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Exploring the patient experience of telehealth hand therapy services during the COVID-19 pandemic

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ABSTRACT

Study Design: Electronic Survey.

Introduction: Internationally the COVID-19 pandemic has resulted in an unprecedented shift from face-to-face therapy to telehealth services.

Purpose of the Study: This paper explores the patient experience and satisfaction with telehealth hand therapy in a metropolitan setting during a period (March 1 to May 31, 2021) of 'moderate' COVID-19 risk when there was minimal community transmission of COVID-19.

Methods: Patients attending telehealth services were invited to participate in an English language online survey at the conclusion of their therapy session via a pop-up invitation.

Results: During the recruitment period there were 123 survey responses (29% response rate; 98% completion rate). Half of the respondents ($n = 78$, 53%) reported saving between 10 and 29 minutes of travel time (each way) by attending a telehealth appointment, while 36% ($n = 44$) saved more than 30 minutes (each way). Almost all respondents ($n = 117$, 95%) noted telehealth should be used in the future. The main benefit for telehealth was more easily fitting appointments around other commitments, followed by reducing stress and costs surrounding hospital attendance. Most participants ($n = 97$, 79%) reported no challenges using telehealth. The most cited challenges included the therapist not being able to provide hands on treatment ($n = 14$, 11%) and for seven respondents getting the technology to work (6%).

Discussion: The elevated level of participant satisfaction of attending telehealth sessions informs us that this mode of therapy delivery could benefit patients in a post-pandemic environment.

Conclusions: Metropolitan funding models prior to the pandemic did not allow for this mode of therapy and hence consideration for an ongoing hybrid funding model of both face-to-face and telehealth should be considered by policy makers, insurance and government funding bodies.

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Introduction

Internationally, the COVID-19 pandemic has resulted in an unprecedented uptake of telehealth services, as a means of protecting both healthcare providers and consumers.¹ In March 2020, COVID-19 was declared to be a human biosecurity emergency in

Australia,² which triggered a rapid change to provision of outpatient therapy in the public and private healthcare systems. In the private sector, insurance companies moved swiftly to allow funded or partially funded telehealth consultations with allied health providers. Similarly, public health services responded quickly to this extraordinary shift, with the federal government rapidly amending funding models to enable a transition to telehealth for all patients. Previously, funding for public outpatient therapy delivered to patients living in metropolitan Australia was for face-to-face sessions only, with no funding available for telehealth.¹ Hospital memorandums were rapidly circulated, and advice to all outpatient services was that face-to-face therapy sessions were to be replaced with telehealth, with very few exceptions.

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This 'High' COVID-19 risk model of care persisted for several months until community transmission of the virus was effectively suppressed, with zero cases recorded in Victoria on October 25, 2020, and limited cases reported in the following months. One hundred thirty-eight cases were reported for the months of November 2020–February 2021,³ in a population of 6.7 million people. In early 2021 local hospital policies shifted toward a 'Moderate' COVID-19 risk level in acknowledgement of the minimal community transmission of COVID-19 as stated above, and the continued closure of the international border to non-residents. However, the prospect of COVID-19 re-entering the community via the government mandated hotel quarantine program for returned overseas travelers remained a concern. Consequently, during this period of 'Moderate' risk, the following advice was issued by the Chief Health Officer for Victoria:

- Individual face-to-face services are permitted for essential and routine care, where that care/service is not able to be provided via telehealth.
- Telehealth remains the preferred service delivery model wherever clinically appropriate.

Literature published since the start of the pandemic, specific to hand therapy telehealth services, has primarily focused on the therapist experience of providing telehealth.^{4–7} Szekeres and Valdes⁷ survey of 819 therapists early in the COVID-19 pandemic (May 2020), that recruited from hand therapy associations in the United States, Canada, Australia and Europe, showed that very few therapists ($n = 38$, 5%) had telehealth experience prior to the pandemic. The majority of therapists ($n = 557$, 68%) reported they would be extremely or somewhat likely to continue with telehealth sessions once the pandemic settles.⁷ However, in the United Kingdom, 92% of hand therapy units surveyed continued to hold concerns relating to the use of audio-visual care, either overall or for certain patients.⁵

A further survey of members of the American Society of Hand Therapists, conducted between April and May 2020, reported similarly low levels of pre-pandemic telehealth experience (4%).⁴ Survey respondents were asked to reflect on the impact of COVID-19 on hand therapy practice, with some therapists expressing concern that telehealth would replace traditional therapy, while others welcomed the prospect of continued use of telehealth into the future.⁴ The authors conducted a follow up survey between December 2020 and January 2021.⁶ Despite telehealth usage rates increasing to 46% during the first survey period, they had reduced to 29% at this second timepoint, with respondents questioning the "efficiency, effectiveness and reimbursement" (p.8) of telehealth services.⁶ These authors discussed that the success of telehealth relies on the availability of infrastructure, including technology, funding and training, as well as clear guidelines for determining when telehealth should be used, based on patient characteristics and diagnoses.

