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Feasibility study of student telehealth interviews

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Abstract

Background: The COVID-19 pandemic has led to medical students being taught remote clinical communication modalities (telephone and video). Junior students have not generally been included in this and have had less patient contact than previously. This study aimed to examine the feasibility from the junior student viewpoint of conducting both modalities of patient telehealth interviews.

Methods: An electronic questionnaire was used to discover Year 1 student reasons for their preferred modality after they had conducted one telephone and one video interview in pairs with a patient volunteer. Student views on the challenge and benefits of each were also sought.

Findings: A total of 55 (32.7% of the cohort) responded, of whom 82% preferred video consultation, 75.6% of those stating being able to see their patient/partner was a key factor. About 5% preferred telephone interview, and 13% had no preference. Telephone interviews were perceived as the more challenging (40% versus 12.7%); however, challenge did not directly link with lack of comfort. There were some technical/connectivity issues with both modalities, and the telephone call system was more complex to set up. Turn-taking was more difficult by telephone without visual cues.

Discussion: This is the first direct comparison study in junior medical students of real patient interviews by video or telephone. Students embraced the challenge and, although preferring video and finding telephone more challenging, valued each as an educational experience.

Conclusions: Telehealth interviews with patients for junior students are feasible, give needed patient exposure, practical insights into remote modalities and consolidate communication skills learnt in the classroom.

1 | BACKGROUND

Traditionally, most synchronous medical consultations have been undertaken face to face (F2F), with a small percentage by telephone or video link (70% F2F and 25% remotely in the UK in July 2019[1]; hence, undergraduate consultation skills education has equipped students for predominantly F2F encounters. Prior to 2020, medical students' remote interview exposure was limited,[2] confined to years 2–5[2–4] or mainly post-graduate.[2,5,6] A 20-year systematic review of undergraduate medicine literature to February 2020[2] found evidence of telemedicine curricula in only three countries worldwide, predominantly USA where it has been recommended training for all medical students since 2016[7–9] and a required learning outcome in accredited Occupational Therapy training since 2018.[10]

The COVID-19 pandemic influenced this educational landscape massively,[1,11] and there has been a rapid adoption of telehealth

elsewhere in the world,[11-14] alongside an imperative need for clinicians to learn to use it well and for students to gain the related skills they will need in future clinical practice.[9,15,16] Social distancing measures made providing authentic patient experiences for medical students challenging, and senior students were given priority for placements.[13] In light of the limited clinical exposure that junior medical students were receiving, it was important to know whether unsupervised telehealth interviews by video or by telephone would be feasible as a placement alternative for junior students.

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2 | CONTEXT FOR THIS STUDY

In 2020/2021, Keele Medical School newly taught video and telephone interview skills to Year 1 students as part of an innovated curriculum; and as clinical placements were suspended, alternative patient experience was set up in the form of telehealth[9,17] interviews, one by video and one by telephone with a real patient recruited from the School's Patient Volunteer database. The Patients as Educators (PasE) team booked and briefed suitable patient volunteers with chronic illness(es) and provided on-the-day technical support. These formative interviews were conducted in student pairs as we believe that the triadic interview format gives safety, fosters collaboration and encourages effective active listening. The video platform accuRx Fleming is secure and employed in more than 90% UK primary care settings[18]; telephone interviews were audio only and used Amazon Call Connect. Students were in campus accommodation or at home; interviews were unsupervised, and guidance and training were given to use a standard format (opening, gathering information in biopsychosocial dimensions and closing). A routine online evaluation of this innovation immediately after their first interview was used to monitor student and patient satisfaction and administrative elements.[19] In addition, this study was devised to look at whether the novel experience of telephone and video modality is of educational value to a cohort of Year 1 students and explored the relative strengths, challenges and limitations of each approach.

3 | METHODS

Ethical approval was gained from the Keele University School of Medicine Student Project Ethics Committee (S-SPEC) for this study. All

Year 1 students had two mandatory telehealth interviews. An email invitation was sent in March 2021 to all 168 Year 1 medical students after their second interview with details of the study, links to an electronic consent form and a Microsoft Forms questionnaire (Appendix A). Reminder emails were issued to all students, 2 and 4 weeks after the original invitation. The anonymised questionnaire responses were viewed by the researchers. Students were offered a certificate of participation to recognise their involvement in the study.

