The Consequences of COVID-19 Pandemic on Occupational Therapy Practice: A Systematic Review

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Abstract

Introduction: COVID-19 circumstances and related restrictions affected health care service delivery. Health care service delivery, including occupational therapy, transitioned from usual face-to-face therapy to telehealth. Purpose of the systematic review was to examine the experiences using telehealth in occupational therapy. Methods: PubMed, Science Direct, CINAHL, Cochrane, OT seeker, Web of Science, and the Sage journal databases was searched. The PRISMA protocol was followed and applied to the review. Articles not including occupational therapy, letters to editor and editorials were excluded from the review. Evidence levels for the articles were determined based on the ranking system by OCEBM Levels. Results: Articles describing the use of telehealth in occupational therapy services were included. Eleven studies rated levels V, IV, and II reached the review criteria and five themes were identified. The emerged themes were: (a) development of new skills, (b) therapist attitudes toward telehealth, (c) user satisfaction with telehealth services, (d) need for interprofessional collaboration, (e) positive and negative factors in service delivery. Conclusions: There is limited evidence on occupational therapists’ perceptions in using telehealth during the COVID-19 pandemic. Not only occupational therapists but also other health professionals should be more encouraged and supported by teams, management, and policies to be part of telehealth services in times of pandemics. Innovative strategies should be developed in occupational therapy to provide continuous service delivery aimed in maintaining occupational therapy goal, engagement, and participation for occupational therapy users. Providing telehealth services, not just in occupational therapy, should be administered and supported through legislation.

Keywords: Telehealth; Telemedicine; Occupational therapy; Covid 19

Introduction

On December 31, 2019, the WHO China Country Office was notified of cases of pneumonia of unknown aetiology (unknown cause) detected in Wuhan City, Hubei Province. From December 31, 2019, to January 3, 2020, a total of 44 cases with pneumonia of unknown aetiology were reported by national authorities in China to WHO. During this reporting period, the causative pathogen was not identified [1]. In comparison, in Slovenia with a population of two million, as one of the smallest European countries, infection with coronavirus was detected on March 4, 2020. The government declared the pandemic from 19 October 2020 until 15 June 2020 [2].

Everyday life suddenly changed and occupational therapists work related habits, routines, or roles had to be reorganized. Occupational therapists had to face change and consequences due to pandemic.

The importance of Occupational therapy profession that enables people across the lifespan to do the things they want and need to do through various occupations became even more important. Occupational therapy practitioners tried to enable people of all ages to cope with everyday life during the COVID-19 pandemics in order not to lose daily routines of roles and habits.

Occupational therapy services typically include: an individualized evaluation, during which the client/family and occupational therapist determine the person’s goals; customized intervention to improve the person’s ability to perform daily
activities and reach the goals, and an outcomes evaluation to ensure that the goals are being met and/or make changes to the intervention plan [3]. Consequently, the occupational therapy process had to be modified due to COVID-19 circumstances and the COVID-19 pandemic lockdown measures caused a great impact on occupational therapy service delivery. Rehabilitation and other services delivering occupational therapy had to quickly change the way occupational therapy services has been delivered so far. Telehealth has been a known possible medium in providing service, but it hasn’t been implemented as much in a period before the worldwide COVID-19 pandemic [4,5].

Telehealth, a broad term that encompasses both telemedicine and telerehabilitation, refers to the use of electronic information and telecommunications technologies to provide health-related services at a distance [6].

Occupational therapy practitioners have a holistic perspective, in which the focus is on adapting the environment and/or task to fit the person, and the person is an integral part of the therapy team. It is an evidence-based practice deeply rooted in science [3] that hasn’t changed during COVID-19 pandemic.

We decided to review what happened with occupational therapy services one year after the start of pandemics due to reorganisation of the health system. Also, we were interested how COVID-19 pandemics effected occupational therapy interventions.

The main research question was: What is the experience of using telehealth in occupational therapy during COVID-19 pandemic?

**Methods**

The literature review followed recommendations of Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines [7,8] is displayed in the PRISMA, as shown in Figure 1.

![Flowchart of search strategy and literature selection process-PRISMA diagram.](image)

**Figure 1:** Flowchart of search strategy and literature selection process-PRISMA diagram.
The data was collected in March 2021. Articles published between March 2020 and February 2021 have been reviewed. Key search terms were developed by authors and were selected from a proposal of key words that was prepared by the occupational therapy practitioners focusing on occupational therapy services delivery during pandemic. The literature search was conducted using the following databases: PubMed, Science Direct, CINAHL, Cochrane, OTSeeker, Web of Science and SAGE journals database.

