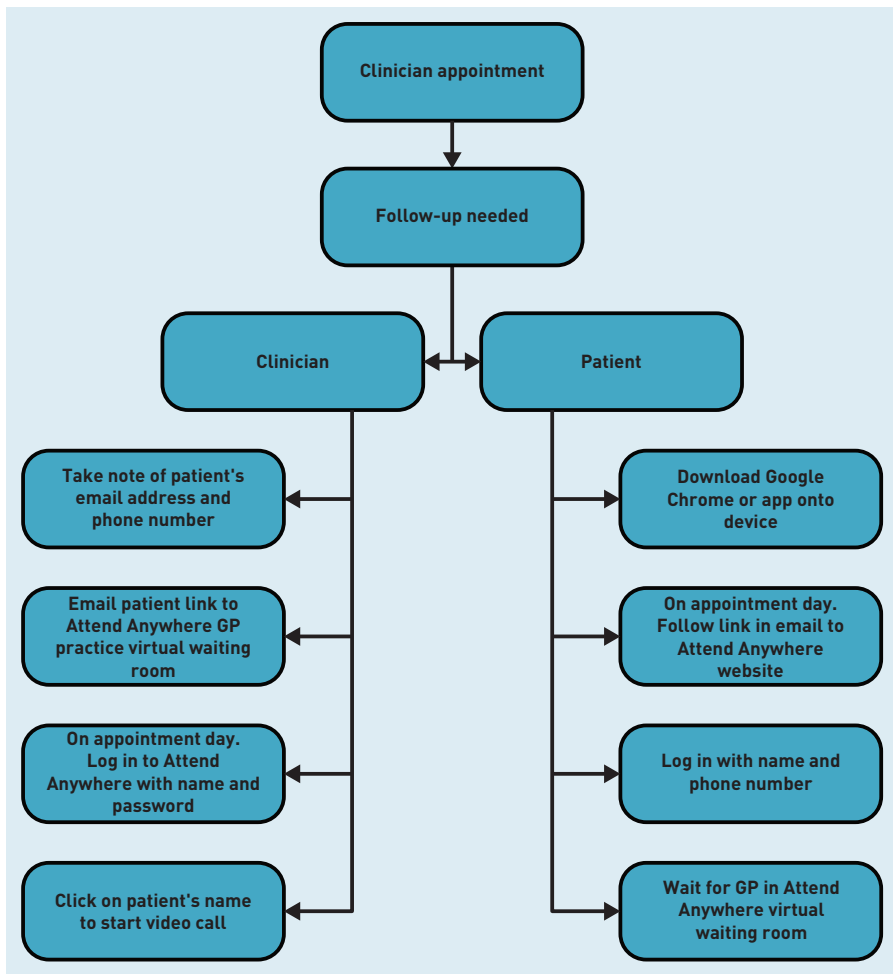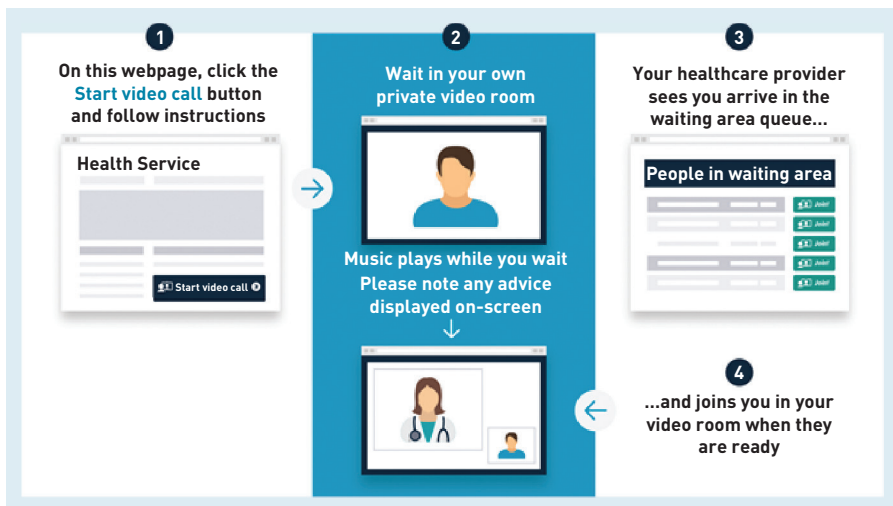
*Figure 1. The process for setting up video consultation for clinicians and patients.*

*Figure 2. How patients access Attend Anywhere.*



## Data collection

Semi-structured telephone interviews were conducted with patients (at home or in their practice) within 7 days of their VC, and semi-structured face-to-face interviews with clinicians (in their practice) at the end of the patient recruitment. Their experiences of, and views on, their actual VCs were explored and how this differed from their experience of telephone consultations. Confidentiality issues and the potential future uses of VC were also addressed. The topic guides were based on topic guides from a previous study on alternatives to face-to-face consultation in primary care.[25] They were purposively broad and were developed iteratively as interviews commenced (further information available from authors on request). The interviews were conducted mainly by two experienced post-doctoral researchers; three were conducted by a medical student supervised by another author. Interviews were recorded, and transcribed verbatim.

