

Sheffield Hallam University



**Evaluation of Cumbria,
Northumberland, Tyne and Wear NHS
Foundation Trust's
Video-Consultation Project**

Final Report

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A large, abstract, three-dimensional geometric design in various shades of red and pink, resembling a complex, faceted crystal or a series of overlapping planes, occupies the bottom half of the page.

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Executive Summary

This report sets out the findings from a multi-stage, mixed methods evaluation of the use of video consultations in CNTW, a large mental health and disability trust in the North of England. The software roll-out spanned the start of the Covid-19 global pandemic which affected this naturalistic project in both positive and negative ways.

In total, data from over 1000 video consultations were gathered from more than 850 patients and 345 staff across almost 100 clinical teams (between May 2019 and July 2020) via routine service data, routine feedback, online surveys, and a focus group.

Twice as many female patients engaged than males; half were aged between 12 and 44 yrs and over one third of patients resided in the most deprived quartile of UK postcodes.

Overall patient satisfaction was high with video calls preferable to clinic attendance or home visits. Typical travel savings were up to 60 minutes and up to £6.00 for each clinic attendance. However; feeling able to share information (as if in person) and the software's ease of use were statistically the most influential variables.

This empirical evidence suggests that age and deprivation may not be the significant barriers that staff often cite and that, for some patients (e.g. those with caring responsibilities) video may improve access and actually be their treatment modality of choice.

Video consultations represent a significant cultural shift for staff. They were initially reluctant to use the technology but Covid-19 forced them to overcome their reticence to offer some degree of service continuity. Having done so, they were moderately satisfied with video consultations overall.

The staff's opinions were more diverse perhaps because, unlike their patients, they were not self-selecting. Concerns centred around the limitations that video calls placed on non-verbal and para-verbal communication and the detrimental effect they feared/perceived to their therapeutic relationships. As a consequence, in addition to the factors valued by patients, staffs' satisfaction was also heavily affected by audio and video quality.

Staff felt video consultations might be suitable for certain types of patients, in certain situations e.g. anxious, avoidant, geographically isolated or hard to engage patients; those who are IT literate; those needing simple interventions like medication reviews; those with caring responsibilities, and those who are stable and well known to services.

Conversely, they felt video may be problematic for: high risk patients; those with cognitive/communication/sensory difficulties such as learning disabilities, dementia, ASD and ADHD; individuals who have experienced significant trauma; and those experiencing some forms of psychosis and paranoia.

Staffs' views were often contradictory however there was near unanimous consensus that video consultations should not be made mandatory but seen as an option to be used on the basis of individual need.

Video calls have the potential to improve DNA rates and save staff around 14 miles and 25minutes per patient contact. This could yield significant organisational time, financial and environmental savings (circa 20%) but a more robust data collection exercise is required to have confidence in this estimate.

In conclusion, these findings suggest that, for video consultation to be successful, staff need high quality training, administrative support, and easy to use software with an acceptable level of functionality. They also need managerial reassurance that the limitations of the medium and their learning curve will be recognised, particularly if mistakes occur.

For the current level of video consultations to continue post-pandemic, the trust should address the staff's pre-conceptions as well as the actual barriers they have encountered during the initial roll-out.

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Introduction

As part of the next steps in its Five Year Forward View (NHS, 2017), the NHS is currently funding a scheme of Global Digital Exemplar sites (Digital Health intelligence Ltd., 2020). Cumbria, Northumberland Tyne and Wear NHS Foundation Trust (CNTW) was identified as one of seven mental health trusts nationally with the prerequisite level of digital maturity. It was therefore awarded 'digital exemplar status' and a significant level of matched funding to implement and evaluate a range of digital efficiency projects. One of the projects the trust identified was the implementation of secure on-line video consultations (in lieu of home visits and/or clinic attendance) for patients¹ accessing a range of their community teams. Importantly, this project was conceived and instigated prior to the national Covid-19 restrictions but has also been significantly influenced by the course of the pandemic.

A funding stipulation was that independent academic evaluation was made integral to the project. Consequently, Sheffield Hallam University (SHU) was tasked with evaluating this video-consultation project. The agreed aim of the evaluation was to identify any barriers, benefits and negative consequences of the video consultation project and to collate a list of key findings for the trust, NHS Digital, and other sites wishing to implement similar technology. The evaluation has been defined (and registered) as a service evaluation by the trust's research department (SER-19-019 - NTW) as well as being ethically approved by the university (Ethic Review ID: ER15924620).

The naturalistic nature of the project necessitated the adoption of a two stage, mixed methods approach with earlier parts of the study were used to inform and/or strengthen the subsequent stages before all findings were synthesised and conclusions drawn. This is depicted in figure 1overleaf, and is reflected in the structure of this report, which will also be used as the basis of an academic publication.

¹ In the absence of a universal convention, the term patient has been used throughout this report other than in direct quotes. It should be seen as non-pejorative, and synonymous with all similar terms such as client, user, service user, and person with mental health problems etc.

Method

Overview:

As previously mentioned, the multi-stage, mixed methods approach to this project was further complicated by it spanning the onset of the Covid-19 global pandemic. Figure 1 (below) outlines the timing of, and interactions between, the main elements of the project. For ease, these have been colour coded (key events= grey; qualitative= green; quantitative= orange; multiple method= purple; key outputs= red).

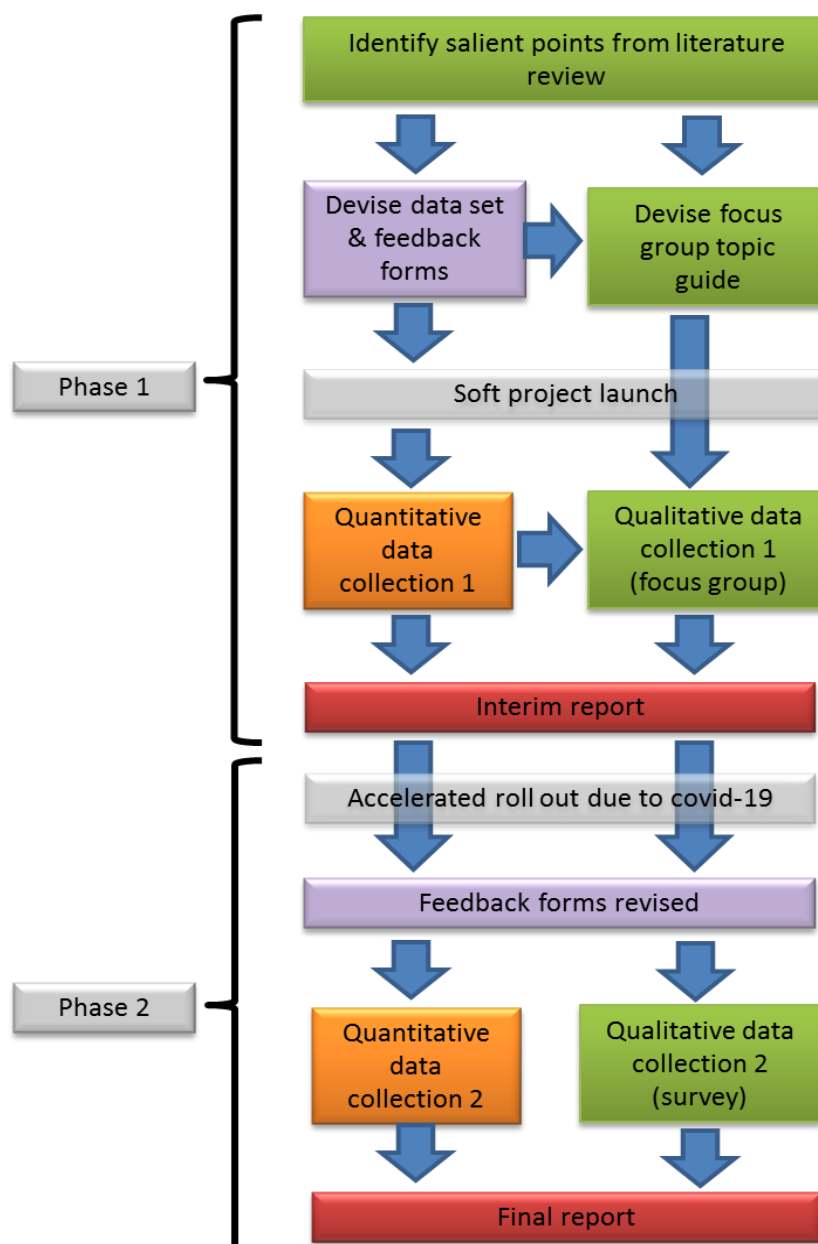


Figure 1: Project overview diagram

To maintain patient confidentiality throughout the project, all data were collated and pseudonymised by the trust's informatics department before being securely transferred to the university for storage and analysis on its secure, dedicated research servers using Microsoft 2007 packages and SPSS version 24 (IBM, 2016).

Phase 1:

In conjunction with the project brief, a literature review previously commissioned by the trust was used to inform a set of patient and a corresponding set of staff feedback questions. The patients were automatically redirected to an on-screen, feedback form at the end of each video consultation they received. The staff questions were posed as an on-line survey that was sent out twice (one month apart) to all staff that had used the software.

Other areas of enquiry identified from the literature review as important, but that had not been covered in the staff survey, were incorporated into a semi structured interview schedule for a staff focus group. Focus groups centre on the use of group interaction among participants to achieve a high level of face validity (Krueger 1994). Semi-structured interview schedules offer a degree of flexibility in data gathering, allowing experiences to be captured in the participants' own words (Marshall & Rossman 2006), thus ensuring these experiences are fully understood.

Staff focus group data were obtained from a small but representative group of early adopters who volunteered to attend a face-to-face meeting with two SHU researchers. All participants were given the opportunity to comment and all were engaged in the answers at regular points in the discussion.

Following transcription, thematic analysis was conducted using Braun and Clarke's (2006) six phase approach which includes (1) familiarisation with data, (2) coding of the data such that the entire dataset will be reviewed such that each piece of relevant text (data) is tagged with a code, (3) consideration of themes, (4) revision of themes, (5) analysis of individual themes and (6) write up. A theme is noted when something important about the data arises relating to the research question and has a recurring pattern emerging from the dataset.

NB. It is important to note that the focus group was held prior to the initial Covid-19 restrictions (i.e. social isolation) being imposed.

Phase 2:

The Covid-19 pandemic required the trust's routine data collection to be suspended whilst its IT resources were diverted to the rapid roll-out of the video consultation software across almost 100 community teams. Once this had been achieved, the tentative findings from phase 1 were used to refine the staff survey and patient feedback forms. These were then reinstated for the main data collection period which ran from 1st June - 15th July 2020.

Patient feedback

As before, patients were automatically presented with an on-screen bank of 12 questions (see table 1), completion of which was entirely voluntary. The format of the questions was mainly a combination of Likert-scales and multiple choice questions to maximise ease of completion and data quality.

Responses were again collated by the trust's informatics team and combined with demographic information (patient age, gender and ethnicity). The patient's postcode was also used by the informatics team to provide Multiple Deprivation Indexes (MDI).

Once received, responses were coded as shown in table 1 (below) for analysis. This meant that, in general, the larger the rating, the more positive the response. In addition to the patient dataset of all calls with feedback (which included multiple ratings from the same patient), duplicate patient records were removed to create a second patient dataset of unique ratings (i.e. just the latest feedback from each patient).

Staff survey

The 16-question on-line survey was sent out on 15th June 2020 and again on 15th July 2020 to all staff who had used the video-consultation software during the month. Completion was entirely voluntary and, staff choosing to complete the survey could also elect to remain anonymous. The Likert scale responses were coded as shown in table 2 for analysis. NB. The question in red was worded so that higher ratings were the more negative responses.

