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How Have Occupational Therapy Services Been Delivered During the COVID-19 Pandemic?

Hulya Yucel1

Selen Aydoner2

1. University of Health Sciences
2. Fenerbahçe University

Turkey

**ABSTRACT**

The provision of traditional healthcare services has encountered obstacles due to the Coronavirus Disease-2019 (COVID-19) pandemic. The inability of healthcare professionals and clients to survive the pandemic and the inadequacy of personal protective equipment have created uncertainties regarding the appropriate practices for addressing individuals' health conditions. Furthermore, the field of rehabilitation, including occupational therapy, has experienced changes in the delivery of traditional practices. Therefore, this review aimed to examine occupational therapy services delivered during the COVID-19 pandemic. As a result of the literature review, the most commonly provided services by occupational therapists during COVID-19 were discussed and a total of 87 references were accessed. These services were grouped under the headings of acute/intensive care unit, post-COVID-19, telerehabilitation, preventive mental health, school-based occupational therapy, occupational therapy education, and ergonomics. It was seen that occupational therapists had several challenges during the pandemic. They had to adapt their interventions according to the new conditions and so they have frequently used technology. It is crucial for the effectiveness of the rehabilitation that occupational therapy services continue in challenging and unexpected situations such as the COVID-19 pandemic. It is necessary to strengthen future occupational therapy practices based on standards through collaboration among occupational therapists. It is believed that this review will shed light on the role and importance of occupational therapy during the challenging COVID-19 pandemic.

**Keywords:** COVID-19, occupational therapy, rehabilitation, practice, participation.

**INTRODUCTION**

Throughout history, people have faced numerous epidemic diseases and have developed preventive and protective approaches to survive with them. In the present day, the Coronavirus Disease-2019 (COVID-19) pandemic has highlighted the need for response and awareness.1 From an occupational therapy perspective, the changes in the challenging COVID-19 pandemic have particularly adversely affected individuals' engagement in meaningful and purposeful activities known as "occupations." It has led individuals to experience difficulties in participating in their daily life occupations or becoming unable to perform these occupations.2 Some examples of the difficulties experienced include children being unable to play in the playground with their peers and vulnerable older adults being isolated at home, particularly in terms of leisure time.3,4 When viewed from a community perspective, many economies have reached a point of collapse, and unemployment has increased. Therefore, the COVID-19 pandemic has had a profound impact on individuals' and communities' health and well-being.5

Occupational therapy is a healthcare discipline that provides services to individuals of all ages, groups, and communities to facilitate participation in occupations within home, work, and school environments. Occupational therapists promote individuals' active and productive engagement in daily life by using evidence-based interventions that are person-centered and environmentally focused, including skills training, group work, and self-management strategies.6 The aim of occupational therapy interventions is to reduce barriers that affect individuals' physical, cognitive, and psychosocial health, as well as their occupations and the environments in which occupations occur. One of the essential points of occupational therapy is the experience of difficulties in participation, which can disrupt individuals' roles, routines, values, and consequently, their activities of daily living. These participation difficulties that affect engagement in daily activities pose risk factors for accessing resources, mobility, communication, social isolation, and employment.7 The COVID-19 pandemic led to individuals being unable to fulfill their roles, routines, and occupations, thereby bringing face-to-face occupational therapy practices to a halt. However, efforts were made to ensure the provision of mandatory services for certain occupational therapy service users by implementing precautions or exploring new approaches.

The importance of enabling participation in meaningful occupations increased with the continuation of occupational therapy practices during the COVID-19 pandemic.8 Furthermore, the COVID-19 pandemic created new demands for occupational therapy services. Initially, due to the unpredictable course of the disease, occupational therapists were involved in acute/intensive care units and managing the potential symptoms of individuals who had contracted COVID-19.9 Subsequently, telerehabilitation was preferred for service delivery. During this period, the increased duration of staying at home and social isolation led to occupational therapists frequently selecting preventive mental health practices, implementing occupational therapy in schools through remote learning, and focusing on ergonomic practices with the transition to remote work. In summary, the application of occupational therapy services during the challenging COVID-19 pandemic raises curiosity.10 Therefore, this review aimed to examine occupational therapy services delivered during the COVID-19 pandemic. To the best of our knowledge, no previous comprehensive review has been focused on this subject.

