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An evaluation of the use of video consulting amongst Allied Health Professionals.

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Abstract

Objectives: Allied Health Professionals (AHP) consist of thirteen different specialty roles in Wales, sharing the responsibility of promoting and supporting the health and wellbeing of the population. During the COVID-19 pandemic, there was a shift in care provision, with the increased use of online consultations, such as those using video consultation platforms. However, this shift was associated with uncertainty and hesitancy, and thus to understand the usage and reasons for using video consultations, this study aimed to capture the experiences of both AHP and their patients, while investigating each role individually.
Participants: A survey was distributed to and completed by n = 8928 patients and n = 4976 clinicians, all AHP were included except for orthoptists and paramedics due to ambiguities in the data. A further 86 clinicians participated in phone interviews.
Results: All professions had a high prevention of face-to-face with the use of video consultations (68% overall and 81.4% of clinicians reported the prevention). However, this was lower for certain professions such as podiatrists, potentially due to the specific patient needs, such as physical assessments. Also, a range of different appointment types were being conducted, and there was a high acceptance of these alternative methods amongst participants. The interviews with clinicians revealed five important aspects of video consultations: the perceived benefits, the perceived challenges, technology issues & necessary improvements, clinician preference, and the future of video consulting. Specifically, the future of video consulting evidenced clinicians' desire for a blended approach to working, selecting the appropriate modality depending on the situation and patient-specific needs.
Conclusions: Integrating the traditional methods of service delivery (face-to-face), and novel, innovative ways, such as video consultations, can motivate positive transformations for the efficiency and efficacy of health and social care.

Strengths and Limitations of This Study

- This study is first to explore the use of video consultations amongst Allied Health Professionals and their patients in Wales.
- A large sample of participants was collected across health and social care services in Wales.
- Both patients and clinicians are considered in the current study, providing a greater understanding of the use of video consulting.
- The study does not consider the perceptions of those not using video consulting, and the experience of only one video consulting platform was explored.
- The perspective of smaller groups of professionals could not be fully investigated.

The COVID-19 pandemic impacted health and social care provision in numerous ways. For instance, the restrictions imposed by the Government resulted in alternative methods of providing consultations between clinician and patient, with a shift from face-to-face to remote, using new innovations such as video consulting. Prior to the pandemic, the use of video consultations (VC) was low, and some professionals held an overall scepticism of its use for healthcare purposes [1]. However, this unexpected shift left no choice.

One set of professions, amongst many, who were impacted were Allied Health Professionals (AHP). In Wales, the AHP are thirteen individual professions: Art Therapists, Music Therapists, Drama Therapists, Dietitians, Occupational Therapists, Orthoptists, Orthotists, Paramedics, Physiotherapists, Podiatrists, Psychologists, Prosthetists and Speech and Language Therapists. AHP deliver strong, practical, solution-focused, and life-affirming outcomes through a unique range of biological, psychological, and social interventions that are particularly valuable in responding effectively to the complex, multi-dimensional needs of the population [2]. They promote health and wellbeing and are "…*allied by their belief in the importance of enabling citizens to live the lives they want to live*." (Welsh Government [2]; p. 3).

Due to the importance in the roles of each AHP in providing assessments, treatments, and diagnoses to new and existing patients, the continuation of services was essential in order to prevent hospital admissions, reduce patient reliance on long-term care, and encourage independence for as long as possible. However, the rapid implementation of virtual healthcare consultations and diversity of roles of each professional introduced a different "new normal" for each, in which patients and clinicians alike had to adjust to rather quickly [3,4,5], creating mixed opinions at first. (For definitional purposes throughout, the term "clinician" refers to AHP providing care in the NHS and social care, and the term "patient" refers to all those receiving care from these professionals).

In general, a review conducted by Nanda and Sharma [6] observed high satisfaction with virtual methods amongst patients, with reports that VC provide the same satisfaction as face-to-face appointments. An evaluation report by Johns et al. [7] also details that on most occasions, patients would use virtual consultations in the future for appointments involving their health. This suggests that patients are supportive of digital alternatives for their healthcare appointments, although the literature does suggest limits to this acceptance, such as when appointments require more physical-based assessments or if an individual lacks confidence in using technology [6,8,9].

More specifically, patients of AHP also share these benefits and challenges. For example, Bullock et al. [10] found a 513% increase in virtual consultations in the physiotherapy outpatient department of one hospital in the UK, and the majority of these patients preferred a combination of both virtual and face-to-face appointments, with a mean financial saving of £10.40 per patient and time saving of 1.7 hours. However, Gilbert et al. [3] found that physiotherapy and orthopaedic patients that lacked the equipment or space, or felt their condition was more complicated, believed face-to-face to be superior. On the other hand, participants reported that face-to-face was more anxiety-provoking, for example, due to travel, and these individuals would feel less inclined to travel and attend face-to-face appointments as they were less convenient, especially daily demands impact attendance (e.g., work). For psychology patients, 41.2% were pleased with changes to service delivery during the pandemic, with only 2% reporting they were unhappy with the switch, regardless of varying levels of awareness surrounding the use of technology [11].

Clinicians, on the other hand, may present with a higher level of hesitancy towards utilising technology for healthcare provision [12] and for multifaceted reasons, including those related to the clinician, service, and patient (e.g., James and colleagues [13]). AHP's roles are focused on when supporting, maintaining, promoting, and encouraging the health

and wellbeing of individuals within society, and VC may not be suitable for all aspects of this work. However, this unsuitability may differ between the professionals. Witte et al. [14] conducted a study including 1848 psychologists across Europe to investigate barriers to using online consultations, based on a model that states technology usage is dictated by the intention to use such and assistance received (Unified Theory of Acceptance and Use of Technology; Venkatesh, et al. [15]). Only 11% of this sample had received training to use this technology, and 17% reported at least one relational concern of the appointment, such as a lack of eye contact or negative impacts on therapeutic relationship development. A further 10% were concerned with restrictions on observing non-verbal behaviour and emotions. Disliking online consultations was a common reason for not using them.

In addition, physiotherapists may be concerned with the costs associated with increased remote sessions, as although they can facilitate flexible group sessions, not all patients are able to access these regularly, perhaps due to the availability of technology [16]. These authors also highlight the concern that remote physiotherapy sessions encourage isolation amongst staff members, impacting on the service as a whole. Some physiotherapists also believe that VC do not have the capability of conducting physical assessments, posing implications on diagnoses and treatments of patients' conditions [3]. Similarly, dietitians are unable to conduct certain assessments of their patients remotely, especially when video is not available [17]. Furthermore, a small number of speech and language therapists (SLT) report not having access to digital technologies to conduct virtual consultations, and patients have difficulty accessing online services due to, for example, availability of technology, their health and well-being needs, and the inappropriateness of teletherapy [18].

Despite the above challenges and apparent hesitancy, the literature also describes perceived benefits of using alternative methods to face-to-face. For telerehabilitation, the benefits extend to increased flexibility, accessibility, and cost effectiveness [16]. Within

dietetics, one important aspect is being able to see patients' home environments, as well as what type of food they keep, and VC allow the professional to see within the cupboards of their patients without the need to travel far distances [17] a high proportion of dietitians (43.9%) find VC to be comparable to face-to-face [19]. These findings may also extend to other professionals, such as occupational therapists, as these clinicians are concerned with preventing unnecessary hospital admissions and enabling individuals to remain independent for as long as possible, and thus having access to home environments (without the need for travel) could save time and provide similar outcomes to face-to-face.

Thus, due to the multifaceted roles of AHP within the NHS and social care, there does not seem to be a clear view on if online, video, or remote consultations work well for each AHP, and the impact that this would have on a large body of professionals moving forward beyond the pandemic. Also, there is limited literature that focuses on each AHP, as it tends to focus on individual professions, such as physiotherapists or psychologists. In one way, integrating VC into the functioning of services would increase flexibility and convenience for both patients and clinicians, and potentially minimise the case or workloads of professionals, due to, for example, reduced need for travel or time saved in clinic [11]. However, these methods do not seem to be suitable for all situations, and thus a "one size fits all" approach cannot be applied. The aim of this study was to therefore explore the experiences of AHP and patients receiving care using VC from AHP across Wales during the COVID-19 pandemic. This was to gain an in-depth and clear understanding of how and why VC were being used amongst each profession and overall, using these insights to guide independent, person-centred care provision moving forward.

Methods

Recruitment, Survey, and Interviews

Survey:

As part of the evaluation of one type of NHS approved video consultation service, a survey was designed and administered at the end of each consultation to all users of the platform. One survey was provided to clinicians and one to patients. These two surveys had both common and unique questions attached that asked users about their experiences with VC for their appointment. All participants provided the profession and specialty from which they had received care from (patients), or that they belonged to (clinicians). A series of 27 professions and 65 specialties were given to choose from, with the option for participants to state "Other" and specify a different choice in a free-text box. These additional responses were analysed and placed into their corresponding profession/specialty categories, if applicable. Clinicians who stated they were and patients receiving care from all AHP between March 2020 and August 2021 were extracted. However, orthoptists and paramedics were excluded due to small sample sizes and ambiguities in the data (such as patients reporting health-related conditions unrelated to these professions). Orthotists and prosthetists were classified under one category, thus were considered together, as well as podiatrists and chiropodists. This resulted in a total sample of N = 13902 (patients n = 8928, clinicians n = 4974). The numbers of each AHP are presented in Table 1.

Table 1. The number of participants that completed the surveys (patients and clinicians) and the interviews (clinician only).

Allied Healthcare Professional	Number of Participants (Survey Data)		Number of Participants (Interviews)
	Patient	Clinician	Clinician Only
Art Therapist	13	24	0
Dietitian	725	223	9

Drama Therapist	5	1	0
Music Therapist	7	5	0
Occupational Therapist	596	503	9
Orthotist & Prosthetist	22	15	0
Physiotherapist	5061	1103	22
Podiatrist & Chiropodist	384	166	0
Psychologist	879	526	15
Speech and Language Therapist	1236	2408	29

Questions explored and analysed referred to participants' ratings of the video consultation quality, the type of health-related activity conducted, the prevention of face-to-face, patients' future use of the technology, as well as whose choice it was to use it. Participants were firstly asked to rate the quality of their video consultation, on a scale of 1 (Poor) to 5 (Excellent). They were then asked to state the type of health-related activity that was conducted virtually, with the response options "Advice & support", "First appointment", "Follow-up", "Discharge/Final Appointment", "Therapy session", "Review", "Feedback/outcomes", or "Other" (with the option to specify). Furthermore, respondents were asked if they believed that the use of VC prevented the need for a face-to-face appointment, they selected "Yes", "No", or "Unknown" in response to this. Patients were additionally asked if they would consider using VC again for healthcare appointments, once again responding according to the following options: "Yes", "No", or "Maybe". Finally, patients were asked to state who made the choice to use VC, they chose from: "Given the choice and opted to use it", "Informed by service", "VC was the only option", or "Unknown". All questions were voluntary, leading to varying numbers of responses per question.

Interviews:

During the period of November 2020 and February 2021, a total of 203 phone interviews were conducted with clinicians from a variety of different backgrounds providing care to patients. All clinicians had one-year prior experience with one type of NHS approved VC service (Attend Anywhere). The aim of these interviews was to gain an idea of the benefits, challenges, and sustainability of VC from a professional and service perspective. Professionals registered their interest in participating by providing an email address at the end of the survey detailed above. These were contacted via email and the process was explained, clinicians responded if they remained interested, and the researcher organised a suitable time and date for the interview. Three trained research assistants conducted the interviews using a semi-structured interview schedule, which asked questions, such as "*How do you feel about video consultations*?" and "*What do you use video consultations for in your* line of work?". Other questions included participants' future use of VC in the long-term, how much they were using VC, and the benefits and/or challenges associated with its use. Full verbal consent was provided by all participants at the beginning of the interview. There were N = 86 (42%) interviews with AHP (Table 1). For full analysis, see Johns, Whistance, et al. [20].

Full consent was obtained from all participants. Service evaluation approval and risk assessments for all evaluations conducted was obtained from Aneurin Bevan University Health Board Research & Development Department (Reference Number: SA/1114/20).

Patient and Public Involvement: Patients and/or public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Analysis

The responses to the survey questions will be summarised in terms of percentages and frequencies per AHP and overall. No statistical tests were conducted due to the nature of the data and the varying group sizes, and thus minimal interpretation of the results will be given.

Interviews were conducted, recorded, and transcribed verbatim. Transcriptions were firstly coded by a team of research assistants, and then codes were arranged according to the themes and subthemes, if appropriate. For the purpose of this research, all participants who were AHP were extracted, and secondary analysis of the data was conducted. An overview of the themes will be given.

Results

Type of appointments conducted using VC

As shown in Table 2, the type of appointments that were conducted using VC seemed to vary across the different AHP. Firstly, dietitians, podiatrists/chiropodists, and orthotists/prosthetists were mostly conducting first appointments. However, SLT, physiotherapists, occupational therapists, psychologists, art therapists, and drama therapists were using VC for therapy/treatment sessions. Follow-ups were also commonly reported by SLT, and first appointments for physiotherapists and dietitians. Dietitians stated they saw a higher proportion of patients for advice appointments compared with the remaining professionals.

Prevention of face-to-face

Overall, 68.6% of respondents (N = 13647) reported that VC had prevented the need to attend a face-to-face appointment. Specifically, 81.4% of clinicians stated face-to-face was prevented, compared with only 61.7% of patients. Figures 1-3 show the proportion of face-to-face prevention for each AHP, and for clinicians and patients separately. The findings were similar for the different professionals, except for physiotherapists, where respondents (particularly patients) believed face-to-face was not sufficiently avoided. Also, podiatrists/chiropodists, as well as their patients, had the lowest face-to-face prevention within the entire sample, and this was agreed between clinicians (48.8% prevented face-to-face) and patients (49.6%).

Video quality ratings

The VC platform was given a rating of 5 (Excellent) by 42.8% of respondents. Patients were more positive in their experience than clinicians, with 55.9% rating 5, and only

6.1% rating a 1 (Poor) or 2 (Okay). This is compared with clinicians, where 19.2% of respondents rated 5, and 31.8% rated it a 1 or 2. This trend can be seen across all individual AHP (Table 3). However, the most positive ratings were provided by Music Therapists, 58% of respondents rated the quality Excellent, although there were only 12 responses. Physiotherapists, dietitians, and orthotists/prosthetists were also positive, with over 50% of respondents also rating the quality as Excellent. On the other hand, SLT, especially SLT clinicians were most negative (12.4% rated 5, 36.7% rated 1 or 2).

Table 2. The percentage of appointment types being conducted using VC for each AHP.

	Dietitian	SLT	Physiotherapist	Occupational Therapist	Psychologist	Podiatrist & Chiropodist	AT Therapist	Music Therapist	Drama Therapist	Orthotist & Prosthetist
Advice	22.9	6.4	6.8	10.1	4.9	7.4	8	8.3	0.00	5.6
Feedback/Outcomes	0	0.3	0	0.3	0.2	0	[illegible]	8.3	0.00	0
Final Appointment	1.6	0.1	2.8	2.5	1.4	1.1	[illegible]	8.3	0.00	0
First Appointment	30.7	10.6	31.5	23.2	18.9	61.6	6	8.3	0.00	44.4
Follow-up	28.2	30.7	7.3	13.7	6.8	6.1	[illegible]	0	0.00	13.9
Other	8.2	2.3	0.2	2.9	1.3	0	18.9	0	0.00	0
Review	7.3	14	12.1	9.9	10.5	20.7	27	33.3	40	25
Therapy/Treatment	1.1	35.6	39.2	37.3	55.8	3.1	40.5	33.3	60	11.1
Total Responses	931	2391	6107	1085	1387	541	37	12	5	36

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

	Dietitian	SLT	Physiotherapist	Occupational Therapist	Psychologist	Podiatrist & Chiropodist	Art Therapist	Music Therapist	Orthotist & Prosthetist
Total Sample									
Excellent	50.7	26.3	51.8	41.7	41.9	44.[illegible]	8.1	58.3	51.4
Very Good	24.2	26.0	29.0	28.6	25.3	27.[illegible]	37.8	0.0	29.7
Good	13.7	21.0	10.4	13.2	16.7	11.[illegible]	40.5	33.3	16.2
Okay	7.2	16.1	4.9	8.8	9.3	6.[illegible]	8.1	8.3	2.7
Poor	4.2	10.6	3.9	7.7	6.7	10.[illegible]	5.4	0.0	0.0
Total Responses	934	3606	6079	1079	1393	54[illegible]	37	12	37
Clinician									
Excellent	34.9	12.4	23.1	23.7	28.7	27.[illegible]	4.2	40.0	53.3
Very Good	19.7	24.4	31.4	31.0	21.5	18.[illegible]	29.2	0.0	26.7
Good	19.3	26.5	19.5	17.6	22.0	16.[illegible]	50.0	60.0	20.0

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to clinicians.

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to patients.

