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Impact of COVID-19 pandemic lockdown on occupational therapy practice and use of telerehabilitation – A cross sectional study

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Abstract. – OBJECTIVE: COVID-19 has become a global public health emergency affecting 223 countries and territories, and it drastically changed the life of public and health care delivery systems. Although many guidelines have been proposed to avoid infection from COVID-19 and to promote the use of telerehabilitation, there is still no clear answer for the current scenario and strategies of therapists' practice during the COVID-19 pandemic lockdown. This study aimed to explore the impact of COVID-19 lockdown on Occupational Therapists' (OTs) practice, the use of telerehabilitation strategies by OTs, and their employment and mental health. Also, this study aimed to explore the OTs perspective on the role of telerehabilitation during this pandemic lockdown.

MATERIALS AND METHODS: Online cross-sectional survey was conducted between April 2020 and May 2020.

RESULTS: 114 OTs completed the survey. The results of this study showed that 52.8% of therapists had stress and anxiety due to COVID-19 lockdown. We found that 60.7% of OTs (n=65) used telerehabilitation, versus 36.1% (n=39) before the lockdown. Telerehabilitation approaches were mostly implemented during this lockdown for children with autistic problems (66.6%), stroke (12.9%), cerebral palsy (6.4%), learning disabilities (9.6%), Parkinson's diseases (1.6%), and other medical conditions (2.8%). 10% of therapists reported that they lost their job, and 76% reported that this lockdown affected their income negatively. Overall, 87.8% of therapists reported that mobile technology was very useful to overcome the stress due to COVID-19 related lockdown, social isolation, and social distancing.

CONCLUSIONS: The COVID-19 pandemic lockdown experiences made us rethink the current approach of therapy services into alternative method (mixed mode) delivery of occupational therapy practice, which is including the combined method of video-based (telerehabilitation) consultation and face to face intervention.

Key Words:
COVID-19, Telerehabilitation, Lockdown, Social distancing, Occupational therapy.

Introduction

Coronavirus 2019 (COVID-19) infection has become a global public health issue, and it has spread in 223 countries. On March 11, 2020, the World Health Organization (WHO) had declared the COVID-19 outbreak as a pandemic, and it has made a huge impact throughout the world. As of March 10, 2020, COVID-19 has affected 117,332,262 people and killed 2,605,356[1]. Since 2020, various non-pharmacological interventions have been implemented around the world, such as social isolation, quarantine, lockdown, and curfew to prevent the spread of COVID-19 infection from the infected person to healthy people. Since the outbreak, government and public health departments around the world have made significant changes in the regulation of health care services. Especially, WHO and various ministry of health – government organizations advised to take more precautionary measures for certain people who are at higher risk for COVID-19 infection, such as older adults, people with diabetes, heart disease, hypertension (high blood pressure), lung disease, cancer, chronic kidney disease[2-4]. Furthermore, to

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reduce the spread of COVID-19 infections, various healthcare experts guided to limit the contact between person with COVID-19 infections and therapists[5,6]; therefore, outpatient appointments have been closed or limited during this pandemic-lockdown period. Some public or private hospitals have been allowed to operate face-to-face rehabilitation services for those infected or suspected of COVID-19. In contrast, rehabilitation service was considered as a non-essential service for acute, subacute, and long-term phases of face-to-face rehabilitation care for patients with COVID-19 in some developing countries, such as Philippines[7]. All these pandemic lockdown and social distancing related restrictions made a huge impact on the rehabilitation world, and it has developed a necessary transition of face-to-face rehabilitation intervention services into online or virtual rehabilitation delivery mode (telerehabilitation) for patients with or without COVID-19 throughout the world. The COVID-19 epidemic has severely affected millions of people, including health workers, in their work, daily and social lives. Although many guidelines have been proposed for public and health professionals to avoid infection from COVID-19, there is no clear answer to how occupational therapists are currently providing therapy for their clients. In many countries, telemedicine or telerehabilitation methods have been recommended by hospitals and international OT governing bodies for providing the treatment for their clients. However, there was no clear answer to the present practice scenario of the occupational therapist by nationally and globally during the lockdown. Therefore, this survey study aimed to find out the impact of the COVID-19 pandemic among occupational therapists and their clinical practice during the period of lockdown. The aim and objective of this study are to explore the impact of COVID-19 lockdown among occupational therapists and their practice, including their employment and mental health, mode of OT practice, and use of telerehabilitation strategies by OTs.