Several combinations of selected search words in the English language were prepared and used with Boolean operators AND: "telehealth", "telemedicine", "occupational therapy", "Covid 19".

The inclusion criteria were based on articles published in English that described interventions within occupational therapy practice during the COVID-19 pandemic. Articles not including occupational therapy, letters to editor, editorials and articles with no access to full text were not included in the study. The total number of all search results was 577. In the first review, first author removed all articles not relevant to the research question. The initial review of the titles by the first two authors resulted in the exclusion of 544 articles and the removal of 17 duplicate articles. The authors reviewed abstracts and full text of the remaining 33 articles using the inclusion and exclusion criteria. The 11 articles were included in the final selected review and 5 (46%) articles provide Level II studies, 2 (18%) articles provide Level IV studies, and 4 (36%) articles provide Level V studies. Evidence levels for the articles were determined based on the ranking system by OCEBM Levels of Evidence Working group [9].

The first two authors independently reviewed the articles for inclusion based on specified criteria, discussing any discrepancies until they reached agreement. The third author was the leader of the research. Full-text articles were evaluated for inclusion independently by all three authors.

A risk-of-bias analysis was completed for each article to determine whether the study presented a low, moderate, or high risk of selection, performance, detection, attrition, and reporting bias. The evidence table and risk-of-bias analyses were reviewed by third author.

Ratings related to the strength of evidence were based on the guidelines of the U.S. Preventive Services Task Force [10], as follows:

- **Strong evidence** - Consistent results from rigorous studies, usually at least two RCTs.
- **Moderate-strength evidence** - 1 RCT, 2 or more studies with lower levels of evidence, or some inconsistency in findings across otherwise rigorous studies.
- **Low-strength evidence** - Few studies, a group of studies that do not include an RCT, or studies with methodological flaws.

**Results**

Included articles were summarized in an evidence. Table 1 that included the year of publication, author, brief descriptions of, study design, level of evidence, risk of bias, participants, inclusion criteria, study setting, intervention group, control group, outcome measures and results.

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Level of evidence, study design, risk of bias</th>
<th>Participants</th>
<th>Intervention and control groups</th>
<th>Outcome measures</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbatemarco et al. [11]</td>
<td>Level 5 Retrospective study Risk of bias: high</td>
<td>N=1637 Inclusion criteria: MS patients Study setting: clinic-centre for MS</td>
<td>Intervention group: person centred multidisciplinary care Control group: /</td>
<td>Patient satisfaction survey on service satisfactory</td>
<td>Patient’s appreciation for flexibility and access to service.</td>
</tr>
<tr>
<td>Reference</td>
<td>Level</td>
<td>Study Design</td>
<td>Sample Size</td>
<td>Inclusion Criteria</td>
<td>Study Setting</td>
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<tr>
<td>Abbot-Gaffney and Jacobs [12]</td>
<td>Level 2B</td>
<td>Systematic mixed method, quasi experimental, participatory research</td>
<td>N=43, OT unfamiliar with telehealth; N=22, OT familiar with telehealth</td>
<td>Intervention group: Online educational program about telehealth; Control group: OT already familiar with telehealth</td>
<td>Study setting: school based OT</td>
</tr>
<tr>
<td>Camden and Silva [13]</td>
<td>Level 5</td>
<td>Perspective paper</td>
<td>N=72 (OT&amp;PT)</td>
<td>Intervention group: Reflections from therapists using telehealth; Control group:</td>
<td>Study setting: virtual conference</td>
</tr>
<tr>
<td>Hoel et al. [14]</td>
<td>Level 2B</td>
<td>Quantitative survey research</td>
<td>N=2750 (Ots from 100 countries)</td>
<td>Intervention group: 30 item survey on quality and delivery of practice, research and education within OT practice; Control group:</td>
<td>Study setting: Web</td>
</tr>
<tr>
<td>Citation</td>
<td>Level</td>
<td>Design</td>
<td>Risk of bias</td>
<td>Study Setting</td>
<td>Intervention</td>
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<tr>
<td>Lai et al. [15]</td>
<td>Level 2B</td>
<td>Pre-test-post-test design</td>
<td>Moderate</td>
<td>Community dwelling people with cognitive impairment</td>
<td>N=60 (30 patients, 30 caregivers; M age-care recipient 72.73 years; M age-caregiver 71.8 years)</td>
</tr>
<tr>
<td>Jesus et al. [16]</td>
<td>Level 5</td>
<td>Authors perspective on the base of ‘system thinking lens’</td>
<td>Moderate</td>
<td>Community dwelling people with cognitive impairment</td>
<td>Participants:</td>
</tr>
<tr>
<td>Langlois, et al. [17]</td>
<td>Level 5</td>
<td>Expert opinion</td>
<td>High</td>
<td>Community dwelling people with cognitive impairment</td>
<td>Participants:/ Inclusion criteria:/ Study setting:/</td>
</tr>
<tr>
<td>Rettinger et al. [18]</td>
<td>Level 2B</td>
<td>Retrospective study Cross-sectional survey</td>
<td>Moderate</td>
<td>Community dwelling people with cognitive impairment</td>
<td>N=325 (199 PT, 82 OT, 44 SLT) Inclusion criteria PT, OT, SLT working in Austria Study setting: online survey</td>
</tr>
<tr>
<td>Authors</td>
<td>Level</td>
<td>Study Type</td>
<td>Risk of bias</td>
<td>N=211 (patient &amp; patient care advocate)</td>
<td>Intervention group: tele rehabilitation OT; PT &amp; SLP</td>
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<tr>
<td>Tenforde et al.</td>
<td>Level 4</td>
<td>Survey study</td>
<td>moderate</td>
<td>Inclusion criteria adult and paediatric clients included in PT, OT &amp; SLP</td>
<td>Study setting: hospital</td>
</tr>
<tr>
<td>Winship et al.</td>
<td>Level 4</td>
<td>A case study</td>
<td>moderate</td>
<td>N=111 (older adults) + students of OT, nursing &amp; pharmacy</td>
<td>Intervention group: telephone conference call to provide continuous support in management of chronic disease 1/week/average 20 minutes, for 2.5 months</td>
</tr>
<tr>
<td>Zahoransky and Lape</td>
<td>Level 2B</td>
<td>Quasi experimental pre-test-post-test pilot study</td>
<td>low</td>
<td>N=9</td>
<td>Intervention group: individualized OT home health intervention via a combination of on-site (range 45-75 min) and telehealth (23 -42 min)/8 weeks</td>
</tr>
</tbody>
</table>