**OCCUPATIONAL THERAPY SERVICES**

**Acute/Intensive Care Unit**

During the COVID-19 pandemic, efforts were made to facilitate the recovery of patients to their occupational roles and routines in medical treatment, with rehabilitation and survival becoming central themes. Considering the need to restore individuals' participation in activities of daily living, the role of occupational therapy in hospital-based acute care has been of great importance.11 While most occupational therapists continued to provide services to hospitalized patients during the COVID-19 in the acute care environment, telehealth services using video or phone consultations were utilized for outpatient treatment centers, resulting in a significant decrease in traditional face-to-face sessions.12

During the early stages of the COVID-19 pandemic, occupational therapy services were limited to hospitals with traditional care. However, COVID-19 pandemic provided an opportunity to demonstrate the importance of occupational therapy interventions in intensive care units. Occupational therapists receive training to work in acute care as part of their educational background. During COVID-19, they received additional training on the specialized care needed for the intensive care unit for clients on isolated. In many hospitals, occupational therapists joined and led teams that provided prone positioning for patients with acute respiratory distress.13 However, occupational therapists needed to initiate interventions as soon as possible to prevent potential adverse effects of the COVID-19 disease.

It has been reported that occupational therapy during the COVID-19 pandemic in the acute care environment improved individuals' health status, and reduced hospital length of stay through preventive measures such as early mobilization/rehabilitation and positioning.14 During the COVID-19 pandemic in the acute care environment, the main intervention approaches of occupational therapists included fall prevention and reducing the risk of fall-related injuries, preserving mental health and managing stress, assisting with occupational deprivation, determining the quality of life, preventing delirium, providing counseling related to hospital life, identifying needs in basic activities of daily living (self-care, productivity, leisure, etc.), and instrumental activities of daily living (money management, medication management, etc.). Occupational therapists collaborated with other rehabilitation team members during the pandemic.15

There is limited research on occupational therapy in the acute and intensive care environments. To better address the rehabilitation needs of the community during situations like the COVID-19 pandemic, there is a need for students and clinicians in healthcare-related fields to receive more appropriate and effective education on occupational therapy during acute and intensive care environments.14 Increasing educational opportunities on specific intensive care skills related to COVID-19 and defining the scope of occupational therapy in intensive care would enable occupational therapy to have a significant impact on many individuals and lay a solid foundation in acute care.15

**Post COVID-19**

Most individuals who have had COVID-19 continue to experience symptoms even after recovering from the illness. These persistent symptoms can occur at least four weeks after initially contracting the virus and can manifest as new, recurring, or ongoing health problems. Even individuals who did not experience post-COVID-19 symptoms in the days or weeks immediately following infection may still develop post-COVID-19 symptoms later on.16 Common post-COVID symptoms include respiratory difficulties, fatigue following physical or cognitive activities, difficulties with thinking or concentration, mood changes, and loss of smell or taste.17 These symptoms can even create challenges in performing basic daily activities such as handwashing and dressing. Tasks that may appear simple can be exhausting and difficult for individuals.18

Occupational therapists have shown that management techniques for fatigue play a significant role during activity and rest, especially in the post-COVID-19 period.19 In a study, a virtual platform consisting of an eight-week program designed as group therapy focused on fatigue management. The program emphasized energy conservation principles, quality rest, optimal nutrition, and physical care. Occupational therapists addressed the following topics in the program and developed techniques around different themes related to fatigue management each week (Table 1).20

**Table 1.** Fatigue Intervention as a Group Therapy in Post-COVID-1920

|  |  |
| --- | --- |
| **Steps** | **Examples** |
| Thinking about the Activity | * Which activities do people find manageable or challenging? * Have you had any experience using an activity diary? Were activity diaries incorporated into daily routines, and if so, how helpful were they? |
| Rating Activity | * How do you ensure that you have a combination of activities? * Do you know when to stop an activity, or do you only stop when your body tells you to? |
| Sleep Hygiene | * What do you think works in improving your sleep to prepare for the next day? |
| Cognition and Communication | * What challenges do you experience regarding your memory and attention? * Can you create any strategies within your daily routines that could be beneficial? |