Materials and Methods

Study Design and Settings

This is an online cross-sectional survey study design, which was conducted between April 2020 and May 2020 during the peak rise of COVID-19 cases around the world. The survey study was conducted using web-based google online form. A total of 21 questions were used in the questionnaire, including demographic characteristics of occupational therapists and impact of lockdown on occupational therapy practice and use of telerehabilitation practice. Of these 20 questions, 5 questions were related to demographic details such as age, gender, educational background, and countries; 3 questions were related to types of their clinical practice setting and practicing guidelines during the COVID-19 lockdown, 8 questions were related to telerehabilitation practice, 3 questions were related to the mental health and employment status. Two of our investigators developed this questionnaire, and then it was reviewed, verified, and finalized by all investigators of this study.

Procedures

A convenience sampling method was used to recruit occupational therapist-participants for this survey study. The questionnaire-google form web-link and the participants' information sheet were sent to therapists via online occupational therapists' forum (WhatsApp and Facebook), E-mail, and various popular social media such as Facebook Messenger and WhatsApp. We have informed all participants via information sheet, by participating in this online survey and submitting this form, it will automatically confirm that they agree to participate in this survey. The time frame for collecting the data was one month (April 13, 2020 to May 14, 2020), and three reminder messages were sent to therapists after a week of the first message. The data collection was stopped after one week of the third reminder message to participants. Then, the collected data were retrieved as a CSV file for analysis.

Results

We received responses from 114 participants-occupational therapists. Of the 114 respondents, male and female were 50.9% and 49.1%, respectively and age ranged from 22-66. Most of the participants in this study were from India (84%), and the remaining participants were Bangladesh – 6%, Nigeria – 2%, USA – 2%, Nepal – 2%, and Maldives, Australia, and Saudi Arabia were – 1% (Figure 1). Of these respondents, before the COVID-19 pandemic lockdown, 26.4% of occupational therapists worked in private outpatient rehabilitation clinic settings, 25.4% of them in the University Hospital, 13.6% of OTs:

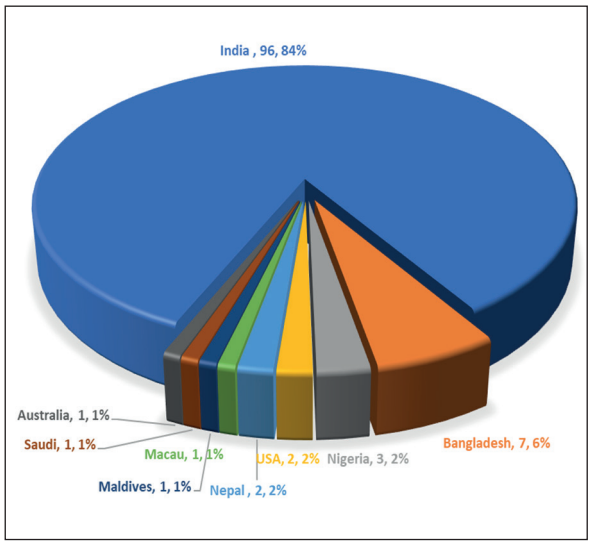

Figure 1. Countries of occupational therapy participants.

Government hospital-rehabilitation department, 11.8% – Specialty Hospital, 9.2%, and community-based OT practice – 10.9%, and practicing in NGOs and others – 2.7% (Table I). However, after the COVID-19 outbreak lockdown, 54.1% of the occupational therapists were not involved in providing therapy services. In terms of practicing guidelines during the COVID-19 pandemic situation, 67.3% of the therapists were received practicing guidelines from their working institutions or national occupational therapy association.