We can summarise, that important to the new category of skill development are technical knowledge [14,18], political support [14,16,18], association resources [18], and adaptation of interprofessional education [20].

### Attitudes of therapists towards teletherapy

Moderately strong evidence from three studies [13,14,18] supports therapist attitudes toward teletherapy (Level 5 [13], Level 2B [14,18]).

Rettinger, et al. [18] reported participants attitude change towards telehealth, due to pandemics. Differences between the studied professions, lack of reimbursement by health insurance companies, uncertain legal situation, and lack of competence, information and training, lack of technical skills are some of the reasons for not offering telehealth. In all three studies [13,14,18] we found common reasons influencing therapists’ attitudes towards telehealth. On the other hand, these studies also have some limitations, such as demographic characteristics of the respondents or income levels in these countries.

### User satisfaction with telehealth services

Low level evidence from one study [11] displays user satisfaction with telehealth services (Level 5). Medium-level evidence from three studies [18,19,21] supports user satisfaction with telehealth services (Level 2B [18,21]; Level 4 [20]) and low-quality evidence from one study [21] indicates user satisfaction with telehealth (Level 2B [21]). Virtual management using existing infrastructure that can be widely used to care for patients with chronic conditions showed to be useful because therapeutic treatments could be tailored remotely to each patient’s unique clinical picture. Also, despite the barriers, patient satisfaction was stable during these challenging times [11]. Next, user satisfaction is sometimes a reason why the patient has taken on more responsibility in the new setting [18]. Satisfaction with telehealth is related to participant’s gender, with female participants being more motivated to use telehealth and their perceptions are significantly higher. In addition, women also face barriers to accessing traditional care when managing responsibilities, balancing work, household, childcare, and caregiving tasks [19]. Further, limiting service delivery to address quality of care and client satisfaction has been recognized by COVID-19 as a
possible model of service delivery for health care. Stakeholders used the Canadian Occupational Performance Measure (COPM) to measure participants’ perceptions of occupational performance and satisfaction from the start to completion of the occupational therapy intervention. Client satisfaction and perception change in scores were statistically significant, when comparing the intervention with in-person or telehealth [21]. Finally, when we tailor treatment to the needs of the individual, user satisfaction may be the same regardless of the method of delivery in-person or online.