As it could not be guaranteed that the anonymous responses were all from different members of staff, when creating the main staff dataset of unique responses, these

Question	Options	Code
If you saved money today by not travelling, please select the closest amount from the choice below:	Up to 30 minutes	1
	From 31 minutes up to 60 minutes	2
	From 61 minutes up to 90 minutes	3
	More than 90 minutes	4
	N/A (Not Applicable)	0
If you saved time by not travelling to your appointment today, please select the closest to that amount from the choice below:	Up to 30 minutes	1
	From 31 minutes up to 60 minutes	2
	From 61 minutes up to 90 minutes	3
	More than 90 minutes	4
	N/A (Not Applicable)	0
I was satisfied with the overall experience of today's video call.	Unsure/NA	0
	Strongly disagree	1
	Disagree	2
	Agree	3
	Strongly Agree	4
I would be willing to receive future mental health care via a video call.	Unsure/NA	0
	Strongly disagree	1
	Disagree	2
	Agree	3
	Strongly Agree	4
The technology was easy to use.	Unsure/NA	0
	Strongly disagree	1
	Disagree	2
	Agree	3
	Strongly Agree	4
The sound quality was good.	Unsure/NA	0
	Strongly disagree	1
	Disagree	2
	Agree	3
	Strongly Agree	4
The picture quality was good.	Unsure/NA	0
	Strongly disagree	1
	Disagree	2
	Agree	3
	Strongly Agree	4
I felt able to share information the same as is if the clinician was in the room with me.	Unsure/NA	0
	Strongly disagree	1
	Disagree	2
	Agree	3
	Strongly Agree	4
Based on your recent experience, how would you rank these options for your future contacts? Video calls; home visits; clinic attendance.	1st Choice	3
	2nd Choice	2
	3rd Choice	1

Table 1: Coded Likert scale patient question responses

anonymous responses were removed, as were the earliest of the multiple responses from the same identifiable member of staff. A second staff dataset of matched pairs of results from staff who completed both the June and July surveys was also created for additional analyses. Finally, the anonymous staff responses were collated and reviewed to confirm they were not significantly different from the main dataset. The free text (qualitative) responses were then used to augment the results of the quantitative analyses as well as being independent and inductively analysed for emergent themes using Braun and Clarke's (2006) six phase approach (outlined previously).

Comparison of staff and patient feedback

As staff were asked for their feedback on a monthly basis (rather than after each patient call), their views were potentially based on multiple calls to different patients. This meant that, to identify meaningfully **paired sets of feedback**, cases were only selected where the staff's feedback could be matched to a patient's feedback and where neither party had video called anyone else. Spearman's Rank Correlation Coefficients were then calculated for these matched pairs of ordinal data.

Indicative organisational savings

For all calls where patient feedback was provided, and there was an identifiable patient postcode, the distance the staff member would have driven, and the time it would have taken from their usual place of work (had it not been for the use of video consultations) was calculated. In doing so, the naturalistic nature of the project then required a number of estimates and assumptions to be applied i.e. that:

- All video consultations replaced a home visit.
- Staff all drove average sized cars with average carbon dioxide emissions according to the government's 2020 greenhouse gas conversion figures (DOE, 2020).
- Staff were all paid at midpoint of band 6 i.e. £33,176 p.a. (NHS Employers, 2020).
- On costs and non-pay costs were 35%.
- The one-way mileage and journey durations were representative of the actual journey the staff would have taken (given that they do not necessarily return to base between visits).

Likert scale question	Responses and scoring				
Thinking about using online video consultations in the future, how likely are you to use online video consultations as part of service users treatment if it were available?	Extremely unlikely	Unlikely	Neither likely nor unlikely	Likely	Extremely likely
	1	2	3	4	5
How likely are you to recommend using online video consultations as part of a service user's treatment to other members of your team?	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
	1	2	3	4	5
Please rate your overall experience of using online video consultations?	Poor	Fair	Moderate	Good	Excellent
	1	2	3	4	5
Using an online video consultation allowed you to interact with service users the same way as you would have in a face to face consultation (in person)?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	1	2	3	4	5
Did you feel comfortable communicating with service users while using an online video consultation?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	1	2	3	4	5
If a service user became anxious or distressed during the online video consultation, did using online video consultation hamper your ability to manage the situation?	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	1	2	3	4	5
Were you able to detect changes in a service user's voice, mannerisms or facial expressions during an online consultation?		No	Maybe	Yes	
		1	2	3	
How would you rate the audio quality of OneConsultation?	Poor	Fair	Good	Excellent	
	1	2	3	4	
How would you rate the video quality of OneConsultation?	Poor	Fair	Good	Excellent	
	1	2	3	4	
How would you rate the "ease of use" of OneConsultation?	Poor	Fair	Good	Excellent	
	1	2	3	4	

Table 2: Coded Likert scale staff survey questions

Estimates and assumptions continued:

- The financial value of carbon/tonne was £69.00 (Forest Research, 2020)
- The sample of calls with identifiable postcodes was representative of all calls made during the data collection period.
- Call activity in the data collection period was representative of the year as a whole.

NB. A small number of calls made by teams with a national remit precluded using the mean to calculate averages. Instead, the median distance from the staff's base to the patient's house was used to calculate a representative average saving per call.

Results

Phase 1:

Respondents

The results of this pilot phase have previously been reported in full and so what follows here is limited to a brief summary of the findings that influenced the main data collection. In total, 79 patients were offered an on-line consultation. Of these, 13 accepted and, from May - Dec 2019, they and 12 staff held 19 video consultations. Reasons for rejecting video consultations included a preference for face-to-face meetings and a lack of suitable technology. 68.4% of users were female and 26.6% of calls were to patients aged 16 or under with a further 31.6% made to patients 40 yrs. or over. Calls lasted from 18 - 59 minutes with a mean duration of 37 minutes (S.D.13). All were completed successfully though six encountered some form of resolvable technical issue (four being audio-related).

Patient feedback

Using the midpoints of each question's response range, calls reportedly saved an average of 20 minutes at a mean cost of £1.75. Table 3 shows that, where feedback was provided, the experience was generally positive.

	strongly agree	agree	disagree	strongly disagree	Unsure / N/A
I was satisfied with the overall experience of today's video call	8	4	0	0	0
I would be willing to receive my future mental health care via video calls	7	4	0	0	1
The technology was easy to use	6	6	0	0	0
The sound quality was good	4	5	2	0	1
The picture quality was good	4	6	1	0	1
I felt able to share information as if the staff were in the room with me	5	5	0	0	2

Table 3: Phase 1 patient feedback

That said, when offered the choice, further video consultations were generally less popular than clinic attendance (but more popular than home visits) for future contacts.

Staff feedback

The online survey was only completed by eight staff who all perceived some potential benefits but also expressed significant reservations. For brevity, their views have been integrated into the richer focus group results. The themes emerging from this 90-minute discussion with eight staff are summarised below:

Cultural shift: Staff pointed out that the transition represented a significant cultural shift for staff and patients which would need time to bed in. They also recognised video was probably preferable to phone contacts which, although now routine, had also raised concerns when first introduced.

Personal preference for face-to-face contacts: The option to (risk) assess and treat patients in context was valued, as was the ability to use physical touch (especially to comfort cognitively impaired patients). As a result, video calls should not replace all face-to-face contacts.

Therapeutic relationships: were universally seen as the basis to effective care / treatment and concerns were expressed that video consultations might make it harder to establish a rapport.

Software functionality: needed to be expanded to allow screen sharing of information leaflets drawings, diagrams etc. routinely used in therapy.

Patient suitability: Staff felt video consultations would not be suitable for some patients (e.g. those with paranoia) but might actually be better for some (e.g. those with caring responsibilities) if used judiciously.

Training, technical and administrative support: were all seen as vital, especially in the early stages where it was also suggested that on-line training packages for the less confident would be counterproductive. In addition, support and encouragement from a more confident clinical colleague was seen as necessary to help overcome clinical issues rather than technical ones.

Efficiency: In contrast to its potential detrimental effect on establishing a rapport, some staff felt the software had helped them to structure their sessions better, and keep to time. In addition, savings in travel time were anticipated.

Risk: Staff recognised that video calls placed them at less physical risk than home visits to volatile patients but also felt the need to see high risk patients face-to-face to be confident in their assessments.

Barriers: to implementation identified by staff included a lack of suitable environments for staff and patients to make/receive calls; poor audio quality, patient access to suitable equipment and data allowances; inability to perform physical health checks; feeling professionally vulnerable regarding errors of judgement made whilst becoming familiar with the technology; the timing of implementation coinciding with other changes to their practice.

Phase 2:

Patient feedback:

Respondents: out of a total of 7,752 video calls made/received, feedback was provided by 847 patients on a total of 1017 calls (response rate 13.1%) with a median duration of 52 minutes. 954 of these calls were made by 333 different members of staff working in 63 different clinical services. The remaining 63 calls had no staff member recorded. Most, i.e. 87.4% (n=740) of the patients fed back once in the period. Table 4 shows full details of this.

No. of feedback screens completed	Frequency
1	740
2	67
3	22
4	11
5	6
6	1

Table 4: Number of times phase 2 patients gave feedback

62.7% (n=531) of patients identified as "female"; 32.9% (n=279) as "male"; 2.2% (n=19) as "other" and 2.1% (n=18) "preferred not to say". 96.1% (n=814) were White British/Irish/Other; 2.6% (n=22) were mixed race with the remaining 1.3% (n=11) from 5 different ethnic backgrounds. Over half the patients were aged between 12 and 44yrs (see figure 2 for the full age distribution).

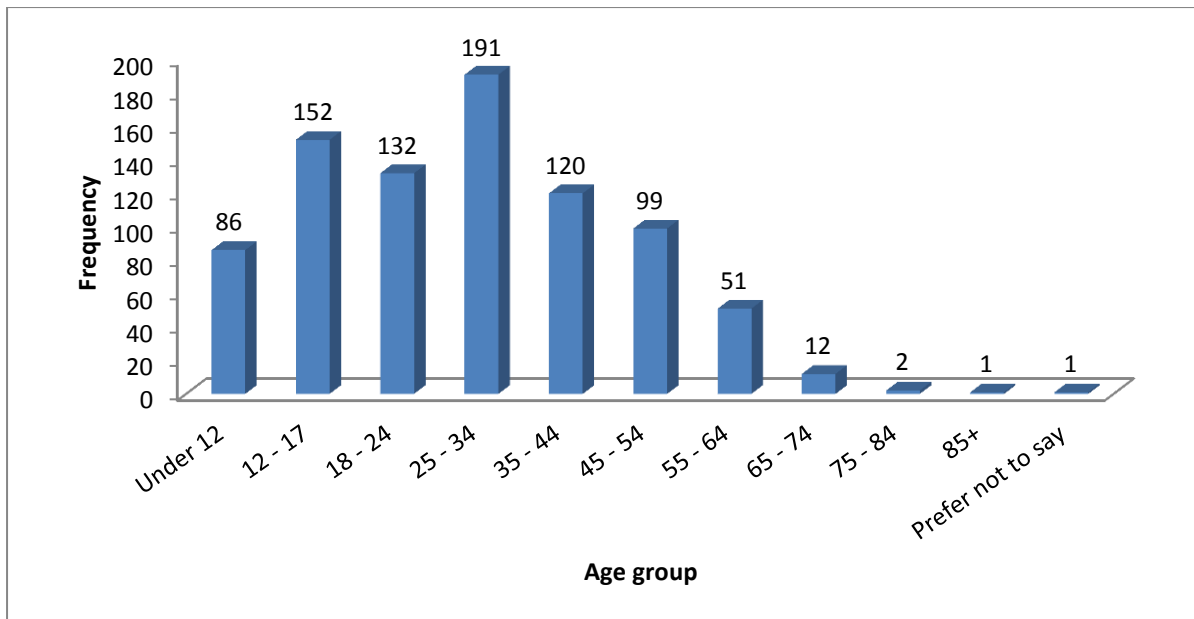


Figure 2: Phase 2 patients' ages.

Postcodes and hence Multiple Deprivation Indexes (MDI) were available for 79.5% (n=673) of the patients. The distribution was skewed toward the more deprived areas with 37.2% of patients living in areas ranked in the most deprived quartile in the UK. Figure 3 breaks the distribution down to pentiles with the first pentile being the most deprived and the fifth the least deprived.