Okay	15.6	22.1	14.2	14.0	14.6	18.0	12.5	0.0	0.0
Poor	10.6	14.6	11.8	13.8	13.2	18.0	4.2	0.0	0.0
Total Responses	218	2384	1094	494	522	16	24	5	15
Patient									
Excellent	55.6	53.4	58.1	56.9	49.7	51.	15.4	71.4	50.0
Very Good	25.6	29.1	28.4	26.7	27.2	31.	53.8	14.3	31.8
Good	12.0	10.4	8.4	9.4	13.5	9.	23.1	14.3	13.6
Okay	4.6	4.3	2.9	4.4	6.2	1.	0.0	0.0	4.5
Poor	2.2	2.7	2.2	2.6	2.9	6.	7.7	0.0	0.0
Total Responses	716	1222	4985	585	871	37	13	7	22

Table 3. The percentage of responses for the quality ratings given to VC, on a scale of 1 (Poor) to 5 (Excellent), for each AHP.

Choosing to use video consulting

Patients were asked who had made the choice to use VC for their healthcare appointment. The majority (63.7%; N = 8877) were informed by the service that their appointment would be held online or stated that it was the only option provided (14.2%), only a smaller proportion were given the choice to use it and had opted (20.8%). Small differences seemed to emerge between the AHP. Almost half of patients (42.6%; N = 587) receiving care from occupational therapists were given the choice to use VC. SLT patients were least likely to report they were given the choice (12.3%; N = 1225). The majority of patients in the remaining AHP categories once again stated that they were informed by their service (range of 46.2% to 90.9%).

Future use of video consulting

90.7% of patients (N = 7081) stated they would use VC for future healthcare appointments. Only 52 (0.7%) would not, and the remaining 8.6% responded that they would "Maybe" consider using it again. Displayed in Figure 4, podiatrist/chiropodist patients least commonly reported that they would use VC again (81.3%). Also, only 50% of art therapy patients responded that they would use again, although there were only 12 respondents in this category.

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again

Interview Analysis: AHP's experience of VC:

Secondary analysis was conducted on pre-existing interview data with AHP, full analysis and an extensive overview of the data can be found in Johns, Whistance et al. [20]. These interviews were conducted with clinicians only. Five important aspects of using VC were revealed, these were the benefits of VC, the challenges, technology issues & necessary improvements, the preference to use VC, and the future of VC. In total, there was 758 comments made regarding the above themes across respondents.

To begin, professionals, during their interviews, referred to the advantages of using VC for appointments with patients. These include the benefits of enhanced communication, flexibility, reduced travel, accessing patients' home environments, and increased family involvement. For example, one Occupational Therapist stated it was an *"...absolute added bonus because it's so portable, so accessible, it can fit around the patient.*" Additionally, a Physiotherapist team leader reported the enhanced flexibility for staffing and working from home: *"As a leader in a team for my staff, I think it has allowed us to be more flexible for staffing for things like working from home."* Therefore, the benefits apply to both the patient and clinician. Travel was a common topic across all AHP, including the time saved for those required to travel to patients (e.g., Psychologist: "*Given I work 70 miles away from where I live, it's a big thing*") and patients traveling for their appointments (e.g., Physiotherapist: "*Probably more convenient for the patient not having to travel because they'd have to take a few hours out of work or whatever so they can probably just take an hour now*").

However, although there are positive perceptions of VC, it is also important to consider the challenges, which were prominent and sometimes detrimental to appointments. Clinicians, especially Physiotherapists, expressed the need for physical presence of a patient for examinations, with these being less accurate through a screen: "*50% of the time it's physiotherapy related issues where you can't do a competent assessment really*" and "*Main*

issue is whether they have it to use it, sometimes a lot of the assessments require face-to-face things where you test the joints and sometimes you need to actually put your hands on and so it's limited because it doesn't give us that option over video". Other negatives include a lack of engagement (e.g., children during SLT assessments: "*For a lot of our children, being on the other side of the screen, you don't really get them and they're not that interested*"), access to social cues, as well as the chance of missing certain unobservable information. For example, "*Quite often, you need to see that visual information to be confident in the information you are getting from a person, and you really miss out on that when the visual aspect of VC is sub-optimal*" (Psychologist), "*Video feels less personal, it's difficult to strike up a rapport*" (Occupational Therapist), and "*The body language is obviously delayed*" (Dietitian). Also, staff wellbeing was highlighted as important, in that clinicians felt like workload and feelings of isolation had increased during the pandemic, perhaps not directly because of VC, but exacerbated by its use. For example, a SLT stated: "*I don't get a lot of choice people put things in my diary about meetings and things, so I don't get a choice of how much I do*." However, there were reports of fatigue and physical strain caused by using a computer, "*Everything I know about doing work with patients, I've had to adapt, and I am just exhausted. I do find myself having more headaches and neck pain even though I've tried the hardest to get the right posture and position*" (SLT).

Technology issues were also common amongst professionals, such as video delays, audio and visual issues, and a lack of internet connection sufficient to support VC ("*When I use it on a laptop that's connected to the WiFi, it's not been really problematic in terms of the signal*", Psychologist). This caused disruptions to patient-clinician contact, and limited conversation and assessments: "*When I'm explaining something complicated to a patient, the last thing you want is for them to miss what you say because it's frozen*" (Dietitian). These issues sparked insight into the improvements necessary to make VC more successful,

including continued training sessions ("*A drop-in session would be good to ask the questions I have when they come up*", Physiotherapist) and access to appropriate equipment at the location of the consultation ("*Even when we are in the office, we can't always use it. Not only because we don't have the internet, but also because we don't have the equipment*" Psychologist). Also, raising awareness of its use amongst patients, as well as other services that work with these patients would be beneficial ("*The big thing is getting that awareness out there from others other than medics*", Physiotherapist; "*Perhaps if anything more idea sharing across Wales or the UK in how people are doing it, and ways people are doing it*", SLT).

Clinicians held opinions of their modality preference when conducting healthcare appointments. In particular, most stated their choice to use VC over the telephone, due to the added visual element and other functions such as screen sharing: "[*the appointment] would have been really difficult to do that just with telephone calls, being able to share the screen and use resources has added a lot to that*" (SLT). However, there were also comments about using phone instead, and patient uptake of using the telephone for their appointments. As an example, one Psychologist stated that some patients find video calls anxiety-provoking and would rather use a phone call, and one Occupational Therapist described the usefulness and ease of phone calls for catchups with patients.

Finally, when asked about the future use of VC beyond the restrictions imposed due to the pandemic, a blended approach to appointments was frequently reported, in that clinicians would prefer a mix of face-to-face, VC, and telephone calls where they are deemed appropriate. For example, "*There would be certain patients I would be more than happy to review over video and some patients I wouldn't even contemplate seeing over video and would have to see face-to-face*" (SLT) and "*I would love to keep using [video consulting]. There's always going to be a time for face-to-face in clinics, but I think together they would*

work really well. Your first couple of appointments face-to-face and then follow-ups on VC would be amazing" (Occupational Therapist). Positively, there was only comment about not adopting VC as a tool in the future, "*The majority of the team feel the same, we were a lot more keen for it when it was first implemented it was a big change, singing its praises but now we're getting fed up and want to be back face-to-face*" (Physiotherapist).

Discussion

This investigation aimed to capture an understanding of the use of video consultations (VC) and digital alternatives to face-to-face amongst Allied Health Professionals (AHP) in Wales (United Kingdom). The findings revealed an overall perspective of AHP, as well as moderate differences between the professions. Firstly, from the responses on the survey, a range of different appointments were being conducted using VC, including first appointments, therapy/treatment sessions, follow-ups, and for advice/support. There was a high prevention of face-to-face (traditional appointments), although patients were less likely to report this prevention, possibly due to confusion in definitions. For instance, patients may have thought that seeing their clinician over a screen constituted face-to-face. The VC platform was rated positively (especially by patients), and a very high percentage of patients stated they would use or consider using VC again in the future for health matters.

Of interest, dietitians, podiatrists/chiropodists, and orthotists/prosthetists reported using VC most for first appointments, compared with therapy/treatment sessions for other professionals (e.g., psychologists, occupational therapists, SLT, physiotherapists). Perhaps this represents an inter-professional differentiation in the use of VC for specific tasks and patient-facing sessions based on the specific needs clinicians provide for. This does not particularly suggest an inappropriateness of VC for certain sessions (e.g., to initially build

rapport [21]) although it is important to consider VC may introduce these issues for some professionals.

Additionally, there was a similar perception of face-to-face prevention across the professionals, except for podiatrists/chiropodists, where this was low and agreed amongst clinicians and patients (below 50%). Tollafield [22] argues that podiatry consultations are best conducted in the patients' home and expresses concerns with the shift from face-to-face to telemedicine. Pang et al. [23] found, however, that patients contacted via telephone or telehealth did not experience increased hospitalisation rates, suggesting they were sufficient methods in preventing such. Regardless, patients believed they should attend in-person clinics for foot-related issues, such as ulcers, and preferred this modality [23]. This is also supported by the current findings in that podiatry/chiropody patients gave the lowest responses for wanting to use VC again in the future (although this was still high, 81.3%).

Interestingly, when considering choices, SLT patients were least likely to have been given the choice to use VC. This compares with professions like occupational therapy, where almost half of patients were provided the choice. Giving the choice to patients, where appropriate, may be beneficial in terms of convenience, flexibility, and encouraging control over their own health and care. For instance, limiting time needed to take off work, reducing stress, and eliminating the need for travel [24]. A report by Samuels et al. [25] found that common reasons for not attending healthcare appointments include transportation problems and being unable to take time off work, therefore giving patients the choice could aid in increasing appointment attendance. This proves beneficial to the patient, clinician, and service as a whole.

Secondly, further exploration of narrative interviews with AHP revealed five important factors of VC. Clinicians accept there are benefits of using digital alternatives, such as enhancing communication, reducing the need for travel [17], and increasing involvement.

However, it is also important to highlight the disadvantages, including a lack of patient engagement, missing unobservable information (which aids assessment) [14], as well as negative impacts on staff wellbeing and workloads. Technology also created a barrier [16] and respondents gave recommendations on how this could be improved moving into the future. However, it seemed that VC was preferred over other methods that lacked a visual element, such as telephone calls. Beyond restrictions imposed due to COVID-19, a blended approach was suggested as best, whereby clinicians (with patients considered) can choose, where appropriate, to use face-to-face, VC, and telephone.

Limitations

It is important to consider the current limitations. The survey was distributed to all patients and clinicians completing a VC using one NHS approved platform, and clinicians were interviewed after highlighting their interest on this survey, suggesting they were users of VC. Thus, the responses here do not consider those using other software or not using digital methods for healthcare appointments. It would be interesting to capture the perceptions of those not using VC and explore any reasoning for this lack of use and comparing this to users, especially emerging from the pandemic. Also, the data was collected between March 2020 and August 2021, with the lift of restrictions in healthcare settings in 2022, this may be an outdated perspective.

Furthermore, there were more AHP belonging to certain professions than others. For example, there was a total of 6164 physiotherapists and physiotherapy patients in the survey, and 22 clinician interviews. This compares with only 6 drama therapists. It is possible that physiotherapy appointments are more common within the NHS and social care than drama therapy, or that these professionals were prioritised in the uptake of VC, explaining the discrepancy. Nevertheless, the perspective of the smaller groups is dampened. Future

research should aim to target these smaller professionals to capture opinions and their use of VC to further aid in understanding, especially as the healthcare system evolves and develops as a result of the pandemic.

Conclusion

To conclude, VC seems to be appropriate for a range of different appointment types and activities for AHP. There was a high face-to-face prevention, and high quality ratings were given for the VC platform. Also, patients were keen to utilise digital alternatives in the future. In addition, qualitative responses revealed benefits and challenges, technological limitations, necessary improvements, clinicians' preference, as well as the need for a blended approach to healthcare consultations moving forward. This means that, at the clinician's discretion and with the needs of the patient considered, face-to-face, telephone, and VC can be used to create a model of efficiency within NHS services. Moving to the future, and post-pandemic, organisations are keen to encourage the uptake of VC for health and social care purposes. Technology Enabled Care (TEC) Cymru create detailed toolkits and infographics to aid in its use, as well as produce informative videos and host workshops (TEC Cymru, accessible from https://digitalhealth.wales/tec-cymru). By providing help and support, the experience of VC may be improved significantly. The pandemic temporarily changed many aspects of health and social care, with the rapid implementation of new and innovative ways of care continuation. Emerging from the pandemic and considering the adverse effects and outcomes over the last few years, these temporary changes can motivate positive and permanent transformations of the way professionals work and function in their roles, within AHP and multi-professionally, optimising resource utilisation, while meeting the needs of the population.

Contributions: GJ and AA contributed to the main design of the study and development of the research questions. JW contributed to the main structure and write-up of the paper, and final amendments to the manuscript. JW and GJ analysed the data with the supervision of AA, SK, and MO. All authors discussed and interpreted the data once analysed and helped structure the manuscript. AA, SK, KP, and MO contributed to the clinical understanding of the findings and shaped the discussion, conclusions, and recommendations. AA was responsible for overseeing the full development of the study design and data collection, the analysis and development and final sign-off of manuscript from a clinical and programme perspective. All authors contributed to proofreading and amendments of the final manuscript.

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Ethics Approval: This study involves human participants and TEC Cymru obtained full ethical approvals and risk assessments from their host Aneurin Bevan University Health Board Research and Development Department (reference number: SA/1114/20), and then national approval was obtained from all other health boards in Wales. Full informed consent was obtained from all participants. At the end of each feedback link, a statement of consent and a compulsory tick box was required prior to feedback submission. Participants that took part in interviews provided verbal consent.

Data sharing statement: Data are available upon reasonable request.

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Figure Legend:

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to clinicians.

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to patients.

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again.

Word Count (excluding abstract, strengths and limitations): 6111

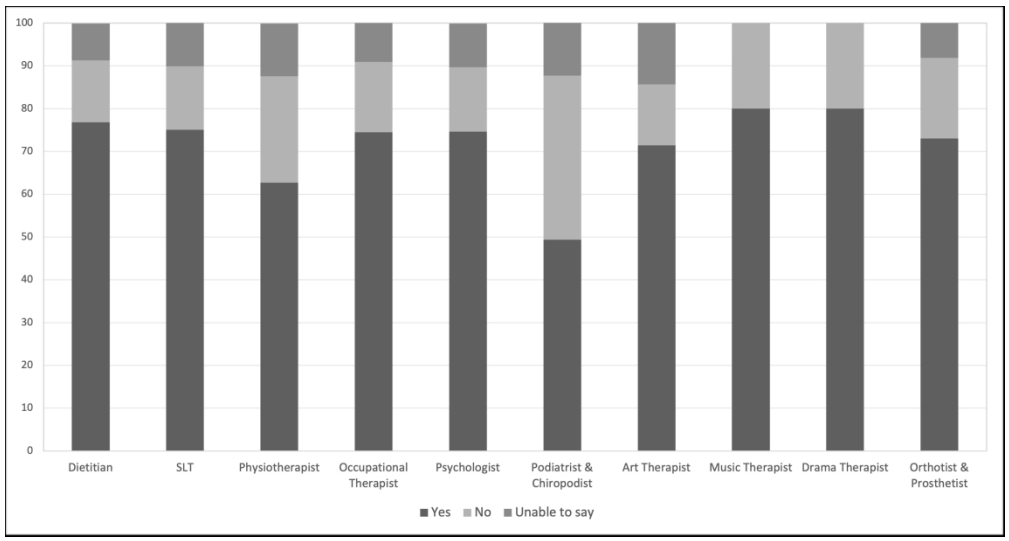

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

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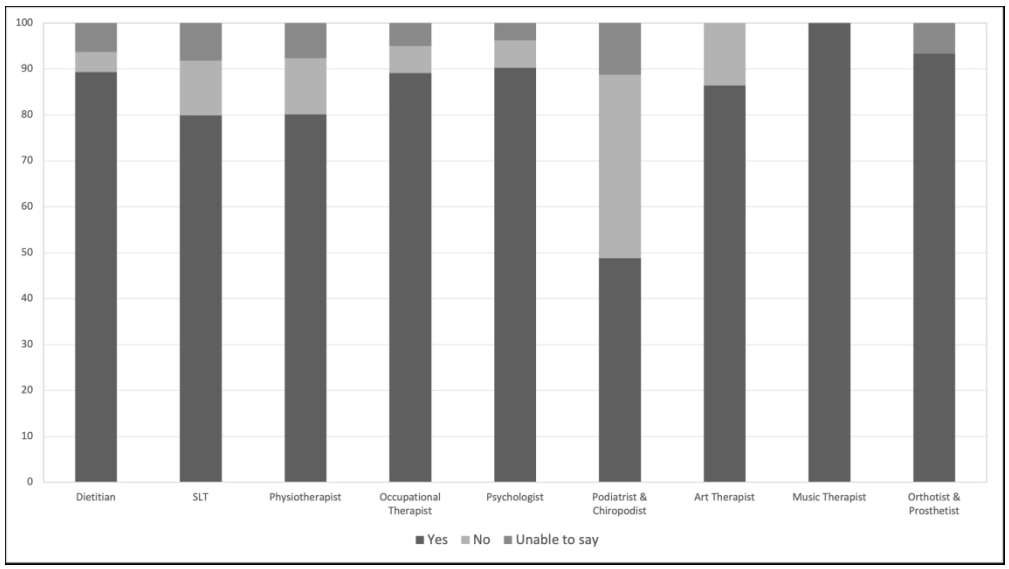

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to clinicians.