During the COVID-19 outbreak lockdown, 60.74% (65 out of 107 OTs response) of therapists used telerehabilitation for delivering occupational therapy services to their clients (Table II). Among 65 respondents, 38 therapists used smartphone (58.46%), smartphone & laptop – 14 (21.53%), laptop – 5 (7.69%); tablet – 1 (1.53%); smartphones and tablet – 1 (1.53%); smartphones, tablets, and laptops – 6 (9.23%), for providing telerehabilitation services to their clients during the COVID-19 pandemic. At the same time, 36.1% of therapists (39 out of 108 OTs) reported using telerehabilitation services before the outbreak of COVID19, and it was higher than post-COVID-19 telerehabilitation practice. Of the 98 occupational therapists who responded, 6.1% of therapists (6 OTs) provided telerehabilitation services to COVID-19 patients, and 10.2% of therapists (10 OTs) provided post COVID-19 telerehabilitation services.

For the types of telemedicine used in the telerehabilitation service questions, we received responses from 63 respondents. Among 63 respondents, 23.8% therapists (15) used store and forward (transferring images, assessment data for evaluation, feedback) method, 33.33% (21 therapists) used real-time interactive services (video conferences), and Enhanced interactive systems – 2 (3.17%), Mobile health/mHealth-6 (9.52%) and other Real-Time Interactive Services; Store and Forward; Enhanced interactive systems, mobile health/mHealth (RSEM)- 1 (1.58%), Real-time interactive services, store and forward, enhanced interactive systems, remote monitoring devices, mobile health/mHealth (RSERM) – 1 (1.58%); Real-time interactive services (Video conferences); Store and forward, mobile health/mHealth (RSM) –- 4 (6.34%); Store and forward, mobile

Table I. Demographic characteristics of respondents.

Sl. No	Demographic data of OTs		Numbers (%)
1	Age (years)*	≤ 30	65 (57.01)
		31-40	35 (30.7)
		41-50	11 (9.64)
		≥ 50	03 (2.63)
2	Gender	Male	58 (50.9)
		Female	56 (49.1)
3	Education	Undergraduate	51 (44.7)
		Postgraduate	59 (51.7)
		Doctorate	04 (3.5)
4	Practice areas	Private outpatient clinic	30 (26.4)
		University hospital	28 (25.4)
		Government hospital	15 (13.6)
		Specialty hospital	16 (11.8)
		Community-based OT practice	12 (10.9)
		Special school	10 (9.2)
		NGOs	3 (2.7)

OTs: Occupational Therapists.

Table II. Telerehabilitation practice by occupational therapists during the COVID-19 lockdown.

Sl. No	Telerehabilitation practice during the COVID-19 lockdown		Numbers (%)
1	Telerehabilitation practice in the outbreak (n = 107)		65 (60.7)
2	Telerehabilitation practice before the outbreak	–	39 (36.1)
3	Telerehabilitation practice to person with Covid-19 infection (n = 98)	–	6 (6.1)
4	Post COVID-19 Telerehabilitation	–	10 (10.2)
5	Types of devices used for telerehabilitation	Smart phone	38 (58.4)
		Smart phone & laptop	14 (21.5)
		Laptop	5 (7.6)
		Tablet	1 (1.53)
		Smart phones and tablet –	1 (1.53)
		Smartphones, tablets, and laptop	6 (9.23)
6	Types of telemedicine services	Store and forward (transferring images,	15 (23.8)
		assessment data for evaluation, feedback)	21 (33.33)
		Real-time interactive services (Video conferences)	
		Enhanced interactive systems	2 (3.17)
		Mobile health/mhealth	6 (9.52)
		Real-Time Interactive Services; Store and Forward; Enhanced interactive systems, mobile health/mhealth (RSEM)	1 (1.58)
		Real-time interactive services, store and forward, enhanced interactive systems, remote monitoring devices, mobile health/mhealth (RSERM)	1 (1.58)
		Real-time interactive services (Video conferences), Store and forward, mobile health/mhealth (RSM)	4 (6.34)
		Store and forward, mobile health/mhealth (SM)	1 (1.58)
		Real-time interactive services, store and forward (RS)	7 (11.1)
		Real time interactive services & mobile health/mhealth (RM)	3 (4.76)
		Real-time interactive services, remote monitoring devices, mobile health/mhealth	1 (1.58)
		Real-time interactive services, store and forward, enhanced interactive systems, remote monitoring devices (RSER)	1 (1.58)
7	Types of clients	Autism	41 (66.6)
		Stroke	8 (12.9)
		Cerebral Palsy	4 (6.4)
		Parkinson's disease	1 (1.6)
		Learning disability	6 (9.6)
		Others	2 (2.8)
8	Effectiveness and satisfaction of rehabilitation		40 (40.4)