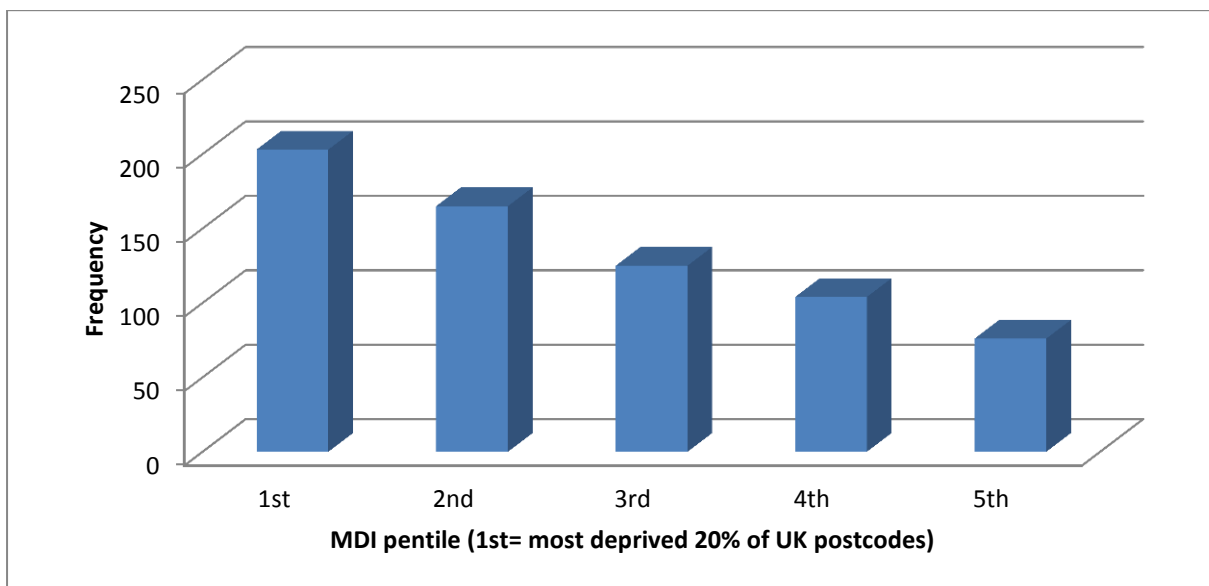


Figure 3: Distribution of phase 2 patient postcodes by MDI pentiles

Overall satisfaction: The mean '*overall satisfaction*' rating was 3.56 (SD 0.73) which could be described as satisfied - very satisfied. Table 5 shows the distribution of the responses.

I was satisfied with the overall experience of today's video call		
Response & score	Frequency	Percent
Unsure / N/A (0)	14	1.7
Strongly disagree (1)	7	0.8
Disagree (2)	18	2.1
Agree (3)	263	31.1
Strongly agree (4)	545	64.3
Total	847	100

Table 5: Overall patient satisfaction

To understand what drove these overall satisfaction ratings, patients were also asked a number of more specific questions.

Ease of Use: The mean '*ease of use*' rating was 3.46 (SD 0.75). Table 6 shows the distribution of responses from which it is apparent that the vast majority of patients were able to use the software without difficulty.

The technology was easy to use		
	Frequency	Percent
Unsure / N/A (0)	12	1.4
Strongly disagree (1)	12	1.4
Disagree (2)	24	2.8
Agree (3)	325	38.4
Strongly agree (4)	474	56.0
Total	847	100.0

Table 6: Ease of use

Sound quality: The mean '*sound quality*' rating was 3.28 (SD 0.82). Table 7 shows the distribution of responses which was again, very positive.

The sound quality was good		
	Frequency	Percent
Unsure / N/A (0)	14	1.7
Strongly disagree (1)	19	2.2
Disagree (2)	58	6.8
Agree (3)	377	44.5
Strongly agree (4)	379	44.7
Total	847	100.0

Table 7: Audio quality

Video quality: The mean '*video quality*' rating was 3.27 (SD 0.80). Table 8 shows the distribution of responses which is broadly similar to that of the audio quality.

The video quality was good		
	Frequency	Percent
Unsure / N/A (0)	13	1.5
Strongly disagree (1)	16	1.9
Disagree (2)	62	7.3
Agree (3)	394	46.5
Strongly agree (4)	362	42.7
Total	847	100.0

Table 8: Video quality

As a result of their experience of the software itself, patients were then asked for their views on its use as part of their treatment package.

Impact on patient interactions: Nine out of ten patients reported that the software had not affected their *interactions* with staff (mean rating 3.34 (SD 0.92). See table 9.

I felt able to share information the same as is if the clinician was in the room with me		
	Frequency	Percent
Unsure / N/A (0)	27	3.2
Strongly disagree (1)	17	2.0
Disagree (2)	53	6.3
Agree (3)	296	34.9
Strongly agree (4)	454	53.6
Total	847	100.0

Table 9: Effect on ability to engage with staff

Willingness to continue: In light of the generally positive feedback, it was unsurprising that nine out of ten patients were willing to have future video consultations. Table 10 shows the breakdown of responses. It should however be noted that the survey was developed prior to the covid-19 lockdown which could well have affected these responses.

I would be willing to receive future mental health care via a video call		
	Frequency	Percent
Unsure / N/A (0)	41	4.8
Strongly disagree (1)	12	1.4
Disagree (2)	18	2.1
Agree (3)	317	37.4
Strongly agree (4)	459	54.2
Total	847	100.0

Table 10: Willingness to continue

Of course, being willing is not the same as actually wanting to use video consultations and so, patients were also asked to rank their preference for three different treatment modalities.

Preferred treatment modality: Based on the rankings, video calls were the most popular choice (mean rating 2.26 (SD 0.0.71); closely followed by clinic attendance (mean rating 2.20 (SD 0.81); with home visits least preferable (mean rating 1.63 (SD 0.77). See also table 11.

Treatment modality	Ranking	Frequency	Percentage
Video calls would be my:	1 st choice	355	41.9
	2 nd choice	360	42.5
	3 rd choice	132	15.6
Outpatients clinics would be my:	1 st choice	377	44.5
	2 nd choice	259	30.6
	3 rd choice	211	24.9
Home visits would be my:	1 st choice	149	17.6
	2 nd choice	235	27.7
	3 rd choice	463	54.5

Table 11: Preferred treatment modality rankings

Comparison of satisfaction variables: As the patient Likert scales all had the same number of options, comparison of the means is straightforward. However figure 4 has been included to provide an easy visual comparison of the overwhelmingly positive feedback.

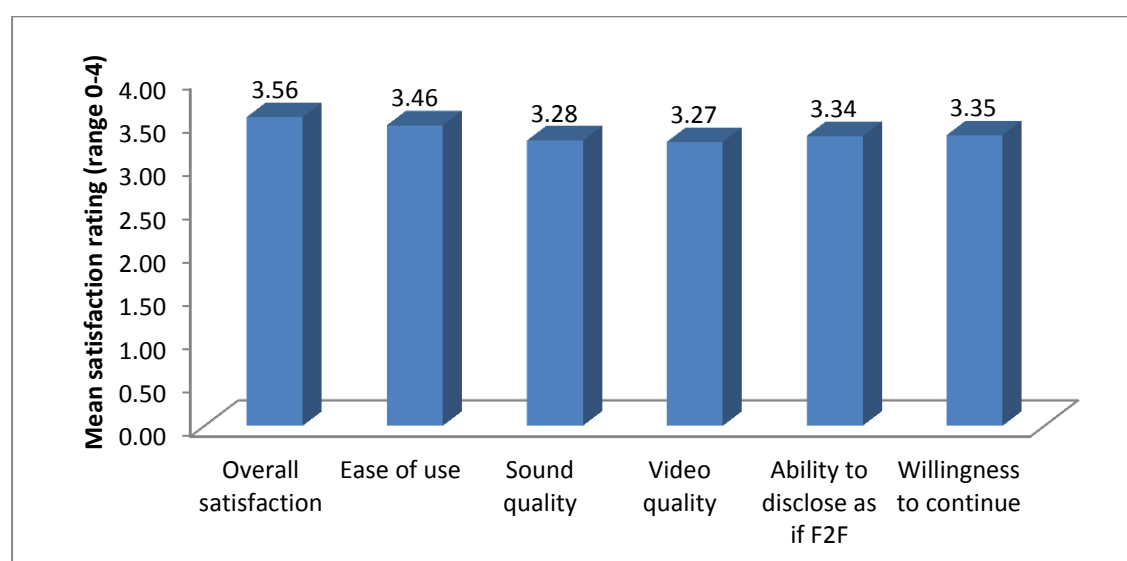


Figure 4: Visual comparison of mean patient feedback ratings

Clearly these variables were unlikely to be the only factors contributing to patient satisfaction and, whilst it would be unrealistic to expect to capture all reasons; data were also gathered on the journey they would have taken to attend their appointment were it not for the video call.

Usual method of travel: The largest proportion of patients would have travelled by taxi or their own car (38.8%; n=329). 30.7% (n=260) stated the question was "not applicable" though the reason for this was not gathered. See table 12 for the full breakdown.

Mode of transport	Frequency	Percent
Taxi / own car	329	38.8
Relative/ friend's car	105	12.4
Public transport (bus/metro/train)	118	13.9
Other	35	4.1
N/A	260	30.7
Total	847	100.0

Table 12: Usual method of travel to appointments

Time saving: Patients were asked to estimate the time their journey would have taken. From table 13 it is apparent that, of the 80.4% of patients that reported a time saving, three quarters saved up to one hour's travel, with a small proportion (7.1%; n=60) saving more than 90 minutes. It should also be noted that, the friend or relative who would have driven 105 of the patients would have also saved time.

saving range	Frequency	Percent
0 - 30 mins	286	33.8
31 - 60 mins	246	29.0
61 - 90 mins	89	10.5
over 90 mins	60	7.1
N/A	166	19.6
Total	847	100.0

Table 13: Patients' time savings

Financial saving: Rather than using a standard costing assumption, patients were asked to estimate the cost of the journey they would have made. From table 14 it is clear that, of the 63.8% that made a saving, it was typically between £0:00 - £6:00.

saving range	Frequency	Percent
£0 - £3:00	223	26.3
£3:01 - £6:00	193	22.8
£6.01 - £9:00	59	7.0
£ 9.00 +	65	7.7
N/A	307	36.2
Total	847	100.0

Table 14: Patients' cost savings

Deprivation: Despite these cost savings, video calls are not cost-free and require a smartphone (or similar) and a sufficient data allowance. From the available data it was not possible to understand whether patients from more disadvantages areas were less likely and/or less able to accept the offer of video calls. It was however possible to look for significant differences in the feedback from patients in each MDI pentile using Kruskal-Wallis H tests.

Of all the variables captured via Likert scales (see table 1), only cost savings varied significantly between MDI pentiles $\chi^2(4) = 11.012$, $p = 0.026$ with mean rank cost savings of 201.76 (1st pentile); 213.51 (2nd pentile); 223.81 (3rd pentile); 226.90 (4th pentile) and 260.55 (5th pentile). In short, patients in the first pentile tended to report lower cost savings.

Main drivers for patient satisfaction: A statistical model was constructed to identify the influence that the different variables had on patients' overall satisfaction. Results of this multiple linear regression indicated that there was a collective significant effect between four of these variables and patients' overall

satisfaction ratings, ($F(6, 840) = 137.74, p < .001, R^2 = .49$) i.e. that 49% of the variation in overall satisfaction could be attributed to these four issues. The individual predictors were examined further and it was established that, in rank order: feeling able to share information as if face to face ($t = 10.26, p < .001$); ease of use ($t = 8.03, p < .001$); audio quality ($t = 4.27, p < .001$) and video quality ($t = 4.26, p < .001$) were the significant predictors in the model.

A similar model was created to understand what affected how likely patients were to accept future video calls. Here two variables were found to be significant, collectively explaining (33%) of the variation in this rating ($F(6, 840) = 69.19, p < .001, R^2 = .331$). The most influential issue was feeling able to share information as if face to face ($t = 10.18, p < .001$) followed by ease of use ($t = 7.39, p < .001$).