While there is a growing body of literature on the therapists experience, and the need for funding models and infrastructure to sustain telehealth services in the future, there is a paucity of literature on the experience of telehealth recipients. Studies investigating the patient experience of telehealth have typically pre-dated the COVID-19 pandemic.^{8–12} Worboys et al¹² investigated the delivery of occupational therapy hand therapy assessment and treatment via telehealth, however this was in the context of rural and remote service delivery. In this study of 18 patients, 100% of participants agreed that they would be comfortable to use telehealth if available in the future, they were comfortable to undergo assessment and treatment via telehealth, and that instructions given were easy to follow.¹² Some challenges were identified by this cohort, including seeing and hearing the telehealth therapist.¹² Other

pre-pandemic Australian allied health studies also focused on rural and remote service delivery^{8,11} where funding models enabled this mode of therapy delivery¹. A pre-pandemic systematic review investigating the telehealth experience of cancer survivors presented a thematic synthesis of findings.⁹ The results of this review indicate that telehealth offers a convenient and flexible method of service delivery to cancer survivors, that could be easily integrated into their daily routines.⁹ Participants in eight studies reported that telehealth had provided education on symptom management, and increased awareness of issues to be aware of in relation to their disease, with associated benefits to the survivors' sense of independence.⁹ Burdens were identified, including a sense that telehealth felt impersonal, and where patient factors (such as hearing impairment and reduced computer literacy), or technical issues impacted the survivors' access to telehealth.⁹ Another pre-pandemic systematic review of patient satisfaction identified similar themes related to increased access to care and self-awareness, enabling patients to manage their chronic conditions.¹³

Acknowledging two factors, first, that to date, the literature has focused on the clinician experience of utilizing telehealth during the COVID-19 pandemic, and second, the paucity of literature on the patient perspective of telehealth during the COVID-19 pandemic, this paper aims to present patient experience and overall satisfaction with telehealth hand therapy appointments during the COVID-19 pandemic, in a 'Moderate' risk metropolitan environment.

Methods

Survey development

The electronic survey instrument (see [Appendix 1](#)) was designed by authors JH and RJ and content revised by MH. The survey was endorsed by hand therapy peers and piloted by several patients prior to submission for institutional review. The Checklist for Reporting Results of Internet E-Surveys (CHERRIES)¹⁴ was consulted to guide survey structure and reporting of data in this manuscript. Data collected via our self-developed questionnaire included demographics, and information surrounding the practical experience of the telehealth appointment. Part 3 of the Patient Evaluation Measure (PEM),¹⁵ a reliable, valid and responsive instrument in assessing outcomes of disorders of the hand, was used to measure the participants overall satisfaction with three simple and quick questions. An open text field was available for participants to make any additional comments. Inclusion criteria for participation in this study are outlined below.

Inclusion criteria

- Patients with a hand injury or condition requiring outpatient hand therapy intervention who attended a therapy session via telehealth (with video)
- Patients able to understand English, and without any significant hearing, visual, or cognitive impairment

In response to government advice issued to hospitals, stating that telehealth was the preferred service delivery model, with face-to-face services permitted only for essential and routine care if the service was unable to be provided via telehealth, local hand therapy guidelines were compiled (as shown in [Fig. 1](#)). The survey was offered to all telehealth recipients regardless of where they were within their treatment timeline. Some survey respondents may have required orthotic fabrication for their injury or condition, and therefore attended face-to-face sessions prior to their telehealth session. For others, initial and subsequent consultations

Initial and subsequent therapy sessions for the following conditions to be routinely offered via telehealth:

- Thumb osteoarthritis
- Carpal tunnel syndrome
- De Quervain's tendinopathy and other tendinopathies
- Scar management

Patients may be offered face-to-face therapy if they meet one or more of the below criteria:

- Orthosis fabrication or provision required
- Assessment required:
 - Unstable joints (e.g., ligament injury)
 - Tendon integrity post repair or tenolysis
 - Stiff joints/restricted range of motion not improving via telehealth therapy intervention (i.e., not progressing)
- Patient factors
 - Cognitive or speech impairment leading to difficulty with verbal communication/comprehension
 - Hearing or visual loss
 - Individuals with safety concerns (e.g., self-harm, possible family violence, isolated with medical issues)
 - Individuals with multiple injuries (e.g., crush injuries, multiple tendon repairs)
 - Technical issues with phone and accessing video calls.