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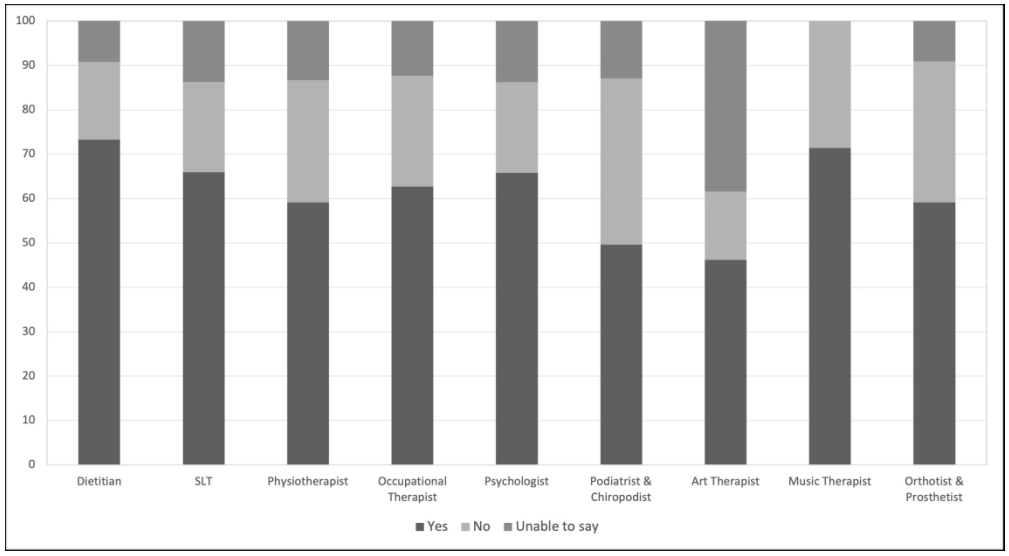

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to patients.

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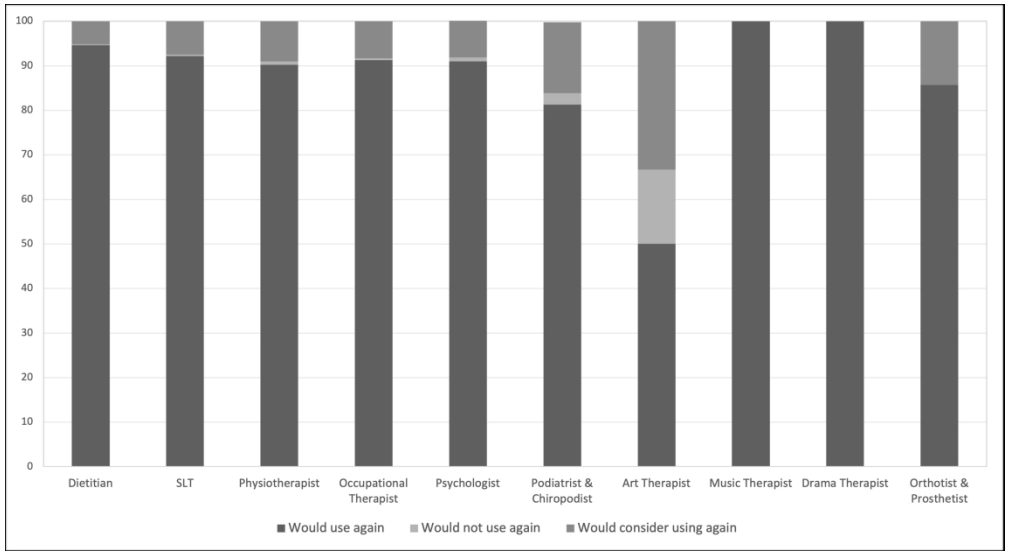

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again.

247x135mm (300 x 300 DPI)

Reporting checklist for cross sectional study.

Based on the STROBE cross sectional guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

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		Reporting Item	Page Number
Title and abstract			
Title	#1a	Indicate the study's design with a commonly used term in the title or the abstract	1
Abstract	#1b	Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background / rationale	#2	Explain the scientific background and rationale for the investigation being reported	3-6
Objectives	#3	State specific objectives, including any prespecified hypotheses	6-7
Methods			
Study design	#4	Present key elements of study design early in the paper	7
Setting	#5	Describe the setting, locations, and relevant dates, including periods	7

		of recruitment, exposure, follow-up, and data collection	
Eligibility criteria	#6a	Give the eligibility criteria, and the sources and methods of selection of participants.	7
	#7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	8-9
Data sources / measurement	#8	For each variable of interest give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group. Give information separately for for exposed and unexposed groups if applicable.	8-9
Bias	#9	Describe any efforts to address potential sources of bias	
Study size	#10	Explain how the study size was arrived at	7-8
Quantitative variables	#11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	10
Statistical methods	#12a	Describe all statistical methods, including those used to control for confounding	10
Statistical methods	#12b	Describe any methods used to examine subgroups and interactions	10
Statistical methods	#12c	Explain how missing data were addressed	9
Statistical methods	#12d	If applicable, describe analytical methods taking account of sampling strategy	
Statistical methods	#12e	Describe any sensitivity analyses	
Results			
Participants	#13a	Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed. Give information separately for for exposed and unexposed groups if applicable.	Throughout
Participants	#13b	Give reasons for non-participation at each stage	9

Participants	#13c	Consider use of a flow diagram	
Descriptive data	#14a	Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders. Give information separately for exposed and unexposed groups if applicable.	
Descriptive data	#14b	Indicate number of participants with missing data for each variable of interest	Throughout
Outcome data	#15	Report numbers of outcome events or summary measures. Give information separately for exposed and unexposed groups if applicable.	
Main results	#16a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
Main results	#16b	Report category boundaries when continuous variables were categorized	Throughout
Main results	#16c	If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	#17	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key results	#18	Summarise key results with reference to study objectives	23
Limitations	#19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	25
Interpretation	#20	Give a cautious overall interpretation considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.	26
Generalisability	#21	Discuss the generalisability (external validity) of the study results	25-26
Other Information			

Funding	#22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	30

BMJ Open

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A survey and interview evaluation of the use of video consulting amongst Allied Health Professionals during the COVID-19 pandemic.

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Abstract

Objectives: Allied Health Professionals (AHP) consist of thirteen different specialty roles in Wales, sharing the responsibility of promoting and supporting the health and wellbeing of the population. During the COVID-19 pandemic, there was a shift in care provision, with the increased use of online consultations, such as those using video consultation platforms. However, this shift was associated with uncertainty and hesitancy, and thus to understand the usage and reasons for using video consultations, this study aimed to capture the experiences of both AHP and their patients, while investigating each role individually.
Participants: A survey was distributed to and completed by n = 8928 patients and n = 4976 clinicians, all AHP were included except for orthoptists and paramedics due to ambiguities in the data. A further 86 clinicians participated in phone interviews.
Results: All professions had a high prevention of face-to-face with the use of video consultations (68% overall and 81.4% of clinicians reported the prevention). However, this was lower for certain professions such as podiatrists, potentially due to the specific patient needs, such as physical assessments. Also, a range of different appointment types were being conducted, and there was a high acceptance of these alternative methods amongst participants. The interviews with clinicians revealed five important aspects of video consultations: the perceived benefits, the perceived challenges, technology issues & necessary improvements, clinician preference, and the future of video consulting. Specifically, the future of video consulting evidenced clinicians' desire for a blended approach to working, selecting the appropriate modality depending on the situation and patient-specific needs.
Conclusions: Integrating the traditional methods of service delivery (face-to-face), and novel, innovative ways, such as video consultations, can motivate positive transformations for the efficiency and efficacy of health and social care.

Strengths and Limitations of This Study

- This study is first to explore the use of video consultations amongst Allied Health Professionals and their patients in Wales.
- A large sample of participants was collected across health and social care services in Wales.
- Both patients and clinicians are considered in the current study, providing a greater understanding of the use of video consulting.
- The study does not consider the perceptions of those not using video consulting, and the experience of only one video consulting platform was explored.
- The perspective of smaller groups of professionals could not be fully investigated.

Introduction

The COVID-19 pandemic impacted health and social care provision in numerous ways. For instance, the restrictions imposed by the Government resulted in alternative methods of providing consultations between clinician and patient, with a shift from face-to-face to remote, using new innovations such as video consulting. Prior to the pandemic, the use of video consultations (VC) was low, and some professionals held an overall scepticism of its use for healthcare purposes [1]. However, this unexpected shift left no choice.

One set of professions, amongst many, who were impacted were Allied Health Professionals (AHP). In Wales, the AHP are thirteen individual professions: Art Therapists, Music Therapists, Drama Therapists, Dietitians, Occupational Therapists, Orthoptists, Orthotists, Paramedics, Physiotherapists, Podiatrists, Psychologists, Prosthetists and Speech and Language Therapists. AHP deliver strong, practical, solution-focused, and life-affirming outcomes through a unique range of biological, psychological, and social interventions that are particularly valuable in responding effectively to the complex, multi-dimensional needs of the population [2].

Due to the importance in the roles of each AHP in providing assessments, treatments, and diagnoses to new and existing patients, the continuation of services was essential in order to prevent hospital admissions, reduce patient reliance on long-term care, and encourage independence for as long as possible. However, the rapid implementation of virtual healthcare consultations and diversity of roles of each professional introduced a different "new normal" for each, in which patients and clinicians alike had to adjust to rather quickly [3,4,5], creating mixed opinions at first. (For definitional purposes throughout, the term "clinician" refers to AHP providing care in the NHS and social care, and the term "patient" refers to all those receiving care from these professionals).

High satisfaction for virtual methods is observed amongst patients, according to a meta-analysis [6], and patients express wanting to use virtual consultations in the future for appointments involving their health [7]. This suggests that patients are supportive of digital alternatives for their healthcare appointments, although the literature does suggest limits to this acceptance, such as when appointments require more physical-based assessments or if an individual lacks confidence in using technology [6,8,9]. More specifically, physiotherapy patients preferred a combination of virtual and face-to-face appointments [10], and only 2% of psychology patients reported unhappiness with the switch in service delivery during the pandemic, regardless of varying levels of awareness surrounding the use of technology [11].

Clinicians, on the other hand, may present with a higher level of hesitancy towards utilising technology for healthcare provision [12] and for multifaceted reasons, including those related to the clinician, service, and patient (e.g., James and colleagues [13]). AHP's roles are focused on when supporting, maintaining, promoting, and encouraging the health and wellbeing of individuals within society, and VC may not be suitable for all aspects of this work. However, this unsuitability may differ between the professionals. Psychologists across Europe reported barriers [14] to using online consultations based on a model (Unified Theory of Acceptance and Use of Technology; Venkatesh, et al. [15]), such as lack of training and relational concerns, including a lack of eye contact, detriments to therapeutic relationships and rapport), and observations of non-verbal behaviour and emotions. Additionally, physiotherapists may be concerned with the costs of remote sessions, and patients may not be able to access these readily perhaps due to the availability of technology [16]. Also, dietitians may be unable to conduct certain assessments remotely, especially when video is not available [17] and a small number of speech and language therapists (SLT) report not having access to digital technologies to conduct virtual consultations [18].

Despite the above challenges and apparent hesitancy, the literature also describes perceived benefits of using alternative methods to face-to-face. For telerehabilitation, the benefits extend to increased flexibility, accessibility, and cost effectiveness [16]. Within dietetics, one important aspect is being able to see patients' home environments, as well as what type of food they keep, and VC allow the professional to see within the cupboards of their patients without the need to travel far distances [17] a high proportion of dietitians (43.9%) find VC to be comparable to face-to-face [19]. These findings may also extend to other professionals, such as occupational therapists, as these clinicians are concerned with preventing unnecessary hospital admissions and enabling individuals to remain independent for as long as possible, and thus having access to home environments (without the need for travel) could save time and provide similar outcomes to face-to-face.

Thus, due to the multifaceted roles of AHP within the NHS and social care, there does not seem to be a clear view on if online, video, or remote consultations work well for each AHP, and the impact that this would have on a large body of professionals moving forward beyond the pandemic. Also, there is limited literature that focuses on each AHP, as it tends to focus on individual professions, such as physiotherapists or psychologists. In one way, integrating VC into the functioning of services would increase flexibility and convenience for both patients and clinicians, and potentially minimise the case or workloads of professionals, due to, for example, reduced need for travel or time saved in clinic [11]. However, these methods do not seem to be suitable for all situations, and thus a "one size fits all" approach cannot be applied. The aim of this study was to therefore explore the experiences of AHP and patients receiving care using VC from AHP across Wales during the COVID-19 pandemic. This was to gain an in-depth and clear understanding of how and why VC were being used amongst each profession and overall, using these insights to guide independent, person-centred care provision moving forward.

Methods

Survey:

As part of the evaluation of an NHS approved video consultation service, a survey was designed and administered at the end of each consultation to all users of the platform. One survey was provided to clinicians and one to patients. These two surveys had both common and unique questions attached that asked users about their experiences with VC for their appointment. All participants provided the profession and specialty from which they had received care from (patients), or that they belonged to (clinicians). A series of 27 professions and 65 specialties were given to choose from, with the option for participants to state "Other" and specify a different choice in a free-text box. These additional responses were analysed and placed into their corresponding profession/specialty categories, if applicable. Clinicians who stated they were and patients receiving care from all AHP between August 2020 and August 2021 were extracted. However, orthoptists and paramedics were excluded due to small sample sizes and ambiguities in the data (such as patients reporting health-related conditions unrelated to these professions). Orthotists and prosthetists were classified under one category, thus were considered together, as well as podiatrists and chiropodists.

Questions explored and analysed referred to participants' ratings of the video consultation quality, the type of health-related activity conducted, the prevention of face-to-face, patients' future use of the technology, as well as whose choice it was to use it. Participants were firstly asked to rate the quality of their video consultation, on a scale of 1 (Poor) to 5 (Excellent). They were then asked to state the type of health-related activity that was conducted virtually, with the response options "Advice & support", "First appointment", "Follow-up", "Discharge/Final Appointment", "Therapy session", "Review", "Feedback/outcomes", or "Other" (with the option to specify). Furthermore, respondents were asked if they believed that the use of VC prevented the need for a face-to-face

appointment, they selected “Yes”, “No”, or “Unknown” in response to this. Patients were additionally asked if they would consider using VC again for healthcare appointments, once again responding according to the following options: “Yes”, “No”, or “Maybe”. Finally, patients were asked to state who made the choice to use VC, they chose from: “Given the choice and opted to use it”, “Informed by service”, “VC was the only option”, or “Unknown”. All questions were voluntary, leading to varying numbers of responses per question. At the point of analysis, the survey had been running for 12 months, and had been assessed and developed from a previous version to address the changes in service provision at this time.

Interviews:

During the period of November 2020 and February 2021, a total of 203 phone interviews were conducted with clinicians from a variety of different backgrounds providing care to patients. All clinicians had one-year prior experience with one type of NHS approved VC service (Attend Anywhere). The aim of these interviews was to gain an idea of the benefits, challenges, and sustainability of VC from a professional and service perspective. Professionals registered their interest in participating by providing an email address at the end of the survey detailed above. These were contacted via email and the process was explained, clinicians responded if they remained interested, and the researcher organised a suitable time and date for the interview. Three trained research assistants (with no relation to any interviewees) conducted the interviews using a semi-structured interview schedule, which asked questions, such as “*How do you feel about video consultations*?” and “*What do you use video consultations for in your* line of work?”. Other questions included participants’ future use of VC in the long-term, how much they were using VC, and the benefits and/or challenges associated with its use. The interview schedule was developed based on previous research evaluations on VC [7]. For full analysis, see Johns, Whistance, et al. [20].

Full consent was obtained from all participants before completing the survey (integrated into the survey platform, and full verbal consent was provided by all interviewees at the beginning of their interview. Service evaluation approval and risk assessments for all evaluations conducted was obtained from Aneurin Bevan University Health Board Research & Development Department (Reference Number: SA/1114/20). Information regarding each interviewee was collected, including contact details, name, profession, and health board were collected upon signing up for the interview. Once the interviewee had been contacted and interviewed, their interview was transcribed, and all personal information (name, contact details) was immediately deleted, and each transcription was given a unique identifier.