## Data analysis and theoretical approach

Thematic analysis was utilised, applying the approach outlined by Braun and Clarke, which provides a theoretically flexible approach to analysing qualitative data.[26] In order to ensure the themes were linked to the data collected, rather than applying a theoretical framework to the data, the views of the participants in the wider study were explored, which allowed an inductive approach. The coding frame was not pre-specified and instead was developed by the researchers as they familiarised themselves with the data, revising this iteratively over the data collection period.

The phases of thematic analysis outlined by Braun and Clarke[26] were applied by team of researchers, in the six following steps:

1. Familiarisation with the data;
2. Generation of initial codes;
3. Searching for themes;
4. Reviewing themes;
5. Defining and naming themes; and
6. Producing the report.

An inductive approach to thematic analysis discourages engagement with the relevant literature in the early stages of analysis, so those team members familiar with the literature read and contributed to the coding frame and thematic analysis after two authors had conducted steps 1–4.

The final themes (step 5) were developed by the analysis team using constant comparison and tested by looking for

patients who participated in the VC were then invited to participate in a subsequent telephone interview and were purposively selected to include a range of ages, sex, socioeconomic status, and those with and without technical problems during their VC.

## Table 1. Patient characteristics

| Code | Sex | Age, years |
|------|-----|------------|
| BMIV1 | F | 24 |
| BMIV2 | F | 24 |
| BMIV6 | F | 30 |
| BRDLV1 | M | 38 |
| LRJV4 | M | 67 |
| LRJV5 | M | 47 |
| LBTV2 | M | 76 |
| BRBSV1 | M | 37 |
| LRJV1 | F | 66 |
| LRJV7 | M | 54 |
| BWSV1 | F | 58 |
| BWSV2 | F | 43 |
| LBTV5 | F | 59 |
| TSV11 | M | 31 |
| PBDV5 | F | 48 |
| PGAV1 | M | 66 |
| BWSV4 | M | 41 |
| BWSV6 | M | 36 |
| BWSV5 | F | 22 |
| BWSV3 | M | 58 |
| MYHV3 | F | 25 |

*F = female. M = male.*

confirming and disconfirming cases. Themes were reviewed until the team was satisfied that no further themes could be identified. Finally, the agreed themes were discussed with the wider research team

## Table 2. Clinician characteristics[a]

| Practice number | Code | Age, years | Sex |
|-----------------|------|------------|-----|
| 1 | 1 | 46 | F |
|   | 2 | 52 | M |
| 2 | 3 | 37 | M |
|   | 4 | 34 | F |
| 3 | 5 | 51 | M |
|   | 6 | 37 | M |
| 4 | 7 | 40 | F |
|   | 8 | 32 | M |
|   | 9 | 55 | F |
| 5 | 10 | 60 | F |
|   | 11 | 50 | M |
| 6 | 12 | 29 | M |
|   | 13 | 45 | M |

*[a]Professional status restricted to preserve anonymity. F = female. M = male.*

and sent to participants for comment.

## RESULTS

A total of 45 patients were recruited for a follow-up consultation by VC; of these, 40 agreed to be interviewed following the VC, and a total of 21 were chosen for interview (Table 1 shows patient characteristics). From within the six general practices, all 10 participating GPs and three practice nurses were interviewed (Table 2 shows clinician characteristics). Interviews lasted between 18–40 minutes. Patients who chose VCs were on average around 10 years younger and had used web-based communication more often than those who had chosen telephone or face-to-face consultation. They presented on average 1.5 problems in each consultation. These were mostly physical ($n = 36$, 80%) and psychological ($n = 13$, 29%).

Four main themes (with their respective subthemes) were identified in the analysis of interview data. These were: access to remote consultation; visual element of VC; experience of a consultation conducted using video; and the clinician–patient relationship.

### Theme 1: Access to remote consultation

Some benefits experienced by participants were related to having a remote consultation, rather than to the medium itself.