Fig. 1. Guidelines for 'Moderate' COVID-19 risk periods.

would have taken place via telehealth alone, depending on the reason for referral (see Fig. 1). Data on treatment status (beginning, midway or nearing completion) were not collected via the survey. As per local guidelines, patients were not given the option to attend face-to-face sessions if they did not meet the criteria for this mode of therapy. Rather, face to face attendance was at the therapist's discretion, should the patient's hand condition not be progressing as expected, or a custom-made orthosis required. Survey respondents were asked to confirm whether they had completed the survey previously. Responses that indicated a previous survey had been completed were excluded from data analysis.

Survey administration

Participants were recruited from a convenience sample of patients referred with a hand injury/condition to the outpatient Occupational Therapy service at Austin Health, Melbourne, Australia for hand therapy, and who received a video telehealth appointment.

Study procedures were reviewed and approved by the Austin Health Office for Research prior to project commencement (Quality improvement No. 40527). Over a 3-month period (March 1 to May 31, 2021), at the conclusion of attendance at a telehealth video appointment, participants were invited via a 'pop-up' request to fill in an online survey regarding their appointment. The purpose of the study and approximate completion time were noted on the pop-up screen, with participants advised that the survey was voluntary,

and completion of the survey implied consent. There were no incentives provided for participating, and confidentiality was maintained with no identifiable data collected. Due to the telehealth platform used (Healthdirect Video Call, which is jointly funded by the Australian Department of Health, Department of Defence, Department of Veterans' Affairs, ACT Health, Victorian Department of Health and Human Services, and WA Health¹⁶), there was no ability to undertake a completeness check prior to survey submission.

Data analysis

Raw survey data was extracted to an Excel spreadsheet from the online survey application Microsoft (MS) Forms. Descriptive statistics and percentages were calculated with the MS Excel program for the demographic data and closed response questions. Open-ended survey question responses were coded by author RJ and verified by author MH. Where questions offered more than one response, percentages of respondents selecting each response is reported, and hence frequencies for these questions may exceed 100%.

Results

Demographic data

One-hundred and twenty-three survey responses meeting inclusion criteria were submitted during the recruitment period from

Table 1
Demographics (first time survey responders) N = 123.

Variable	n =	%
Age:		
<18	37	30.1%
18-29	20	15.45%
30-44	30	24.39%
45-64	29	23.58%
65+	8	6.50%
Type of injury:		
Acute injury/condition*	99	80.49%
Chronic condition [^]	23	18.70%
Unknown	1	0.81%
Type of injury by age:		
Acute injury/condition* (n = 99)		
<18	37	37.37%
18-29	16	16.16%
30-44	24	24.24%
45-64	18	18.18%
65+	4	4.04%
Chronic condition [^] (n = 23)		
<18	0	0
18-29	3	13.04%
30-44	5	21.74%
45-64	11	47.83%
65+	4	17.39%
Management:		
Surgical	43	34.96%
Non-Surgical	80	65.04%

Key:

* Acute injury includes the following diagnoses: fractures (phalangeal, metacarpal, carpal, radius, ulna), nerve injuries (median, ulnar, radial, digital), hand or forearm tendon lacerations/repair, joint injuries (volar plate, collateral ligament, sagittal band, lateral band, carpal ligaments), hand/forearm superficial lacerations, and hand/forearm burns.

[^] Chronic condition includes the following diagnoses: osteoarthritis, rheumatoid arthritis, other arthropathy, carpal tunnel syndrome/release, trigger finger/release, tendinopathy (De Quervain's, cubital tunnel, Guyon's canal).

Table 2

Hand therapy outpatient appointments numbers (please note, patients may have attended multiple appointments across the three modalities)

Month	Face-to-face	Telehealth (video)	Telehealth (telephone call)
March	160	197	19
April	165	178	14
May	210	149	15
Total	535	524	48

423 individuals who attended telehealth appointments for a survey response rate of 29%. Three attendees did not answer the last question, for a completion rate of 98%. A summary of participant demographics can be found in Table 1. Most participants had an acute injury (n = 99; 80%), with the majority of acute injuries in those aged less than 30 years (n = 53; 54%). Most injuries/conditions were conservatively managed (n = 80; 65%) which was representative of the total patient population who received either face-to-face or telehealth appointments during the recruitment period (conservatively managed n = 282, 59%; surgically managed, n = 193, 41%). The ratio of face-to-face vs telehealth was similar during the recruitment period (see Table 2).

