Was a global pandemic needed to adopt the use of telehealth in occupational therapy?

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Abstract.
BACKGROUND: An analysis of data from an international survey was undertaken to determine the impact of the COVID-19 pandemic on telehealth practice in occupational therapy worldwide, in addition to facilitators and barriers in utilising this form of service delivery.

METHOD: The global online survey was circulated in the occupational therapy community by the World Federation of Occupational Therapists (WFOT) between April and July 2020, collecting responses to closed-ended questions, in addition to free-text comments. Descriptive statistics and bivariate analyses were used to assess relationships between respondent characteristics and the utilisation of telehealth. Thematic statement analysis provided further insight regarding factors impacting telehealth use.

RESULTS: Findings revealed a significant increase in the use of telehealth strategies with the onset of the pandemic among survey respondents, with many reported benefits. Bivariate analyses indicated telehealth users were more likely to score higher feelings of safety and positive work morale, as well as perceive employer expectations to be reasonable. Restricted access to technology, limitations of remote practice, funding issues and slow pace of change were identified as barriers for some respondents to utilising telehealth. Facilitators included availability of supportive policy, guidelines and strategies, in addition to education and training.

CONCLUSION: This study advances the understanding of the current scope of occupational therapy telehealth practice in the context of the ongoing COVID-19 pandemic. Although results suggest long-term potential for telehealth use as an adjunct to traditional service provision, important considerations were identified regarding factors influencing integration of such strategies.

Keywords: COVID-19, health service delivery, technology, remote care, teletherapy

1. Introduction

The COVID-19 pandemic had a profound impact on the health and wellbeing of individuals, families and communities worldwide, necessitating many changes to the delivery of health services to limit the spread of the virus. In many settings, access to occupational therapy was reduced or discontinued as result of pandemic restrictions [1]. Such restrictions in service access had significant implications for vulnerable people to engage in essential and desired occupations of everyday life.

Occupational therapy is a health discipline that addresses the relationship between people, their environment and occupations to enable participation in meaningful daily activities. Using evidence-informed processes, occupational therapists address
factors such as individual ability, design of the built environment, institutional policy and societal attitude to support participation, inclusion, respect and security.

With the need to limit in-person contact during the COVID-19 pandemic, many occupational therapists utilised telehealth technology to provide occupational therapy services [1]. Telehealth is recognised as an appropriate model of occupational therapy service delivery, particularly when direct contact is either impossible, impractical or suboptimal [2].

The term ‘telehealth’ is used broadly in different contexts, challenging the development of a single definition [3–5]. For the purpose of this paper, telehealth is defined as the utilisation of electronic information and communication technologies to support remote delivery of health services, as well as professional and client health-related education and health administration [6].

Studies cited in the World Report on Disability demonstrate that utilising telehealth yields comparable outcomes to rehabilitation services provided with in-person contact [7]. Telehealth technologies can also facilitate timely sharing of professional expertise to educate and support health providers within and across jurisdictions, for example, during crisis situations [7]. Investigation into the impact of such technology for shaping individual and collective occupations in occupational therapy is identified as an international research priority by WFOT [8].

Previous research indicates that the successful introduction of telehealth in healthcare systems requires an approximate 23-month time frame for full implementation [9]. Given the need for rapid transformations in service delivery to meet COVID-19 public health restrictions, prolonged planning was not possible for the implementation of telehealth during the pandemic; instead, providers were required to implement telehealth within just a few weeks to minimise occupational therapy service disruptions.

As the international representative of the occupational therapy profession, WFOT sought to understand the implications of a rapid change to telehealth use during the COVID-19 pandemic. This paper reports the findings of a global survey of individuals involved with delivery of occupational therapy that was undertaken by WFOT to investigate occupational therapy telehealth service provision. The paper explores facilitators and barriers identified for utilising telehealth, not only as a substitute during a global pandemic, but beyond these unprecedented times as a supplement to in-person intervention to ensure sustainable high-quality occupational therapy service provision.

2. Method

2.1. Data collection

The survey was distributed between April and July 2020 with an email to 101 WFOT member organisations inviting individuals within the global occupational therapy community to participate using the online SurveyMonkey tool [10]. In addition, a link to the survey was shared with over 10,000 subscribers of the WFOT newsletter, as well as posted on the WFOT website and social media. The study protocol complied with the WFOT Executive review and authorisation process and privacy policy.