Occupational therapy has a significant role in the post-COVID-19 period, particularly in the elderly who have lost their autonomy and, consequently, independence in daily life.21 For these individuals, interventions such as providing psychological support for anxiety, depression, and post-traumatic stress, as well as muscle strengthening exercises, could be highly beneficial. These interventions could be delivered in outpatient or home-based therapies. Additionally, telerehabilitation and portable mobile smart technologies can enable practical training.22 Virtual reality technology can also be utilized, as its effectiveness and safety have been proven to be comparable to traditional approaches.23 Overall, interventions for post-COVID-19 rehabilitation are currently limited to assessments, clinical reasoning, and the experience of skilled clinicians, highlighting the need for future research on this subject.23

**Telerehabilitation**

The concept of telehealth is defined as a relatively new field that combines medical science, public health, economics, and internet-related technologies to provide and develop healthcare services and disseminate new information.24,25 Telerehabilitation, on the other hand, emerged as a telehealth approach facilitated through digital platforms to ensure the continuity of service and education during a pandemic, enabling clinicians to deliver healthcare services to clients in different locations or when access to clinics is limited.24 Telerehabilitation offers numerous advantages (Table 2). 25

**Table 2.** Advantages of Telerehabilitation25

|  |
| --- |
| 1. Increasing productivity |
| 1. Improving the quality of care |
| 1. Providing evidence-based practices |
| 1. Empowering consumers and clients |
| 1. Encourage |
| 1. Providing education and information |
| 1. Expanding healthcare coverage |
| 1. Ensuring morality and equality |
| 1. Being entertaining and exciting |
| 1. Providing ease of use |

Telerehabilitation is receiving increasing interest as a service delivery model among healthcare professionals worldwide.26 Telerehabilitation improves access to care for individuals with limited or no access due to weather conditions, limited transportation/travel, and other barriers.15 By enhancing access to quality and cost-effective healthcare services regardless of the client’s location, telerehabilitation could contribute to achieving universal health coverage. It is a valuable service type for remote areas, vulnerable groups, and aging populations. A report supports the use of telerehabilitation, emphasizing the need for further evaluation to determine "best practices".26

In strategies developed for COVID-19, including occupational therapists, all rehabilitation professionals have rapidly adapted their services to telerehabilitation and digital platforms. The disruption of in-clinic rehabilitation practices due to the pandemic has turned telerehabilitation into a singular service type for occupational therapists.13 The use of telerehabilitation as a service delivery model in occupational therapy has been shown to facilitate access to services and professionals, prevent delays in care and service delivery, and promote interdisciplinary collaboration.15 With telerehabilitation, occupational therapists can facilitate intervention coordination, and enhance collaboration and consultation with other professionals.27 Occupational therapists can utilize telerehabilitation for assessment, intervention, education, and prevention of injuries or exacerbation of conditions.15,27 More specifically, telerehabilitation could be applied in various conditions including early intervention, schools, specialized pediatric clinics, hospitals, burn units, productive aging, workplace ergonomics, mental health, inpatient and outpatient approaches, home visits, assistive device evaluation, and training, among others.27

Telerehabilitation, while recognized as one of the ways to cope with the COVID-19 pandemic, is accompanied by certain challenges such as legal regulations, accessibility issues, and data security concerns. In this regard, it is necessary to establish appropriate legal frameworks, expand payment coverage, ensure data security, define quality standards for telerehabilitation, and make infrastructure investments.25 Additionally, the rapid changes in the healthcare system caused by the COVID-19 pandemic have led to recommendations for the long-term adoption of telerehabilitation despite the difficulties and disruptions.6,10 Telerehabilitation is unlikely to replace traditional face-to-face care, but it should be considered as an important adjunct or additional care model in the post-pandemic era.15

**Preventive Mental Health**

The increased duration of individuals staying at home during the COVID-19 pandemic has disrupted their social rhythms and normal daily routines, leading to elevated levels of stress, anxiety, and fear.23 Due to the isolation in the COVID-19 pandemic, psychiatric cases emerged, occupations were adversely affected, mental illnesses relapsed, and functional impairments were experienced.28