Practical experience of telehealth appointments

Table 3 outlines responses relating to the practical experience of using the telehealth technology. More than half of the respondents (n = 78, 53%) reported saving between 10 and 29 minutes of travel

time (each way) by attending a telehealth appointment, while 36% (n = 44) saved 30 minutes or more (each way). Almost all respondents (n = 117, 95%) reported that telehealth should be used in the future with 79% (n = 97) reporting no challenges using telehealth. The main benefit reported by the respondents in undertaking telehealth therapy sessions was more easily fitting in appointments around other commitments, followed by reducing stress and costs surrounding coming to the hospital for therapy. Most cited challenges included the therapist not being able to provide hands on treatment (n = 14, 11%) and for seven respondents getting the technology to work (6%).

Part 3 of the Patient Evaluation Measure (PEM), overall satisfaction

Most participants were satisfied with the treatment they received, as shown in Figure 2. The majority were satisfied with how their hand was at the time of survey completion (Fig. 3), and many reported that their hand was progressing as expected considering their original injury (Fig. 4).

Qualitative data analysis

Participants were provided with the opportunity to submit open-ended comments regarding their experience of the telehealth appointment. Patterns identified via qualitative coding of these open-ended responses are presented below, alongside corresponding quotes attributable to survey respondents.

Telehealth is a suitable mode for hand therapy delivery

Respondents identified that telehealth had been a suitable approach to service delivery from their perspective:

"Telehealth is a great option for low-risk follow-up appointments. It certainly works from my point of view..." Respondent 134

"Really efficient and effective appointment" Respondent 44

Telehealth was a positive experience

Open-ended responses received were overwhelmingly positive, thanking individual therapists for their manner and service delivery:

"... I felt comfortable attending with my son (and) that (the therapist) was thorough to see with a video call how his finger was"

Respondent 93

Noting their positive experiences with telehealth, the comments of two respondents did not align with their ratings on the PEM questions. A score of '1' on the PEM should indicate a patient's high satisfaction, while a score of '7' indicates significant dissatisfaction. One respondent indicated in their comments that their scores of '6' and '7' on the PEM questions reflected their high satisfaction:

"[Question] 11 + 12: high number is good" Respondent 96

A second respondent's answers to the PEM questions, again representing scores of '6' and '7', were also at odds with the extended comment they provided - which thanked their therapist and credited them for their recovery (comment shortened for publication and to protect the therapist's identity):

"I have to say a huge thank you to my hand therapist... I credit my speedy recovery to her excellent care and attention, she was so supportive and helpful and an absolute pleasure to see... Keep up

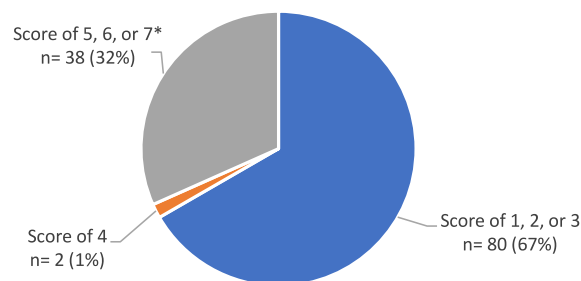
Table 3

Survey outcomes on practical experience using telehealth technology for the 123 respondents

Outcome response category	n =	%
Travel time saved		
Less than 10 min	13	10.60%
10-29 min	65	52.85%
30-59 min	33	26.83%
60 + min	11	8.94%
Survey question not answered	1	0.82%
Did anyone assist you to access telehealth	96	78.04%
Family member/friend	21	17.07%
Hospital staff member/paid carer	3	2.44%
Hospital staff member/paid carer or family member/friend	1	0.1%
Survey question not answered	2	1.63%
Should telehealth continue? Yes, in some form	117	95.12%
No, not at all	4	3.25%
Survey question not answered	2	1.63%
Other than reducing the risk of COVID, please select other advantages of telehealth for you (select all that apply)	8	6.50%
No advantage to me		
Can fit appointments more easily around other commitments (ie, work, family)	94	76.42%
Able to have more regular therapy	21	17.07%
Reduces costs associated with coming to the hospital (ie, parking, public transport, taxi fare)	60	48.78%
Reduced stress about getting to/from the hospital	66	53.66%
Being able to have other family at the appointment	13	10.57%
Treatment seemed more personalized to me and my situation	18	14.63%
Other – decreased time spent in hospital waiting room	3	2.44%
Other – quick and time saving	3	2.44%
Survey question not answered	2	1.63%
Challenges to telehealth appointments (select all that apply)	97	78.86%
No challenges		
Therapist not being able to provide hands on treatment	14	11.38%
Getting the technology to work	7	5.69%
Not being in the same room as my therapist	3	2.44%
Not being able to get sound on my device	1	0.81%
Other (see open text comments below)	5	4.07%
Survey question not answered	3	2.44%
Open text comments on challenges to telehealth appointments “I was unable to hear therapist, but she called me and it was ok”	1	N/A
“All good, but I still need to come in to see therapist in person”	1	N/A
“Frustrating due to therapist being 20 min late and the phone number provided for issues was disconnected so I am very angry with the poor punctuality and support in providing information/explanation regarding tardiness”	1	N/A
“Camera angles to view surgical area”	1	N/A
“Lighting was a bit of a challenge”	1	N/A