Need for interprofessional cooperation

Need for interprofessional collaboration was supported by one study [17], with high strength of evidence (Level 5) and one study [20] with moderate strength of evidence (Level 4). Current pandemic is a unique opportunity for educators, practitioner researchers to retain what has served for interprofessional education and practice in the past, in comparison what has not worked, to predict the new. It is important to clarify, that team structure includes interprofessional teamwork, interprofessional collaboration, interprofessional coordination, and interprofessional networks. Interprofessional teamwork has a shared team identity, clear tasks, independence, integration, and shared responsibilities [17]. COVID-19 pandemic also provides experimental opportunities for students to practice team collaboration skills [20]. Regardless of the situation, it is necessary to develop and follow the rules of interprofessional collaboration in the holistic treatment of the patient to treat the patient in an interdisciplinary manner.

Positive and negative factors in service delivery

Moderately strong evidence from three studies [11,14,15] supports both, positive and negative factors in service delivery (Level 2B). Positive factors or benefits of telehealth use include access to services, team member collaboration, productivity, efficiency, schedule flexibility, student engagement, internet reliability, familiarity with technology, and inability to perform hands-on interventions during a telehealth session [12]. Furthermore, interventions that provided telehealth through videoconferencing were cited as an example of positive effects for community-dwelling older adults with neurodegenerative impairments and their caregivers, where positive effects were observed across all measures [15].

On the contrary, negative factors are also very important, where practitioners and patients need more technical knowledge, flexible policy support and rapid response to new situations [14].

Summary of Evidence

The purpose of this literature review was to find out how the occupational therapy service delivery has change and what was the impact of COVID-19 pandemic on occupational therapy interventions. Until this literature review, no systematic review was found. Few individual studies were published on occupational therapy services including occupational therapy professions and interventions during the COVID-19 pandemic. The articles analysed in this review were classified into five categories that are explained in the results, and point out the direction of focus in occupational therapy during pandemic time.

Moreover, evidence from this review provides additional support for adjustment of occupational therapy service delivery during pandemics time. Participating in telehealth is complex occupation and we agree with Pereira [22] that this is totally new situation within unknown circumstances and must be taken into account where we need to consider the user experience, the knowledge, skills, abilities, technology, connectivity and funding on both sides, as it relates to practitioners and users. Additionally, occupational therapists can help formulate strategies for lockdown. We can develop innovative strategies and therapeutic interventions to facilitate individual’s engagement in occupations [4], despite of feeling less competent and the need for new skills development [14,16,18].

To conclude, findings suggests that management at various institutions and education system should be more supportive, flexible and enable occupational therapy practitioners’ maintenance of intervention in outpatient settings using telehealth [23].

Limitations

The findings of this literature review are limited by the limitations of the individual studies. First of all, we found no studies Level I. All studies included in final analysis were level II or less, with mostly moderate or low strength of evidence. Secondly, most of the studies analysed had moderate or high risk of bias, lack of random sampling and lack of control group. Also, some of the studies included had small sample size. Therefore, this may decrease the validity of our results.

Conclusion

This literature review has the following implications for occupational therapy practice, education, and research:
- Telehealth has an important role in facilitating continuity of occupational therapy services during the pandemic.
- Guidelines and evidence supporting the use of the telehealth are crucial for development of occupational therapy practice.
- Public health system should enable employment in telework, addressing new demands in occupational therapy service delivery.
- Telehealth highlights the importance of knowledge and new category of skill development and technical knowledge for implementation occupational therapy services.
Current pandemic is a unique opportunity for building interprofessional teamwork, interprofessional collaboration, interprofessional coordination, and interprofessional networks.

The evidence of this literature review could support the change in occupational therapy service delivery, although the level of evidence is not high. The change is particularly influenced by occupational therapist’s individual readiness to change, although policy and management still represent an important factor in change. Occupational therapy is the health profession that can use the advantage of pandemic situation for professional development to satisfy the needs of the client who cannot attend face to face intervention. Thus, this is an important opportunity for further development of telehealth which has already been implemented in the past but has not been systematically planned for the pandemic. The level of its effectiveness in this review is not high, however now is the opportunity to systematically collect the data on the effectiveness and satisfaction with occupational therapy service delivery through telehealth, with an emphasis on specific types of interventions.

Further research in this area is recommended since new research is emerging all the time. Innovative strategies should be developed in occupational therapy to continuously provide service delivery to maintain occupational therapy goals, engagement, and participation. Telehealth should be applicable when appropriate and supported by policy.

References