The survey was available in five languages, including English, German, Spanish, French and Traditional Chinese. The survey questionnaire included 30 questions that primarily collected quantitative data using multiple choice questions. Survey questions requested information regarding the demographic characteristics of respondents and their experiences of working during the pandemic, including when and how telehealth services were used. Participants also had the opportunity to supplement their answers in free-text fields throughout the survey and make recommendations, based on their experience during the COVID-19 pandemic.

2.2. Data analysis

Data analysis was conducted using Stata 15. Descriptive statistics and bivariate analyses were used to assess relationships between respondent characteristics and the usage of telehealth during the COVID-19 pandemic. The Chi-square test for independence was used to determine statistically significant differences between telehealth users and nonusers. Results were stratified using demographic characteristics of respondents, including their professional role, work setting and the income level of their country, as defined by the World Bank. An ordinal logistic regression model was run to understand the influence of telehealth with outcomes of working during the COVID-19 pandemic, as scored by respondents on a four-point Likert scale.

Free-text comments and recommendations that were not submitted in English were translated using the online translation tool DeepL; any uncertainties with the translations were reviewed with a native
speaker. In the question-specific analysis, the responses were read thoroughly, and open codes were used to describe all aspects of the content. Codes referring to the same phenomenon were grouped into themes, and respondent recommendations relating to telehealth were grouped together to identify patterns and overarching themes, using the software NVivo, version 12. Themes were reviewed independently by researchers and triangulated with quantitative results to improve trustworthiness.

3. Results

3.1. Descriptive characteristics

Of the 2,750 respondents to the survey, 1,352 (49%) stated that they used telehealth services in their work during the global pandemic. Among telehealth users, telehealth was used most frequently for consultation (63%), intervention (62%) and monitoring (59%), while supervision (44%) and evaluation (37%) were also areas of use. Only 32% of the telehealth users reported the use of outcome measures to evaluate the effectiveness of using this mode of service provision during the pandemic.

A profile of telehealth users emerged from the results (Table 1). The Chi-square test for independence indicated a statistically significant association between the usage of telehealth with respondents working in a clinical role; working in a facility setting; receiving public or private funding; residing in an upper-middle or high-income country; and experiencing many or complete restrictions.

3.2. Advantages of telehealth

Findings from the ordinal logistic regression model indicated that using telehealth had a significant positive correlation with respondents scores for safety, perceived reasonableness of employer expectations and impact of the pandemic on work morale (Table 2). Those who used telehealth in their work during the pandemic were 1.16 times more likely to perceive their employer’s expectations to always be reasonable, when compared to nonusers ($p = 0.04$). Similarly, individuals who had the opportunity to provide remote care were 1.17 times more likely to report a...

### Table 2

<table>
<thead>
<tr>
<th>Influence of telehealth on rated dependent outcomes</th>
<th>Odds ratios (std)</th>
<th>p</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sense of safety$^a$</td>
<td>1.624(0.121)</td>
<td>&lt;0.001</td>
<td>1.403–1.879</td>
</tr>
<tr>
<td>Reasonableness of employer expectations$^b$</td>
<td>1.165(0.087)</td>
<td>0.040</td>
<td>1.007–1.348</td>
</tr>
<tr>
<td>Rated impact on work morale$^c$</td>
<td>1.170(0.085)</td>
<td>0.030</td>
<td>1.015–1.348</td>
</tr>
</tbody>
</table>

$^a$Never safe, sometimes safe, usually safe, always safe. $^b$Never reasonable, sometimes reasonable, usually reasonable, always reasonable. $^c$Highly negative, somewhat negative, somewhat positive, highly positive.