Occupational therapy has an important role in maintaining the activities of daily living of individuals severely affected by the COVID-19 pandemic. Evidence-based clinical practice guidelines recommend occupational therapy for individuals with severe mental disorders during both the acute and recovery periods, as it has been proven beneficial in improving social functioning and reducing rehospitalization. However, despite such recommendations, the COVID-19 outbreak has brought about changes in the field of mental health. During COVID-19, telecommunications methods, serving as an alternative to face-to-face meetings, were implemented to mitigate the consequences of communication gaps.29

Telecommunication and telerehabilitation have been shown to not disrupt the therapeutic relationship in the field of mental health and have demonstrated positive outcomes in terms of client satisfaction and feasibility.29 Moreover, telerehabilitation and telecommunications methods are believed to be effective in improving individuals with severe mental disorders, although further research is needed.29 In addition to these methods, other forms of communication such as messaging, social networking applications, or mobile applications can provide support to individuals during the pandemic.

During the pandemic, COVID-19 clients experienced psychological problems such as depression, anxiety, and sleep disorders due to hospitalization and isolation.30 Jung et al. chose a face-to-face intervention and implemented the program to improve the mental health of isolated COVID-19 clients in the hospital. Physical activities and handicrafts were performed to increase participation in activities, and education related to COVID-19 was provided. It was observed that the intervention was effective in improving anxiety, depression, and sleep quality.30

In a study conducted in Ireland, ten occupational therapists working in mental health services were interviewed about their experiences with COVID-19 practices. They mentioned the challenges and impacts on practices of adapting to telecommunication methods. Despite the changes in traditional practices, occupational therapists emphasized their willingness to adapt to such communication methods in order to continue their interventions. However, it was also emphasized that occupational therapists were eager to return to traditional methods due to the disruption in their professional roles. The study also highlighted the importance of face-to-face interaction with others and the vital role of assessments in occupational therapy practices in mental health.28

Due to the fear of physical contact and the lack of appropriate protective equipment during COVID-19, occupational therapists had limited face-to-face communication with clients.6 Therefore, telecommunication practices were employed with individuals, but occupational therapists faced various obstacles during the pandemic such as technical difficulties, unfamiliarity with telehealth, and the loss of non-verbal communication that typically occurs during in-person interactions.30 These findings suggest that occupational therapists had several challenges during the pandemic.

**School-Based Occupational Therapy**

Occupational therapists working at schools play a role in facilitating students’ engagement in meaningful and purposeful occupations and their adaptation to unexpected situations by collaborating with students, parents/caregivers, educators, team members, district personnel, and institutional staff.31 In the school environment, self-care activities encompass some of the most significant occupations that children learn as they mature and involve learning how to perform them. These include activities related to hygiene (handwashing, personal hygiene, toilet hygiene, etc.), eating and nutrition, dressing, bowel and bladder management, and functional mobility, among other subparameters.31,32

In the context of the COVID-19 pandemic, personal hygiene practices and mask usage have become prominent and ingrained at schools. Adhering to proper handwashing and antiseptic use, wearing masks, and maintaining social distancing pose challenges for many students with sensory impairments and disabilities.32 During the pandemic, occupational therapists have employed various interventions and techniques related to hygiene, such as social stories, cards, steps, and materials for handwashing, avoiding touching the face, and refraining from touching others, as well as maintaining cleanliness in the classroom. Regarding mask usage, occupational therapists can make recommendations after assessing relevant factors including the students’ health, preferences, and relevant skills. Throughout the pandemic, occupational therapists have utilized different-textured masks for students with tactile sensory sensitivity or defensiveness, visual materials, masks with different designs, windowed face shields for students who struggle with mask-wearing and hearing, masks attached to favorite hats with added buttons for students, and masks with velcro for easy fastening.33