The questionnaire was developed between two lead researchers and piloted within the PasE team; it utilised (mandatory) Likert scales and free-text boxes and focused on telephone and video modalities individually and in comparison to one another. Students were asked about strengths and weaknesses of each, their preference, comfort and challenge, preparedness, the perceived educational value and how well each enabled effective communication and the development of a good rapport. Baseline information was collected about student's prior experience of interviewing patients remotely themselves and of which interview modality they undertook first (50% were randomly allocated video first).

Questionnaire responses were analysed by simple comparative statistics. ZZ performed a content analysis of free-text content; AI independently confirmed identification and frequency counts of all emerging themes.
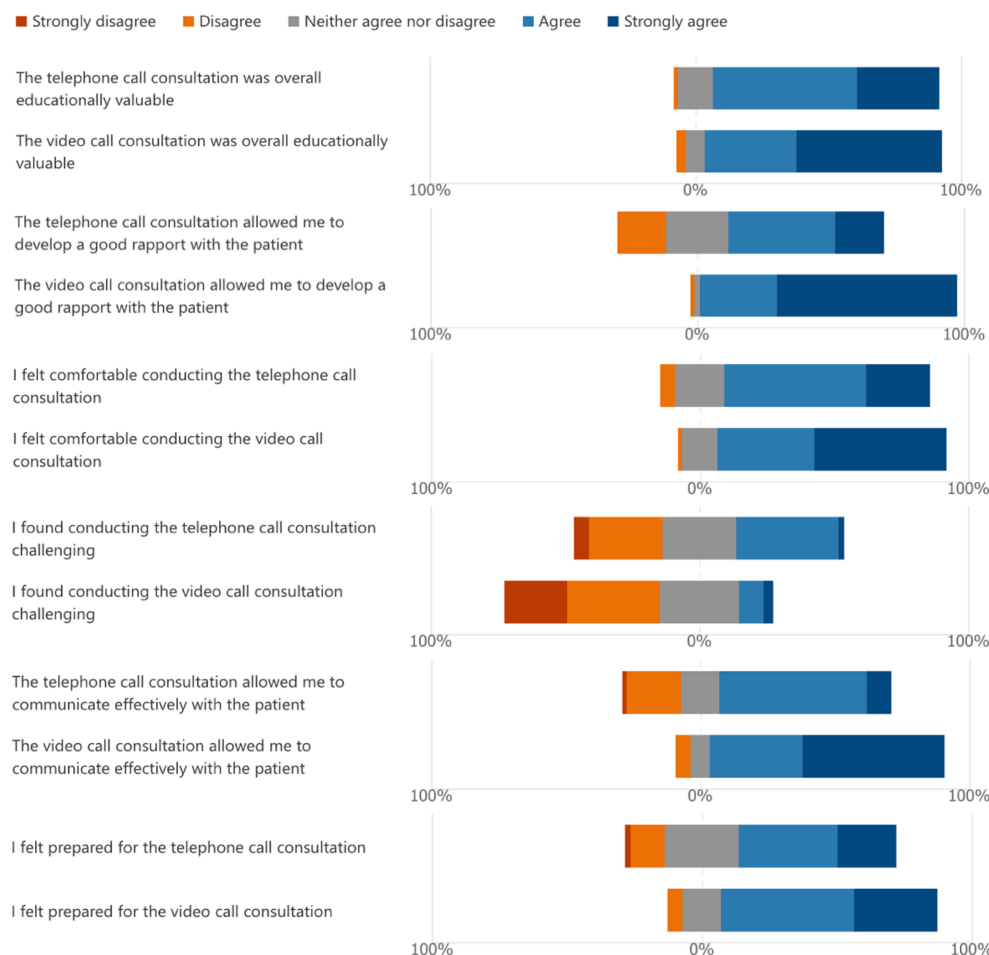
4 | FINDINGS

Of 167 students who completed the planned interviews, 55 (32.7%) participated in this study. All experienced both modalities, with 56.4% conducting telephone consultation first. There was limited previous experience of a telehealth consultation with a patient: 7.3% by telephone and 12.7% by video call. Students' responses on the Likert scales within the survey are shown in Figure 1, and some individual responses shown in full in Figure 2. Main themes arising from open-text responses are summarised in Table 1.

4.1 | Preferred modality

About 81.8% of students preferred the video call consultation, 5.5% preferred telephone and 12.7% had no preference.

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All 55 respondents gave open comments on their preference, and 76.4% mentioned that being able to see their patient helped them to build a rapport.

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Among the seven students who had no preference, two said the patient made the difference and two felt both were valuable for future practice and that telephone, although harder, enabled the student to think about the modality and adjust their style accordingly (Figure 2: 2.1).