In summary, this modelling suggests that; feeling able to share information as if face-to-face and the software's ease of use most heavily influence these patients' overall satisfaction and their likelihood to accept continued treatment by video call.

Staff feedback:

Respondents: In June 2020; 264 staff survey responses were received (response rate = 57%), of which 32 were anonymous. In July 2020 a further 216 responses were obtained (response rate = 48%), of which 31 were anonymous. After cleansing, this resulted in a final data set of 337 unique staff responses for the main analyses. The anonymous responses were found to be marginally more favourable than the main dataset however did not warrant further/separate analysis. A second data set of staff responding to both surveys was also created. It comprised 79 matched pairs of survey results which were analysed using T-tests and Wilcoxon Signed Ranks Tests as appropriate. These confirmed that there were no significant differences in the average ratings of any question between the June and July surveys (suggesting stability of views over the period of 1 month). The main data set was therefore the focus for all subsequent analyses. The average (median) survey completion time was seven minutes. Table 15 below shows the 97 teams that respondents worked in. Together, these represent a diverse (and hence representative) range of community mental health services that collectively catered for all age groups.

Team	June	July	Total
First Step	17	13	30
South Tyneside CYPS MH	0	19	19
CYPS MH	3	11	14
North Northumberland PNP	7	5	12
Newcastle LD Pathway	5	6	11
Central Northumberland PNP	8	2	10
CNDS	4	6	10
Northumberland CYPS - MH	9	0	9
Perinatal	2	7	9
ADHD ASD	2	5	7
CBT	2	5	7
NCL NE CTT	3	4	7
Carlisle CMHART	5	1	6
South Tyneside/Sunderland CYPS MH	5	1	6
CEDS	3	2	5
Central CBU CYPS	5	0	5
Gender Dysphoria	0	5	5
North Tyneside CTT	2	3	5
South Central Northumberland OAT	2	3	5
South Tyneside Cognitive Community	1	4	5
Sunderland Psychological Wellbeing	3	5	5
West South Northumberland WAA	0	5	5
CAMHS East	2	2	4
Gateshead Adult LD	4	0	4
NHIS	0	4	4
PDS	2	2	4
South Tyneside PNP	2	2	4
Family Therapy	0	3	3
Gateshead CTT	2	1	3
Gateshead EIP	0	3	3
Newcastle EIP	0	3	3
Northumberland Addiction	0	3	3
Northumberland LD	0	3	3
RDT & CMST	3	0	3
SoT CYPS	3	0	3
Sunderland LD	1	2	3
Sunderland South PNP	0	3	3
Trailblazer	1	2	3
Trailblazers	2	1	3
West/South Northumberland WAA	3	0	3
Allerdale CMHART	1	1	2
CABIS	2	0	2
CAMHS West	2	0	2
CAT	2	0	2
Central CBU	0	2	2
Copeland CMHART	1	1	2
CYPS SPA	0	2	2
Dietetics	2	0	2
Eden CMHART	0	2	2

Team	June	July	Total
Family Therapy Inpatient CYPS	1	1	2
LD Community Nursing East	1	1	2
Newcastle & NT Cognitive Pathway	0	2	2
Newcastle Addiction	0	2	2
Newcastle Addictions	2	0	2
Newcastle CYPS MH	0	2	2
Newcastle Memory Service	1	1	2
Newcastle West PNP	0	2	2
North Tyneside EIP	2	0	2
Northumberland ICTS	1	1	2
Northumberland Memory Service	1	1	2
RDT	0	2	2
-	0	1	1
Art Psychotherapies	0	1	1
Behaviour Team NCL	0	1	1
Castleside Day	1	0	1
Central Access RVI	1	0	1
Chaplaincy	1	0	1
Community Personality Disorder Team	0	1	1
CRHT North	0	1	1
CYPS LD	1	0	1
Eden CMHT	1	0	1
Eden Memory	1	0	1
Family Therapy Inpatient CYPS	0	1	1
Forensic Outpatients	1	0	1
LD Community Nursing West	1	0	1
MPS	1	0	1
NCL NT OPS CTT	1	0	1
Neuropsychiatry	0	1	1
Nightingale	1	0	1
Nland IRT CHRT	1	0	1
North of Tyne EDICT	1	0	1
Northumberland Memory	0	1	1
ON Call NELD	0	1	1
PBS	1	0	1
Pharmacy	1	0	1
Positive Behaviour Service	0	1	1
Psychology LD S Tyne	1	0	1
Psychology North Inpatients	1	0	1
RCAS	0	1	1
Sunderland & South Tyneside EIP	1	0	1
Sunderland Addictions	0	1	1
Sunderland EIP	0	1	1
Sunderland PNP	0	1	1
Sunderland West PNP	0	1	1
Sunderland/South Tyneside EIP	1	0	1
Talking Helps	0	1	1
West Northumberland OAT	0	1	1
Total	151	186	337

Table 12: Monthly staff responses ranked by team

Overall satisfaction: The mean '*overall satisfaction*' rating was 3.14 (SD 1.14) which could be described as moderately satisfied. Table 16 shows the distribution of responses.

Please rate your overall experience of using online video consultations?		
Response & score	Frequency	Percent
poor (1)	48	14.2
fair (2)	35	10.4
moderate (3)	95	28.2
good (4)	140	41.5
excellent (5)	19	5.6
Total	337	100.0

Table 16: Overall staff satisfaction

To understand what drove these satisfaction ratings, staff were also asked a number of more specific questions.

Ease of Use: The mean '*ease of use*' rating was 2.53 (SD 0.87). Table 17 shows the distribution of responses from which it is apparent that fair/good were deemed the most reflective descriptors.

How would you rate the "ease of use" of OneConsultation?		
	Frequency	Percent
poor (1)	43	12.8
fair(2)	113	33.5
good (3)	140	41.5
excellent (4)	41	12.2
Total	337	100.0

Table 17: Ease of use

Sound quality: The mean '*audio quality*' rating was 2.29 (SD 0.78). Table 18 shows the distribution of responses which strongly favour the two central responses.

How would you rate the audio quality of OneConsultation?		
	Frequency	Percent
poor (1)	57	16.9
fair(2)	135	40.1
good (3)	134	39.8
excellent (4)	11	3.3
Total	337	100.0

Table 18: Audio quality

Video quality: The mean '*video quality*' rating was 2.21 (SD 0.77). Table 19 shows the distribution of responses which is broadly similar to that of the audio quality.

How would you rate the video quality of OneConsultation?		
	Frequency	Percent
poor (1)	68	20.2
fair(2)	133	39.5
good (3)	132	39.2
excellent (4)	4	1.2
Total	337	100.0

Table 19: Video quality

As a result of their experience of the software itself, staff were then asked for their views on using it as part of their treatment packages.

Impact on patient interactions: As a result of issues described above, half of the staff reported that the software had definitely affected their '*interactions*' with patients (mean rating 2.64 (SD 1.0). See table 20.

Using an online video consultation allowed you to interact with service users the same way as you would have in a face to face consultation (in person)?		
	Frequency	Percent
strongly disagree	42	12.5
disagree	123	36.5
neutral	92	27.3
agree	76	22.6
strongly agree	4	1.2
Total	337	100.0

Table 20: Impact on patient interactions

Comfortable using video consultation: Nevertheless, over two thirds of staff stated they had felt '*comfortable communicating*' with their patients by video, resulting in a mean rating of 3.65 (SD 0.96). See table 21.

Did you feel comfortable communicating with service users while using an online video consultation?		
	Frequency	Percent
strongly disagree	11	3.3
disagree	31	9.2
neutral	73	21.7
agree	171	50.7
strongly agree	51	15.1
Total	337	100.0

Table 21: Comfort in using video consultation with patients

Non-verbal and para-verbal communication: As comfort is a global and somewhat subjective term, staff were also asked to rate some more specific aspects of their experience. Half of the respondents felt able to identify '*non-verbal and para-verbal cues*' from their patients with a further 42% unsure (table 22). NB They were not asked whether there had been the need and only 7.4% stated they had definitely not been able to do so.

Were you able to detect changes in a service user's voice, mannerisms or facial expressions during an online consultation?		
	Frequency	Percent
no	25	7.4
maybe	143	42.4
yes	169	50.1
Total	337	100.0

Table 22: Nonverbal and para-verbal communication

Managing distress: When asked whether, as a consequence of these non-verbal challenges, video consultations had impeded their ability to '*manage patient distress*'; half of respondents were neutral (presumably influenced by whether they had actually encountered this scenario). Of the remainder, almost twice as many stated it had adversely affect their abilities than not (see table 23)

If a service user became anxious or distressed during the online video consultation, did using online video consultation hamper your ability to manage the situation?		
	Frequency	Percent
strongly disagree	2	0.6
disagree	55	16.3
neutral	178	52.8
agree	80	23.7
strongly agree	22	6.5
Total	337	100.0

Table 23: Adverse impact of video on management of patient distress

Likelihood of continued use: Regardless of these concerns, when asked, three quarters of staff stated they were intending to '*continue*' with video consultations - mean rating 3.95 (SD 1.1). Table 24 shows the breakdown of responses. It should however be noted that the survey was developed prior to the covid-19 lockdown which could well have affected these responses.

Thinking about using online video consultations in the future, how likely are you to use online video consultations as part of service users treatment if it were available?		
	Frequency	Percent
extremely unlikely	17	5.0
unlikely	25	7.4
neither likely nor unlikely	39	11.6
likely	133	39.5
extremely likely	123	36.5
Total	337	100.0

Table 24: Likelihood of continued use

In a similar vein, staff were asked to estimate the percentage of their caseload that they would anticipate using video consultations with in the future. As might be expected, estimates varied quite widely with a mean of 22.3% (SD 20.1) and a median of 20%.

Recommendation to colleagues: Finally, in addition to their own future plans for the software, staff were asked whether they would '*recommend it to a colleague*'. Similar to the previous question, the mean rating was 3.98 (SD 0.97) - see table 25.

How likely are you to recommend using online video consultations as part of a service user's treatment to other members of your team?		
	Frequency	Percent
extremely unlikely	3	0.9
somewhat unlikely	34	10.1
neither likely nor unlikely	42	12.5
somewhat likely	146	43.3
extremely likely	112	33.2
Total	337	100.0

Table 25: Likelihood to recommend to a colleague

Comparison of staff satisfaction ratings: Because there were a different number of points on each Likert scale, comparing the mean ratings could be misleading. Therefore, in figure 5, each question's mean rating has been normalised to provide a visual comparison of each question's relative 'performance'. NB. The question shaded red has reversed ratings i.e. higher ratings indicate a less favourable response.

From this it is clear that staff were generally less satisfied with the software's: ease of use; audio and video quality, its impact the way they interact with patients and in particular their ability to manage patient distress. Conversely, they were most confident spotting changes in non-verbal and para-verbal signs and generally comfortable using the software as part of their treatment packages. Despite a moderate level of overall satisfaction they anticipated continuing to use the software and would recommend it to their colleagues (though as previously mentioned, this may have been skewed by the current Covid-19 restrictions.)