*Benefits.* For patients who commuted to work, and for those whose lives were structured around work, study, or childcare, remote access was particularly convenient. Some spoke of major time-savings because they did not have to book half a day's leave or incur travel costs to attend their GP practice:

*'I live in X* [location omitted for confidentiality reasons]; *and work in the city. Every time I have to get an appointment* [face-to-face consultation] *I'd be losing 3 hours. The VC was 10–15 minutes. All I needed to do was find a quiet space at work then have the consultation.'* (Patient, practice 3, male [M], aged 54 years)

Clinicians felt that VC would be time neutral for them (with the possible exception of house visits). They also spoke about the benefits of remote consulting to working patients:

*'He didn't have to take time off his work, he just went to a quiet place. For him it was a few minutes away from his work as opposed to an hour* [visiting the surgery].*'* (Clinician 1, practice 1)

Many patients spoke of the VC being *'less stressful'* than undertaking a visit to the GP practice, which may also involve unexpected waiting times:

*'I suffer from agoraphobia. There's times I've got to cancel appointments. I know [with VC] that it's okay. I'm sitting here at home. I open my laptop, sign in. My stress levels weren't sky high.'* (Patient, practice 2, female [F], 58 years)

*Challenges.* Patients appreciated that VCs differed somewhat from a face-to-face consultation. For example, they mentioned the issue of the time lag that can occur with VC over the internet, which caused a degree of talking over and affected the consultation:

*'There is initial talking over if you're not used to interacting via video technology; it's just the etiquette of waiting and pausing until somebody else has a chance to speak. As people get more used to the slight delay I think that will improve greatly as people get more used to the technology.'* (Patient, practice 3, M, 54 years)

Patients and clinicians noted that, as this was their first experience of conducting a VC in their GP practice, there was a degree of familiarising themselves with the Attend Anywhere system. Clinicians (who conducted up to six follow-up VCs) stated that they became more confident as they became more experienced with this new medium:

*'At the start there were a few teething problems; I found it much easier when I did the batch at the end. It was just more slick. I suppose that's getting used to using it.'* (Clinician 3, practice 2)

### Theme 2: Visual element of video consultation
Both patients and clinicians highlighted the benefits of visual cues as a positive aid to the communication process and improved rapport.

*Visual cues.* Several clinicians spoke of the key advantage of being able to pick up on non-verbal cues in the consultation compared with telephone consulting:

*'Using VC you can actually pick up on other undertones: body language, facial, and you can sometimes assess that there's actually something else going on.'* (Clinician 1, practice 1)

For some clinicians, VC could reduce the risk of miscommunication that can occur during a telephone consultation, making it easier for them to detect if a patient might not be understanding what they had said. VC was deemed more personal, and to improve rapport:

*'I would say one of the advantages of video over phone is [with telephone consultation] you are not 100% sure if they've picked up correctly what you've said. But if you see them you are more likely to be aware — yes they've heard what I've said and understood.'* (Clinician 10, practice 5)

Visual cues were a perceived benefit for patients and they felt that, as compared with a telephone call, their confidence in the consultation was increased. There was a sense that VC was more personal and reassuring than telephone consultation:

*'I think you get a lot of signals via VC, the visual ones. You can pick up on the person that you're speaking to easier than you can the phone. With it just being an audio call there is the possibility that things get missed.'* (Patient, practice 3, M, 54)

*Increased focus.* Both patients and clinicians reported that the visual aspect of VC changed the dynamic of the consultation compared with a telephone consultation. When compared with telephone consultation, patients and clinicians felt that VC was more formal and focused than telephone consultation, which was considered a strength.

Some clinicians reported no discernible difference or advantage of VC over follow-up telephone consultation:

*'The fact that you can see the person you're speaking to, there's more human interaction there. It feels more like a formal consultation. Whereas, on the phone, it always feels like an informal follow-up chat.'* (Patient, practice 2, M, 41 years)

*'I think the VCs that I did do were fine but I could have easily done them by phone to be perfectly honest. There was little value added for the video bit.'* (Clinician 5, practice 3)

### Theme 3: The experience of a video consultation
Patients and clinicians generally had positive experiences with VC and most reported they would use VC again for a follow-up consultation. Experiences of how

well VC worked technically were mixed. Problems with the technology sometimes disrupted the consultation process.