health/mHealth (SM)- 1 (1.58%), Real-time interactive services, store and forward (RS) – 7 (11.11%), Real time interactive services & mobile health/mHealth (RM) – 3 (4.76%), Real-time interactive services, remote monitoring devices, mobile health/mHealth – 1 (1.58%), Real-time interactive services, store and forward, enhanced interactive systems, remote monitoring devices (RSER) – 1 (1.58%). Mostly, the telerehabilitation approach was used among autistic clients (66.6%) and the stroke patients (12.9) during this lowdown period (Figure 2).

However, 40 therapists (40.4%) reported that telerehabilitation is an effective method as face-to-face therapy intervention, and their perspectives and feedbacks are presented in Table III. In terms of employment, among 100 respondents, 10% (10) of occupational therapists lost their job after the COVID-19 outbreak, and 76% (76) of them mentioned that -19 affected their income.

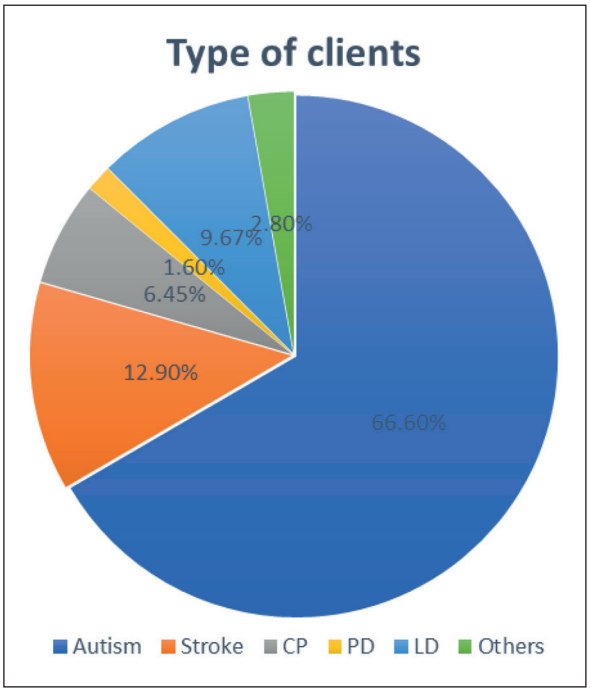

Figure 2. Types of clients treated by telerehabilitation in COVID-19 lockdown.

Moreover, 52.8% (56 out of 106 respondents) of the therapists were feeling anxious and stressed due to the COVID-19 outbreak. Overall, 87.8% of therapists reported that mobile technology was helpful to reduce their stress due to COVID-19 related social isolation and social distancing.

Discussion

This study explored the impact of the COVID-19 pandemic on the practice of occupational therapists, mental health, and the use of telerehabilitation strategies by therapists during the period of lockdown. Due to the coronavirus outbreak lockdown-related restrictions, thousands of rehabilitation care professionals have been facing difficulties in providing rehabilitation services to their clients. The preventive policies of the COVID-19 pandemic, such as social distancing, as well as fear of COVID-19 infection, anxiety, and stress, have limited the outpatient and inpatients rehabilitation services. This emergency situation, the current COVID-19 pandemic, has changed the conventional method of health care delivery into online mode - telehealth technology approach[8,9]. To prevent the rapid spread of COVID-19 infection, in-person clinical visits are temporarily reduced worldwide, including developing and developed countries[10].