The COVID-19 pandemic has not only affected the self-care occupations of children attending school but also disrupted their routines and social participation in a negative way. The routines of many children have been severely disrupted due to social distancing rules and school closures.34 Furthermore, the situation becomes even more complex for children with disabilities. Routines are particularly crucial for children with Autism Spectrum Disorder, and during the pandemic, students have faced increased difficulties in maintaining a consistent schedule at home, similar to their regular school days, and carrying out their tasks at home as they would at school. To address this, creating a visual calendar encompassing all routines has been proposed as a useful option to ensure the continuity of activities and provide information on "where," "how," and "when" they will be performed.35 Social participation is essential for students, and adjusting to social distancing is particularly challenging for some individuals. While they may find the concept of social distancing comfortable, sustaining it proves difficult for many. To address this, using videos to explain social distancing, incorporating games or appropriate activities to enhance the understanding of personal space, employing visual markers (e.g., chalk, tape, cones), engaging in socially distanced games, establishing clear rules regarding social distancing, configuring the classroom layout (desks and chairs), and finding virtual social connections have proven beneficial in addressing virtual social participation.36

The COVID-19 pandemic has not only adversely affected occupations but also led to session cancellations for school-based occupational therapists. During the pandemic, school-based occupational therapists have continued to evaluate students and implement intervention plans using telerehabilitation, aiming to replicate the school environment.36 School-based occupational therapists effectively utilize telerehabilitation in various areas, including following instructions, enhancing social skills, addressing motor control issues, feeding disorders, and autism spectrum disorder, as well as providing parent coaching.15 Telerehabilitation has been shown to increase access to care at schools, provide care to students who cannot attend in-person therapy sessions, and result in cost savings.36

**Occupational Therapy Education**

The experiences during the pandemic serve as a guiding factor for innovations in occupational therapy education and are crucial for ensuring the continuation of occupational therapy education in a healthy manner. During the COVID-19 pandemic, educators were required to swiftly transition all teaching and assessment activities to an online environment. As a result, all classes, simulations, practical applications, assessments, etc., were adapted and made available in an online format.37

The transition to online learning during the COVID-19 pandemic has created inequalities among students. They were disadvantaged when they did not have access to the internet at home. This was particularly noticeable in the COVID-19 online learning environment where alternative options for computer and internet access, such as public libraries or university campuses, were not available to all.38 Additionally, the transition to remote learning has given rise to a new phenomenon called "Zoom fatigue" (fatigue, anxiety, and worry resulting from the excessive use of virtual video conferencing platforms).38 Some students have found benefits in remote learning as it offers a time and location-independent learning environment, while others have experienced stress due to social isolation, technological issues, time management, and motivation.39

Students' perspectives regarding online education during COVID-19 were evaluated using SWOT analysis. According to the findings of the study, the majority of students identified the ability to review the lessons as a strong aspect of online education, while the weak aspects were highlighted as internet connectivity issues and audio/visual disruptions during classes. Furthermore, the study suggests that if students can effectively manage their time during online education, it can support their participation in leisure activities, thereby positively influencing occupational balance.40 Similarly, Pekcetin and Gunal emphasized the implementation of web-based time management during the COVID-19 pandemic to support students' occupational balance and contribute positively to the educational process.41 On the other hand, Yucel et al. showed that coronaphobia caused academic procrastination in health sciences students.39 Apart from occupational therapy students, it has been noted that asking the question, "How can I enhance my current teaching strategies to help my students achieve the goals I set for them before the pandemic?" plays a critical role during the COVID-19 for occupational therapy faculty academicians.42 In summary, based on the experiences during the COVID-19 pandemic, the following actions could be considered for future unexpected situations in occupational therapy education: providing technological support, regularly obtaining feedback from students, intensifying visual-based education, and conducting web-based time management training.37

**Ergonomics**

Ergonomics focuses on the physiological, biological, and psychological characteristics of individuals to design and create work environments suitable for these characteristics, enabling users to work without strain. Therefore, ergonomics is a multidisciplinary research area.43 The mandatory isolation during the COVID-19 pandemic and the resulting shift to remote education and work have brought about numerous ergonomic changes for students and employees. This situation has increased the frequency and duration of using handheld devices such as mobile phones and prolonged computer-based desk work associated with home-based education or work. The ergonomic problems arising from this context include the lack of ergonomic training/work equipment and a dedicated workspace, the presence of excessive physical workload risks, and the existence of negative psychosocial effects.44