A number of VCs had to be transferred to telephone because of these disruptions. Clinicians reported feeling awkward when issues such as the video freezing on their or the patient's screen or poor audibility occurred:

*'I think there was some video issues their side, I could see like a frozen image of her. But they could see me OK so it was more like I was on the phone to them. So that was a little bit strange. Just a little bit awkward.'* (Patient, practice 2, F, 24 years)

*Expectations and uncertainty.* Using a new medium meant navigating a new way to interact for both patients and clinicians. There was a sense that there were issues related to this being the first experience of the medium. Clinicians felt that applying a protocol could overcome this uncertainty:

*'Before they* [patients] *reach the point of consultation, you would have to have a protocol. Patients go onto our website, check they have got a compatible browser, do a speed test to see they have the appropriate download and upload rate. You're skimming out those issues before they even come to the point of consultation.'* (Clinician 8, practice 4)

VC as an alternative to a face-to-face consultation was not exempt from long waiting times and delays. However, expectations were sometimes different than for a face-to-face consultation:

*'One person thought because it was VC that they would be seen bang on time. I wasn't available. I was busy. So the same rules of my availability apply — Attend Anywhere, you could be waiting 15 minutes in the virtual waiting room just as sitting in the waiting room here in X.'* (Clinician 11, practice 5)

Patients perceived that they had responsibilities in ensuring the VC happened in an appropriate way, for example, conducting the VC in an appropriate setting, as these patients reported. One clinician reported that if VC appointments were to be routinely used there must be the same level of patient responsibility that surrounds a face-to-face appointment:

*'When I did the* [video] *consultation ... I had forgotten. I was at the library. I felt awkward speaking about health issues in a public place. Had I remembered I would have made sure I was at home or in a private room.'* (Patient, practice 2, F, 22 years)

Patients felt a level of uncertainty in a virtual waiting room that they did not experience in a real one; clinicians also commented on uncertainty around the virtual waiting room over and above the usual level of uncertainty about waiting times. This related to the lack of physical presence:

*'In the surgery, you're physically there, and so* [with VC] *you thought, have I done this right? That thought — are they going to telephone me if they can't connect to me? I suppose, kind of being nervous about using something first time, when I was sitting there waiting on the other side, there was that apprehension.'* (Patient, practice 4, M, 41 years)

*'The virtual waiting room was a good idea but the slightly awkward thing is I don't know whether they* [the patient] *can see if you're running behind. When you're in a* [surgery] *waiting room, you can see other people coming and going.'* (Clinician 3, practice 2)

**Theme 4: Clinician–patient relationship**
Both patients and clinicians spoke of the importance of an existing doctor–patient relationship and having already had previous consultations with that same person prior to the follow-up VC:

*'I think it* [VC] *was easier because I had met Dr X before. So I already had that initial relationship with her. I've seen her a few times. I felt comfortable with her. I think it would have been a bit more awkward if it had been like a first meeting.'* (Patient, practice 4, F, 25 years)

*'It just so happened those ones* [VC patients] *were patients I knew, and there was that rapport there already. It would be interesting to see what it would be like for somebody with an acute problem who doesn't know you.'* (Clinician 5, practice 3)

Both patients and clinicians were concerned that VC might not be the most appropriate medium to use when discussing very personal or very serious issues or when receiving/delivering difficult and/or bad news, and that a face-to-face consultation would be more appropriate for these:

'The video was good because I didn't find I was talking about a sensitive issue. But if you were talking about sexual health or something more personal, it could be difficult not to do it face-to-face. Video, it's a bit less personal or maybe you could feel a bit less empathy.' (Patient, practice 2, F, 22 years)

This view was mirrored by clinicians who believed that delivering difficult or potentially upsetting news to a patient was best suited to a face-to-face consultation. These clinicians explained why, in their view, under circumstances where serious or very personal matters were being discussed, a face-to-face consultation would be more appropriate than a VC:

'I can think of circumstances where I wouldn't use video. When holding of a hand [is needed], *giving of tissues, sharing the cancer diagnosis. You are still quite removed at the end of a video line and heaven forbid if the technology were to let you down, that would be just ghastly.'* (Clinician 11, practice 5)

'There's the thing about the consultation itself being therapeutic, so people will come in and offload some of their stresses. There's a therapeutic value to a face-to-face consultation with your GP.' (Clinician 3, practice 2)

*Potential future use.* Based on their experience of using VC, patients and clinicians felt that follow-up VC would be particularly useful for mental health and chronic illness management, blood test results, and medication reviews:

'The classic one would be around psychiatric follow-up. Saying, we've seen how you are, I need to check in with the new medication. … anything that didn't need a [physical] *examination.'* (Clinician 11, practice 5)