### Table 1

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total</th>
<th>Telehealth users</th>
<th>Nonusers</th>
<th>p$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%b</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Clinical work role</td>
<td>2,121</td>
<td>77.1</td>
<td>1,100</td>
<td>81.4</td>
</tr>
<tr>
<td>Working in a facility setting</td>
<td>1,553</td>
<td>56.5</td>
<td>734</td>
<td>54.3</td>
</tr>
<tr>
<td>Receiving COVID-19-specific training</td>
<td>1,542</td>
<td>60.2</td>
<td>803</td>
<td>62.7</td>
</tr>
<tr>
<td>Funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>1,156</td>
<td>45.9</td>
<td>527</td>
<td>41.1</td>
</tr>
<tr>
<td>Private</td>
<td>832</td>
<td>33.0</td>
<td>470</td>
<td>36.7</td>
</tr>
<tr>
<td>Mixed</td>
<td>530</td>
<td>21.0</td>
<td>284</td>
<td>22.2</td>
</tr>
<tr>
<td>Country income class$^c$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low income</td>
<td>44</td>
<td>1.7</td>
<td>19</td>
<td>1.4</td>
</tr>
<tr>
<td>Lower middle income</td>
<td>401</td>
<td>15.1</td>
<td>194</td>
<td>14.6</td>
</tr>
<tr>
<td>Upper middle income</td>
<td>695</td>
<td>26.1</td>
<td>410</td>
<td>30.8</td>
</tr>
<tr>
<td>High income</td>
<td>1,523</td>
<td>57.2</td>
<td>708</td>
<td>53.2</td>
</tr>
<tr>
<td>Level of restrictions at height of pandemic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No restrictions</td>
<td>30</td>
<td>1.1</td>
<td>11</td>
<td>0.8</td>
</tr>
<tr>
<td>Some restrictions</td>
<td>460</td>
<td>16.7</td>
<td>188</td>
<td>13.9</td>
</tr>
<tr>
<td>Many restrictions</td>
<td>839</td>
<td>30.5</td>
<td>421</td>
<td>31.1</td>
</tr>
<tr>
<td>Full lock-down</td>
<td>1,421</td>
<td>51.7</td>
<td>732</td>
<td>54.1</td>
</tr>
</tbody>
</table>

Percentages may not add up to 100, due to rounding. $^a$Values were calculated using the $\chi^2$ test of significance between telehealth users and nonusers. $^b$Column percentages. $^c$87 responses came from countries where income class classification according to the World Bank is missing.
positive impact of COVID-19 on their work morale \((p=0.03)\). Finally, telehealth users were 1.62 times more likely to score a higher sense of safety while working during the pandemic \((p<0.001)\).

Comments made by respondents offered some explanation to these positive findings. Respondents indicated by using telehealth, occupational therapy could be provided with reduced fear of contracting or spreading the COVID-19 virus, increasing safety for themselves and service users. Telehealth also provided opportunity for respondents to continue providing occupational therapy when restrictions imposed to control virus spread limited in-person contact. Telehealth was often the only option to remain connected with service users, although in a different and sometimes reduced capacity.

Despite the need to transition quickly to this mode of service provision, many commented that when sufficient supports for telehealth were provided, they were able to attain favourable outcomes. Some indicated that they, as well as service users had unexpected gains using this changed model of service provision.

“I am healthier and happier working from home.” (id_767, Canada)

“There have been some very positive responses to telehealth from clients including ability to have sessions at home reducing travel time, driving stress, and feeling more relaxed at home. Clients have also been more receptive to take personal responsibility for their progress and demonstrate higher levels of self-efficacy.” (id_2544, Australia)

Many respondents stated they gained insight into the value of telehealth. As a result of facing restrictions in face-to-face interactions, they quickly developed skills and knowledge they would not have acquired if not for the pandemic.

“The first months I had to adapt all my work to virtual mode and that took time and effort. The users, many of them, did not have any tools or skills for virtual communication. Once this was overcome, I discovered satisfaction and a taste for teleworking. In some cases, I felt that I could accompany the users more closely and provide support for basic and necessary issues in their lives. All of them responded satisfactorily to my virtual contact. They began to use the technology more and to ask for support and initiate communications.” (id_785, Argentina)

Several respondents stated that the use of telehealth should continue after the pandemic. Telehealth was found to be a valuable supplement to the portfolio of services offered to service users.

“People should be using teletherapy more even when there isn’t pandemic, particularly for community-based services.” (id_2191, Ireland)

3.3. Barriers

Despite the advantages of telehealth, respondents were challenged to use technology for occupational therapy service delivery during the pandemic. Thematic analysis identified a number of common barriers.

3.3.1. Limited access to information and communications technology

Access to required information and communications technology was frequently reported by respondents as a barrier to the use of telehealth for the delivery of occupational therapy. Such difficulties impacted both providers, as well as service users, most often involving internet connection issues or availability of required hardware such as computers and webcams. For many providers, such technology access issues were further hindered by limited knowledge of appropriate online platforms and procedures to organise telehealth services. Service users from lower socioeconomic communities were reported to be more disadvantaged for accessing technology, with the result that they were more vulnerable to isolation and received less services.

“The situation is very messy, our clients don’t use means of Internet at all, but we reach them through phone calls that has some boundaries and challenges.” (id_1039, Bangladesh)

“Restricted products to facilitate home working (VPNs) and poor IT equipment, no work phones.” (id_2503, United Kingdom)

“Telehealth [for occupational therapy] is usually not financed - have you ever thought about the possibility that the client needs internet plus a device as well? Mine do not have digital devices.” (id_2420, Germany)

3.3.2. Funding issues

With many providers finding themselves unable to provide in-person services, the transition to remote service provision was for many, too abrupt to ensure financial coverage of services provided remotely. Without funding from external sources such as insurers or national health schemes, many found that service users could not afford to continue receiving occupational therapy. Proper billing procedures were lacking for telehealth for some respondents, resulting
in reimbursement losses. The increased workload resulting from transitioning to remote service provision was also often not met by increased resources or compensation, a source of great frustration to many.