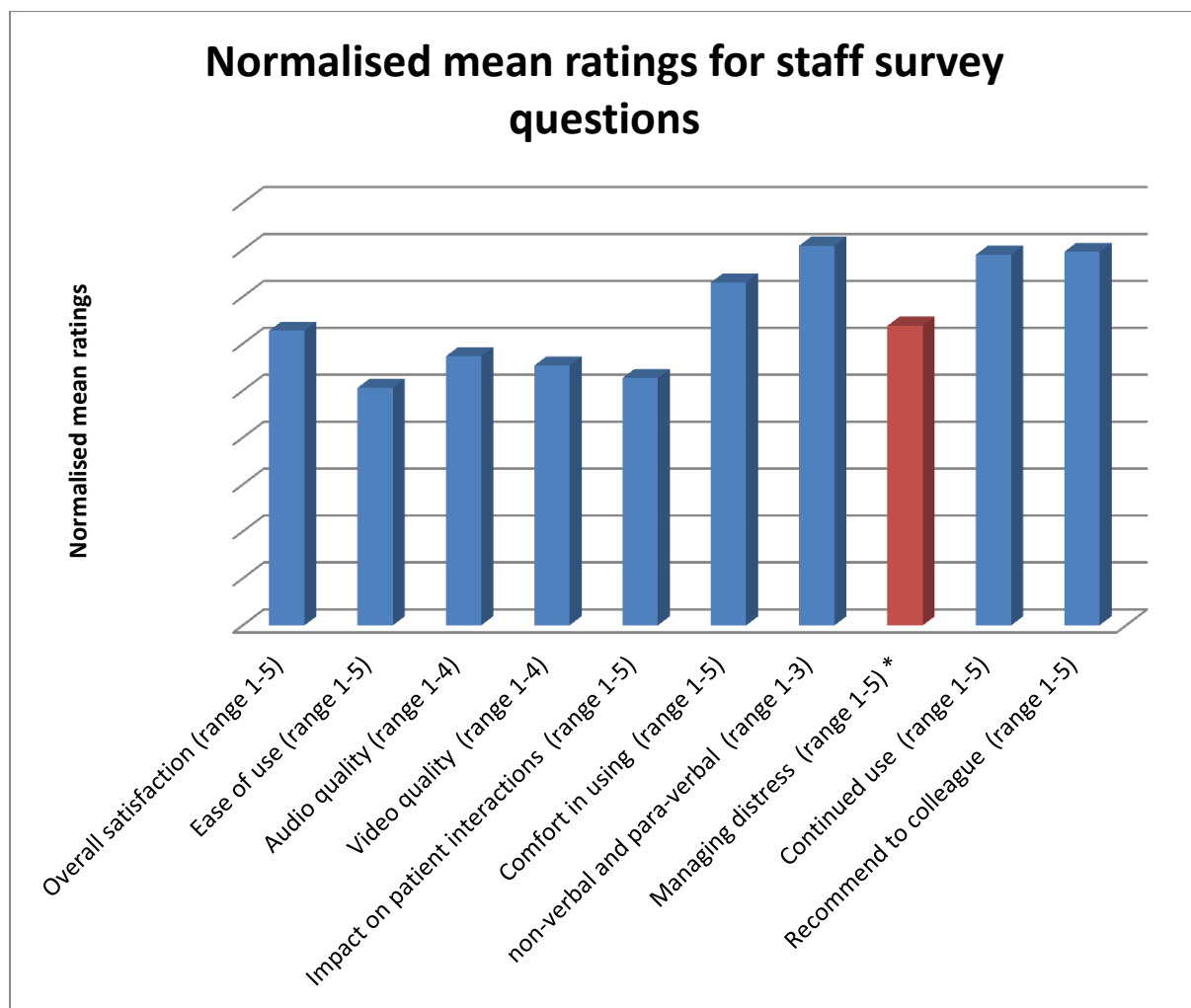


Figure 5: Normalised mean staff survey ratings (original coding range in brackets)

* this question has reversed ratings where higher ratings are less favourable.

Main drivers for staff satisfaction: A statistical model was constructed to identify the influence that the different variables had on staff's overall satisfaction. Results of the multiple linear regression indicated that there was a collective significant effect between five of these variables and staff's overall satisfaction ratings, ($F(7, 329) = 72.83$, $p < .001$, $R^2 = .61$) i.e. that 61% of the variation in overall satisfaction could be attributed to these five issues. The individual predictors were examined further and, in rank order: ease of use ($t = 6.99$, $p < .001$); video quality ($t = 5.09$, $p < .001$); audio quality ($t = 3.73$, $p < .001$); how comfortable staff felt video calling patients ($t = 3.19$, $p = .002$); similarity to a face-to-face interaction ($t = 2.67$, $p = .008$) were the significant predictors in the model.

A similar model was created to understand what affected how likely staff felt they were to continue using the solution. Here four variables were found to be significant collectively explaining less (39%) of the variance in this rating ($F(7, 329) = 30.20$, $p < .001$, $R^2 = .39$). The most influential issue was how comfortable staff felt video calling patients ($t = 6.94$, $p < .001$) followed in rank order by; similarity to a face-to-face interaction ($t = 2.24$, $p = .025$); perceived ability to detect changes in non-verbal and para-verbal communication ($t = 2.8$, $p = .030$); and video quality ($t = 1.97$, $p = .049$).

The last model created sought to identify which variables most heavily affected staff's estimates for the proportion of their caseload who would receive continued treatment by video call. In this case, only two variables were significant: how comfortable staff felt video calling patients ($t = 4.08$, $p < .001$) followed in rank order by; similarity to a face-to-face interaction ($t = 2.74$, $p = .006$); collectively accounting for 20.4% of the variation in these estimates ($F(7, 300) = 12.29$, $p < .001$, $R^2 = .22$).

In summary, this modelling suggests that; ease of use, together with sound and picture quality heavily affected staff's overall satisfaction. How likely staff reported they were to continue using video consultations was primarily driven by how comfortable they felt communicating via video calls which was linked to how similar it felt to meeting in person and having sufficiently good video quality to be able to pick up on patient's non-verbal cues. Finally, the degree to which staff envisaged using the software with patients in the future (percentage of caseload) was partially explained by how similar it felt to a face-to-face meeting and how comfortable staff felt delivering treatment via this medium.

Recurring themes from free-text responses:

In addition to the Likert scale-style questions, staff were also asked to describe : any benefits they had gained from using the software; any unhelpful aspects; which types of patients would be particularly suited / unsuited to on-line consultations and what type of technical problems they had encountered (if any). Thematic analysis using Braun and Clarke's (2006) six phased approach (described previously) revealed the following themes for each question:

Question 1 Please use the box below to detail any benefits you gained from using online video consultations?

There were 480 responses to this question, consisting of 9,061 words of dialogue. The themes from phase one were borne in mind however; newly emerging themes were merged and managed as required. Five major themes were coded with twenty sub-nodes.

Q1 Theme 1) Covid19: The survey's timing (mid-pandemic, with services moving to remote working) led to several comments about the ability to continue work during lockdown/shielding. Respondents noted that video consultations had enabled continued access to patients, new referrals to be taken, more efficient working patterns adopted, and engagement with families maintained when face-to-face contact was restricted. The following comment speaks volumes... *"It has been hugely helpful during this pandemic. It has meant that psychological therapy could effectively and safely continue with service users. When the connection has been good, the video link has been very clear and audible allowing for clear communication and enabling helpful and sensitive therapeutic relationships to be maintained with recognition of shifting emotional states. Service users have valued being able to access treatment from the comfort of their homes and the reduced travel"*.

Continuity: 43 comments explicitly mentioned continuity of care. Staff were able to have discussions with clients and families, *"using video chats to family was vital in maintaining positive therapeutic family relationships"* and *"the contact felt more personal than a telephone call"*. More specifically, staff valued maintaining progress with patient care, reviews and supporting patients' therapy experiments.... *"In this current situation, using online consultation enables me to engage with service users and carers so that they do not have to wait until we can do face-to-face work again"*. Video consultation was seen as *"much better than telephone support during pandemic as [I was] able to see my patients and they feedback [that they] felt more supported"* ...*"although it is not the same as face-to-face"*. The software also enabled family members to join remotely *"who might not always make an appointment to join our meetings"*.

Essentially, Covid had provided impetus to adopt the software, explore its functionality and recognise that, post the pandemic, it *"could increase accessibility of therapy for those with mobility problems or who live a distance from the clinic and struggle to get to us without own transport"* for example. One respondent *"never thought it would work...with some it does work although it is not the same as being in the room. But I am more than grateful that I had the opportunity to continue with my patients and parents"*. They stressed their preference for face-to-face consultations but acknowledged *"a place for video work going forwards for meetings with schools, other professionals and with parents...and with difficult to engage patients"*.

Safety: Most of the 19 comments here related to social distancing, virus suppression and individual welfare; e.g. *"clients do not have to put themselves at risk by visiting a busy clinical space"..."seeing clients prior to home visits without risk of cross-infection"* and being able to see each other without masks. Its benefits for staff and patients who were formally shielding were particularly significant. Other risk-related comments included the way video consultations had allowed staff to offer *"instant support and the ability to send any information immediately"*, to have *"immediate access to seeing a patient when in other circumstances this may have been difficult"*, to *"see a child and [know] that child appears safe"*, and therefore be *"able to complete an urgent communication assessment."*

Q1 Theme 2) Convenience: There were eight subthemes relating to different aspects of convenience.

Staff travel: was coded 77 times. Reductions in travel time, CO2 emissions, parking stress, and late/over-running appointments were the main observations; thus making work generally safer. In this context, 'safer' meant less chance of road traffic accidents etc. as well as the Covid-related benefits i.e. *"almost the same benefits as having a face to face consultation without drawbacks of exposure and the ease of not having to drive to clinic/patients' homes"*. This meant ...*"it is an easier way to communicate with service users and both parties then don't need to travel either. That is one good benefit I have found, also if you don't have the time to travel to a*

service users home and back due to other commitments at team base on certain days that you don't want to miss then that is a plus also".

Finally, the ability to schedule video consultations around school/work commitments...*"thereby making the service convenient for patients that cannot attend the clinic in person for any reason."*... sped up waiting times, meaning *"some patients have opted to use video even when the option of face-to-face is available."*

Time management: more generally received 33 comments with a consistent appreciation that, using video consultations *"frees up time to complete other work"* like offering weekly support to a vulnerable patients, see more patients and helps manage diaries. Additionally, some staff found consultations more purposeful and 15-20 minutes shorter i.e. *"on time and condensed to a shorter period of time."* Staff meetings/training were *"more focused and therefore more productive...more people appear to attend."* Group patient consultations were also easier to arrange as families were *"able to fit appointments around work commitments, without need to travel."*

Responses suggested it was often easier to speak to colleagues for advice by video, *"enabling the practitioner to allow more time to the patient's views"* rather than worrying about travelling and getting to their next appointment on time. The following comment encapsulates this node well...*"Since the inception of [Microsoft] Teams the system is slick and allows [me] to complete the consultation without any issue. I have been able to manage my time more efficiently and I have saved petrol and reduced the carbon emission. It is also easier as I can consult the notes whilst doing the review."*

Home working: by video had improved some (n=7) staffs' work life balance by delivered financial savings, offering safer ways of working and the ability to manage caring responsibilities as well as work commitments during lockdown, with on-line training attracting a specific mention. 17 comments related to admin and use of office space, with video calls helpfully negating the need to secure much sought-after consulting rooms and avoiding cramped shared offices as *"I don't have to hot desk."*

Attendance/DNA: The 17 comments here anticipated increased staffs' meeting attendance, reductions in patient DNA rates and wasted travel if patients did DNA...*"Parents/patients are less likely to DNA due to childminding...easier to organise school meetings via online consultation"*. Some responders also noted more consistent patient attendance at video consultations in general.

Connection with colleagues: was noted 16 times with staff noting an improvement in staff meeting management (less travel and more focussed meetings). For team meetings in particular, this kept individuals up to date, in contact, and supported in their work without the need for administrators to organise room space. Clinical support had also improved for some as it...*"seems easier to make MDT appointments with other professionals to also attend with the patient present."*

Patient travel/accessibility: benefits were apparent in 32 comments. Respondents felt that on-line services seemed *"to increase access for clients who would not otherwise be able to access psychological therapies"* and that *"reduced risk to staff means appointment core times can be extended."* This was especially valued by nationwide services as, online consultation *"allows people in other parts of the country to have weekly therapy that wouldn't otherwise be available to them"* and *"video gives enough information to make the consultations meaningful"*. It was also highlighted as particularly helpful for more local patients who normally require an escort.

Once in treatment, there was a sense that patients who *"find it difficult to leave their homes"* or are generally hard to reach were *"engaging more being in their own homes."* Finally, being able to see the client in their home environment was often helpful for staff but, also meant the patients could avoid the stress of attending appointments. In summary, although at pains to stress the need for face-to-face contacts, one staff effectively captured the issues...*"I am increasingly [of the opinion] that this mode of offering therapy adds a really helpful and effective method for working with some people/certain parts of work"*.