Patient and Public Involvement: Patients and/or public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Analysis

The responses to the survey questions will be summarised in terms of percentages and frequencies per AHP and overall. No statistical tests were conducted due to the nature of the data and the varying group sizes, and thus minimal interpretation of the results will be given. Interviews were conducted, recorded, and transcribed verbatim. Transcriptions were firstly coded using Microsoft Excel, and then codes were arranged according to the themes and subthemes, if appropriate, using thematic analysis. Analysis was conducted by a trained researcher and was checked by the research lead (GJ) and national clinical lead (AA) for Wales. For the full analysis, see Johns, Whistance et al. [20]. For the purpose of this research, all participants who were AHP were extracted, and secondary analysis of the data was conducted. An overview of the themes will be given

Results

For the survey, there was a total sample of N = 13902 (patients n = 8928, clinicians n = 4974). There were N = 86 (42%) interviews with AHP. The numbers of each AHP are presented in Table 1.

Table 1. The number of participants that completed the surveys (patients and clinicians) and the interviews (clinician only).

Allied Healthcare Professional	Number of Participants (Survey Data)		Number of Participants (Interviews)
	Patient	Clinician	Clinician Only
Art Therapist	13	24	0
Dietitian	725	223	9
Drama Therapist	5	1	0
Music Therapist	7	5	0
Occupational Therapist	596	503	9
Orthotist & Prosthetist	22	15	0
Physiotherapist	5061	1103	22
Podiatrist & Chiropodist	384	166	0
Psychologist	879	526	15
Speech and Language Therapist	1236	2408	29

Type of appointments conducted using VC

The type of appointments that were conducted using VC seemed to vary across the different AHP (as shown in the Supplementary Materials). Firstly, dietitians, podiatrists/chiropodists, and orthotists/prosthetists were mostly conducting first appointments. However, SLT, physiotherapists, occupational therapists, psychologists, art therapists, and drama therapists were using VC for therapy/treatment sessions. Follow-ups were also commonly reported by SLT, and first appointments for physiotherapists and

dietitians. Dietitians stated they saw a higher proportion of patients for advice appointments compared with the remaining professionals.

Prevention of face-to-face

Overall, 68.6% of respondents (N = 13647) reported that VC had prevented the need to attend a face-to-face appointment. Specifically, 81.4% of clinicians stated face-to-face was prevented, compared with only 61.7% of patients. Figures 1-3 show the proportion of face-to-face prevention for each AHP, and for clinicians and patients separately. The findings were similar for the different professionals, except for physiotherapists, where respondents (particularly patients) believed face-to-face was not sufficiently avoided. Also, podiatrists/chiropodists, as well as their patients, had the lowest face-to-face prevention within the entire sample, and this was agreed between clinicians (48.8% prevented face-to-face) and patients (49.6%).

Video quality ratings

The VC platform was given a rating of 5 (Excellent) by 42.8% of respondents. Patients were more positive in their experience than clinicians, with 55.9% rating 5, and only 6.1% rating a 1 (Poor) or 2 (Okay). This is compared with clinicians, where 19.2% of respondents rated 5, and 31.8% rated it a 1 or 2. This trend can be seen across all individual AHP (see Table in Supplementary Materials). However, the most positive ratings were provided by Music Therapists, 58% of respondents rated the quality Excellent, although there were only 12 responses. Physiotherapists, dietitians, and orthotists/prosthetists were also positive, with over 50% of respondents also rating the quality as Excellent. On the other hand, SLT, especially SLT clinicians were most negative (12.4% rated 5, 36.7% rated 1 or 2).

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to physicians.

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to students.

Choosing to use video consulting

Patients were asked who had made the choice to use VC for their healthcare appointment. The majority (63.7%; N = 8877) were informed by the service that their appointment would be held online or stated that it was the only option provided (14.2%), only a smaller proportion were given the choice to use it and had opted (20.8%). Small differences seemed to emerge between the AHP. Almost half of patients (42.6%; N = 587) receiving care from occupational therapists were given the choice to use VC. SLT patients were least likely to report they were given the choice (12.3%; N = 1225). The majority of patients in the remaining AHP categories once again stated that they were informed by their service (range of 46.2% to 90.9%).

Future use of video consulting

90.7% of patients (N = 7081) stated they would use VC for future healthcare appointments. Only 52 (0.7%) would not, and the remaining 8.6% responded that they would "Maybe" consider using it again. Displayed in Figure 4, podiatrist/chiropodist patients least commonly reported that they would use VC again (81.3%). Also, only 50% of art therapy patients responded that they would use again, although there were only 12 respondents in this category.

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again

Interview Analysis: AHP's experience of VC:

Secondary analysis was conducted on pre-existing interview data with AHP, full analysis and an extensive overview of the data can be found in Johns, Whistance et al. [20]. These interviews were conducted with clinicians only. Five important aspects of using VC were revealed, these were the benefits of VC, the challenges, technology issues & necessary improvements, the preference to use VC, and the future of VC. In total, there was 758 comments made regarding the above themes across respondents.

Benefits of VC

To begin, professionals, during their interviews, referred to the advantages of using VC for appointments with patients. These include the benefits of enhanced communication, flexibility, reduced travel, accessing patients' home environments, and increased family involvement. For example, one Occupational Therapist stated it was an *"...absolute added bonus because it's so portable, so accessible, it can fit around the patient.*" Additionally, a Physiotherapist team leader reported the enhanced flexibility for staffing and working from home: *"As a leader in a team for my staff, I think it has allowed us to be more flexible for staffing for things like working from home."* Therefore, the benefits apply to both the patient and clinician. Travel was a common topic across all AHP, including the time saved for those required to travel to patients (e.g., Psychologist: "*Given I work 70 miles away from where I live, it's a big thing*") and patients traveling for their appointments (e.g., Physiotherapist: "*Probably more convenient for the patient not having to travel because they'd have to take a few hours out of work or whatever so they can probably just take an hour now*").

Challenges of VC

However, although there are positive perceptions of VC, it is also important to consider the challenges, which were prominent and sometimes detrimental to appointments. Clinicians, especially Physiotherapists, expressed the need for physical presence of a patient for examinations, with these being less accurate through a screen: "*50% of the time it's physiotherapy related issues where you can't do a competent assessment really*" and "*Main issue is whether they have it to use it, sometimes a lot of the assessments require face-to-face things where you test the joints and sometimes you need to actually put your hands on and so it's limited because it doesn't give us that option over video*". Other negatives include a lack of engagement (e.g., children during SLT assessments: "*For a lot of our children, being on the other side of the screen, you don't really get them and they're not that interested*"), access to social cues, as well as the chance of missing certain unobservable information. For example, "*Quite often, you need to see that visual information to be confident in the information you are getting from a person, and you really miss out on that when the visual aspect of VC is sub-optimal*" (Psychologist), "*Video feels less personal, it's difficult to strike up a rapport*" (Occupational Therapist), and "*The body language is obviously delayed*" (Dietitian). Also, staff wellbeing was highlighted as important, in that clinicians felt like workload and feelings of isolation had increased during the pandemic, perhaps not directly because of VC, but exacerbated by its use. For example, a SLT stated: "*I don't get a lot of choice people put things in my diary about meetings and things, so I don't get a choice of how much I do*." However, there were reports of fatigue and physical strain caused by using a computer, "*Everything I know about doing work with patients, I've had to adapt, and I am just exhausted. I do find myself having more headaches and neck pain even though I've tried the hardest to get the right posture and position*" (SLT).

Technology Issues and Necessary Improvements

Technology issues were also common amongst professionals, such as video delays, audio and visual issues, and a lack of internet connection sufficient to support VC ("*When I use it on a laptop that's connected to the WiFi, it's not been really problematic in terms of the signal*", Psychologist). This caused disruptions to patient-clinician contact, and limited conversation and assessments: "*When I'm explaining something complicated to a patient, the last thing you want is for them to miss what you say because it's frozen*" (Dietitian). These issues sparked insight into the improvements necessary to make VC more successful, including continued training sessions ("*A drop-in session would be good to ask the questions I have when they come up*", Physiotherapist) and access to appropriate equipment at the location of the consultation ("*Even when we are in the office, we can't always use it. Not only because we don't have the internet, but also because we don't have the equipment*" Psychologist). Also, raising awareness of its use amongst patients, as well as other services that work with these patients would be beneficial ("*The big thing is getting that awareness out there from others other than medics*", Physiotherapist; "*Perhaps if anything more idea sharing across Wales or the UK in how people are doing it, and ways people are doing it*", SLT).

Preference to Use VC

Clinicians held opinions of their modality preference when conducting healthcare appointments. In particular, most stated their choice to use VC over the telephone, due to the added visual element and other functions such as screen sharing: "[*the appointment] would have been really difficult to do that just with telephone calls, being able to share the screen and use resources has added a lot to that*" (SLT). However, there were also comments about using phone instead, and patient uptake of using the telephone for their appointments. As an example, one Psychologist stated that some patients find video calls anxiety-provoking and

would rather use a phone call, and one Occupational Therapist described the usefulness and ease of phone calls for catchups with patients.

Future of VC

Finally, when asked about the future use of VC beyond the restrictions imposed due to the pandemic, a blended approach to appointments was frequently reported, in that clinicians would prefer a mix of face-to-face, VC, and telephone calls where they are deemed appropriate. For example, "*There would be certain patients I would be more than happy to review over video and some patients I wouldn't even contemplate seeing over video and would have to see face-to-face*" (SLT) and "*I would love to keep using [video consulting]. There's always going to be a time for face-to-face in clinics, but I think together they would work really well. Your first couple of appointments face-to-face and then follow-ups on VC would be amazing*" (Occupational Therapist). Positively, there was only comment about not adopting VC as a tool in the future, "*The majority of the team feel the same, we were a lot more keen for it when it was first implemented it was a big change, singing its praises but now we're getting fed up and want to be back face-to-face*" (Physiotherapist).

Discussion

This investigation aimed to capture an understanding of the use of video consultations (VC) and digital alternatives to face-to-face amongst Allied Health Professionals (AHP) in Wales (United Kingdom) during the COVID-19 pandemic. The findings revealed an overall perspective of AHP, as well as moderate differences between the professions. Firstly, from the responses on the survey, a range of different appointments were being conducted using VC, including first appointments, therapy/treatment sessions, follow-ups, and for advice/support. There was a high prevention of face-to-face (traditional appointments), although patients were less likely to report this prevention, possibly due to confusion in

definitions. For instance, patients may have thought that seeing their clinician over a screen constituted face-to-face. The VC platform was rated positively (especially by patients), and a very high percentage of patients stated they would use or consider using VC again in the future for health matters.

Of interest, dietitians, podiatrists/chiropodists, and orthotists/prosthetists reported using VC most for first appointments, compared with therapy/treatment sessions for other professionals (e.g., psychologists, occupational therapists, SLT, physiotherapists). Perhaps this represents an inter-professional differentiation in the use of VC for specific tasks and patient-facing sessions based on the specific needs that clinicians provide for. This does not particularly suggest an inappropriateness of VC for certain sessions (e.g., to initially build rapport [21]) although it is important to consider VC may introduce these issues for some professionals.

Additionally, there was a similar perception of face-to-face prevention across the professionals, except for podiatrists/chiropodists, where this was low and agreed amongst clinicians and patients (below 50%). Tollafield [22] argues that podiatry consultations are best conducted in the patients' home and expresses concerns with the shift from face-to-face to telemedicine. Pang et al. [23] found, however, that patients contacted via telephone or telehealth did not experience increased hospitalisation rates, suggesting, although VC may not be fully appropriate for assessments of conditions, they were sufficient methods in preventing such hospitalisations. Regardless, patients believed they should attend in-person clinics for foot-related issues, such as ulcers, and preferred this modality [23]. This is also supported by the current findings in that podiatry/chiropody patients gave the lowest responses for wanting to use VC again in the future (although this was still high, 81.3%). Asking participants about face-to-face prevention helps us capture an idea of the ability of

VC to act as an appropriate alternative, if VC was not appropriate, clinicians were advised to see patients face-to-face (on a patient-specific basis).

Interestingly, when considering choices, SLT patients were least likely to have been given the choice to use VC. This compares with professions like occupational therapy, where almost half of patients were provided the choice. Giving the choice to patients, where appropriate, may be beneficial in terms of convenience, flexibility, and encouraging control over their own health and care. For instance, limiting time needed to take off work, reducing stress, and eliminating the need for travel [24]. A report by Samuels et al. [25] found that common reasons for not attending healthcare appointments include transportation problems and being unable to take time off work, therefore giving patients the choice could aid in increasing appointment attendance. This proves beneficial to the patient, clinician, and service as a whole.

Secondly, further exploration of narrative interviews with AHP revealed five important themes of VC use. Clinicians accept there are benefits of using digital alternatives, such as enhancing communication, reducing the need for travel [17], and increasing involvement. However, it is also important to highlight the disadvantages, including a lack of patient engagement, missing unobservable information (which aids assessment) [14], as well as negative impacts on staff wellbeing and workloads. Technology also created a barrier [16] and respondents gave recommendations on how this could be improved moving into the future. However, it seemed that VC was preferred over other methods that lacked a visual element, such as telephone calls. Beyond restrictions imposed due to COVID-19, a blended approach was suggested as best, whereby clinicians (with patients considered) can choose, where appropriate, to use face-to-face, VC, and telephone.

Limitations

It is important to consider the current limitations. The survey was distributed to all patients and clinicians completing a VC using one NHS approved platform, and clinicians were interviewed after highlighting their interest on this survey, suggesting they were users of VC. Thus, the responses here do not consider those using other software or not using digital methods for healthcare appointments. It would be interesting to capture the perceptions of those not using VC and explore any reasoning for this lack of use and comparing this to users, especially emerging from the pandemic. Also, the data was collected between March 2020 and August 2021, with the lift of restrictions in healthcare settings in 2022, this may be an outdated perspective.

Furthermore, there were more AHP belonging to certain professions than others. For example, there was a total of 6164 physiotherapists and physiotherapy patients in the survey, and 22 clinician interviews. This compares with only 6 drama therapists. It is possible that physiotherapy appointments are more common within the NHS and social care than drama therapy, or that these professionals were prioritised in the uptake of VC, explaining the discrepancy. Nevertheless, the perspective of the smaller groups is dampened. Also, the interviews did not include patients, meaning their perspectives cannot be qualitatively explored. Future research should aim to target these smaller professionals, as well as patients, to capture opinions and their use of VC to further aid in understanding, especially as the healthcare system evolves and develops as a result of the pandemic.

Conclusion

To conclude, VC seems to be appropriate for a range of different appointment types and activities for AHP. There was a high face-to-face prevention, and high-quality ratings were given for the VC platform. Also, patients were keen to utilise digital alternatives in the future. In addition, qualitative responses revealed benefits and challenges, technological

limitations, necessary improvements, clinicians' preference, as well as the need for a blended approach to healthcare consultations moving forward. This means that, at the clinician's discretion and with the needs of the patient considered, face-to-face, telephone, and VC can be used to create a model of efficiency within NHS services. Regardless, there were some issues reported, especially by clinicians, such as low-quality VC ratings. Technology issues were prevalent, especially as reported in the clinician interviews, and there were reports that VC was not appropriate for all types of appointments (e.g., building rapport with occupational therapists, fatigue and physical strain).

Moving to the future, and post-pandemic, organisations are keen to encourage the uptake of VC for health and social care purposes. Technology Enabled Care (TEC) Cymru create detailed toolkits and infographics to aid in its use, as well as produce informative videos and host workshops (TEC Cymru, accessible from https://digitalhealth.wales/tec-cymru). By providing help and support, the experience of VC may be improved significantly. The pandemic temporarily changed many aspects of health and social care, with the rapid implementation of new and innovative ways of care continuation. Emerging from the pandemic and considering the adverse effects and outcomes over the last few years, these temporary changes can motivate positive and permanent transformations of the way professionals work and function in their roles, within AHP and multi-professionally, optimising resource utilisation, while meeting the needs of the population.

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Ethics Approval: This study involves human participants and TEC Cymru obtained full ethical approvals and risk assessments from their host Aneurin Bevan University Health Board Research and Development Department (reference number: SA/1114/20), and then national approval was obtained from all other health boards in Wales. Full informed consent was obtained from all participants. At the end of each feedback link, a statement of consent and a compulsory tick box was required prior to feedback submission. Participants that took part in interviews provided verbal consent.

Data sharing statement: Data are available upon reasonable request.

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Figure Legend:

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to clinicians.

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to patients.

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again.