4.2 | Overall educational value

A high proportion of students thought each consultation mode was educationally valuable (89% strong agreement/agreement for video,

85.4% for telephone). Agreement strength was higher for video. Of the 34 students (61.8%) who added comments, 55.9% mentioned non-verbal information as enhancing communication and 14.8% cited issues with pair-working complicated the process.

4.3 | Ability to develop a good rapport with patient

More students felt that a good rapport was enabled by video (96.4% strong agreement/agreement versus 58.2% for telephone). About 18.2% found establishing rapport more difficult with telephone (disagreed), compared with 1.8% for video. The predominant comment was that direct patient visualisation helped students pick up on non-verbal cues (20 students) and "connect and empathise" better (Figure 2: 2.2). Students noted that with video call, the patient could physically point to the areas of their body affected, and it gave added information such as the patient's living arrangements.

4.4 | Comfort and challenge

Students felt more comfortable with their video consultation than with their telephone consultation (85.5% strong agreement/agreement versus

- 2.1: "I think they both provided very valuable learning opportunities and gave me the opportunity to think about the way in which I need to alter, or adjust my communication style to suit the modality of the consultation, as well as the person you are talking to. They are both methods which I will undoubtedly need to use in the future so both were equally useful and enjoyable for me!"
- 2.2: "Video call helped me connect and empathise with the patient more."
- 2.3: "Both were slightly intimidating but the video was more intimidating as we were more observed and visible".
- 2.4: "I felt comfortable because I had another student with me during the call. For the video consultation it was easier to bounce off each other and alternate questions. For the telephone call it was a bit more difficult to do so one person went first and then the other person would follow on afterwards. The patients also were friendly and were willing to share their experience so that made it easier"
- 2.5: "The patient was very chatty and volunteered a lot of information"
- 2.6: *Student who preferred the telephone call consultation*: "I was able to understand what the patient was saying and was able to build a good rapport. I felt this was hindered slightly when I was doing a video-consultation, as the internet lagging would make it difficult to communicate."
- 2.7: "During the telephone interview we had to pick up on very subtle hints of tone and mood. It makes you realize how much communication is non-verbal and how to make up for it when those aspects are compromised."
- 2.8: "I found the telephone call particularly useful in giving me experience and more confidence with my verbal communication skills. In practice telephone calls are used frequently, even prior to the current situation, and was something that was daunting to me due to the lack of visual prompts and aids available to lean on if I got stuck but also due to the importance I place on facial expressions and body language in helping me truly understand conversations. Getting to experience a call with no video aspect really helped me to think about how to use timing and silences better and really focus on hearing what the person has to say. It also has made me feel much more comfortable about telephone consultations as I now know, and have experienced, how I would overcome the things that worried me about them before."
- 2.9: *When asked what would have made the telephone call consultation better:* "I felt a little unprepared for both consultations as I felt like I didn't have enough information and I felt almost unclear on what I was aiming to accomplish with the consultations. Looking back, I think this was probably because I didn't really know what to expect, and because I hadn't used the different software I felt even more nervous. The information sheets with the step by step guides were really helpful and I emailed about the one query I did have and that was answered promptly. I think because there was no 'presenting complaint' and the consultations were more of a general conversation."
- 2.10: "I preferred the video consultation because it allowed for better communication through body language and facial expression. It felt more intimate and realistic like in real life."
- 2.11: "I believe the telephone consultation was just as valuable as the video call consultation as it is vital we get experience from patients without visual cues."

76.4%), though two students felt that video consulting was more "intimidating" as they were "observed and visible" (Figure 2: 2.3). Having a student partner helped as "it was easier to bounce off each other" in video but more difficult to sequence for telephone (Figure 2: 2.4). Having a "friendly" (Figure 2: 2.4) or "chatty" patient (Figure 2: 2.5) also helped.

Telephone consultations were seen as more challenging (40% students strongly agreed/agreed challenging versus 2.7% for video). Predominant were technical issues (10/21 responses): Turn-taking in video was difficult when there was "internet lagging" (Figure 2: 2.6), and for telephone, service problems disrupted conversation flow. Students found telephone set-up harder as it involved multiple steps, whereas video used a simple link.

Students who found both modalities equally educationally valuable and the telephone call more challenging gained a better appreciation of non-verbal cues, for instance, picking up on "very subtle hints of tone and mood" (Figure 2: 2.7). Also, as they needed to use more specific questions and clarify more, telephone helped to improve their history-taking and "to think about how to use timing and silences better" (Figure 2: 2.8).