'It was useful with asthma patients, if you changed their inhaler, changed their medication, you could see them, you could listen to them when they were speaking and could check their inhaler technique and peak flow … see it.' (Clinician 10, practice 5)

Despite this potential, clinicians felt that the pilot system was insufficiently reliable to support routine VC and that there was a need for a system that integrated with current NHS consultation and appointment systems:

'Because of repeated connection problems you feel it's breaking down your rapport; you're saying, "oh I missed that — it cut out".' (Clinician 7, practice 4)

'The IT system here needs upgrading. Ideally, I would prefer it [VC] *to be integrated into a desktop PC. Simply an image in the corner of your computer you could be looking at the notes and at them at the same time.'* (Clinician 2, practice 1)

Although patients and clinicians were generally positive about VC as a medium for follow-up consultations, there was consensus among both groups of participants that face-to-face consultations remain the 'gold standard' in relation to telephone consultation and VC in general practice:

'If I had a choice, if he was just next door, I would still prefer to do it face-to-face. I think it's just because it's a doctor and you just get used to that contact with someone of that nature.' (Patient, practice 2, F, 43 years)

## DISCUSSION
### Summary
Although recent research studies have explored attitudes to the idea of using VC in primary care,[20] this study is the first major investigation into actual use of VCs between patients and clinicians in primary care. Most participants had already used Skype or FaceTime socially and/or at work, and reported being comfortable with VC, although some patients reported some apprehension at being left alone in the virtual waiting room prior to their VC. When the technology worked, VC was seen to offer benefits as compared with TC in terms of building rapport and improving communication including in respect of checking understanding. Clinicians considered it beneficial for psychiatric consultations where formal physical examination is not required but visual cues are important and attendance at the practice is seen as a trial for patients. Face-to-face consulting was perceived as the gold standard and preferred to TC and VC for emotionally charged or more challenging consultations. All participants who had technically successful consultations would use the medium again, but seamless reliable technology was seen as essential for widespread implementation.

### Strengths and limitations
This experienced team used mixed methods to explore an important area

of wide general interest among patients, clinicians, and health services managers, of which this study describes the qualitative component. Further analysis of the content of the consultations will be reported in a future paper.[27] These results are likely to be of wide general interest to the population and to healthcare planners.

Inevitably there was a level of self-selection in patients recruited for VCs, resulting in patients who were younger than those who selected telephone or face-to-face consultations and had a level of IT confidence. Patients may also have selected face-to-face if they perceived their problem to be complex. Patients had to have access to comparatively expensive technology to access video online, raising equity issues. However, internet access and smart-phone usage is increasing year by year across the whole population.[28]

For the clinicians (who could be regarded as enthusiastic early adopters), conducting VCs with their patients was a new, and at times challenging, experience, although over time they found it increasingly easier to use and perceptions of the medium might change with experience for both clinicians and patients. Likewise, a smoother technical experience may have resulted in a different view in some cases.

### Comparison with existing literature
As with previous research studies from the UK and internationally in primary, secondary, and tertiary care,[29–34] patients and clinicians in the present study were generally positive about VC. For those who work, those who are housebound, and those living with mental health problems, VC was especially appealing, resulting in saved time, transport costs, and anxiety. However, in one study from the rural US the relative anonymity of non-visual systems for some conditions was seen as an advantage.[35] This has been found previously in the UK with telephone consulting.[36] Both patients and clinicians believed that VC was especially beneficial in facilitating visual cues that improved decision making and rapport in a way that telephone consultation could not. Nonetheless, both clinicians and patients felt that for serious or sensitive problems face-to-face consultation was better.

As in other studies, technical problems were common,[30] and clinicians emphasised the need for a well-integrated reliable system before VC could be used routinely in primary care, and that current systems needed substantial upgrading to achieve this.

### Implications for research and practice
The recent Long Term Plan for the NHS is likely to drive major change and increased uptake in respect of digital innovations relevant to primary health care.[8] Among these, moves to increased uptake of new modalities of consultation seem inevitable. Given the findings of this study, such moves are likely to be welcomed, at least by some groups of patients. However, it is advisable that caution should be exercised before wide-scale adoption of new technologies without acknowledgement of the potential for reductions in some elements of care (such as lifestyle counselling), and the potential clinical implications associated with reduced consulting time, and overall lower patient satisfaction. In addition, improved technical infrastructure will be required in many practices to allow VC to become routine in primary care. Additional high-quality research is urgently needed to clarify the risks and benefits of the rollout-at-scale of video-based consulting within primary care and in other parts of the health and social care system.

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