Overall, the treatment for my hand has been (n=120)

1= very satisfactory, 7= very unsatisfactory

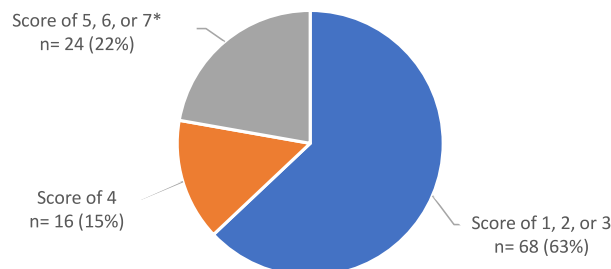


*at least two respondent's scores of '6' and '7' should be interpreted with caution, as their open-ended feedback did not align with the ratings made on this question

Fig. 2. Patient Evaluation Measure (PEM) Part 3, question 1, *at least two respondent's scores of '6' and '7' should be interpreted with caution, as their open-ended feedback did not align with the ratings made on this question.

Generally, my hand is now**(n=108)**

1= very satisfactory, 7= very unsatisfactory

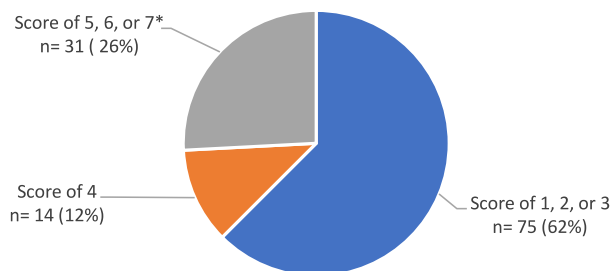


*at least two respondent's scores of '6' and '7' should be interpreted with caution, as their open-ended feedback did not align with the ratings made on this question

Fig. 3. Patient Evaluation Measure (PEM) Part 3, question 2, *at least two respondent's scores of '6' and '7' should be interpreted with caution, as their open-ended feedback did not align with the ratings made on this question.

Bearing in mind my original injury, I feel my hand is now**(n=120)**

1= better than I expected, 7= worse than I expected



*at least two respondent's scores of '6' and '7' should be interpreted with caution, as their open-ended feedback did not align with the ratings made on this question

Fig. 4. Patient Evaluation Measure (PEM) Part 3, question 2, *at least two respondent's scores of '6' and '7' should be interpreted with caution, as their open-ended feedback did not align with the ratings made on this question.

the good work, you are a credit to your profession Respondent 145

"The 1-hour wait was a bit tiresome; nice music though" Respondent 83

Challenges were encountered during telehealth

There were two comments received that indicated challenges encountered. One respondent identified technology related barriers to telehealth:

"Our session was cut short due to lagging and glitching"
Respondent 150

This respondent's PEM ratings indicated significant dissatisfaction with their treatment and recovery.

Another respondent's PEM ratings indicated high satisfaction in these areas, possibly indicating that the challenge that they described related more to inconvenience:

Discussion

This paper has presented an insight into patient experiences and overall satisfaction with telehealth hand therapy. Previous telehealth research, both pre-dating and published since the advent of the pandemic, has typically focused on the experience of healthcare workers who deliver telehealth to a range of patient groups.¹⁷⁻²⁵ Where the client experience has been explored, this has usually been in the context of healthcare delivery to rural and remote areas.^{8,11} This paper provides a useful addition to the telehealth literature, particularly in the area of hand therapy. This study supports the reflections of Szekeres and Valdes⁷, "While there are obvious limitations with the virtual environment for providing hand therapy care, it likely improves access for patients in underserved areas and can be efficient in terms

of reducing costs, travel time, waiting room time, administrative costs, and environmental pollution, and energy consumption.” (p.5)

Telehealth recipients who participated in this survey confirmed that the practical elements of telehealth, including reduced travel time, costs and stress usually experienced when navigating to a face-to-face consultation, as well as ease of scheduling, were key advantages of the telehealth modality. The majority of this cohort reported no challenges with the telehealth modality and endorsed the continued use of telehealth into the future. These findings bolster the movement toward “whole of population telehealth,”^{1,26} whereby the availability of telehealth is not limited to rural and remote settings, and the temporary telehealth funding measures developed in response to the COVID-19 pandemic and rebated under the Australian Medicare Benefits Schedule, be made permanent features of the Australian healthcare system.²⁷