“Clarify with the insurance what would or would not be paid in case there is a new pandemic.” (id_1393, Switzerland)

“Teleworking is an activity that requires investing more than eight working hours.” (id_1150, Colombia)

3.3.3. Slow systems change

Many respondents commented that systems were slow to change to adopt telehealth at a time when rapid shifts in practice were necessary because of pandemic restrictions. The pace of change did not meet the needs of service providers or users, either locally in the respondents’ workplace or at the national level.

“Permission to telework came more than one and a half months after the start of containment.” (id_1721, France)

3.3.4. Limitations to the technology

Remote service was noted to have shortcomings for some populations due to the very nature of occupational therapy, where much of service provision is dependent on direct and close contact between the provider and client. In addition, service users were sometimes reported to be overwhelmed with receiving services remotely or supporting family members that did, reducing their capacity to effectively engage in telehealth services. Some service users struggled with learning to use technologies required for telehealth services or were sceptical about this mode of service provision.

“It is complicated to work remotely, there are many things that cannot be done from a distance.” (id_368, Mexico)

“I worked from home via home programmes for my young clients. Parents tended to be overwhelmed with online schooling programmes and did not always complete activities presented.” (id_663, South Africa)

3.4. Facilitators

Most comments related to telehealth received from survey respondents outlined recommendations regarding supports necessary to facilitate the use of technology in delivering occupational therapy services. The comments reflected the personal experiences of the respondents in developing and utilising such supports, or conversely, their difficulties in coping with telehealth use in their absence.

3.4.1. Telehealth strategies and guidelines

The rapid transition to telehealth during the pandemic was reported to place respondents in unfamiliar territory, with a steep learning curve for utilising new technology. Respondents recommended guidelines to specify the scope of remote care, particularly to recognise potential limitations of telehealth and identify when in-person care is vital. Concern was expressed that telehealth use may be generalised to all areas of practice, without due consideration of the needs of vulnerable individuals. Managers were seen to play an important role to assist with the integration of telehealth into the workplace to implement guidelines and ensure availability of required technology and online platforms.

“Offer guidelines on how we continue providing our services to meet the demands of our clients either through telehealth or one on one.” (id_481, Kenya)

“More structured way of doing remote work, as well as a pandemic preparedness meeting every now and then so we don’t have to make a telehealth program from scratch.” (id_369, Singapore)

3.4.2. Policy and promotion

Guidelines and managerial strategies alone are not sufficient to ensure the appropriate integration of telehealth in occupational therapy service delivery. Respondents also voiced the need for defined policy and regulations relating to telehealth to address issues such as access to technology and recognition and reimbursement of services. As such recognition requires public acceptance and trust, respondents indicated that telehealth requires promotion as a valid and appropriate form of service provision that can meet the needs of service users. Dedicated research and broad dissemination of evidence regarding the value of telehealth was considered a key component in promoting the utilisation of this mode of service delivery in an occupational therapy context.

“Please, set the record straight and defend telehealth for occupational therapy while this pandemic scenario lasts. It’s safer, it’ll save lives; ourselves and our clients.” (id_882, Brazil)

“Advocate for increasing proficiency in telehealth and other forms of remote service provision.” (id_2669, Philippines)

3.4.3. Training and education

Training was the most frequent recommendation of respondents for the use of telehealth strategies, as many struggled to adapt to utilising technology for service delivery. Such training was recommended
for service providers, as well as service users to equip both with the necessary knowledge and skills for remote care to be effective and safe. Comments from occupational therapy students and educators also encouraged the inclusion of telehealth practices in the curriculum for entry level occupational therapy education programmes. A lowered fear of technology through exposure to such strategies as a student may well facilitate later adoption of telehealth during practice. Respondents also urged educational institutions to use telehealth in the teaching of students to reduce disruptions to their education during the pandemic, for example, through online course modules or remote supervision for fieldwork/practice placements.