For those students who found a modality challenging, a similar proportion felt *comfortable* with the modality (59.1%: telephone; 57.1%: video), but a higher proportion of students that found video challenging was not comfortable with the modality (14.3% versus 9.1%), 'being seen' was a key factor in this for two students.

4.5 | Allowed effective communication

Significantly more participants felt video allowed them to communicate more effectively than with telephone (87% strongly agreed/agreed for video; 63.6% for telephone). About 21.8% felt communication was ineffective (disagreed/strongly disagreed) with telephone compared with 5.5% for video. One student felt it was more intimidating handling a sensitive mental health topic by telephone; another felt the difficulties in communicating via telephone led to a longer consultation. Again, non-verbal information featured predominantly in student comments (12/25 students); five were centred around pair-working.

TABLE 1 Main themes and number of students making comments

Open-text question	Number of student responses and main themes (3 or more responses)	
*Reasons students gave for **preferring their stated modality***	All 55 students added a comment ***Themes and number of students who wrote each***: 42: Being able to see patient helped build rapport (video thus better) 5: Both valuable 4: Video felt more real 3: Familiarity determined preference 3: Being able to see helped interaction with student partner	
*Comments students gave re the **educational value** of the modality*	34 students added a comment ***Themes and number who wrote each***: 19: Non-verbal communication 5: Working in a pair reduced the educational value 3: Both modalities are of value	
*Please add any comments you have about **how each modality affected your ability to develop a good rapport***	35 students added a comment ***Themes***: 20: Lack of non-verbals affects reading emotions and thus rapport (in telephone) 9: Rapport 4: Patient factors	
*Student comments re how **comfortable they felt** with each modality*	24 students added a comment ***Themes***: 8: Comfortable with both 8: Technical issues affected this 6: Comfortable/not with access (3 yes; 3 no) 5: More comfortable when could see the patient 3: Second student helped	
*Student comments re **the challenges each modality presented***	21 students added a comment ***Themes***: 10: Technical issues affected this (set-up and connectivity) 6: Lack of visual information 3: Three-way working	
*Comments students gave re how each modality **allowed you to communicate** effectively with the patient*	25 students added a comment ***Themes***: 12: Non-verbal help gauge emotions and build rapport 5: Working in pairs 3: Technical issues affected this	
*Comments students gave re **how prepared they felt** for the two different types of consultation*	26 students added a comment ***Themes***: preparedness was affected by: 21: Prior experience and prior communication skills teaching 3: Booking information and backup	
***Best aspects** of the modality*	**Telephone:** 36 student comments; ***themes***: 9: Having helpful patients 8: Practising interviewing a patient 4: Liked the set-up 3: Practise with telephone 3: Can take notes	**Video:** 36 student comments; ***themes***: 25: Non-verbal factors 12: Led to a better rapport 8: Sequencing
Improvements: what would have made your call better?	**Telephone:** 31 student comments; ***themes***: 4: More time 3: More practice 3: Better connection	**Video:** 22 student comments; ***themes***: 7: Technical or IT improvements

4.6 | Preparedness

More students felt prepared for their video consultation (80% strongly agreed/agreed) than for telephone (58.2%). The key factor was experience related to students' prior classroom teaching (21/26), which was less for telephone: "I didn't really know what to expect, and because I hadn't used the different software I felt even more nervous" (Figure 2: 2.9). Ordering of modalities was a factor: Two of the three students who preferred telephone had completed their video call first, all of whom found video more challenging (when they were less experienced). Also, the interview format was different from prior simulated interviews: "I think because there was no 'presenting

complaint' and the consultations were more of a general conversation" (Figure 2: 2.9).

4.7 | Best aspects and what could have improved the experience of that modality

The best aspect of video call was the non-verbal factors (25 students), with the next two aspects—better rapport (12) and sequencing (8)—also heavily influenced by visual information. One student noted that video felt "more intimate and realistic like in real life" (Figure 2: 2.10). For telephone, nine students noted having helpful patients as the best aspect, with eight stating being able to interview a patient and three citing the opportunity to practise with that modality, with several students recognising the value of experience in each modality: "I believe the telephone consultation was just as valuable as the video call consultation as it is vital we get experience from patients without visual cues" (Figure 2: 2.11). The most commonly-suggested improvements for video related to technical/IT issues (7), and for telephone, more time (4), more practice (4) or a better connection (3).

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5 | DISCUSSION

The high educational value found in our study mirrors that found by Budakoğlu et al.[2] in more senior medical students. Unrue et al.[20] is the only other study of the effectiveness of telemedicine training for a cohort of Year 1 students (in osteopathy) but used a simulated patient rather than a real patient encounter. They reported improved student self-confidence and satisfaction with telemedicine.