Word Count (excluding abstract, strengths and limitations): 6036

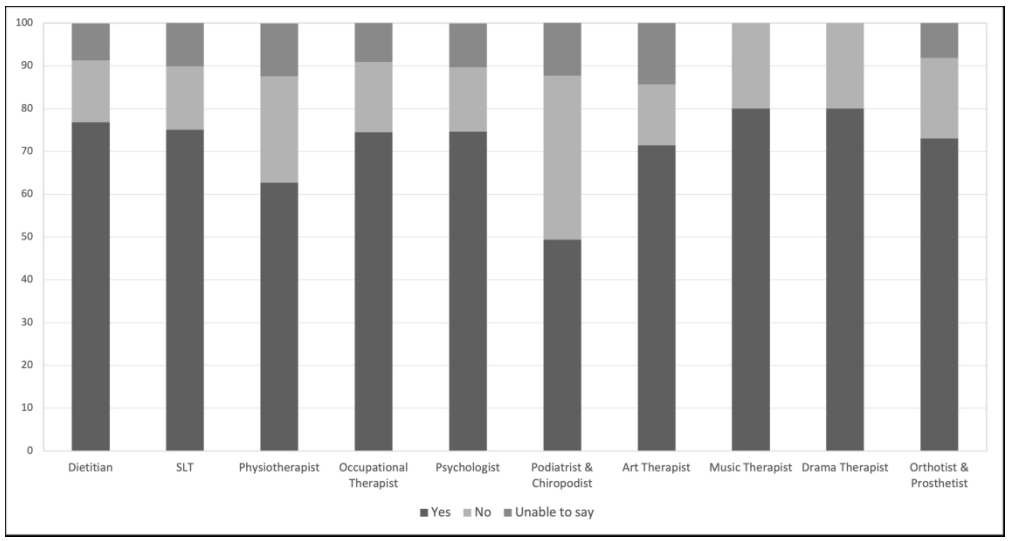

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

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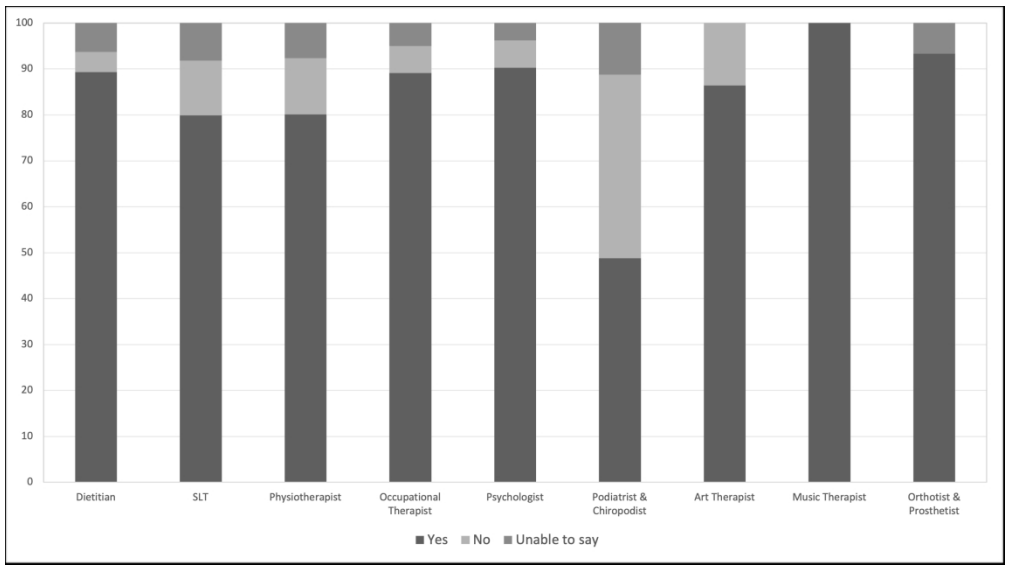

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to clinicians.

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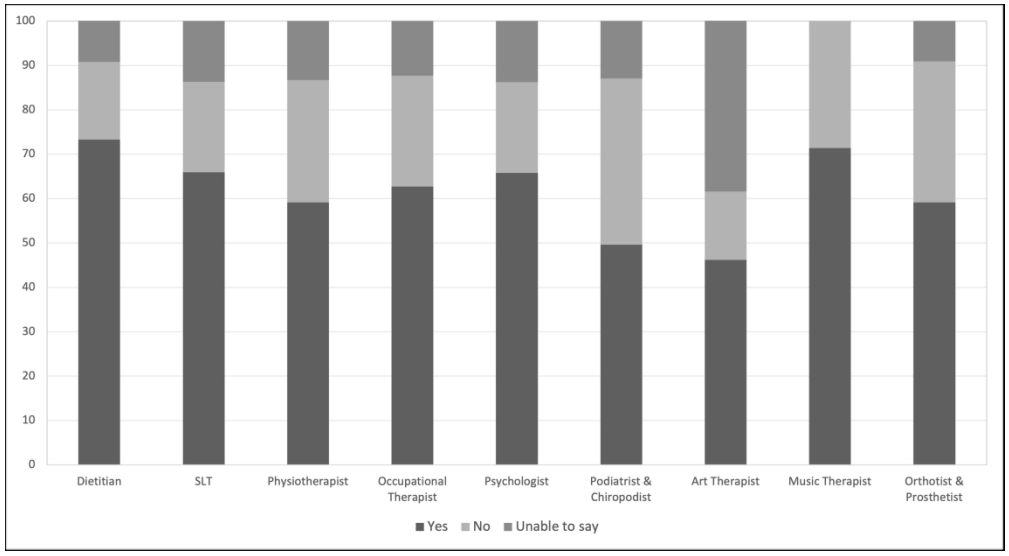

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to patients.

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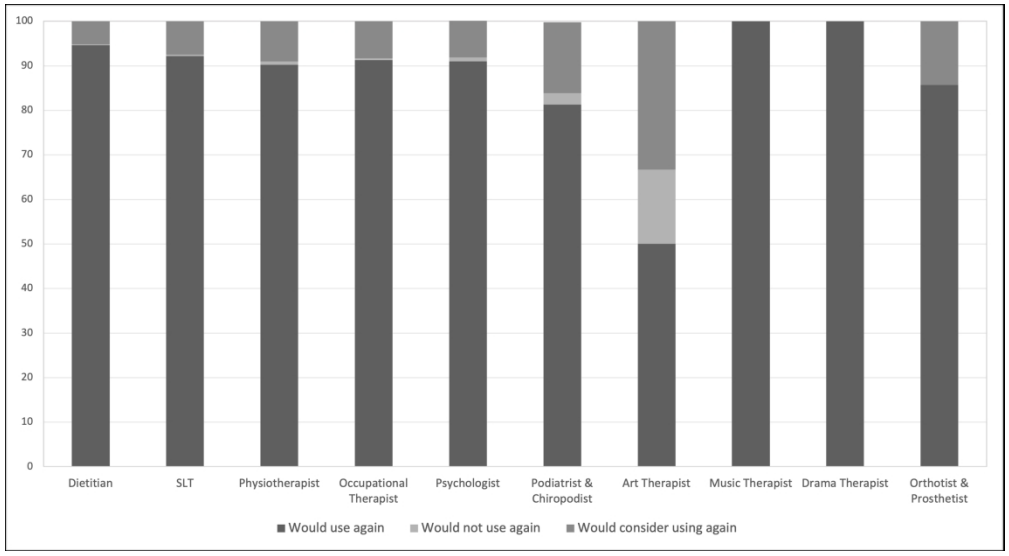

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again.

247x135mm (300 x 300 DPI)

SM Table 1. The percentage of appointment types being conducted using VC for each AHP.

	Dietitian	SLT	Physiotherapist	Occupational Therapist	Psychologist	Podiatrist & Chiropodist	Art Therapist	Music Therapist	Drama Therapist	Orthotist & Prosthetist
Advice	22.9	6.4	6.8	10.1	4.9	7.4	8	8.3	0.00	5.6
Feedback/Outcomes	0	0.3	0	0.3	0.2	0		8.3	0.00	0
Final Appointment	1.6	0.1	2.8	2.5	1.4	1.1		8.3	0.00	0
First Appointment	30.7	10.6	31.5	23.2	18.9	61.6	6	8.3	0.00	44.4
Follow-up	28.2	30.7	7.3	13.7	6.8	6.1		0	0.00	13.9
Other	8.2	2.3	0.2	2.9	1.3	0	18	0	0.00	0
Review	7.3	14	12.1	9.9	10.5	20.7	2	33.3	40	25
Therapy/Treatment	1.1	35.6	39.2	37.3	55.8	3.1	40	33.3	60	11.1
Total Responses	931	2391	6107	1085	1387	541	3	12	5	36

SM Table 2. The percentage of responses for the quality ratings given to VC, on a scale of 1 (Poor) to 5 (Excellent), for each AHP.

	Dietitian	SLT	Physiotherapist	Occupational Therapist	Psychologist	Podiatrist & Chiropodist	Art Therapist	Music Therapist	Orthotist & Prosthetist
Total Sample									
Excellent	50.7	26.3	51.8	41.7	41.9	44.[illegible]	8.1	58.3	51.4
Very Good	24.2	26.0	29.0	28.6	25.3	27.[illegible]	37.8	0.0	29.7
Good	13.7	21.0	10.4	13.2	16.7	11.[illegible]	40.5	33.3	16.2
Okay	7.2	16.1	4.9	8.8	9.3	6.[illegible]	8.1	8.3	2.7
Poor	4.2	10.6	3.9	7.7	6.7	10.[illegible]	5.4	0.0	0.0
Total Responses	934	3606	6079	1079	1393	54[illegible]	37	12	37
Clinician									
Excellent	34.9	12.4	23.1	23.7	28.7	27.[illegible]	4.2	40.0	53.3
Very Good	19.7	24.4	31.4	31.0	21.5	18.[illegible]	29.2	0.0	26.7
Good	19.3	26.5	19.5	17.6	22.0	16.[illegible]	50.0	60.0	20.0
Okay	15.6	22.1	14.2	14.0	14.6	18.[illegible]	12.5	0.0	0.0
Poor	10.6	14.6	11.8	13.8	13.2	18.[illegible]	4.2	0.0	0.0
Total Responses	218	2384	1094	494	522	16[illegible]	24	5	15
Patient									
Excellent	55.6	53.4	58.1	56.9	49.7	51.[illegible]	15.4	71.4	50.0
Very Good	25.6	29.1	28.4	26.7	27.2	31.[illegible]	53.8	14.3	31.8
Good	12.0	10.4	8.4	9.4	13.5	9.8	23.1	14.3	13.6
Okay	4.6	4.3	2.9	4.4	6.2	1.6	0.0	0.0	4.5
Poor	2.2	2.7	2.2	2.6	2.9	6.3	7.7	0.0	0.0
Total Responses	716	1222	4985	585	871	379	13	7	22

Reporting checklist for cross sectional study.

Based on the STROBE cross sectional guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

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In your methods section, say that you used the STROBE cross sectionalreporting guidelines, and cite them as:

von Elm E, Altman DG, Egger M, Pocock SJ, Gotzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies.

		Reporting Item	Page Number
Title and abstract			
Title	#1a	Indicate the study's design with a commonly used term in the title or the abstract	1
Abstract	#1b	Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background / rationale	#2	Explain the scientific background and rationale for the investigation being reported	3-6
Objectives	#3	State specific objectives, including any prespecified hypotheses	6-7
Methods			
Study design	#4	Present key elements of study design early in the paper	7
Setting	#5	Describe the setting, locations, and relevant dates, including periods	7

		of recruitment, exposure, follow-up, and data collection	
Eligibility criteria	#6a	Give the eligibility criteria, and the sources and methods of selection of participants.	7
	#7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	8-9
Data sources / measurement	#8	For each variable of interest give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group. Give information separately for for exposed and unexposed groups if applicable.	8-9
Bias	#9	Describe any efforts to address potential sources of bias	
Study size	#10	Explain how the study size was arrived at	7-8
Quantitative variables	#11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	10
Statistical methods	#12a	Describe all statistical methods, including those used to control for confounding	10
Statistical methods	#12b	Describe any methods used to examine subgroups and interactions	10
Statistical methods	#12c	Explain how missing data were addressed	9
Statistical methods	#12d	If applicable, describe analytical methods taking account of sampling strategy	
Statistical methods	#12e	Describe any sensitivity analyses	
Results			
Participants	#13a	Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed. Give information separately for for exposed and unexposed groups if applicable.	Throughout
Participants	#13b	Give reasons for non-participation at each stage	9

Participants	#13c	Consider use of a flow diagram	
Descriptive data	#14a	Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders. Give information separately for exposed and unexposed groups if applicable.	
Descriptive data	#14b	Indicate number of participants with missing data for each variable of interest	Throughout
Outcome data	#15	Report numbers of outcome events or summary measures. Give information separately for exposed and unexposed groups if applicable.	
Main results	#16a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
Main results	#16b	Report category boundaries when continuous variables were categorized	Throughout
Main results	#16c	If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	#17	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key results	#18	Summarise key results with reference to study objectives	23
Limitations	#19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	25
Interpretation	#20	Give a cautious overall interpretation considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.	26
Generalisability	#21	Discuss the generalisability (external validity) of the study results	25-26
Other Information			

Funding	#22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	30

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An online survey and interview evaluation to explore the use of video consulting amongst Allied Health Professionals during the COVID-19 pandemic.

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Abstract

Objectives: Allied Health Professionals (AHP) consist of thirteen different specialty roles in Wales, sharing the responsibility of promoting and supporting the health and wellbeing of the population. During the COVID-19 pandemic, there was a shift in care provision, with the increased use of online consultations, such as those using video consultation platforms. However, this shift was associated with uncertainty and hesitancy, and thus to understand the usage and reasons for using video consultations, this study aimed to capture the experiences of both AHP and their patients, while investigating each role individually.
Participants: A survey was distributed to and completed by n = 8928 patients and n = 4976 clinicians, all AHP were included except for orthoptists and paramedics due to ambiguities in the data. A further 86 clinicians participated in phone interviews.
Results: All professions had a high prevention of face-to-face with the use of video consultations (68% overall and 81.4% of clinicians reported the prevention). However, this was lower for certain professions such as podiatrists, potentially due to the specific patient needs, such as physical assessments. Also, a range of different appointment types were being conducted, and there was a high acceptance of these alternative methods amongst participants. The interviews with clinicians revealed five important aspects of video consultations: the perceived benefits, the perceived challenges, technology issues & necessary improvements, clinician preference, and the future of video consulting. Specifically, the future of video consulting evidenced clinicians' desire for a blended approach to working, selecting the appropriate modality depending on the situation and patient-specific needs.
Conclusions: Integrating the traditional methods of service delivery (face-to-face), and novel, innovative ways, such as video consultations, can motivate positive transformations for the efficiency and efficacy of health and social care.

Strengths and Limitations of This Study

- This study is first to explore the use of video consultations amongst Allied Health Professionals and their patients in Wales.
- A large sample of participants was collected across health and social care services in Wales.
- Both patients and clinicians are considered in the current study, providing a greater understanding of the use of video consulting.
- The study does not consider the perceptions of those not using video consulting, and the experience of only one video consulting platform was explored.
- The perspective of smaller groups of professionals could not be fully investigated.

Introduction

The COVID-19 pandemic impacted health and social care provision in numerous ways. For instance, the restrictions imposed by the Government resulted in alternative methods of providing consultations between clinician and patient, with a shift from face-to-face to remote, using new innovations such as video consulting. Prior to the pandemic, the use of video consultations (VC) was low, and some professionals held an overall scepticism of its use for healthcare purposes [1]. However, this unexpected shift left no choice.

One set of professions, amongst many, who were impacted were Allied Health Professionals (AHP). In Wales, the AHP are thirteen individual professions: Art Therapists, Music Therapists, Drama Therapists, Dietitians, Occupational Therapists, Orthoptists, Orthotists, Paramedics, Physiotherapists, Podiatrists, Psychologists, Prosthetists and Speech and Language Therapists. AHP deliver strong, practical, solution-focused, and life-affirming outcomes through a unique range of biological, psychological, and social interventions that are particularly valuable in responding effectively to the complex, multi-dimensional needs of the population [2].

Due to the importance in the roles of each AHP in providing assessments, treatments, and diagnoses to new and existing patients, the continuation of services was essential in order to prevent hospital admissions, reduce patient reliance on long-term care, and encourage independence for as long as possible. However, the rapid implementation of virtual healthcare consultations and diversity of roles of each professional introduced a different "new normal" for each, in which patients and clinicians alike had to adjust to rather quickly [3,4,5], creating mixed opinions at first. (For definitional purposes throughout, the term "clinician" refers to AHP providing care in the NHS and social care, and the term "patient" refers to all those receiving care from these professionals).

High satisfaction for virtual methods is observed amongst patients, according to a meta-analysis [6], and patients express wanting to use virtual consultations in the future for appointments involving their health [7]. This suggests that patients are supportive of digital alternatives for their healthcare appointments, although the literature does suggest limits to this acceptance, such as when appointments require more physical-based assessments or if an individual lacks confidence in using technology [6,8,9]. More specifically, physiotherapy patients preferred a combination of virtual and face-to-face appointments [10], and only 2% of psychology patients reported unhappiness with the switch in service delivery during the pandemic, regardless of varying levels of awareness surrounding the use of technology [11].

Clinicians, on the other hand, may present with a higher level of hesitancy towards utilising technology for healthcare provision [12] and for multifaceted reasons, including those related to the clinician, service, and patient (e.g., James and colleagues [13]). AHP's roles are focused on when supporting, maintaining, promoting, and encouraging the health and wellbeing of individuals within society, and VC may not be suitable for all aspects of this work. However, this unsuitability may differ between the professionals. Psychologists across Europe reported barriers [14] to using online consultations based on a model (Unified Theory of Acceptance and Use of Technology; Venkatesh, et al. [15]), such as lack of training and relational concerns, including a lack of eye contact, detriments to therapeutic relationships and rapport), and observations of non-verbal behaviour and emotions. Additionally, physiotherapists may be concerned with the costs of remote sessions, and patients may not be able to access these readily perhaps due to the availability of technology [16]. Also, dietitians may be unable to conduct certain assessments remotely, especially when video is not available [17] and a small number of speech and language therapists (SLT) report not having access to digital technologies to conduct virtual consultations [18].