The benefits of remote work during the COVID-19 pandemic include the elimination of commuting time and costs, the flexibility of working hours, the ability to be close to family members, and the ability to wear more comfortable clothing than usual. On the other hand, the disadvantages of the remote work system during the pandemic have been identified as increased risk of musculoskeletal injuries, weakened social connections, a monotonous life confined to the concept of work, decreased adherence to daily ergonomic values, difficulty in communicating with colleagues, decreased physical activity, and an increase in obesity.45

It has been stated that there is not much evidence regarding the ergonomics of workstations in remote work, including home-based work environments required by COVID-19.46,47 For a home office to be ergonomically effective, efficient, healthy, safe, and usable, it should have a designated workspace and designated tools such as a computer, desk, chair, telephone, and internet connection.46 However, with limited knowledge of how to properly set up a solid ergonomic workstation, many home offices lacked the necessary equipment, resulting in many employees working under inadequate conditions.47 With the sudden and unexpected emergence of home office applications during the COVID-19 pandemic, many employees found themselves using commonly used household furniture (such as kitchen tables and chairs, bedrooms, or living rooms) with less ergonomic configurations than usual.47

Due to the inability in home visits during the COVID-19 pandemic, occupational therapists were required to perform workstation setups using telehealth technology. In a study, before the COVID-19 pandemic, remote assessment of a workstation using telehealth technology was suggested.48 There is only one study in the literature that specifically focuses on ergonomics conducted by occupational therapists during the COVID-19 pandemic. Moslander and Jacobs aimed to determine whether a remote ergonomics intervention using telehealth methods would encourage students to make improvements in their workstations and increase their ergonomic knowledge.49

When setting up a home workstation, individuals should utilize ergonomic principles to help prevent computer-related musculoskeletal pain, discomfort, or injury. Based on these principles, the following recommendations have been provided to home office workers and students (Table 3):49

**Table 3.** Ergonomic Practices that are Useful for Home-Office Workers or Students49

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| --- | --- |
| 1 | Adjust the chair height to an appropriate level by placing a cushion on the seat. |
| 2 | Place a pillow or rolled-up towel behind the back to provide lumbar and back support for chairs without built-in back support. |
| 3 | Bring the chair closer to the desk to encourage leaning against the backrest. |
| 4 | If the laptop is too low compared to eye level, use a laptop stand or a large pillow underneath it when using it on the lap to raise the monitor. |
| 5 | Use an external keyboard and mouse to reduce awkward wrist postures. |
| 6 | In a standing workstation, adjust the monitor height to eye level, and directly in front, position the keyboard so that the forearms are parallel to the floor (approximately a 90° elbow angle), and ensure a soft or rounded edge at the working surface height. |
| 7 | If it is not possible to purchase a new chair or determine a suitable seating workstation at home, transitioning between a poorly seated workstation and a standing workstation is the next best practice. |

In addition, during the pandemic, there was a need for occupational therapy interventions to facilitate balanced transitions between various activities at home and ensure effective time management.

**CONCLUSIONS AND RECOMMENDATIONS**

During the COVID-19 pandemic, it has been observed that occupational therapists were unable to fulfill their professional roles. There were numerous individual, organizational, and technical challenges in the delivery of services. Therefore, they had to adapt their interventions according to the environment, technological infrastructure, or the health status of the clients. This review outlines the practices and benefits of the interventions and how occupational therapists created solutions to provide services that meet the expectations of the profession during COVID-19. As a result, we saw occupational therapists frequently use technology. In cases where technology could not be accessed, they provided their face-to-face services with appropriate protective equipment. Interventions for rehabilitation are still limited. Studies show that occupational therapy approaches during the pandemic were effective, but more research is needed to be evidence-based. The lack of sufficient research is a limitation, on the other hand, a situation to be studied. Comparative studies on occupational therapy practices before and during the pandemic could be conducted in the future.

The effects of the COVID-19 pandemic are not over yet, therefore it is necessary to strengthen future occupational therapy practices based on standards through collaboration among occupational therapists. Occupational therapy practices during pandemics are open to further development. Studies are needed to provide high-quality information, resources, and training for preparation for unexpected situations such as pandemics. Solutions could be developed to reach more clients effectively. Consequently, we believe that standardized guidelines for occupational therapy delivery are essential to enhance service quality and sustainability, enabling early response in an emergency or unexpected situations.

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