Flexibility: The 29 comments coded here had a degree of overlap with the non-verbal communication node but still warranted separate description. Overall, video consultations provided additional flexibility through one, or a combination of the

following: easier appointment management; wider choice of appointment times; the ability to observe therapeutic activities, see faces and pick up on non-verbal cues (compared to phone calls); and meet parents and/or significant others concurrently.

Working into patients' homes, or into hospital via video meant therapists could "*make practical suggestions and be shown the results sometimes*". It also made it easier to involve other colleagues (often from other sites), such as the "*psychiatrist with service users directly, leading to quicker diagnosis and treatment plans*." As a result, one respondent concluded that "*professionals meetings are sometimes best placed using video conferencing*" and better than phone calls because it is easier to host more people.

Overall, therefore, video consultations have provided flexible working during lockdown but, there remains strong support for face-to-face consultations for assessments and review, as well for patients who struggle with this mode of communication (e.g. those diagnosed with ASD or ADHD).

Q1 Theme 3) Cultural shift: was just as evident as it had been in phase 1.

Telephone vs video: attracted 48 comments which were almost all in favour of video consultations. One respondent felt "*the familiarity of the phone made it easier for them*" however, the additional visual cues generally made it easier to hold a smooth conversation, establish a rapport and assess patients' presentations, compared to a phone call. Seeing patients (even remotely)... "*allows you to build a stronger therapeutic rapport with people which positively impacts treatment and recovery*." "*It provides more information and allows a greater degree of relational connectedness than telephone consultation*". Young people in particular seemed to benefit with reports of a CAMHS patient who "*wouldn't speak on the phone but I was able to see and speak to him and obtain his own views about how he was managing and his mental health*".

There were 17 comments from which the following list of interventions has been collated. They are all examples of activities conducted by video that would not have been viable by phone:

- Sharing written information (white board/ formulation)
- Working with clients experiencing verbal communication difficulties
- Undertaking gait assessments
- Modelling behaviours
- Conducting EMDR therapy during lockdown
- Working with some patients on the ASD spectrum
- Task focussed intervention and monitoring
- Sharing art work produced by patients.
- Assessing dysphagia (though not ideal)
- Undertaking home-based exposure therapy
- Observing mother-baby relationships

In this regard, the software *"is a step forward, but only when it works"*.

Personal preference for face-to-face contacts: was noted by three staff, all adamant that video consultations were merely a stop-gap until face-to-face contact could be reinstated. They did however acknowledge that ... *"they may be useful in the future for patients who may struggle to attend appointments for whatever reason" as, whilst they "didn't benefit from using the online video consultation, but I believe that the patient did"*.

Q1 Theme 4) Therapeutic relationships: As therapeutic relationships form the core of mental health work it was unsurprising that this theme emerged clearly. Video was recommended (when face-to-face contact is unavailable) to connect with, and develop therapeutic relationships with patients, carers and staff. One respondent reported feeling *"more confident using digital platform to provide therapy and feedback from clients has been positive"*.

Video seemed to have added value for isolated and/or lonely patients, perhaps because it was *"better to use online and be seen smiling than to wear a mask"*. It was helpful in building rapport, trust and a working relationship during initial consultations. Some staff felt they had seen improvements in wellbeing with one suggesting they had achieved a *"similar recovery effect with online therapy as I would face-to-face."*

Assessment: There were 17 comments concerning the benefits of video consultations (over phone calls) for screening, initial assessments and review appointments, especially where there are physical health concerns or the need to

monitor fluctuations in mental state. For example, "*observing behaviours indicative of relapse [that are] not possible over the phone*" and "*the opportunity to gain collateral information from relatives*". Online working could also speed up appointments as assessment tools could be emailed out for completion in advance.

Candour: was raised five times with patients seemingly more reassured about discussing sensitive and/or confidential issues when they could see who they are talking to. Staff found younger patients were also more candid without their parents present.

Patient suitability: for video consultations was raised eight times. Three staff had found video particularly "*helpful for learning disability users,*" but only if their impairment was relatively mild. Others had found it useful for patients who "*struggle to engage due to illness*", as it allowed them to "*carry out some service duties effectively, but not all*". For younger people it was deemed a "*more relaxed approach*", "*less intimidating*", ensuring they "*felt more comfortable for initial appointments...in their most comfortable environment... has helped build the therapeutic relationship quicker*". Conversely, for older patients (especially with memory/hearing difficulties) one respondent still found telephone preferable and another had found video consultations helpful for one or two clients but that others "*are unable to benefit from it fully in a way which would result in useful assessments or outcomes*".

Managing distress: There was a sense that, for both staff and patients, video consultations had helped mitigate some Covid-related anxieties. More specifically, they had been used to establish/maintain therapy with severely anxious, housebound patients (rather than requiring stressful clinic attendances)... "*a brilliant resource for children who are anxious about going to new places and meeting new people...meeting in their safe surroundings*".

Non-verbal and para-verbal communication: Many lauded the benefits of seeing faces and being able to read body language, rather than just hearing patients over the phone and felt "*the clients have taken to this so well*". There was a sense that patients who were reluctant to talk on the telephone sometimes found video consultations easier. This was particularly welcomed during the pandemic

restrictions where video helped staff develop and/or maintain therapeutic relationships by allowing them to *"tune into nonverbal cues", "share info/diagrams instantly"* and visualise work together. Although there were differing views on the proportion of therapeutic work that could continue by video, there was some suggestion that it was actually easier to manage silences by video, making it possible to engage patients for longer periods. A speech therapist explained how video had allowed their input to continue *"effective communication with the parents and/or children...I am able to gain deeper contextual understanding by seeing peoples body language. See the means of communication they are using behaviour, gesture, signs, symbols, technology as well as me being able to use visual supports to support what I say"*. Overall, there was certainly no unanimous consensus but a proportion of staff had found it, *"in most occasions as productive as a face-to-face consultation"*.

Q1 Theme 5) Software functionality: This theme encapsulates some quite diverse opinions which seem to be heavily influenced by staffs' general IT literacy. *"When it works its great"* noted one respondent who also felt it had increased their confidence in other areas of technology.

Overall satisfaction: for many was good, variable for others but for around 5% of staff there were no discernible benefits. Dissatisfaction seemed linked to difficulties with their initial software set up or persistent, recurring issues. The most negative comments stated *"it never worked properly", "was awful",* and that *"it had only worked once successfully for 45 minutes in four months."* One staff explained that they had *"completed one video consultation that was successful, others that I have tried had to be abandoned so no obvious benefits as yet and it may have had negative impact on some interactions as patient may have felt frustrated"*. In short, it was common to encounter frustrations but, at least two staff had concluded the software was simply not fit for purpose.

Ease of use: was coded 5 times with the software reportedly easy for patients to log into and use, with a useful whiteboard and waiting room functions. In short, *"when the Wi-Fi connection is good and consistent it's a great tool."*

Sound and video quality: Sound quality seemed mixed with one responder saying it was of very good quality and other that it was less so. Video quality was more problematic with some staff disappointed not to have gained the benefits they had anticipated...*'quality has been nothing short of abysmal and consequently more therapeutically unhelpful than helpful'*.

Barriers: The 11 responses here included three about poor Wifi connections and other technology failures, especially when working with older people where these often led staff to revert to the telephone. Getting patients logged on could be difficult as... *"I am not sure of the system myself"* and, although 'IT Help' was good, it was apparently not always easy to access. Two respondents clearly recognised the potential benefits of video consultations, but these technical difficulties had left them, and their patients, frustrated.

Question 2 What were the least helpful aspects of using online video consultations?

The 480 comments here totalled 12,362 words but coded to just three themes: group consultations, technical issues and impact on therapeutic relationships.

Q2 Theme 1) Group consultations: Staff explained that they *"prefer to/need to bring family members or friends to face-to-face assessments and appointments"*. Consequently, there were 28 requests for the platform to accommodate multiple callers, or to be able to add people to the call whilst underway. Currently, it seems parents have to sit next to their children and other people who are away from the patient's screen can't join separately.

Q2 Theme 2) Technical issues: There were a clear set of unhelpful technical issues (some of which also arose via other questions). Call 'stability' was particularly problematic with 196 respondents encountering connectivity problems, sound problems (n=79), poor picture quality (n=82) such as pixilation, mismatched timing between the two, or calls dropping out completely. However, there were 59 other comments covering: problems sending links to patients; the software not connecting; loss of sound and picture; not working properly on work laptops; specific difficulties with laptop webcams; and the software not working at all. At times, these

led to lengthier consultations or even video calls being abandoned and reverting to phone calls. Finally, some smartphone users seemed to struggle, e.g. not being able to rotate the screen or flip the camera for virtual home visits, or with screen glare, causing some patients to leaving sessions prematurely. Staff also noted *"families finding it hard to accept this [video consultations] due to their own difficulties using the technologies"*.

Q2 Theme 3) Impact on therapeutic relationships: Comments were coded to this theme 81 times. Some limitations were obvious (e.g. the inability to use touch); others less so...*"removes some of the nuances and subtleties of communication"*, leaving staff feeling *"distanced"*, struggling to establish a rapport and limited in their ability to *"assess body language"* or *"to observe someone in 'natural' way in their wider environment"*. As a result, assessing patients by video caused definite concern e.g.: safeguarding (*"it's impersonal"*); accuracy of mental state examinations, cognitive assessments, MHA assessments, risk assessments, physiotherapy assessments, neurodevelopmental function, and diagnosis. MHA tribunals also coded here, but could equally be placed under the group consultation theme.

In contrast to comments captured elsewhere, therapeutic use of silence was sometimes difficult due to poor connectivity and patients missing cues to respond. However, there was pragmatism, with staff viewing it as better than no contact, in that some valuable work could be undertaken and, if the platform was more stable (Wi-Fi), then the quality of the interaction would improve.

Other limitations placed on therapeutic work included the inability to screen-share handouts (n=37), drawings (whiteboard comments n=7) and other joint work in sessions. Eight found not being able to record video consultations had affected their ability to reflect on sessions and/or take them to clinical supervision. The ability to create a private space could also be difficult if a patient's home environment was busy, or if staff were working from home (where blurring backgrounds can't happen until the call has started).

Patient attributes/circumstances appeared 48 times. Video consultations adversely affected therapeutic relationships with some patients diagnosed with psychosis,

particularly when symptoms included paranoia or worrying beliefs about technology and being monitored. Another patient group - the cognitively frail, especially those with sensory deficits...*"tend not to have the equipment...use this or access it less well (very many of our clients do not have relatives/carers to assist)"*. At the opposite end of the age spectrum, there can be *"difficulty keeping a child's/young person's attention"* due to emotional immaturity and problems managing their privacy where parents are over-involved. Conversely however, video consultations had helped engage otherwise illusive parents. A final observation here regarded video calls adding to anxious patients' stress levels with some leaving video calls early. It should though be noted that elsewhere video consultations were found to be less anxiety provoking than clinic attendance.

Shifting focus from the patients' to the staffs' emotional wellbeing, it was suggested that, *"sometimes [staff] meetings require face-to-face i.e. supervision"* as *"you don't have the same kind of conversation you would face-to-face ...as you can't pick up body language or offer emotional support in the same way"*. Also, after difficult video calls from home, *"you do not have your colleagues to offer immediate support/advice"*. Finally, an undesirable consequence of the otherwise helpful reduction in travel time was the associated reduction in reflect/debrief time between visits, leading some staff to feel *"drained"* after a series of video consultations.

Questions 3+4) Are there any types of service user who would/would not be suited to online video consultations and why?

Although asked as separate questions in the survey, responses have been combined, tabulated and colour coded here to highlight the number and nature of the many contradictory opinions that were provided. Green indicates that, on balance, responses suggest suitability; red indicates they suggest unsuitability, and amber indicates no clear consensus or that the number of comments was small (i.e. below 10). NB. Attributes are ranked in order of total responses meaning colour-codes further down the table should be seen as more tentative conclusions.