Despite the above challenges and apparent hesitancy, the literature also describes perceived benefits of using alternative methods to face-to-face. For telerehabilitation, the benefits extend to increased flexibility, accessibility, and cost effectiveness [16]. Within dietetics, one important aspect is being able to see patients' home environments, as well as what type of food they keep, and VC allow the professional to see within the cupboards of their patients without the need to travel far distances [17] a high proportion of dietitians (43.9%) find VC to be comparable to face-to-face [19]. These findings may also extend to other professionals, such as occupational therapists, as these clinicians are concerned with preventing unnecessary hospital admissions and enabling individuals to remain independent for as long as possible, and thus having access to home environments (without the need for travel) could save time and provide similar outcomes to face-to-face.

Thus, due to the multifaceted roles of AHP within the NHS and social care, there does not seem to be a clear view on if online, video, or remote consultations work well for each AHP, and the impact that this would have on a large body of professionals moving forward beyond the pandemic. Also, there is limited literature that focuses on each AHP, as it tends to focus on individual professions, such as physiotherapists or psychologists. In one way, integrating VC into the functioning of services would increase flexibility and convenience for both patients and clinicians, and potentially minimise the case or workloads of professionals, due to, for example, reduced need for travel or time saved in clinic [11]. However, these methods do not seem to be suitable for all situations, and thus a "one size fits all" approach cannot be applied. The aim of this study was to therefore explore the experiences of AHP and patients receiving care using VC from AHP across Wales during the COVID-19 pandemic. This was to gain an in-depth and clear understanding of how and why VC were being used amongst each profession and overall, using these insights to guide independent, person-centred care provision moving forward.

Methods

Survey:

As part of the evaluation of an NHS approved video consultation service, a survey was designed and administered at the end of each consultation to all users of the platform. One survey was provided to clinicians and one to patients (Supplementary Materials). These two surveys had both common and unique questions attached that asked users about their experiences with VC for their appointment. All participants provided the profession and specialty from which they had received care from (patients), or that they belonged to (clinicians). A series of 27 professions and 65 specialties were given to choose from, with the option for participants to state "Other" and specify a different choice in a free-text box. These additional responses were analysed and placed into their corresponding profession/specialty categories, if applicable. Clinicians who stated they were and patients receiving care from all AHP between August 2020 and August 2021 were extracted. However, orthoptists and paramedics were excluded due to small sample sizes and ambiguities in the data (such as patients reporting health-related conditions unrelated to these professions). Orthotists and prosthetists were classified under one category, thus were considered together, as well as podiatrists and chiropodists.

Questions explored and analysed referred to participants' ratings of the video consultation quality, the type of health-related activity conducted, the prevention of face-to-face, patients' future use of the technology, as well as whose choice it was to use it. Participants were firstly asked to rate the quality of their video consultation, on a scale of 1 (Poor) to 5 (Excellent). They were then asked to state the type of health-related activity that was conducted virtually, with the response options "Advice & support", "First appointment", "Follow-up", "Discharge/Final Appointment", "Therapy session", "Review", "Feedback/outcomes", or "Other" (with the option to specify). Furthermore, respondents

were asked if they believed that the use of VC prevented the need for a face-to-face appointment, they selected "Yes", "No", or "Unknown" in response to this. Patients were additionally asked if they would consider using VC again for healthcare appointments, once again responding according to the following options: "Yes", "No", or "Maybe". Finally, patients were asked to state who made the choice to use VC, they chose from: "Given the choice and opted to use it", "Informed by service", "VC was the only option", or "Unknown". All questions were voluntary, leading to varying numbers of responses per question. At the point of analysis, the survey had been running for 12 months, and had been assessed and developed from a previous version to address the changes in service provision at this time.

Interviews:

During the period of November 2020 and February 2021, a total of 203 phone interviews were conducted with clinicians from a variety of different backgrounds providing care to patients. All clinicians had one-year prior experience with one type of NHS approved VC service (Attend Anywhere). The aim of these interviews was to gain an idea of the benefits, challenges, and sustainability of VC from a professional and service perspective. Professionals registered their interest in participating by providing an email address at the end of the survey detailed above. These were contacted via email and the process was explained, clinicians responded if they remained interested, and the researcher organised a suitable time and date for the interview. Three trained research assistants (with no relation to any interviewees) conducted the interviews using a semi-structured interview schedule (Supplementary Materials), which asked questions, such as "*How do you feel about video consultations*?" and "*What do you use video consultations for in your* line of work?". Other questions included participants' future use of VC in the long-term, how much they were using VC, and the benefits and/or challenges associated with its use. The interview schedule

was developed based on previous research evaluations on VC [7]. For full analysis, see Johns, Whistance, et al. [20].

Full consent was obtained from all participants before completing the survey (integrated into the survey platform, and full verbal consent was provided by all interviewees at the beginning of their interview. Service evaluation approval and risk assessments for all evaluations conducted was obtained from Aneurin Bevan University Health Board Research & Development Department (Reference Number: SA/1114/20). Information regarding each interviewee was collected, including contact details, name, profession, and health board were collected upon signing up for the interview. Once the interviewee had been contacted and interviewed, their interview was transcribed, and all personal information (name, contact details) was immediately deleted, and each transcription was given a unique identifier.

Patient and Public Involvement: Patients and/or public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Analysis

The responses to the survey questions will be summarised in terms of percentages and frequencies per AHP and overall. No statistical tests were conducted due to the nature of the data and the varying group sizes, and thus minimal interpretation of the results will be given. Interviews were conducted, recorded, and transcribed verbatim. Transcriptions were firstly coded using Microsoft Excel, and then codes were arranged according to the themes and subthemes, if appropriate, using thematic analysis. Analysis was conducted by a trained researcher and was checked by the research lead (GJ) and national clinical lead (AA) for Wales. For the full analysis, see Johns, Whistance et al. [20]. For the purpose of this research, all participants who were AHP were extracted, and secondary analysis of the data was conducted. An overview of the themes will be given

Results

For the survey, there was a total sample of N = 13902 (patients n = 8928, clinicians n = 4974). There were N = 86 (42%) interviews with AHP. The numbers of each AHP are presented in Table 1.

Table 1. The number of participants that completed the surveys (patients and clinicians) and the interviews (clinician only).

Allied Healthcare Professional	Number of Participants (Survey Data)		Number of Participants (Interviews)
	Patient	Clinician	Clinician Only
Art Therapist	13	24	0
Dietitian	725	223	9
Drama Therapist	5	1	0
Music Therapist	7	5	0
Occupational Therapist	596	503	9
Orthotist & Prosthetist	22	15	0
Physiotherapist	5061	1103	22
Podiatrist & Chiropodist	384	166	0
Psychologist	879	526	15
Speech and Language Therapist	1236	2408	29

Type of appointments conducted using VC

The type of appointments that were conducted using VC seemed to vary across the different AHP (as shown in the Supplementary Materials). Firstly, dietitians, podiatrists/chiropodists, and orthotists/prosthetists were mostly conducting first appointments. However, SLT, physiotherapists, occupational therapists, psychologists, art therapists, and drama therapists were using VC for therapy/treatment sessions. Follow-ups were also commonly reported by SLT, and first appointments for physiotherapists and

dietitians. Dietitians stated they saw a higher proportion of patients for advice appointments compared with the remaining professionals.

Prevention of face-to-face

Overall, 68.6% of respondents (N = 13647) reported that VC had prevented the need to attend a face-to-face appointment. Specifically, 81.4% of clinicians stated face-to-face was prevented, compared with only 61.7% of patients. Figures 1-3 show the proportion of face-to-face prevention for each AHP, and for clinicians and patients separately. The findings were similar for the different professionals, except for physiotherapists, where respondents (particularly patients) believed face-to-face was not sufficiently avoided. Also, podiatrists/chiropodists had the lowest face-to-face prevention within the entire sample, and this was agreed between clinicians (48.8% prevented face-to-face) and patients (49.6%).

Video quality ratings

The VC platform was given a rating of 5 (Excellent) by 42.8% of respondents. Patients were more positive in their experience than clinicians, with 55.9% rating 5, and only 6.1% rating a 1 (Poor) or 2 (Okay). This is compared with clinicians, where 19.2% of respondents rated 5, and 31.8% rated it a 1 or 2. This trend can be seen across all individual AHP (see Table in Supplementary Materials). However, the most positive ratings were provided by Music Therapists, 58% of respondents rated the quality Excellent, although there were only 12 responses. Physiotherapists, dietitians, and orthotists/prosthetists were also positive, with over 50% of respondents also rating the quality as Excellent. On the other hand, SLT, especially SLT clinicians were most negative (12.4% rated 5, 36.7% rated 1 or 2).

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to physicians.

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to students.

Choosing to use video consulting

Patients were asked who had made the choice to use VC for their healthcare appointment. The majority (63.7%; N = 8877) were informed by the service that their appointment would be held online or stated that it was the only option provided (14.2%), only a smaller proportion were given the choice to use it and had opted (20.8%). Small differences seemed to emerge between the AHP. Almost half of patients (42.6%; N = 587) receiving care from occupational therapists were given the choice to use VC. SLT patients were least likely to report they were given the choice (12.3%; N = 1225). The majority of patients in the remaining AHP categories once again stated that they were informed by their service (range of 46.2% to 90.9%).

Future use of video consulting

90.7% of patients (N = 7081) stated they would use VC for future healthcare appointments. Only 52 (0.7%) would not, and the remaining 8.6% responded that they would "Maybe" consider using it again. Displayed in Figure 4, podiatrist/chiropodist patients least commonly reported that they would use VC again (81.3%). Also, only 50% of art therapy patients responded that they would use again, although there were only 12 respondents in this category.

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again

Interview Analysis: AHP's experience of VC:

Secondary analysis was conducted on pre-existing interview data with AHP, full analysis and an extensive overview of the data can be found in Johns, Whistance et al. [20]. These interviews were conducted with clinicians only. Five important aspects of using VC were revealed, these were the benefits of VC, the challenges, technology issues & necessary improvements, the preference to use VC, and the future of VC. In total, there was 758 comments made regarding the above themes across respondents.

Benefits of VC

To begin, professionals, during their interviews, referred to the advantages of using VC for appointments with patients. These include the benefits of enhanced communication, flexibility, reduced travel, accessing patients' home environments, and increased family involvement. For example, one Occupational Therapist stated it was an *"...absolute added bonus because it's so portable, so accessible, it can fit around the patient.*" Additionally, a Physiotherapist team leader reported the enhanced flexibility for staffing and working from home: *"As a leader in a team for my staff, I think it has allowed us to be more flexible for staffing for things like working from home."* Therefore, the benefits apply to both the patient and clinician. Travel was a common topic across all AHP, including the time saved for those required to travel to patients (e.g., Psychologist: "*Given I work 70 miles away from where I live, it's a big thing*") and patients traveling for their appointments (e.g., Physiotherapist: "*Probably more convenient for the patient not having to travel because they'd have to take a few hours out of work or whatever so they can probably just take an hour now*").

Challenges of VC

However, although there are positive perceptions of VC, it is also important to consider the challenges, which were prominent and sometimes detrimental to appointments. Clinicians, especially Physiotherapists, expressed the need for physical presence of a patient for examinations, with these being less accurate through a screen: "*50% of the time it's physiotherapy related issues where you can't do a competent assessment really*" and "*Main issue is whether they have it to use it, sometimes a lot of the assessments require face-to-face things where you test the joints and sometimes you need to actually put your hands on and so it's limited because it doesn't give us that option over video*". Other negatives include a lack of engagement (e.g., children during SLT assessments: "*For a lot of our children, being on the other side of the screen, you don't really get them and they're not that interested*"), access to social cues, as well as the chance of missing certain unobservable information. For example, "*Quite often, you need to see that visual information to be confident in the information you are getting from a person, and you really miss out on that when the visual aspect of VC is sub-optimal*" (Psychologist), "*Video feels less personal, it's difficult to strike up a rapport*" (Occupational Therapist), and "*The body language is obviously delayed*" (Dietitian). Also, staff wellbeing was highlighted as important, in that clinicians felt like workload and feelings of isolation had increased during the pandemic, perhaps not directly because of VC, but exacerbated by its use. For example, a SLT stated: "*I don't get a lot of choice people put things in my diary about meetings and things, so I don't get a choice of how much I do*." However, there were reports of fatigue and physical strain caused by using a computer, "*Everything I know about doing work with patients, I've had to adapt, and I am just exhausted. I do find myself having more headaches and neck pain even though I've tried the hardest to get the right posture and position*" (SLT).

Technology Issues and Necessary Improvements

Technology issues were also common amongst professionals, such as video delays, audio and visual issues, and a lack of internet connection sufficient to support VC ("*When I use it on a laptop that's connected to the WiFi, it's not been really problematic in terms of the signal*", Psychologist). This caused disruptions to patient-clinician contact, and limited conversation and assessments: "*When I'm explaining something complicated to a patient, the last thing you want is for them to miss what you say because it's frozen*" (Dietitian). These issues sparked insight into the improvements necessary to make VC more successful, including continued training sessions ("*A drop-in session would be good to ask the questions I have when they come up*", Physiotherapist) and access to appropriate equipment at the location of the consultation ("*Even when we are in the office, we can't always use it. Not only because we don't have the internet, but also because we don't have the equipment*" Psychologist). Also, raising awareness of its use amongst patients, as well as other services that work with these patients would be beneficial ("*The big thing is getting that awareness out there from others other than medics*", Physiotherapist; "*Perhaps if anything more idea sharing across Wales or the UK in how people are doing it, and ways people are doing it*", SLT).

Preference to Use VC

Clinicians held opinions of their modality preference when conducting healthcare appointments. In particular, most stated their choice to use VC over the telephone, due to the added visual element and other functions such as screen sharing: "[*the appointment] would have been really difficult to do that just with telephone calls, being able to share the screen and use resources has added a lot to that*" (SLT). However, there were also comments about using phone instead, and patient uptake of using the telephone for their appointments. As an example, one Psychologist stated that some patients find video calls anxiety-provoking and

would rather use a phone call, and one Occupational Therapist described the usefulness and ease of phone calls for catchups with patients.

Future of VC

Finally, when asked about the future use of VC beyond the restrictions imposed due to the pandemic, a blended approach to appointments was frequently reported, in that clinicians would prefer a mix of face-to-face, VC, and telephone calls where they are deemed appropriate. For example, "*There would be certain patients I would be more than happy to review over video and some patients I wouldn't even contemplate seeing over video and would have to see face-to-face*" (SLT) and "*I would love to keep using [video consulting]. There's always going to be a time for face-to-face in clinics, but I think together they would work really well. Your first couple of appointments face-to-face and then follow-ups on VC would be amazing*" (Occupational Therapist). Positively, there was only comment about not adopting VC as a tool in the future, "*The majority of the team feel the same, we were a lot more keen for it when it was first implemented it was a big change, singing its praises but now we're getting fed up and want to be back face-to-face*" (Physiotherapist).

Discussion

This investigation aimed to capture an understanding of the use of video consultations (VC) and digital alternatives to face-to-face amongst Allied Health Professionals (AHP) in Wales (United Kingdom) during the COVID-19 pandemic. The findings revealed an overall perspective of AHP, as well as moderate differences between the professions. Firstly, from the responses on the survey, a range of different appointments were being conducted using VC, including first appointments, therapy/treatment sessions, follow-ups, and for advice/support. There was a high prevention of face-to-face (traditional appointments),

although patients were less likely to report this prevention, possibly due to confusion in definitions. For instance, patients may have thought that seeing their clinician over a screen constituted face-to-face. The VC platform was rated positively (especially by patients), and a very high percentage of patients stated they would use or consider using VC again in the future for health matters.

Of interest, dietitians, podiatrists/chiropodists, and orthotists/prosthetists reported using VC most for first appointments, compared with therapy/treatment sessions for other professionals (e.g., psychologists, occupational therapists, SLT, physiotherapists). Perhaps this represents an inter-professional differentiation in the use of VC for specific tasks and patient-facing sessions based on the specific needs that clinicians provide for. This does not particularly suggest an inappropriateness of VC for certain sessions (e.g., to initially build rapport [21]) although it is important to consider VC may introduce these issues for some professionals.