“Consider pushing colleges to add telehealth into their OT programs. No new grad expects to graduate and be forced into a telehealth job right out of school.” (id_1824, United States)

“It is necessary to train in technologies for the support of family members and users of our intervention.” (id_780, Chile)

4. Discussion

Findings confirm that telehealth played a significant role in facilitating occupational therapy service continuity during the pandemic. Among respondents working during COVID-19, approximately half (49%) reported using telehealth in their work, often fully replacing in-person interaction. In-person interaction was reported by respondents to decrease by an average of 54% of time spent at work during this period, with a corresponding rise in the use of technology enabled remote practice. Unsurprisingly, the Pearson’s chi-square test indicated a significant association between communities in full lock-down and telehealth usage.

Respondents that used telehealth were more likely to feel safe and satisfied with their work during the pandemic. Comments indicated that many also found benefits of telehealth for the needs of service-users, including greater convenience and self-empowerment in use of intervention strategies. Many recommended the long-term integration of remote work strategies for their practice. These results suggest telehealth is a crucial adjunct to in-person service for provision of occupational therapy, even in a future post-pandemic era.

As the adoption of telehealth is dependent upon end-user acceptance, support is essential to help providers use technology in service provision. Recommendations made by respondents highlight the importance of training in the use of technology, as well as education regarding the appropriate scope of use within occupational therapy and procedures for billing and reimbursement practices. Integration of telehealth strategies into entry-level education programmes was seen as a starting point to promote technology use among future occupational therapists.

A vital consideration for integration of telehealth in occupational therapy is policy and funding that supports technology use. Seventy percent of telehealth users reported that policy changes were necessary to enable use of telehealth in their work; however, many perceived the pace of systemic change as too slow to keep up with the emerging needs of providers and service users. In particular, lower socioeconomic and remote communities were seen as disadvantaged by a lack of access to information and communications technology required for telehealth, compounding barriers to receiving occupational therapy services. Robust research and evidence dissemination, in addition to advocacy, were recommended to create awareness of the benefits of telehealth and influence policy to promote availability and access to needed technological resources.

With the urgent need to find alternate ways to provide occupational therapy in the early days of the pandemic, many respondents stated they were required to transition to virtual models without proper guidelines to support them. Only one-third of respondents using telehealth implemented outcome measures to evaluate their services as a part of their procedures for remote practice. While this finding likely reflects the volume of change and the speed of action required to avoid service disruption during the pandemic, the need for outcome measurement requires reconsideration. Data collection regarding the effectiveness of telehealth services will be vital to ensure the appropriate adoption of technology in the provision of occupational therapy.

The reported findings are based on a survey circulated in early 2020, when the need to transition to telehealth services and community restrictions was still very new. Viewing these results in the current context, it is important to acknowledge that much has been learned since COVID-19 was declared a global pandemic in early 2020. Resources from many occupational therapy professional associations are now available, including online telehealth guidelines, provider reports, billing procedures, information on funding schemes and guidance regarding e-learning during the pandemic [11–15].
4.1. Limitations

Several limitations must be considered when interpreting these findings. Firstly, individuals residing in high-income countries are over-represented in the survey responses. Important facilitators and barriers that are prominent in lower-income countries may be underreported and therefore underestimated when analysing the results. Another important limitation to this study is the lack of data collected regarding the demographic characteristics of respondents, such as age, gender and years of experience in occupational therapy. These are variables that possibly could offer further explanation and insight to observed differences between telehealth users and nonusers, as well as providing further context to the thematic statements. Thirdly, unfamiliarity with the scope of technology use defined by the term ‘telehealth’ may have led respondents to underreport their utilisation of this form of service provision.

5. Conclusion

This study advances understanding of the current scope of occupational therapy telehealth practice in the context of the ongoing COVID-19 pandemic. Findings revealed a significant change to telehealth practice in the first few months of the pandemic. While safety and service continuity were primary factors for transitioning to remote practice, other benefits were recognised for both occupational therapy providers and service users. Despite reported challenges and turmoil associated with a rapid change in practice, the success of the use of technology for service delivery during the pandemic led to recommendations for the long-term adoption of telehealth as an adjunct to traditional in-person contact.

Findings of the survey raise important considerations regarding the facilitators and barriers that impact the full potential of telehealth use in occupational therapy. As the COVID-19 pandemic continues, it is reassuring to observe that the occupational therapy community is learning from early experiences to offer improved guidance, support and resources for telehealth service delivery. Nevertheless, the use of telehealth remains a new experience for many occupational therapists. Spearheaded efforts are therefore required to ensure that the standard of care provided using telehealth strategies remains equivalent to in-person contact and complies with all jurisdictional, institutional, and professional regulations and policies governing the practice of occupational therapy [2].

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Conflict of interest

The authors declare that they have no competing interests.

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