Patient type/ attribute	Number of comments and any rationale re. <u>suitability</u> for video consultations
	Number of comments and any rationale re. <u>unsuitability</u> for video consultations
IT literate & with suitable equipment (n=136)	n=66. Tech savvy patients with access to IT and a good bandwidth. NB. Younger people tended to meet these criteria most frequently. n=70. Those without stable Wi-Fi / sufficient data / equipment. There were a few responses that thought older people would struggle in this regard.
Anxious/ avoidant/ dissociative (n=106)	n=90. 20% of staff advocated video for patients with anxiety, PTSD or GAD for initial assessment and brief therapy. Agoraphobia was singled out on several occasions e.g. <i>"Initially I think for therapy...I would want to progress to face-to-face, but this could be an option for starting"</i> . They <i>"would want them to get out eventually"...so as not to "collude with avoidance of feared situations"</i> . Other comments included <i>"Socially anxious clients, those with OCD who are concerned about contamination - coming out of their home. Those with health anxiety and those shielding during lockdown"</i> . <i>"People with mild and less complex presentations of depression and anxiety people who are not yet comfortable coming to face to face sessions"</i> . n=16 16 argued that those experiencing anxiety would find it hard to engage, as would those who were dissociative as it <i>"makes them hard to feel present"</i> .
Expressed preference (n=101)	n=65. <i>"Any - I don't think we should make assumptions; this should patient/service user and carer lead"</i> . n=36. Rather than any particular type of patient, any patient preferring face-to-face intervention should be accommodated on a case by case basis.
High risk to self/others (n=67)	n=7 Patients with a history of violence were mentioned most often here. An innovative suggestion was in reach when <i>"clients are in seclusion with safety issues"</i> . n=60. Many staff prefer face-to-face contact <i>"if they [patients] are of high risk of self-harm behaviours", "harm to others", in "crisis", are "impulsive", "experiencing extreme distress and aggression" or are "acutely unwell"</i> . Vulnerable patients were also cited i.e. the homeless, victims of abuse and those subject to safeguarding as confidentiality could not be guaranteed <i>"because [it is] harder to assess and manage risk when not in a room with them"</i> .
Teenagers/ younger adults (n=89)	n=66. Older teenagers, students and young adults <i>"are from that generation of people whom have been brought up with technology and therefore this is easily accessible for them"</i> . n=23 Young children (especially if hyperactive) <i>"find it hard to focus" and "find it hard to sustain interest remotely"</i> .
All/none (n=89)	n=59 staff suggested all types of patients <u>may</u> be suited (see also expressed preference comments). n=20 staff felt no patients (or very few) would be suitable for video consultations.
Unsure (n=79)	n=51 responses re. suitable patients were blank, marked as N/A or unsure. n=28 responses re. unsuitable patients were blank, marked as N/A or unsure.
Living in isolated, rural settings and/or far from staff bases (n=72)	n=72 <i>"Rural patients without good access to transport. Often these patients are disadvantaged and have to spend long periods of time on public transport for a relatively short appointment; if a proportion of their appointments could be done remotely this would save them time and also perhaps childcare issues"</i> . The issue of the time/financial burden of travel was particularly pertinent for national services. n=0 Unsurprisingly, there was counter argument expressed.

Table 26: Suitable and unsuitable patient types/attributes

Patient type/ attribute	Number of comments and any rationale re. <u>suitability</u> for video consultations
	Number of comments and any rationale re. <u>unsuitability</u> for video consultations
Learning disability/ ASD/ ADHD (n=65)	<p>n=20 staff expected (or had experienced benefits) for patients with learning disabilities in general, and ASD specifically e.g. <i>"many service users (suspected autism) prefer to utilise [video] for assessment over leaving home to attend a face to face appointment in clinical workplace"</i> and <i>"Autistic people all enjoyed maintaining contact especially to reduce anxieties when first admitted to the unit"</i>.</p> <p>n=45 responses included 20 about patients with learning disabilities struggling, especially without support to use the software. Others suggested "there seems to be a pattern emerging in our young people with a neurodevelopmental profile (e.g. ASD, ADHD) that have requested not to have online video consultations, and are preferring to wait until face-to-face is permitted". Patients with ASD "find it extremely difficult to function well on online consultations". "Children with ASD are tricky to capture on screen if they do not want to engage it is more forced online". One simply said <i>"not in LD services"</i>.</p>
Physical health needs (n=61)	<p>n=37 comments related to long-term physical health issues, frailty, mobility problems and shielding from Covid. Post-pandemic, patients who <i>"otherwise would miss out on therapy...and assessments"</i> were identified as being particularly suitable.</p> <p>n=24 staff identified several physical interventions that were not viable by video i.e.: physical examinations/ vital signs monitoring, dysphagia assessment, depot injections, and urine testing. Additionally, higher level MSE examination or cognitive assessment "where language intonation, breathing rate, levels of stress etc. are key to understanding presentation" were deemed problematic.</p>
Family / caring responsibilities (n=45)	<p>n=45 In addition to patients requiring formal family work, <i>"I predominantly work with client's who have care responsibilities' this medium helps manage their care obligations and still attend therapy which was not always the case with face-to-face appointments."</i> This was especially true for (shift) working parents who may "wish to have treatment within a small time window e.g. their lunch hour". Finally, "perinatal ladies would benefit".</p> <p>Conversely, was also a recognition that video consultations could be helpful to provide family work-type support to paid carers e.g. in nursing homes.</p> <p>n=0 However, caveats noted elsewhere should be borne in mind (e.g. regarding over-involved parents and coercive partners etc.)</p>
Settled and/or well- known patients (n=43)	<p>n=32. Settled patients, who have an established rapport with staff that know them well, and have already been seen face-to-face were identified as suitable for video consultations. Examples of mid-therapy interventions viable by video with low risk, low complexity patients included general monitoring, medication reviews, exposure therapy, coping strategy enhancement.</p> <p>n=11 respondents believed that engaging and assessing new patients should be face-to-face e.g. "might be better for people who I know rather than new people". Also, the "Association of Family Therapy does not recommend meeting with new families via video calls".</p>
Cognitive deficits/ older people (n=43)	<p>n=1 respondent was pleasantly surprised by the number of older adults who had taken up the offer of a video consultation.</p> <p>n=42 comments were related to either cognitive deficits (n=24) or older people (n=18). Although captured as separate nodes, the degree of overlap warrants their amalgamation here. Areas of concern were unfamiliarity/complexity of technology for older people, especially those lacking capacity, and diagnosed with dementia or other neurological deficits.</p>

Table 26 cont.: Suitable and unsuitable patient types/attributes

Patient type/ attribute	Number of comments and any rationale re. <u>suitability</u> for video consultations
	Number of comments and any rationale re. <u>unsuitability</u> for video consultations
Psychosis/ paranoia (n=33)	n=8 "Paranoid patients may be too fearful to attend hospital premises" "Most are, in the psychosis service, however some have preferred to not have the video on to avoid eye contact. In real life they would otherwise not attend or become hostile".
	n=25. Actively psychotic or paranoid patients (especially with worrying beliefs about technology) would have concerns about privacy and experience trust issues.
Communication difficulties / sensory impairments (n=31)	n=0. Although offering definite advantages over phone calls, there were no comments advocating video consultations for patients with communication difficulties.
	n=31. There were 15 comments about patients with specific sensory (visual/hearing) impairments who potentially require interpreters. A further 16 comments related to communication problems more broadly, e.g. noisy homes, distracted parents, shyness, poor command of English and simply not being comfortable on video.
Complex dynamics (n=22)	n=9. Video was potentially helpful where multiple professionals, paid carers and/or parents were required to collaborate on a particular patient's care/treatment.
	n=13 examples of circumstances/traits that could be complicated by the use of video included: institutionalised patients, over-dependence, attachment issues, passivity, avoidant, excessively anxious, self-consciousness and "patients who try to hide their symptoms." There was also one suggestion that the dynamics of "family therapy is difficult to complete due to ethical and safeguarding concerns".
Trauma / PTSD (n=20)	n=4. "Trauma clients who are reluctant to go out" could benefit from video consultations.
	n=16 Video consultations may be too intense for some trauma clients. Call drop out mid-disclosure could also be damaging. "I would consider most trauma focused therapy risky or unhelpful via online consultation as it is helpful to be in the same room to both pick up subtle difficulties/symptoms someone may be showing (that would be difficult to pick up online) but also support clients if they become significantly distressed/dissociate/etc."
Specific therapies (CBT/ EMDR/ DBT) (n=12)	n=11. There were examples of formal therapy sessions being successfully delivered via video CBT (n=6), DBT (n=3), EMDR (n=2) e.g. benefiting from the additional structure this provided.
	n=1. staff commented that CBT by video was problematic as sessions could not be recorded which was "not in line with BABCP accreditation processes". The veracity of this statement is unknown however; the issue of recording sessions was raised by trainees elsewhere in the survey.
Hard to reach (n=8)	n=8 staff cited cases where hard to reach patients (e.g. poor attendees, school refusers, homeless, sofa-surfers, and chaotic adolescents) had engaged more reliably via video than face-to-face.
	n=0
Eating disorders (n=3)	n=0
	n= 3 responses noted that video may not be suitable for patients with eating disorders who need weighing. (See also physical health needs above).

Table 26 cont.: Suitable and unsuitable patient types/attributes

Question 5) If you encountered any technical issues while using the video consultation software, please use the text box to give details of the issue and indicate if this was reported and resolved by the informatics project team.

480 responses, totalling 8,797 words were coded as per table 27 below. NB. Staff often reported multiple issues; hence these response frequencies are not mutually exclusive. In particular, problems with audio, video and call-dropping out frequently co-existed.

There were also several comments which related to functional limitations of the software rather than technical problems encountered per se. These included the inability to: have multiple concurrent callers; to share screens (e.g. of diagrams/formulations); to record sessions for clinical supervision); to type instructions when patients are struggling to hear; to use set up virtual backgrounds prior to calls starting.

Issue	Number of reports	Typical comments
Problems with initial connection (eg. waiting rooms, appointment hyperlinks etc.)	42	<ul style="list-style-type: none"> "Difficulties in connection despite clicking on link of waiting room" "Patient could not access system despite being comfortable with IT".
Problems with sound quality	96	<ul style="list-style-type: none"> "Poor audio quality" "Speech was often not in synch" "Echoing hearing my voice" "There was noise interference throughout the entire consultation that sounded like loud typing on a keyboard".
Problems with video quality	104	<ul style="list-style-type: none"> "Poor video quality" "Delayed video - usually resolved by going out and coming back on to platform" "Picture freezes, is pixelated, audio is poor at times, video cuts out and disconnects".
Problem with calls dropping out	138	<ul style="list-style-type: none"> "Initially lots of dropped connections - took a long time for this to be resolved" "Freezing and dropping out of connection during consultation" "Unreliable connection and sometimes complete drop-outs. There are certain circumstances when the risk of a dropped connection mean that video consultation is no longer an option".
Problems related to use of Mac operating systems	12	<ul style="list-style-type: none"> "I have one patient with an IOS device and we have not successfully been able to log on" "SU using a Mac. Resolved, advice sought from IT team to use a different platform" "There seems to be consistently greater problems with Apple products than any other".
Issues successfully resolved by IT (or independently)	48	<ul style="list-style-type: none"> "I had some excellent help from our man in the IT department! He is easy to access via Teams and I have no doubt that he would help me out in the future". "This was reported and resolved straight away" "I have had many issues and Informatics team have been very patient, understanding and efficient" "Calls dropping a lot until the recent fix was applied".
Other problems / comments	63	<ul style="list-style-type: none"> "Settings changed to Skype rather than Teams" "Some difficulties for service users getting their technology to work at their end" "Cant' use if service users are using 'work encrypted' computers" "There needs to be an easy ready guide for service users" "It would be helpful if IT were able to offer some form of support to service users experiencing IT/connection problems" "Initially when using it would disconnect after approx. 8 minutes".
No problems encountered	99	

Table 27: details of technical issues encountered

Comparison of staff and patient feedback

For the 31 truly matched pairs of staff and patient feedback, overall satisfaction levels were significantly positively correlated ($r(30) = .387$, $p=.031$) as were ease of use ($r(30) = .369$, $p=.041$) perceptions of how similar it felt to a face-to-face interaction ($r(30) = .365$, $p=.044$) and audio quality ($r(30) = .441$, $p=.013$). Interestingly perceptions of video quality were not significantly associated and nor were how likely staff and patients were to make / accept future calls.