Additionally, there was a similar perception of face-to-face prevention across the professionals, except for podiatrists/chiropodists, where this was low and agreed amongst clinicians and patients (below 50%). Tollafield [22] argues that podiatry consultations are best conducted in the patients' home and expresses concerns with the shift from face-to-face to telemedicine. Pang et al. [23] found, however, that patients contacted via telephone or telehealth did not experience increased hospitalisation rates, suggesting, although VC may not be fully appropriate for assessments of conditions, they were sufficient methods in preventing such hospitalisations. Regardless, patients believed they should attend in-person clinics for foot-related issues, such as ulcers, and preferred this modality [23]. This is also supported by the current findings in that podiatry/chiropody patients gave the lowest responses for wanting to use VC again in the future (although this was still high, 81.3%). Asking participants about face-to-face prevention helps us capture an idea of the ability of

VC to act as an appropriate alternative, if VC was not appropriate, clinicians were advised to see patients face-to-face (on a patient-specific basis).

Interestingly, when considering choices, SLT patients were least likely to have been given the choice to use VC. This compares with professions like occupational therapy, where almost half of patients were provided the choice. Giving the choice to patients, where appropriate, may be beneficial in terms of convenience, flexibility, and encouraging control over their own health and care. For instance, limiting time needed to take off work, reducing stress, and eliminating the need for travel [24]. A report by Samuels et al. [25] found that common reasons for not attending healthcare appointments include transportation problems and being unable to take time off work, therefore giving patients the choice could aid in increasing appointment attendance. This proves beneficial to the patient, clinician, and service as a whole.

Secondly, further exploration of narrative interviews with AHP revealed five important themes of VC use. Clinicians accept there are benefits of using digital alternatives, such as enhancing communication, reducing the need for travel [17], and increasing involvement. However, it is also important to highlight the disadvantages, including a lack of patient engagement, missing unobservable information (which aids assessment) [14], as well as negative impacts on staff wellbeing and workloads. Technology also created a barrier [16] and respondents gave recommendations on how this could be improved moving into the future. However, it seemed that VC was preferred over other methods that lacked a visual element, such as telephone calls. Beyond restrictions imposed due to COVID-19, a blended approach was suggested as best, whereby clinicians (with patients considered) can choose, where appropriate, to use face-to-face, VC, and telephone.

Limitations

It is important to consider the current limitations. The survey was distributed to all patients and clinicians completing a VC using one NHS approved platform, and clinicians were interviewed after highlighting their interest on this survey, suggesting they were users of VC. Thus, the responses here do not consider those using other software or not using digital methods for healthcare appointments. It would be interesting to capture the perceptions of those not using VC and explore any reasoning for this lack of use and comparing this to users, especially emerging from the pandemic. Also, the data was collected between March 2020 and August 2021, with the lift of restrictions in healthcare settings in 2022, this may be an outdated perspective.

Furthermore, there were more AHP belonging to certain professions than others. For example, there was a total of 6164 physiotherapists and physiotherapy patients in the survey, and 22 clinician interviews. This compares with only 6 drama therapists. It is possible that physiotherapy appointments are more common within the NHS and social care than drama therapy, or that these professionals were prioritised in the uptake of VC, explaining the discrepancy. Nevertheless, the perspective of the smaller groups is dampened. Also, the interviews did not include patients, meaning their perspectives cannot be qualitatively explored. Future research should aim to target these smaller professionals, as well as patients, to capture opinions and their use of VC to further aid in understanding, especially as the healthcare system evolves and develops as a result of the pandemic.

Conclusion

To conclude, VC seems to be appropriate for a range of different appointment types and activities for AHP. There was a high face-to-face prevention, and high-quality ratings were given for the VC platform. Also, patients were keen to utilise digital alternatives in the future. In addition, qualitative responses revealed benefits and challenges, technological

limitations, necessary improvements, clinicians' preference, as well as the need for a blended approach to healthcare consultations moving forward. This means that, at the clinician's discretion and with the needs of the patient considered, face-to-face, telephone, and VC can be used to create a model of efficiency within NHS services. Regardless, there were some issues reported, especially by clinicians, such as low-quality VC ratings. Technology issues were prevalent, especially as reported in the clinician interviews, and there were reports that VC was not appropriate for all types of appointments (e.g., building rapport with occupational therapists, fatigue and physical strain).

Moving to the future, and post-pandemic, organisations are keen to encourage the uptake of VC for health and social care purposes. Technology Enabled Care (TEC) Cymru create detailed toolkits and infographics to aid in its use, as well as produce informative videos and host workshops (TEC Cymru, accessible from https://digitalhealth.wales/tec-cymru). By providing help and support, the experience of VC may be improved significantly. The pandemic temporarily changed many aspects of health and social care, with the rapid implementation of new and innovative ways of care continuation. Emerging from the pandemic and considering the adverse effects and outcomes over the last few years, these temporary changes can motivate positive and permanent transformations of the way professionals work and function in their roles, within AHP and multi-professionally, optimising resource utilisation, while meeting the needs of the population.

Contributions: GJ and AA contributed to the main design of the study and development of the research questions. JW contributed to the main structure and write-up of the paper, and final amendments to the manuscript. JW and GJ analysed the data with the supervision of AA, SK, and MO. All authors discussed and interpreted the data once analysed and helped structure the manuscript. AA, SK, KP, and MO contributed to the clinical understanding of the findings and shaped the discussion, conclusions, and recommendations. AA was responsible for overseeing the full development of the study design and data collection, the analysis and development and final sign-off of manuscript from a clinical and programme perspective. All authors contributed to proofreading and amendments of the final manuscript.

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Competing Interests: None declared.

Ethics Approval: This study involves human participants and TEC Cymru obtained full ethical approvals and risk assessments from their host Aneurin Bevan University Health Board Research and Development Department (reference number: SA/1114/20), and then national approval was obtained from all other health boards in Wales. Full informed consent was obtained from all participants. At the end of each feedback link, a statement of consent and a compulsory tick box was required prior to feedback submission. Participants that took part in interviews provided verbal consent.

Data sharing statement: Data are available upon reasonable request.

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Figure Legend:

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to clinicians.

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to patients.

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again.

Word Count (excluding abstract, strengths and limitations): 5943

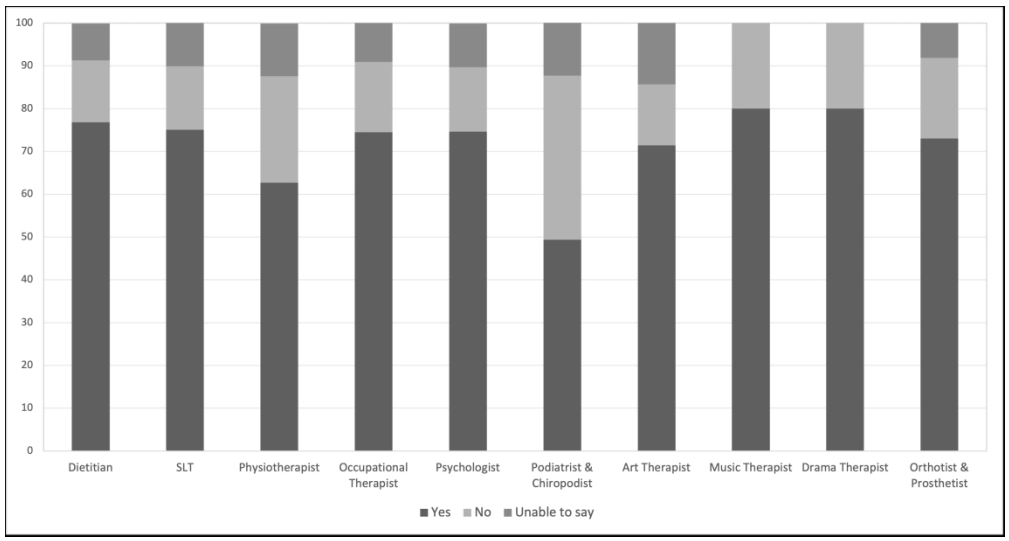

Figure 1. The percentage of responses for whether or not face-to-face was prevented, for each AHP.

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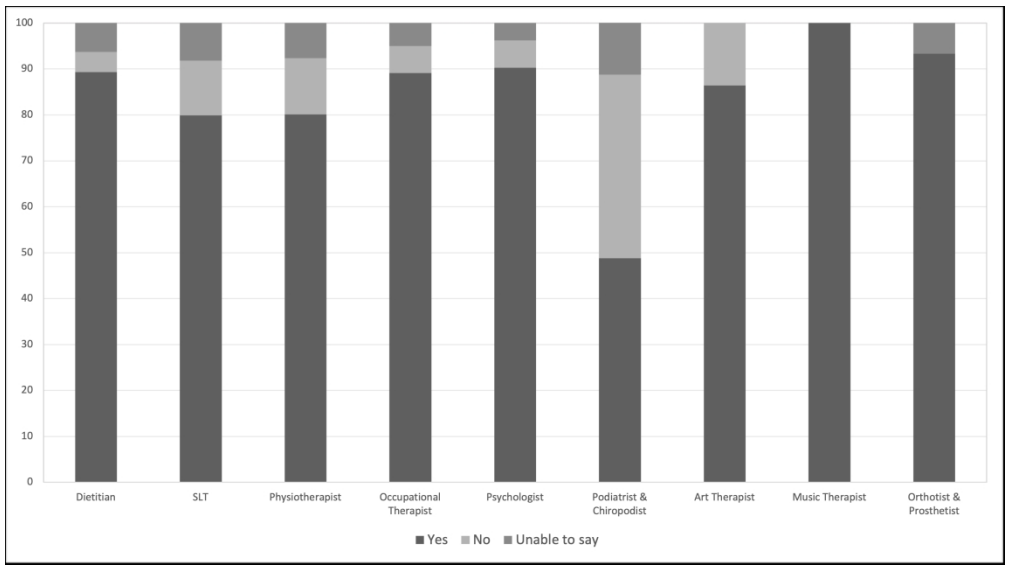

Figure 2. The percentage of responses for whether face-to-face was prevented for each AHP, according to clinicians.

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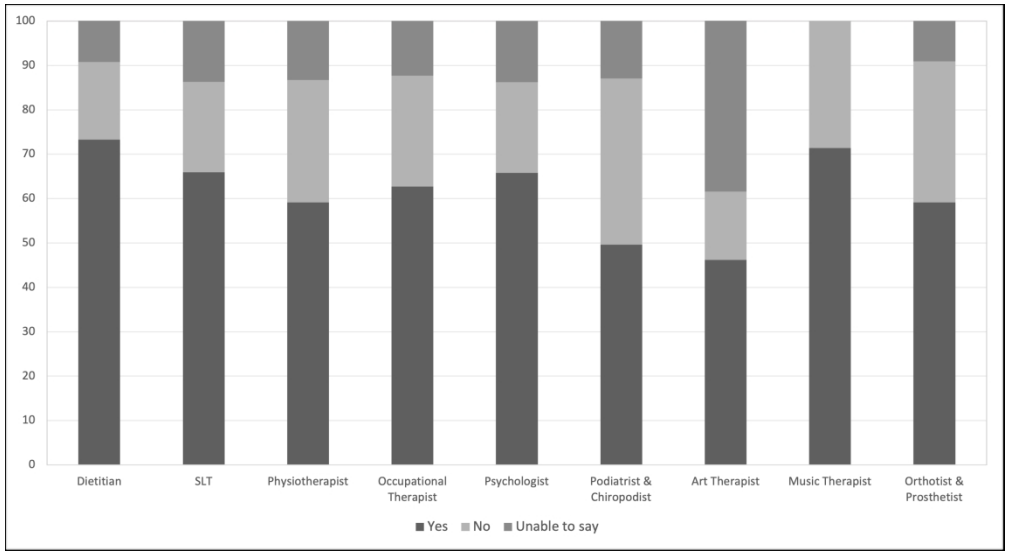

Figure 3. The percentage of responses for whether face-to-face was prevented for each AHP, according to patients.

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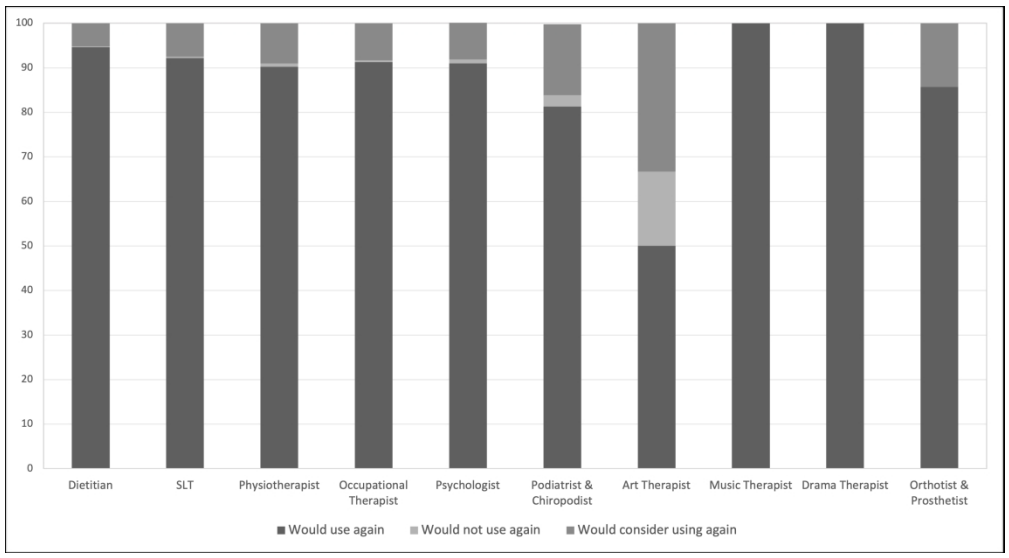

Figure 4. The percentage of patients that stated they would use, not use, or consider using VC again.

247x135mm (330 x 330 DPI)

SM Table 1. The percentage of appointment types being conducted using VC for each AHP.

	Dietitian	SLT	Physiotherapist	Occupational Therapist	Psychologist	Podiatrist & Chiropodist	Art Therapist	Music Therapist	Drama Therapist	Orthotist & Prosthetist
Advice	22.9	6.4	6.8	10.1	4.9	7.4	8	8.3	0.00	5.6
Feedback/Outcomes	0	0.3	0	0.3	0.2	0		8.3	0.00	0
Final Appointment	1.6	0.1	2.8	2.5	1.4	1.1		8.3	0.00	0
First Appointment	30.7	10.6	31.5	23.2	18.9	61.6	6	8.3	0.00	44.4
Follow-up	28.2	30.7	7.3	13.7	6.8	6.1		0	0.00	13.9
Other	8.2	2.3	0.2	2.9	1.3	0	18	0	0.00	0
Review	7.3	14	12.1	9.9	10.5	20.7	2	33.3	40	25
Therapy/Treatment	1.1	35.6	39.2	37.3	55.8	3.1	40	33.3	60	11.1
Total Responses	931	2391	6107	1085	1387	541	3	12	5	36

SM Table 2. The percentage of responses for the quality ratings given to VC, on a scale of 1 (Poor) to 5 (Excellent), for each AHP.

	Dietitian	SLT	Physiotherapist	Occupational Therapist	Psychologist	Podiatrist & Chiropodist	Art Therapist	Music Therapist	Orthotist & Prosthetist
Total Sample									
Excellent	50.7	26.3	51.8	41.7	41.9	44.[illegible]	8.1	58.3	51.4
Very Good	24.2	26.0	29.0	28.6	25.3	27.[illegible]	37.8	0.0	29.7
Good	13.7	21.0	10.4	13.2	16.7	11.[illegible]	40.5	33.3	16.2
Okay	7.2	16.1	4.9	8.8	9.3	6.[illegible]	8.1	8.3	2.7
Poor	4.2	10.6	3.9	7.7	6.7	10.[illegible]	5.4	0.0	0.0
Total Responses	934	3606	6079	1079	1393	54[illegible]	37	12	37
Clinician									
Excellent	34.9	12.4	23.1	23.7	28.7	27.[illegible]	4.2	40.0	53.3
Very Good	19.7	24.4	31.4	31.0	21.5	18.[illegible]	29.2	0.0	26.7
Good	19.3	26.5	19.5	17.6	22.0	16.[illegible]	50.0	60.0	20.0
Okay	15.6	22.1	14.2	14.0	14.6	18.[illegible]	12.5	0.0	0.0
Poor	10.6	14.6	11.8	13.8	13.2	18.[illegible]	4.2	0.0	0.0
Total Responses	218	2384	1094	494	522	16[illegible]	24	5	15
Patient									
Excellent	55.6	53.4	58.1	56.9	49.7	51.[illegible]	15.4	71.4	50.0
Very Good	25.6	29.1	28.4	26.7	27.2	31.[illegible]	53.8	14.3	31.8
Good	12.0	10.4	8.4	9.4	13.5	9.8	23.1	14.3	13.6
Okay	4.6	4.3	2.9	4.4	6.2	1.6	0.0	0.0	4.5
Poor	2.2	2.7	2.2	2.6	2.9	6.3	7.7	0.0	0.0
Total Responses	716	1222	4985	585	871	379	13	7	22

Topic Guide for Interview Evaluation

1. **Type of Service/Type of clinician (speaking to):**
2. **Opening Question – get a feel of how they feel about VC.**

   Ask – how do you find VC – do you like it?