The elevated level of participant satisfaction recorded in this study, along with almost all participants of the belief that telehealth should continue in the future in some form, informs us that the local guidelines developed for face-to-face vs telehealth sessions was appropriate. During this ‘Moderate’ COVID-19 risk phase, approximately half of the hand therapy appointments were conducted via telehealth, thus significantly decreasing foot traffic into the hospital, and thus reducing potential COVID-19 transmission. McMullen and colleagues⁵ stress the importance of developing systems that identify and mitigate clinical risks, while optimizing patient outcomes. While the guidelines developed for telehealth service delivery may have enabled satisfactory service provision to participants in this study, there is a need to develop standardized decision-making processes that can be used by therapists within and beyond a single health service, thus ensuring patients are offered telehealth in an equitable and systematic manner. It is of interest to note that most participants in this study did not require assistance to access the telehealth service, and very few (7%) were aged over 65 years. Perhaps this patient cohort were largely computer literate, which may have led to the ease of use reported and acceptance of this form of intervention.

Given the survey was conducted during a period of minimal community transmission of COVID-19 (despite a ‘Moderate’ risk declared by the government, indicating telehealth services as the preferred mode of therapy delivery) in Melbourne, Australia (March to May 2021), and with some of the least restrictive community precautionary measures in place during this time, it is likely that the findings may be generalizable to a stable post pandemic environment. In stable post pandemic conditions, the few participants who may be dissatisfied with telehealth, could be scheduled for face-to-face appointments. Furthermore, and as per the model described during the moderate COVID-19 risk in the community, a hybrid model does not mean it is all or none of one particular mode of therapy. To illustrate, patients could attend face-to-face therapy sessions early in their hand rehabilitation and then move to telehealth once mutually agreed with the patient and therapist. Having the option to review a patient in person when necessary is important⁵ and hence the ability to shift back to face-to-face therapy following telehealth appointments should be available. It is anticipated that a similar model of service to that described in this paper could be successfully used in an ongoing manner in this Australian metropolitan health service.

Limitations

While this study indicates that the telehealth service delivery model was acceptable and beneficial to most patients surveyed, a number of limitations should be considered when interpreting the findings of this study. Firstly, this study was conducted in a sin-

gle public outpatient hand therapy department in Melbourne, Australia, where an existing secure, national, user-friendly telehealth platform previously used with other patient cohorts was able to be adopted quickly. We recognize that different jurisdictions, including within and beyond Australia, have experienced varying impacts of the pandemic, and may have differing access to the technology and infrastructure that supports user-friendly telehealth. Thus, the generalizability of this research may be limited, however may provide some useful insights to hand therapists working in outpatient settings in other Australian states, as well as internationally, as the global community moves toward living alongside COVID-19. The response rate for this survey was reasonable, however, it cannot be known if responses were representative of all patients who attended telehealth appointments. The sex/gender of the individuals completing this anonymous survey was not captured and although differences were not anticipated, we are not able to discern if sex/gender differences in responses may have been apparent. It is also apparent that the survey data may contain some inaccuracies. This was especially highlighted via the two examples of apparent incorrect interpretation of the PEM scale by survey respondents in this study. As a result, the findings reported on the three PEM questions should be interpreted with caution. As outlined, a score of ‘1’ on the PEM should indicate a patient’s high satisfaction, while a score of ‘7’ indicates significant dissatisfaction. These questions were presented as a horizontal descending Likert scale within the online survey. In future, presentation of the Likert scale vertically, as described by Maeda²⁸ could be used to avoid response biases that contribute to the collection of inaccurate responses. Furthermore, participants were responding to the PEM overall satisfaction questions at various time points since time of injury or treatment commencement for their hand condition; responses given early in the hand therapy program may not have been indicative of satisfaction at time of discharge from therapy, as timeframe from injury may elucidate different responses.

Future research

Having elicited insights into the patient’s experience and acceptance of telehealth as a hand therapy treatment modality, future research should now focus on the rehabilitation and recovery outcomes of hand therapy patients who receive treatment via telehealth. Comparing the outcomes of patients who received face-to-face vs telehealth was beyond the scope of this study, however future research comparing outcomes of these two cohorts is worthy of investigation. Similarly, the reliability of assessments used by hand therapists in telehealth consultations was also beyond the scope of this study and would be of interest should telehealth become a regular mode of therapy delivery in the future.

Furthermore, time demands on therapists could be explored when comparing the mode of therapy delivery. If future funding models enabled the provision of telehealth in a post-pandemic environment, it would be of interest to assess if patients remained satisfied with this mode or option of therapy delivery. For patients who are hesitant to use telehealth services, qualitative research methods may assist us to determine the barriers and explore ways to assist accessing this mode of therapy delivery.