During this COVID-19 pandemic, there are many studies discussed the implementation of telerehabilitation for various medical conditions, such as stroke[11], COVID-19[5,12,13], pulmonary rehabilitation[10,14], orthopedic or musculoskeletal disorders[15,16,17], older adults with functional impairments[18], pediatric obesity[8], spinal cord injury (SCI)[19], cardiovascular disease[20], children with special health care needs[21], and the use of telerehabilitation in various settings: community rehabilitation services[9], and telemedicine for other medical conditions such as diabetes[22], breast cancer[6]. Our study results showed that the telerehabilitation approach was highly practiced for children with autism (66.6%), and then followed by stroke (12.90%). One of the previous studies reported that the practice of telemedicine during these COVID-19 infections increased by 8729% over the previous year[23]. Likewise, our study found that a 24.64% increase in using the telerehabilitation approach in this pandemic compared to previous years. However, this current study focused solely on the use of telerehabilitation practice by occupational therapists in the pandemic. On the other hand, based on the Press Ganey satisfaction scores, patient's satisfaction by using telemedicine was higher in the period of COVID-19[23]. Another survey study was conducted among caregivers, adult patients, and rehabilitation professionals during COVID-19 lockdown to measure the participants' perception and satisfaction with telerehabilitation[24]. The researchers found a high level of satisfaction among rehabilitation professionals (physical therapists, occupational therapists, speech therapists), neurodevelopmental therapists, and psychologists[24]. We found that 40.4% of the therapists, out of 99 responses, reported that telerehabilitation is effective as a face-to-face therapy intervention. Based on our data, telerehabilitation has mostly been used for children with autism. However, one of the respondents mentioned that telerehabilitation is very much effective for children with learning disabilities than autism. Although the telehealth approach can be a feasible alternative to outpatient rehabilitation services, it has created many challenges for therapists, patients, caregivers, and other health care professionals. There are several factors that need to be considered to effectively provide telerehabilitation services. For example, the health care provider is facing difficulties in providing telehealth intervention to all clients

Table III. Specific examples of participating therapists' perspectives, suggestions, and their feedback on telerehabilitation during COVID-19 lockdown.

S. No	Participants' identity number	Responded OTs-perspectives and feedbacks
1	Participant 2	"Patients need to understand these methods first. They are used to face to face therapy. It's hard to suddenly shift into teletherapy".
2	Participant 6	"It's an option in this crisis situation but it's also one of the ways of management. So even in the normal situation it should be used periodically".
3	Participant 8	"Facing problem in providing an intensive manual therapy"
4	Participant 11	"Handling by the parents is not up to the level, virtual instruction is difficult to follow by child".
5	Participant. 12	"Lack of knowledge and techniques".
6	Participant 14	"Needs hands on for patients".
7	Participant 16	"Working with pediatric population is quite difficult through telemedicine because they don't follow commands over phone, parental collaboration is 100% in that, many children started exploring other apps in mobile, cybersickness is another point".
8	Participant. 19	"Hands-on techniques can't be used. Difficult to get immediate feedback and constant interaction with clients and their parents".
9	Participant 24	"Lack of awareness"
10	Participant 26	"It is more challenging to direct clients appropriately. My students and I need to be creative with videos for clients to use at home".
11	Participant 31	"Online can't have same as offline. We understand much better when in offline"
12	Participant 39	"Face to face sessions is better in many ways as we can guide and monitor the movements and direct the patients".
13	Participant 42	"In my opinion OT treatment is very much specific and precise treatment to a specific diagnosis or to a client. And it is not just mere theory or medicine u can prescribe to any patient like hearing the diagnosis. It is like handheld surgery with super skills of an OTst, his knowledge and experience will be implemented when doing therapy, so I don't feel by doing telerehabilitation OTst can do justice to the patient and profession. We can just do counselling to the patient but not the entire process of therapy. Therapy is like touch and feel creating bond with the patient and through that OTIST create transformation in patient's body and mind. So, in my opinion telerehabilitation can work as counselling talking with patient but it cannot create a value-based result treatment to the patient. Lastly you cannot teach swimming by showing how to swim in land You need go into the water to learn swimming and it requires both client and the coach in the pool. So telerehabilitation cannot work for our clients especially pediatric cases".
14	Participant 43	"Telerehabilitation although is a very good initiative, but it can't replace the authentic face to face interaction method".
15	Participant 44	"Caregiver were used to believe mainly on Therapist handling".
16	Participant 47	"For children undergoing teletherapy.. I am able to deliver telerehab effectively as face to face. In fact, 2 of my kids.. both with learning disabilities.. Are showing better performance in terms of interest to read and written expression... Like to type or scribe on screen. But for children with severe autism especially nonverbal and hyperactive....are not attendin teletherapy. Only tele-consultation possible. Due to difficulty following instructions by the child."
17	Participant 63	"It is a lot risky process for therapist and for the patient to provide face to face therapy...one should only go for the tele rehab only as it could be effective with no chance of getting virus".
18	Participant 78	"More cautious".
19	Participant 89	"Clients or parents are not satisfied". tele-occupational therapy
20	Participant 95	"Because most of my clients are not literate enough to use telerehabilitation".
21	Participant 108	"Like it's sometimes difficult to handle out kids".
22	Participant 112	"I am not able to give instructions for ASD patients same as face-to-face session who have no eye contact and attention issue"