Unfortunately, the differing Likert scales offered to staff and patients limited the comparisons that could be made but the correlations that were evident had face validity and, in general, patients were more satisfied than staff.

Indicative organisational savings

Of the 1017 video calls with patient feedback, 843 had an identifiable postcode and hence formed the sample analysed here. Based on the assumptions outlined earlier in the method chapter, table 28 shows the various indicative savings for the project.

Saving estimates for:	Distance saving	Travel time saving	Value of staff travel time saving	Total emissions (CO ₂ e) saving	CO ₂ saving	Value of CO ₂ saving
The sample of 843 calls with feedback & postcodes	12,078 miles	349 hrs	£7,995	3,332 Kgs	3,307 Kgs	£228
Each call (average)	14.3miles	24.8 mins	£9.48	3.95 Kgs	3.92 Kgs	£0.27
All 7,752 calls during 6 week data collection period	111,066 miles	3,210 hrs	£73,525	30,636 Kgs	30,412 Kgs	£2,098
One year	962,572 miles	27,820hrs	£637,254	265,512 Kgs	263,571 Kgs	£18,186

Table 28: Indicative savings to the organisation

It must be stressed that these figures are based on a number of assumptions necessitated by the naturalistic nature of the project and the data that were available. They do, however, suggest that significant savings may be possible and so, the trust's Climate Emergency Declaration (CNTW, 2020) has been used to help contextualise these potential savings. This document states that, in 2018/19, its staff travelled 5.5million business miles accounting for 5% (CO₂e=1,235 tonnes) of their total carbon footprint. 93.5% (5,142,500) of these business miles were travelled by road, meaning the savings in table 28 would represent an annual reduction of 18.7% in CNTW's road travel and of 21.5% in their travel related total carbon emissions (Co₂e).

Any such savings would of course need to be set against the cost of purchasing, installing and maintaining video calling software as well as training clinical staff. These costs were, however, outside the scope of this report.

Discussion

The main aims of this evaluation were to identify the barriers, benefits and any negative consequences of CNTW's video consultation project and to collate a list of key findings for other parties considering investing in similar software. The evaluation adopted a two-stage, mixed methods approach that included the statistical analysis of quantitative data from multiple sources and systems together with thematic analyses of staff's qualitative responses. The fact that the project spanned the start of the global pandemic, and its associated national lockdown, complicated the process but also provided opportunities that may otherwise not have occurred.

Pre-Covid, voluntary uptake of the software (phase 1) was slower than anticipated however, sufficient staff and patient data were gathered as proof of concept, and to test and refine data collection tools and processes necessary for this evaluation. The low number of staff survey responses was mitigated by a focus group, (a qualitative data collection method recognised to obtain large amounts of rich data from relatively small numbers of participants). In this case, the focus group was particularly helpful in understanding staff's preconceptions as well as the barriers they had actually encountered during their early experiences with video consultations. These were deemed important as they were suspected to have slowed rates of uptake and, conversely, could hasten a return to traditional ways of working (home visits) as and when staff are permitted to do so. The most noteworthy points raised by staff were that:

- Video consultations present staff with a significant cultural shift that will take time and support to overcome, and which should not be underestimated.
- Technical training and ongoing support were seen as a necessity but insufficient to win hearts and minds unless accompanied by other strategies. These included confident clinical users co-delivering staff training / support and the initial use of the software for non-patient facing activities (e.g. supervision and team meetings) to improve familiarity and confidence.
- There was a consistent view that video calls could be very helpful for some patient groups (eg. those with mobility issues, physical health needs and those

requiring simple interventions such as medication reviews) but inappropriate for others (eg. high risk patients, those with social anxiety and those with delusional beliefs that the technology would exacerbate).

- There was also a common view expressed that, even when a patient is suitable, video calls should form part, rather than all of a treatment package (eg. to gradually reduce dependency on services). In essence, that the technology would be most helpful when it forms a meaningful part of the treatment rather than being used purely as a replacement for face-to-face contacts.
- There were pre-conceived concerns regarding the software's impact on staff's ability to establish effective therapeutic relationships and to accurately assess risk which were significant barriers to its uptake.
- On a very practical level, administrative support to schedule appointments was seen as essential and there was an aspiration for this booking process to be simplified, particularly where short-notice calls are required. In addition, the software needed to improve so that diagrams and pictures could be shared with patients during therapy sessions.
- Finally, facilities at staff bases were felt to need adaptation (eg screens to hide busy backgrounds) and the creation of spaces at GP surgeries for patients to receive calls should be considered.

Phase 2 had far more responses from staff (n=337 across n=97 teams) and patients (n=1017), affording more confidence in the findings. From this second round of staff surveys, many of the initial views persisted and the scale of the cultural shift, if anything, became even more apparent. Staff found clear advantages over phone calls but also limitations compared with face-to-face contact. Despite these, video consultations had provided more continuity of care than would otherwise have been possible during the social distancing restrictions.

As well as reducing the Covid transmission risks, video also reduced the risks of lone working, allowing staff to work extended hours, improving access to their services. Online home working improved some aspects of staffs' work-life balance but the reduction in travel whilst generally positive had also resulted in a loss of time to decompress/debrief between consultations. This left some staff reportedly drained by back-to-back calls and lays down an important marker regarding burn out. Where

staff needed emotional/practical support by video, many found liaison with colleagues easier to arrange and there were several suggestions that staff felt more connected in general as (staff) meeting attendance was better. Similarly, there was a perception that patient DNA rates had improved which was well received by staff.

There were some significant concerns that tended to centre around activities requiring subtle clinical judgements or with potentially serious consequences such as (risk) assessments. In these situations, staff perceived limitations to non-verbal and para-verbal communication during video calls and an adverse effect on their therapeutic relationships. However, in contrast, there were also examples of patients being more candid over video than in previous face-to-face meetings and more willing to engage.

These types of contradictory experiences and opinions were frequently encountered, particularly when staff were asked about patients who may be particularly suited or unsuited to video consultations. Rarely was a group of patients deemed as suitable or unsuitable without an equally plausible counter-argument being offered. The exception to this continued to be agreement that suitability should be based on individual patient-need rather than video consultations being seen as mandatory, or even the norm. Of course, whether this will change over time remains to be seen and there certainly were examples of staff's reservations being completely overcome after a period of enforced use.

Many of the points described so far apply to video consultations in general. There were though a set of observations related to the trust's choice of software specifically. Some may prove difficult to resolve e.g. drop-out rates and audio/video quality but others might represent quick wins that will help maintain the project's traction. These include: creating opportunities improve staff's general IT literacy; improving their confidence with video calls specifically; continuing to offer intensive technical support; simplifying virtual room booking processes, waiting rooms and patients' initial log-ons. Key software upgrades would be to add group consultation and screen-sharing functionality as well as the ability to record sessions (subject to GDPR etc.).

From the patient feedback in phase 2, females outnumbered males 2:1. This may be related to the convenience of video consultations for those with childcare / other

caring responsibilities, something should certainly be considered when initiating and maintaining contact during school holidays. Half of callers were aged between 12 and 44 so, whilst the distribution was undoubtedly skewed toward younger callers, uptake was by no means limited to tech-savvy teenagers; in fact the software was generally seen as easy to use by all patients. In addition to age, socio-economic status did not seem to be the barrier that staff had envisaged with more than 1/3rd of patients residing in the most deprived pentile of UK postcodes.

Overall, staff in phase two were a little less satisfied than patients (reporting moderate satisfaction levels). They found the software slightly harder to use than the patients which, in conjunction with their desire for robust administrative support, suggests that something in the setting up / scheduling of calls may need simplifying. Picture quality was also more of a concern for staff than patients which may well link to their anxieties about picking up on non-verbal cues, accurately assessing patients by video and managing patient distress in particular. Presumably, as a result of these issues, about half of the staff respondents had perceived a detrimental effect on their ability to interact with patients naturally which, is in stark contrast to the 90% of patients that found no difference. Regardless of their concerns, ¾ of staff envisaged continuing to use video consultations with 20% of their caseload a common estimate. Similarly, 9/10 patients were willing to have future treatment by video though, if given the choice, clinic attendance was almost as popular.

With the aid of statistical modelling techniques, it can be inferred that the patients' perceptions of their ability to share information 'as if face-to-face' and the software's 'ease of use' were the main drivers of their overall satisfaction and likelihood to accept future video consultations. For staff, ease of use was also highly influential but audio and video quality were also important drivers of satisfaction. Staff's continued use of video consultations (regardless of satisfaction) and the proportion of the caseload they estimated, relied on how comfortable they felt communicating via video calls in general which, like their patients, was linked to how similar it felt to meeting in person but also to having sufficiently good video quality to be able to pick up on patient's non-verbal cues.

As alluded to earlier, both staffs' and patients' views on the future use of video consultations may have well have been influenced by the changes imposed by the

national Covid-19 restrictions. However, the purported travel savings (time and financial) in the literature pre-date Covid and, in many ways, were the project's *raison d'être*. For patients receiving video calls in lieu of clinic attendance, these savings were commonly in the range of 0-60 minutes and £0-6.00 with further savings likely for family/friends who, in 1/10 cases, would have driven them to the appointment.

It is of course important not to over-inflate potential savings by double-counting staff and patient travel however, if the situation were completely reversed (and staff travelled from their base to the patient's home) there would be an average staff saving of approximately 14 miles per call, equating to 25 minutes or £9.48 in salaried time. Although caution must be exercised when these figures are extrapolated to an organisational level, almost 1million miles of staff travel could be saved annually. This would take approximately 27,820 hrs of staff time, equating to £637,254 or around 16.5 w.t.e. staff.

Finally, regardless of whether staff travel to patients, or vice versa, video consultations could yield a reduction in carbon emissions. Although this represents a less dramatic financial saving, it remains noteworthy in that, the calls made during the 6 week data collection period to patients with identifiable postcodes saved 3.3 tonnes of carbon emissions from staff cars. Again, with all the previous caveats, at an annual, organisational level this could be a CO₂e reduction of 265.5 tonnes or approximately 21.5% of the trust's travel-related emissions.

Conclusion

The aims of this service evaluation were to identify the benefits, barriers, and any negative consequences of video consultations in one large mental health and disability trust. The timing of implementation spanned the start of the Covid-19 pandemic, meaning lockdown and social distancing restrictions created challenges but also opportunities which have inevitably influenced some findings. However, during this period, video consultations provided a continuity of care that was almost universally seen as superior to telephone calls.

In general, the patients that accepted the offer of video consultations were highly satisfied but they were, to some degree, self-selecting and hence potentially more comfortable with the technology than some. Their satisfaction was primarily driven by the software's ease of use and how candid they felt they could be with staff online (in comparison to in person).

Staff were, in general, less satisfied than their patients and their opinions were far more diverse. Their concerns centred around the limitations that video calls placed on non-verbal and para-verbal communication and the detrimental effect they feared/perceived to their therapeutic relationships. Therefore, in addition to the factors valued by patients, their satisfaction was also affected by audio and video quality.

From an organisational perspective, video consultations have the potential to yield significant time, financial and environmental benefits however, the naturalistic nature of this project made precise figures impossible to calculate.

Covid-19 left staff with little/no choice but to put their clinical concerns to one side and engage with the technology. But, post-pandemic, their level of engagement is unlikely to remain at current levels unless their pre-conceptions and residual concerns are addressed. Even if these concerns are successfully resolved, video consultations should not be viewed as a panacea; instead they should be viewed as a viable and valuable tool to be used in the right circumstances with the right patients.

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