This survey was distributed to patients who attended telehealth appointments in the public health care system, it would be of interest to explore the experiences of patients attending private hand therapy clinics to see if they align with participants in our study.

Conclusions

Whilst telehealth may not be the preferred mode of therapy for all patients with a hand injury or condition, this study identified

that patients attending telehealth sessions were largely satisfied with this mode of therapy. This was in the context of a metropolitan hospital outpatient setting with a "Moderate" COVID-19 risk, where half the caseload attended remote therapy and the remainder attended face-to-face sessions. Those attending telehealth cited benefits of reduced travel time, reduced cost and stress usually experienced when navigating to a face-to-face consultation, as well as ease of scheduling. Should funding models allow in the future post-pandemic environment, offering a dual model of face-to-face and telehealth appointments may benefit patients.

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Appendix 1. Survey Questions

Eligibility

- Have you completed this survey before?
 - Yes
 - No
 If yes, – skip logics to session questions (Question 7)
 If no, – demographic questions (Question 2)

Demographics

- What is your age?
 - Under 18 If selected – progress to question 3
 - 19-29 If selected, – skip logics to Question 4
 - 30-45 If selected, – skip logics to Question 4
 - 45-65 If selected, – skip logics to Question 4
 - >65 If selected, – skip logics to Question 4
- Was your parent/carer present during the session?
 - Yes
 - No
- If you were to attend your appointment face to face, how long would it take for you to get to the hospital (by the mode you use for example. Car, train, taxi, walk)?
 - Under 10 minutes
 - 10-29 minutes
 - 30-59 minutes
 - 60 minutes +
- Why were you seeing the therapist?
 - Acute injury (came on suddenly)
 - Chronic condition (came on progressively eg, Carpal Tunnel Syndrome, Arthritis, Dupuytren's contracture)
- Have you had surgery for this injury/condition?
 - Yes
 - No

Session feedback

- Other than reducing the risk of COVID-19, please select other advantages of telehealth for you (select all that apply)
 - Treatment seemed more personalized to me and my situation
 - Reduced stress about getting to/from the hospital
 - Able to have more regular therapy

Reduces costs associated with coming to the hospital (ie, parking, public transport, taxi fare)
 Can fit appointments more easily around other commitments (ie, work, family)
 Being able to have other family at the appointment
 No advantage to me
 Other (please specify)

- Did you have any challenges today using telehealth? (Select all that apply)
 - Yes, getting the technology to work
 - Yes, not being in the same room as my therapist
 - Yes, Therapist not being able to provide hands on treatment
 - No challenges
 - Other (please specify)
- Did anyone assist you to access telehealth?
 - No
 - Hospital staff member/paid carer
 - Family member/friend
- Do you think telehealth should be used in the future?
 - Yes, in some form
 - No, not at all
- Any other comments?
 - [Free text]

Satisfaction at this stage of your recovery [Part 3 of the Patient Evaluation Measure]

- Generally, the treatment for my hand has been: 1 = Very satisfactory, 7 = Very unsatisfactory
- Generally, my hand is now: 1 = Very satisfaction, 7 = Very unsatisfactory
- Bearing in mind my original injury or condition, I feel my hand is now: 1 = Better than I expected, 7 = Worse than I expected

References

- Hall Dykgraaf S, Desborough J, de Toca L, et al. "A decade's worth of work in a matter of days": The journey to telehealth for the whole population in Australia. *Int. J. Med. Inform.*. 2021;151:104483.
- Maclean H, Elphick K. COVID-19 Legislative response—human biosecurity emergency declaration explainer. https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/FlagPost/2020/March/COVID-19_Biosecurity_Emergency_Declaration Accessed October 20, 2021.
- Victorian Government. Victorian COVID-19 data. Available at: <https://www.coronavirus.vic.gov.au/victorian-coronavirus-covid-19-data> Accessed February 13, 2022.
- Ivy CC, Doerr S, Naughton N, Priganc V. The impact of COVID-19 on hand therapy practice. *J Hand Ther. Online*. 2021;In press. doi:10.1016/j.jht.2021.01.007.
- McMullen EJ, Robson M, Valand P, Sayed L, Steele J. Defining clinical decision making in the provision of audio-visual outpatient care for acute upper limb trauma services: A review of practice. *J Plast Reconstr Aesthet Surg*. 2021;74:407–447.
- Priganc V, Naughton N, Doerr S, Ivy CC. A follow up survey on the impact of COVID-19 on hand therapy practice. *J Hand Ther. Online*. 2021;In press. doi:10.1016/j.jht.2021.07.001.
- Szekeress M, Valdes K. Virtual health care & telehealth: Current therapy practice patterns. *J Hand Ther*. 2020;35(1):124–130. doi:10.1016/j.jht.2020.11.004.
- Campbell J, Theodoros D, Russell T, Gillespie N, Hartley N. Client, provider and community referrer perceptions of telehealth for the delivery of rural paediatric allied health services. *Aust J Rural Health*. 2019;27:419–426.
- Cox A, Lucas G, Marcu A, et al. Cancer survivors' experience with telehealth: a systematic review and thematic synthesis. *J Med Internet Res*. 2017;19:e11.
- Kruse C, Fohn J, Wilson N, Nunez Patlan E, Zipp S, Mileski M. Utilization barriers and medical outcomes commensurate with the use of telehealth among older adults: systematic review. *JMIR Med Inform*. 2020;8:e20359.
- O'Hara R, Jackson S. Integrating telehealth services into a remote allied health service: A pilot study. *Aust J Rural Health*. 2017;25:53–57.
- Worboys T, Brassington M, Ward EC, Cornwell PL. Delivering occupational therapy hand assessment and treatment sessions via telehealth. *J Telemed Telecare*. 2018;24:185–192.
- Kruse CS, Krowski N, Rodriguez B, Tran L, Vela J, Brooks M. Telehealth and patient satisfaction: a systematic review and narrative analysis. *BMJ open*. 2017;7:e016242.