S. No.: Serial Number.

due to different licensing laws, regulations, and insurance policies for health care providers in different states[25].

In terms of employment, low skilled/low wages workers were mostly affected during the initial phase of lockdowns. Besides, frontline workers or essential workers with low wages (health and care workers (except doctors), cashiers, truck and delivery people, farming workers, housekeeping workers, food processing workers) were put their

health at risk of contracting COVID-19 infection[26]. This COVID-19 lockdown is not only made impact on low wage workers, but it has also affected the employment of health workers. For example, the COVID-19 epidemic caused 1.5 million job loss in health care workers industries in the United States between March and April 2020[27]. The COVID-19 outbreak preventive measures caused a massive impact on the regular income of the therapists. This present study found that 10% of the therapists lost their employment. Among 10% of them, 60% of the OTs worked in the private outpatient clinics, 30% of them were in the university hospitals, and 0.5% of them from specialty hospitals, and 0.5% from special schools.

Although the public health preventive measures, such as social distancing, lockdown, quarantine, have been implemented for preventing the spread of COVID-19 infection, it has induced various psychological, social, and economic issues such as loneliness, social isolation, anxiety, stress, depression, fear of COVID-19 infections. More than 50% of therapists in this current study reported that they suffered from anxiety and stress due to the COVID-19 outbreak. Likewise, previous studies reported that frontline health care workers also suffer from various mental health issues due to the COVID-19 outbreak, such as stress, anxiety, frustration, exhaustion, burnout[28,29], posttraumatic stress disorder (PTSD), suicide[30], insomnia, obsessive-compulsive disorder (OCD), and distress[31]. Especially, nursing workers, young workers, female health workers and frontline health care workers had higher rates of mental health issues than other health care workers[29]. In view of COVID-19 impact on mental health of physical therapists, a previous study reported that 18.5% of physiotherapists experienced depression during these COVID-19 infections, and the depression rate was higher in those age with 50s (37.5%)[32]. Furthermore, their study reported that 32.3% of physical therapists had anxiety during this pandemic; however, to the best of our knowledge, there are no studies reported in the impact of pandemic lockdown on the mental health of occupational therapists. In our report, we found that 52.8% of occupational therapists had anxiety, and it is 20.5% higher than physical therapists. The majority of the occupational therapists (87.8%) reported that mobile technologies were useful to reduce their stress from the COVID-19 lockdown.

Conclusions

This online survey study found that the worldwide lockdown due to the COVID-19 pandemic has significantly impacted occupational therapy and rehabilitation practice in developing and developed countries. The proposed dosage and repetition of the occupational therapy intervention are essential for patients to achieve maximum functional capabilities. However, this pandemic lockdown experience made us rethink the current approach into mixed mode delivery of occupational therapy practice, including video-based (telerehabilitation) consultation and face-to-face intervention. For implementing safe and effective tele-occupational therapy services and reduce the risk of functional decline of persons with disabilities in the pandemic lockdown period, occupational therapists, and researchers should develop the appropriate online therapy program, and online-based physical and cognitive assessment methods, which should be fit to the virtual mode, usable, safe, low cost, and accessible for all. In addition, the service providers must ensure the safety, the necessity of caregiver support based on the requirement and functional abilities of the client, and availability of uninterrupted internet and online resources, and caregiver education.

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Conflict of Interest

The Authors declare that they have no conflict of interests.

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