Ours is the first direct comparison study of two remote modalities in a whole cohort of Year 1 medical students. Rush et al.[21] found that

such comparisons have been 'surprisingly limited' in the world literature. Hammersley et al. studied this in general practices where telephone consultation was found to be more useful for managing patients' problems than video (78% versus 65%). Our students preferred video, and this may reflect differing purpose and time frame of the calls.

The value of non-verbal information is widely recognised in video consultation.[4,22,23] Our students found that non-verbal communication allowed them to better read emotions and display empathy and establish a stronger rapport. Others have found in consultations with a heavy psychological component that non-verbal communication matters more.[6,24]

The extra challenges that we found with telephone interviews were similar to final year students' experiences in Mulvihill et al.[4]; however, that study did not contrast the two modalities specifically nor comment on rapport building, comfort or preference. Our students noted that for telephone, they had to use more specific questions and clarify more, which led to a more accurate and comprehensive history. Mulvihill et al.[4] similarly identified this challenge as being a useful opportunity to advance verbal communication skills.

Explanations for telephone being less favoured, apart from absence of visual cues, are less classroom exposure and the more complicated set-up combined with the triadic format. For video, many students are already familiar with setting up video for chat and teaching.

Our finding that students who feel challenged do not necessarily feel uncomfortable may be explained by the fact that students, as they learn a new skill, push themselves out of their comfort zone; this performance anxiety is inherently uncomfortable,[25] but the related confidence building brings comfort.

5.1 | Strengths and limitations of the study

The study addressed the previous absence of published work relating to remote interviews in Year 1 students. Our students embraced and valued the new educational opportunity, validating this as a new and 'entrustable professional activity'.[26] The large number of open-text comments proved helpful in giving texture to student responses, especially outlying ones.

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The 32.7% survey uptake, despite using proven measures to increase response rate (participation certificate as an incentive and

reminders),[27] is not unusual for an emailed survey[28] but raises the question of non-response bias.[27] The parallel evaluation[19] after the first patient interview may have led to survey fatigue, and such clashes will be avoided in any future study. Preference bias for one or other teleconsulting methods in responders more than in non-responders is not anticipated in our study, however, as all students experienced both modalities. It is also noteworthy that in the evaluation that had a better response rate of 75% after one interview[19] (50% telephone call; 50% video call), all students found each telehealth interview a good use of their time and would repeat the experience.[19]

We use non-standardised patients, reflecting real life, and some individual patient characteristics such as friendliness/chattiness may have made some interviews feel easier, possibly confounding the impact of modality. In line with this, Darnton et al.[29] found that patient selection influenced the value of student telehealth encounters. The complexity of call set-up may have biased respondents in our study against telephone.

Studies in primary care have found telephone and video calls to be shorter[5] and less 'information rich' than F2F.[5] We did not collect information regarding the length of each interview, though know from student evaluations that they ranged from 20 to 70 minutes.[19] If the study is repeated, call length will be recorded.

We set up these telehealth interviews in response to educational pressures in a pandemic. The usual timescales needed to design and pilot a research study of an educational innovation were contracted to fit within the ethical approval window, and the main method—a questionnaire—was chosen to give data on the first run through. Further research could examine the impact of ordering of modality on student comfort/preference and the relative and comparative educational value of remote consultations undertaken by students later in their training and as a singleton.

6 | CONCLUSION

This study demonstrates that, in a pandemic, unsupervised telehealth interviews are possible, educationally valuable and safe alternatives for junior students, which develop not only their general communication skills but also their telecompetence (Turner 1999, cited in Matusitz and Breen[30]), which is vital in an ever-evolving and heavily technology-reliant environment.

Unsupervised telehealth interviews are possible, educationally valuable and safe alternatives for junior students.

Vital in an ever-evolving and heavily technology-reliant environment.

Both video and telephone consultations with patients are of high educational value to Year 1 medical students. Once technical factors and set-up are taken into consideration, video call is preferred as it parallels F2F consultation. Telephone three-way consultations are more challenging, as they are less familiar and rely only on verbal information.

CONFLICT OF INTEREST
The authors have no conflict of interest to disclose.

ETHICS STATEMENT
Ethical approval was sought from the School Student Project Ethics Committee (S-SPEC) at Keele University School of Medicine. The project was reviewed by members of the S-SPEC Panel, and approval for the project was granted on 12 July 2020.

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SUPPORTING INFORMATION

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