14. Eysenbach G. Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *J Med Internet Res*. 2004;6:e34.
15. Dias JJ, Bhowal B, Wildin CJ, Thompson JR. Assessing the outcome of disorders of the hand. Is the patient evaluation measure reliable, valid, responsive and without bias? *J Bone Joint Surg Br*. 2001;83:235–240.
16. Healthdirect Australia. COVID-19 program for primary healthcare services. Available at: <https://about.healthdirect.gov.au/video-call>. Accessed October 11, 2021.
17. Ervin K, Weller-Newton J, Phillips J. Primary healthcare clinicians' positive perceptions of the implementation of telehealth during the COVID-19 pandemic using normalisation process theory. *Aust J Prim Health. Online*. 2021;In press. doi:10.1071/PY20182.
18. Iacono T, Stagg K, Pearce N, Hulme Chambers A. A scoping review of Australian allied health research in ehealth. *BMC Health Serv. Res.*. 2016;16:543.
19. Keeves J, Braaf SC, Ekegren CL, Beck B, Gabbe BJ. Access to healthcare following serious injury: perspectives of allied health professionals in urban and regional settings. *Int J Environ Res Public Health*. 2021;18.
20. Kocanda L, Fisher K, Brown LJ, et al. Informing telehealth service delivery for cardiovascular disease management: exploring the perceptions of rural health professionals. *Aust Health Rev*. 2021;45:241–246.
21. Lynch ME, Williamson OD, Banfield JC. COVID-19 impact and response by Canadian pain clinics: A national survey of adult pain clinics. *Can J Pain*. 2020;4:204–209.
22. Malliaras P, Merolli M, Williams CM, Caneiro JP, Haines T, Barton C. It's not hands-on therapy, so it's very limited': Telehealth use and views among allied health clinicians during the coronavirus pandemic. *Musculoskelet Sci Pract*. 2021;52:102340.
23. Mozer R, Bradford NK, Caffery LJ, Smith AC. Identifying perceived barriers to videoconferencing by rehabilitation medicine providers. *J Telemed Telecare*. 2015;21:479–484.
24. Shulver W, Killington M, Crotty M. Massive potential' or 'safety risk'? Health worker views on telehealth in the care of older people and implications for successful normalization. *BMC Med Inform Decis Mak*. 2016;16:131.
25. Wade VA, Elliott JA, Hiller JE. A qualitative study of ethical, medico-legal and clinical governance matters in Australian telehealth services. *J Telemed Telecare*. 2012;18:109–114.
26. Hunt G, Kidd M. Media release 29th March, 2020, Ministers, Department of Health. COVID-19: Whole of population telehealth for patients, general practice, primary care and other medical services. Available at: <https://www.health.gov.au/ministers/the-hon-greg-hunt-mp/media/covid-19-whole-of-population-telehealth-for-patients-general-practice-primary-care-and-other-medical-services>. Accessed October 14, 2021.
27. Australian Senate, Commonwealth of Australia. Senate select committee on financial technology and regulatory technology, interim report. Available at: https://parlinfo.aph.gov.au/parlInfo/download/committees/reportsen/024366/toc_pdf/SelectCommitteeonFinancialTechnologyandRegulatoryTechnology.pdf;fileType=application%2Fpdf. Accessed October 11, 2021.
28. Maeda H. Response option configuration of online administered Likert scales. *Int. J. Soc. Res. Methodol.*. 2015;18:15–26.