   Overall rating/experience VC – for you & your service

3. **What works for VC?** (technically, clinical conditions or patients demographics, geographic area and so on)
   What doesn't work for VC?
4. **Benefits & Challenges of VC**

Probe for DNA rates – increase/decrease, probe for type of travel expenses clinicians would usually claim, probe for biggest benefit for patients and so on.

5. As we come out of Wave 1 and enter Wave 2

   How has your VC experience been, and how has it improved (or not)?

   (Probe here if it's being used more or less in this time)

6. **What is VC being used for?**

   How often?
   Approx. number & types of clinicians using VC? (Probe: who's NOT using it, why?) Approx. number of & types of patients using VC?

Duration of VC, TC, F2F (e.g., how much of each approx. is being used) Is VC offered as a patient choice or a service choice?

7. How is VC set up in your service?

- - Process of booking, who does it, how it's done? (e.g., by admin or clinician)
- - Is VC implemented in their systems - Can they book a VC straight from the system – or

  is it still manual

- - On a measure delivering VC - in terms of ad hoc (at 1) to routine practice (at 10) –

  where is your service currently sitting?

  -

8. Do you see yourselves / and your service using VC in the long-term future?

What will your service look like in the future – regarding VC & its place (approx. amount of long-term VCs do you see happening?)

How do **clinicians, admin and management teams feel about VC** – do they all to use it? Who is the most/least set-up or keen?

How do you feel about VC?

- - Workload (increased, decreased)
- - Overall wellbeing of self & colleagues
- - Burnout/VC Fatigue? Other

9. What **additional support** do you/does your service need? What else would make VC better?

Point to TEC website and resources if unknown

10. Memorable stories/moments/cases.

SM: Clinician Survey

Clinician Survey (Phase 2)

Please complete this survey regularly & in full to provide feedback to your service.

1. Please rate the quality of your video consultation? Rhowch sgôr i ansawdd eich galwad fideo?

Poor Gwael	Okay Iawn	Good Da	Very Good Da iawn	Excellent Ardderchog
☆	☆	☆	☆	☆

Comments?

2. Please provide a short description or case study example of your most recent video consultation e.g., an overview of the patient type, condition, VC experience, outcomes

Darparwch ddisgrfiad byr/ astudiaeth achos byr o'ch ymgynghoriad fideo diweddaraf e.e., y math, cyflwr, profiad, VC a chanlyniadau'r claf.

Patient/Condition
Claf/Cyflwr

Outcomes/Experience
Canlyniadau/Profiad

3. What is your profession & speciality? Beth yw eich proffesiwn ac arbenigedd?

Please only enter 'other' if your profession/speciality is not on the list.

	Profession Proffesiwn	Speciality Arbenigedd
Profession & Speciality Proffesiwn & Arbenigedd		

Other (please specify)

4. What do you consider was the primary activity of this video consultation?
Beth oedd y prif weithgaredd yn yr ymgynghoriad fideo?

- ○ First Appointment apwyntiad cyntaf
- ○ Follow-up dilyniant
- ○ Review adolygiad
- ○ Therapy Session sesiwn therapi
- ○ Other (please specify)
- ○ Advice & Support cyngor a chymorth
- ○ Feedback/Outcomes/Results adborth/ allbwn/ canlyniadau
- ○ Discharge rhyddhad

5. Did you experience any issues or difficulties with your video consultation today? A wnaethoch chi brofi unrhyw broblemau neu anawsterau gyda'ch ymgynghoriad fideo heddiw?

	Very relevant	Relevant	Quite relevant	Not relevant	Not at all relevant	N/A
Issues with a device Mynediad at ddyfais	○	○	○	○	○	○
Issues with Internet connection Cysylltedd gwael â'r rhyngrwyd	○	○	○	○	○	○
Issues with video/picture Problemau gyda fideo	○	○	○	○	○	○
Issues with audio/sound Problemau gyda sain	○	○	○	○	○	○
Issues on the patients side e.g., their device, Internet or lack of confidence using video Problemau gydag ochr y claf	○	○	○	○	○	○
I lack the confidence using video consultation Diffyg hyder wrth ddefnyddio galwadau fideo	○	○	○	○	○	○
Not suitable for clinical needs Ddim yn briodol neu'n addas	○	○	○	○	○	○
I prefer face to face or telephone Mae'n well gen i wyneb yn wyneb neu dros y ffôn	○	○	○	○	○	○
The patient prefers face to face or telephone Mae'r claf yn cyfeirio wyneb yn wyneb neu dros y ffôn	○	○	○	○	○	○

Other (please specify)

6. What do you consider to be the benefits of your work or your service of using video consultation today? Beth yn eich barn chi yw buddion eich gwaith neu'ch gwasanaeth o ddefnyddio ymgynghoriad fideo heddiw?

	Very beneficial Buddiol iawn	Beneficial Buddiol	Quite beneficial Eithaf Buddiol	Not beneficial Dim yn Buddiol	Not at all beneficial Dim yn Buddiol o gwbl	N/A
More efficient use of clinical time & space Defnydd mwy effeithlon o amser a lle	○	○	○	○	○	○
Saved travel & parking Arbed teithio a pharcio	○	○	○	○	○	○
Saved the environment e.g., less paper waste, co2 emissions Arbed yr amgylchedd ac allbwn co2 a phapur	○	○	○	○	○	○
Improved access to care for patient Gwella mynediad i ofal am y claf	○	○	○	○	○	○
Reduced waiting times for patient Lleihau amseroedd aros i'r claf	○	○	○	○	○	○
Reduced likelihood of a DNA Lleihau'r siawns o DNA	○	○	○	○	○	○
Improved family involvement & support for patient Gwella cymorth a chyfranogiad i'r claf	○	○	○	○	○	○
Lowered rates of infection risk Lleihau'r gyfradd heintiad	○	○	○	○	○	○

Other (please specify)

7. Do you think that this consultation...
Ydych chi'n meddwl bod yr ymgynghoriad hwn ...

- ◯ Prevented the need for a face-to-face (F2F) consultation Osgoi'r angen am wyneb i wyneb
- ◯ Enhanced the clinical session by providing visual (delayed need for F2F) Wedi gwella'r sesiwn clinigol gan ychwanegu elfen weledol
- ◯ Both y ddau
- ◯ Neither (needed to do a face-to-face consultation) ychwaith
- ◯ Unable to say Methu dweud

Other (please specify)

8. Which Health Board Region are you in? O ba Ranbarth Bwrdd Iechyd ydych chi'n dod?

- ◯ Aneurin Bevan University Health Board
- ◯ Betsi Cadwaladr University Health Board
- ◯ Cardiff & Vale University Health Board
- ◯ Cwm Taf Morgannwg University Health Board
- ◯ Hywel Dda University Health Board
- ◯ Powys Teaching Health Board
- ◯ Swansea Bay University Health Board
- ◯ Velindre Cancer Centre

9. What is your local area/authority? Beth yw eich ardal / awdurdod lleol?

Refer to the workplace or remote (e.g., home) working place that you are working from today.

	Local Area/Authority	Type of Area
Local Area & Type		

Other (please specify)

10. Any other comments, questions or concerns?
Unrhyw sylwadau, cwesitynau neu bryderon eraill?

For example, is there additional support you may need? Or could anything be improved with the platform?

11. **Please tick the box if this consultation was with a care home or nursing home** Marciwch y bocs os oedd yr ymgynghoriad hwn gyda chartref nyrsio neu ofal.

- ☐ Yes

SM: Patient Survey

Please tell us how your video consultation went today

Dywedwch wrthym sut aeth eich ymgynghoriad fid

For data protection purposes, please do not enter any personal details on this form such as your name, or other people's names. Er mwyn diogelu data, peidiwch â mewnbynnu unrhyw fanylion fel eich enw neu enwau pobl arall ar y ffurflen hon.

PLEASE NOTE: If you are using a small device e.g., a phone - please ensure you complete all questions (to the right of the screen) as you may not be able to see them all on your screen.

1. Please rate the quality of your video consultation Rhowch sgôr i ansawdd eich galwad fideo

Poor Gwael	Okay Iawn	Good Da	Very Good Da iawn	Excellent Ardderchog
★	★	★	★	★

Any comments?
e.g., what worked well, or not so well?

Unrhyw sylwadau?

2. What device did you use for your video consultation today? Pa ddyfais wnaethoch chi ei defnyddio?

	Type of phone Math ffon	Type of tablet/iPad Math tabled	Type of laptop Math clyniadur	Type of computer Math cyfrifiadur
Type of device Math dyfais				

Other (please specify)

3. Did you experience any difficulties with your video consultation today? Gwelwch chi unrhyw anawsterau gydag eich ymgynghoriad fideo heddiw?

	A lot Llawer	Some Rhywfaint	A little Ychydig	Not at all Dim	N/A
Difficulties with a device Anawsterau Gyda dyfais	○	○	○	○	○
Difficulties with Internet connection Anawsterau gyda chysylltiad rhyngrwyd	○	○	○	○	○
Difficulties with video/picture Anawsterau gyda llun/ fideo	○	○	○	○	○
Difficulties with audio/sound Anawsterau gyda sain	○	○	○	○	○
Difficulties with privacy or a safe space Anawsteru gyda diogelwch neu pbeifatrwydd	○	○	○	○	○
Lack of confidence using video calls Diffyg hyder gyda defnydd fideo	○	○	○	○	○
Not suitable for clinical needs Anaddas am anghenion clinigol	○	○	○	○	○
Prefer face to face or telephone Mae'n well gen i wyneb yn wyneb neu dros y ffôn	○	○	○	○	○

4. How did your video consultation benefit you today? Sut aeth yr ymgynghoriad fideo buddio chi heddiw?

	Very beneficial Buddiol iawn	Beneficial Buddiol	Quite beneficial Eithaf Buddiol	Not beneficial Dim yn Buddies	Not at all beneficial Dim yn Buddiol o gwbl	N/A
Saved time & preparation Arbed Amser a Pharatoi	○	○	○	○	○	○
Saved travel & parking Arbed teithio	○	○	○	○	○	○
Saved the environment & co2 emissions Arbed yr amgylchedd ac allbwn co2	○	○	○	○	○	○
Saved taking time off school, work or other commitments Arbed amser o waith, ysgol neu ymrwymiadau	○	○	○	○	○	○
Saved money e.g., childcare, travel Arbed arian am ofal plant/ teithio	○	○	○	○	○	○
Improved access to care & waiting times Gwella mynediad i ofal ac amser aros	○	○	○	○	○	○
Improved convenience e.g., staying at home Gwella hwylustod e.e. aros adref	○	○	○	○	○	○
Improved family involvement & support Gwella cyfranogiad a chymorth teulu	○	○	○	○	○	○
Lowered rates of infection risk Lleihau cyfraddau haint	○	○	○	○	○	○
Lowered stress and anxiety Lleihau straen a phryder	○	○	○	○	○	○

5. How many times have you used video for a health or social care consultation, and would you use it again? Sawl gwaith ydych chi wedi defnyddio fideo am ymgynghoriad iechyd neu ofal iechyd, a byddwch chi'n defnyddio eto?

	How many times have you used a video consultation? Sawl gwaith ydych chi wedi ei defnyddio?	Would you like to use video consultation again? Byddwch chi'n ei defnyddio eto?
Video Consultation Use Defnydd fideo		

6. What was your video consultation related to today? Beth oedd eich ymgynghoriad fideo yn ynghylch heddiw?

- ◯ First time appointment — Awyntiad gyntaf
- ◯ Review of my health and/or results — Adolygiad iechyd/ canlyniadau
- ◯ Therapy or treatment session — Therapi neu sesiwn triniaeth
- ◯ Advice & support — Cymorth neu gyngor
- ◯ Final appointment & discharge — Apwyntiad olaf neu ryddhad

Other (please specify)

7. Do you feel that this video consultation prevented you needing a face-to-face appointment?

(In other words, did you need to attend in-person after this video for this appointment needs only)

Wnaeth yr ymgynghoriad fideo osgoi'r angen i'r claf gael apwyntiad wyneb i wyneb?

- ◯ Yes Ie
- ◯ No na
- ◯ I don't know ansicr

Please describe this in more detail if you wish:
Disgrifiwch yn fanylder os hoffwch

8. For your video consultation today, what type of healthcare speciality and professional did you see? Am eich ymgynghoriad fideo heddiw, pa fath o arbenigwr a phroffesiwn gwelwch chi?

	Health Condition Speciality Arbenigrwydd cyflwr iechyd	Professional Phroffesiwn
Speciality & Professional Arbenigwr a Phroffesiwn		

Please state the health-related reason for your video consultation today?

9. Whose choice was it to have a video consultation today? Dewis pwy oedd cael ymgynghoriad fideo heddiw?

- ◯ I (the patient/or family) was given the choice of consultation, and I opted for a video consultation — Derbyniais i, y claf, y dewis i dderbyn ymgynghoriad fideo, ac fe dywysais i.
- ◯ I was informed by my service that my consultation would be via video — Cefais wybod bydd yr ymgynghoriad trwy fideo.
- ◯ Video consultation is the only option available — Roedd ymgynghoriad fideo yn yr unig opsiwn
- ◯ I don't know — Ansicr

Other (please specify)

10. How long would it typically take you to travel from your home to your consultation? (one way) Pa mor hir fyddai hi'n cymryd i chi deithio i'ch apwyntiad fel arfer?

Hours/Minutes
Horiau/ munudau

Miles (if known)
Milltiroedd (os yw'n hysbys)

11. Which Health Board Region are you in? O ba Ranbarth Bwrdd Iechyd ydych chi'n dod?

- Aneurin Bevan University Health Board
- Betsi Cadwaladr University Health Board
- Cardiff & Vale University Health Board
- Cwm Taf Morgannwg University Health Board
- Hywel Dda University Health Board
- Powys Teaching Health Board
- Swansea Bay University Health Board
- Velindre Cancer Centre

12. What is your local area/authority? Beth yw eich ardal / awdurdod lleol?

	Local Area / Authority	Type of Area
Local Area & Type		

Other (please specify)

13. How would the patient describe themselves? Sut yw'r claf yn disgrifio ei hun?

	Age Old	Gender Rhyw	Ethnicity Ethnigrwydd	Household Income Incwm cartref	Dis Ana
Demographics Demograffeg					

Reporting checklist for cross sectional study.

Based on the STROBE cross sectional guidelines.

Instructions to authors

Complete this checklist by entering the page numbers from your manuscript where readers will find each of the items listed below.

Your article may not currently address all the items on the checklist. Please modify your text to include the missing information. If you are certain that an item does not apply, please write "n/a" and provide a short explanation.

Upload your completed checklist as an extra file when you submit to a journal.

In your methods section, say that you used the STROBE cross sectionalreporting guidelines, and cite them as:

von Elm E, Altman DG, Egger M, Pocock SJ, Gotzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies.

		Reporting Item	Page Number
Title and abstract			
Title	#1a	Indicate the study's design with a commonly used term in the title or the abstract	1
Abstract	#1b	Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background / rationale	#2	Explain the scientific background and rationale for the investigation being reported	3-6
Objectives	#3	State specific objectives, including any prespecified hypotheses	6-7
Methods			
Study design	#4	Present key elements of study design early in the paper	7
Setting	#5	Describe the setting, locations, and relevant dates, including periods	7

		of recruitment, exposure, follow-up, and data collection	
Eligibility criteria	#6a	Give the eligibility criteria, and the sources and methods of selection of participants.	7
	#7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	8-9
Data sources / measurement	#8	For each variable of interest give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group. Give information separately for for exposed and unexposed groups if applicable.	8-9
Bias	#9	Describe any efforts to address potential sources of bias	
Study size	#10	Explain how the study size was arrived at	7-8
Quantitative variables	#11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	10
Statistical methods	#12a	Describe all statistical methods, including those used to control for confounding	10
Statistical methods	#12b	Describe any methods used to examine subgroups and interactions	10
Statistical methods	#12c	Explain how missing data were addressed	9
Statistical methods	#12d	If applicable, describe analytical methods taking account of sampling strategy	
Statistical methods	#12e	Describe any sensitivity analyses	
Results			
Participants	#13a	Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed. Give information separately for for exposed and unexposed groups if applicable.	Throughout
Participants	#13b	Give reasons for non-participation at each stage	9

Participants	#13c	Consider use of a flow diagram	
Descriptive data	#14a	Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders. Give information separately for exposed and unexposed groups if applicable.	
Descriptive data	#14b	Indicate number of participants with missing data for each variable of interest	Throughout
Outcome data	#15	Report numbers of outcome events or summary measures. Give information separately for exposed and unexposed groups if applicable.	
Main results	#16a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	
Main results	#16b	Report category boundaries when continuous variables were categorized	Throughout
Main results	#16c	If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	#17	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses	
Discussion			
Key results	#18	Summarise key results with reference to study objectives	23
Limitations	#19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	25
Interpretation	#20	Give a cautious overall interpretation considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.	26
Generalisability	#21	Discuss the generalisability (external validity) of the study results	25-26
Other Information			

Funding	#22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	30